MS. Thavamalini Sivasamy

(Case Study 2)

Escape Land Management System

Group Members	
Ammar Mohammed Saeed Qaid (Leader)	**TP078135**
Mohammed Baduruddin Haitham	**TP076927**
Omar Alattas	**TP078158**
Choy Cheng An	**TP078958**
Mohammed Ahmed Abdullah Al-Johi	**TP076768**
Abrar Mahmud Taha	**TP074039**

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1.Introduction

1.1Introduction to the Company

NexGen specializes in software business in the context of creation of advanced technologies of the future. Our core competency involves designing and implementing unique information systems that change the face of operations and organizations and their markets' face.

At NexGen, we design solutions using extensive knowledge of the field's trends and tendencies together with the up-to-date software engineering technologies and protocols. Our computer developers, designers, and analysts dedicate their best efforts to guarantee that each undertaking of ours will be the best in every way possible in the overall software development field.

Vision:

To empower businesses with transformative software solutions that redefine efficiency, elevate customer engagement, and inspire innovation in the leisure and hospitality industries

Mission:

For businesses in the leisure and tourism industries to improve efficiency through offering sharpened tools and latest software solutions which will in turn create incredible and memorable employment of their products and services to create and support progressive business growth. This

means that aims blend a sustainable emphasis on progressive advancements in technology, with a steady and pro-active acknowledgement of what the industries need; its aim's calling to redefine the operation of attractions and resorts and therefore their guests.

Motto

"SHAPING TOMORROW'S TECHNOLOGY, TODAY"

Assumptions made:

NexGen identified that most of the Escape Land management processes were still done manually, for example ticketing, reservations, and managing customers' feedback.

As for marketing promotional initiatives – Escape Land does not employ even the most basic analytical tools to assess its marketing initiatives' performance.

All the Operations of Escape Land are handled manually in terms of Tracking and Reporting which result in inefficiencies and inaccuracy.

1.2 Overview of the Present Operational Process:

If one is to analyze the transmission process of knowledge as it is currently being done, the following represents a brief description of the present operational process.

Among the means through which Escape Land operates are, to the extent partially manually and partially through the utilization of computers with a very simple interface. The main operations include:

Ticketing: It is purchased directly off physical location and as a result includes features such as, long queues, at time's extension. The tickets are usually printed and filled in by hand and there is no tracking system in place that monitors the progress of tickets.

Reservations: Resort bookings are made via phone call, some details of bookings as well as the customers are recorded in registers.

Customer Feedback: Some customers get paper-based questionnaires to complete, which allows Escape Land to get feedback on the customers' experiences.

Marketing: Consequently, Interactive Communication is carried out on the social media interfaces and the penetration that is seen and realized is not as effective.

Sales Tracking: As it is relatively less accurate in comparison with the automated calculation of sales revenue, it is normal to see the disparity in the number of monthly sales.

Assumption made:

Integrated Online Booking System:

Online portal for all the attractions; aqua park, safari, resort.

Incorporation of QR code in the ticketing system that works digitally.

Thus, package deals consisting of multiple enterprises' attractions may also prove to be relevant.

Customer Relationship Management (CRM):

Basic customer profiles

A system for collecting Review and feedback

Website Features:

Virtual Park map and information Basically, this proposal entails an application, which will assist people with various information about the park including the location of different facilities in the park.

Real-time availability updates:

This means that buying of tickets and packages can be done online.This is a proof of concept for a simple content management system for updating offers and services.

Revenue Tracking:

Single, clear and compact sales dashboard for all the attractions the client wants to acquire.

Monthly financial reporting capability

Social Media Integration:

Social media buttons that lead directly to the booking page

Basic engagement tracking

The diagram

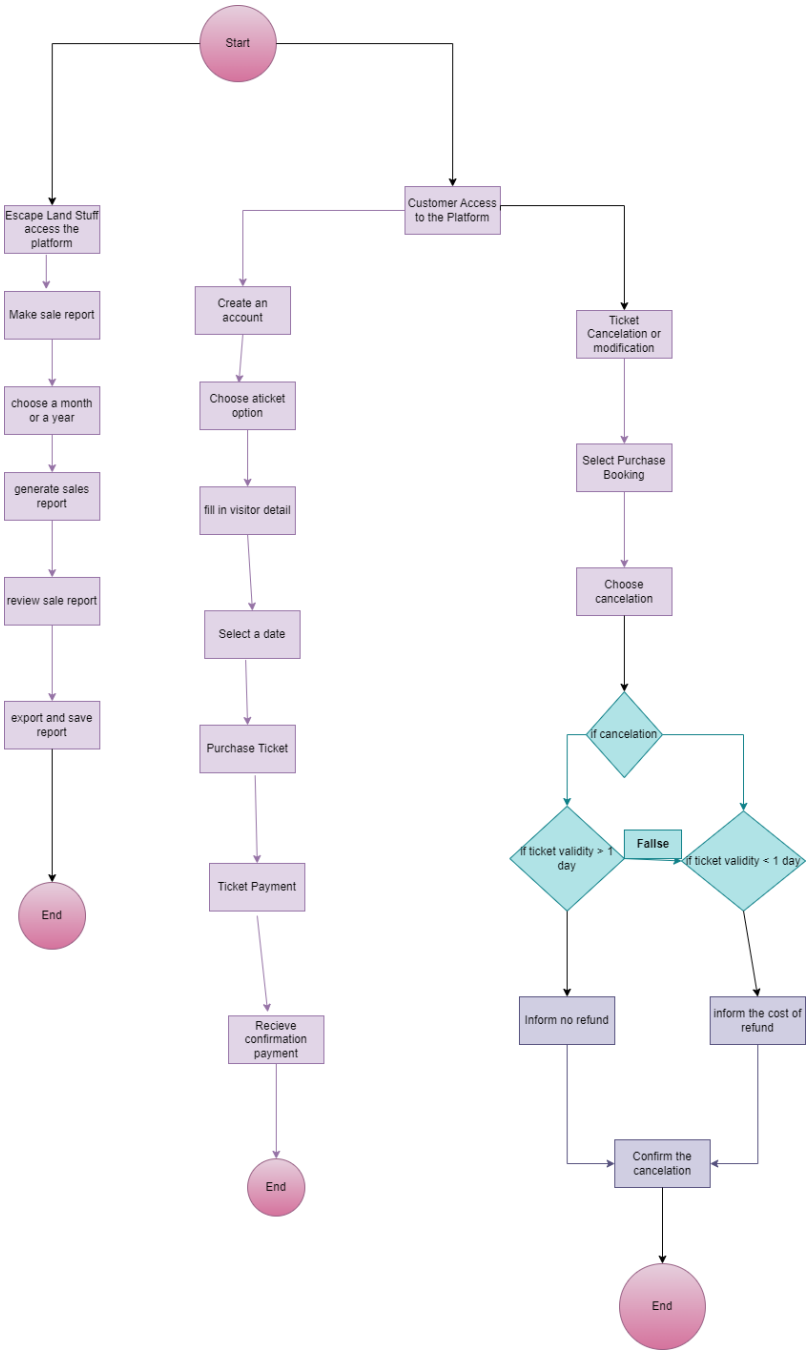


Figure1: Flowchart

2. Problems Identification and Proposed Solutions

2.1 Problems Identification with Solutions

2.1.1 Manual Ticketing Process Causes Delays and Errors

The current ticketing process at Escape Land is manual, leading to inefficiencies and delays. Customers often face long queues, causing frustration and dissatisfaction.

Cause

The current system uses manual techniques to record data. There is also lack of an online ticketing system.

Effects

This will increase queuing time and reduce customer satisfaction. There will also be a higher chance of data inaccuracies in ticketing records.

Solution

Hybrid Ticketing System:
Create a hybrid ticketing system that will combine both online and manual ticketing options. By implementing it, customers will have multiple options to buy tickets. They can either use the dedicated mobile application or simply a web portal to purchase tickets in advance. But they will also have the choice to buy tickets manually from the ticket counter. These will reduce the amount of load on both the online and manual system making the ticket booking process more efficient. The online system should include QR code scanning, digital ticket insurance and provide real time updates. People can enter the park just by scanning their QR code on the entrance. Moreover, multiple payment options should be included such as credit/debit cards, e-wallets, online banking and cash for manual purchase. Implementing these new methods, will greatly reduce the waiting times and cut the queues short providing flexibility in payment options. It will also reduce the workload on the staff members and provide more accurate and detailed data on number of ticket sales and visitor count.

2.1.2 Ineffective Accommodation Booking Process:

The resort accommodation staff needs to handle telephone inquiries and manual reservations, which causes clashes with dates and inefficient handling of reservations.

Cause

Reliance on telephone inquiries and manual reservation. Lack of an integrated reservation system. Human errors in booking dates and availability management will cause date clash.

Effects

This will lead to double bookings and date clashes and will eventually increase workload for staff. There will also be a potential revenue loss because of a booking error.

Solution

Hybrid Reservation Management System:
Like the ticketing system, we will also use a mixed online and manual system for reservation to streamline the entire process. Visitors should be able to book reservation for rooms online via user friendly application or web portal that will allow them to choose their desired room. It will provide detailed room description, real time updates of room availability and instant confirmations via email, message or any other social media. For those who wants to do it manually, they can either call or visit the park to book rooms. The staff will use a dedicated interface to put the customer data in the system. All these data will be stored in a centralized database to avoid double bookings and maintain data accuracy. Customers will get real time updates about room availability and will also have the choice to cancel or modify their choices. Both the booking and reservation process pay system will be integrated so that customer can either fully pay or partially pay. Discounts can be offered for those who books both for visiting and accommodation. Moreover, customers will have the privilege to create their own account. It will handle their previous records and provide them with various personalized offers to enhance their experience. A customer can earn points for booking and use them to get a discount on their next visit or buy merch from online shop. Integrating it with both the booking and review system can provide seamless experience for the customers. All these solutions will make the reservation system more efficient, boost overall customer satisfaction, remove booking errors and maintain data consistency which will help us to reach our aim.

2.1.3 Too Many Advertisings Social Media Platforms

Escape Land advertises on multiple social media platforms without knowing their effectiveness in attracting customers.

Cause

There is no centralized system to track and analyse the performance of advertising in each platform.

Effects

There will be inefficient use of the marketing budget and an inability to identify which platform give more traffic and booking. Lost chances to optimize marketing strategies based on data.

Solution:

Use Data Analytics Tool for Marketing:
To improve the marketing performance, we will use data analytics tool to get a detailed and accurate insight of the customer pool. This will allow to track and analyse the performance indicators and effectiveness of our advertisements on social media and other platforms which will give us crucial insight to change our marketing strategy. It will allow the company to get more information about customer engagement rates, clicks ,impressions and help them to create personalized ads to target the intended customers. This will greatly boost the marketing effectiveness ultimately contributing to more revenue. Dashboards for real-time reporting will give rapid access to important data, facilitating quick decision-making and the ability to modify plans in response to campaign results. Through data-driven marketing excellence, this strategy ultimately seeks to maximize marketing ROI, improve customer happiness, and maintain Escape Land's competitive advantage in the travel industry.

2.1.4 Need a Place to Share and Promote Packages

Escape Land requires an effective way to share and promote bundled packages for the water park, safari, and resort accommodations.

Cause

There is no dedicated platform or section on the website to showcase packages.

Effect

Customers may not be aware of these value-added packages and the Escape Land will miss revenue opportunities

solution

Escape Land should then design and include a section of their website specifically for Packages where they can advertise their products for the water park, safari as well as their resort services. This will also help the customers to identify and access these value-added packages for their various products. In the “Packages” menu, the customer should be clearly informed about various bundles with the list of services being provided, the prices and possible discounts. It should also enable customers to easily compare the different package offers and select that package that best suits them. Moreover, Escape Land should also exploit email marketing, social media, and signages within the park to popularize these bundled packages. This will help customers to be more aware of what is available, and this will increase the number of experienced bookings for the two. This way, Escape Land will be able to publicly market the convenience and relevance of its package products, hence realizing an enhanced sale to the customers.

2.1.5 Inconsistency in Data Management

There are inconsistencies in data management, making it difficult to track monthly sales revenue accurately.

Cause

There is no centralized system for data and the data entry process is manual

effect

This makes making business decisions, identifying trends and areas for improvement difficult. This will also cause inaccuracies in financial reporting.

Solution

Inconsistency in Data Management There are cases of poor management of data and thus one cannot accurately predict the monthly sales revenue. There is no integrating system of data and the data entry system used is manual. This makes making business decisions, as well as recognizing trends and potential improvements, difficult. This will also result in wrong forecasts in the financial reports.

2.1.6 Need a Review and Feedback System

Escape Land lacks a systematic way for customers to submit reviews and feedback after their visits and accommodation stays.

Cause

No integrated review and feedback system.

Effects

Escape Land will miss the opportunities to gather valuable customer insights and it will be difficult in addressing customer concerns and improving services.

Solution

Still requires a Review and Feedback System
Escape Land does not have a well-organized method for customers to provide comments /feedback after a visit or a stay.
The absence of a comprehensive review and feedback mechanism.
Escape Land will lose the chance to gather useful information about its customers and it will be challenging to meet the customers' demands and upgrade the services.

Aim

To improve the efficiency and effectiveness of Escape Land to secure significant amount of ticket sales and customers' satisfactory, several opportunities have been proposed: To integrate the ticketing and reservation system and improve the efficiency and accuracy of the ticket sales; to improve the effectiveness of the marketing strategies and develop the centralized data processing system; To achieve the comprehensive customers' review and feedback system.

2.2 Objective and Aim

Manual Ticketing Process Causes Delays and Errors

Objective:

The new blended ticketing system, which can be incorporated, is the online ticketing, online insurance, use of QR code tickets, possibility of ticket update in real time and multiple charges means.

Benefit:

Saves customers' time hence they are happy and relieves working stress and chances of errors from the staff.

Ineffective Accommodation Booking Process

Objective:

Bookings should have an online and offline option and as correspond with the online booking the business needs to update the online timetable, receive instant confirmations of a booking besides the use of multi-media and coupon offers.

Benefit:

This is relevant in the aspect of ensuring that the actual operation of the business is done by the operational staff, that adds value in terms of reducing the time and effort required on bookings; it

solves the issues of the problem of double bookings, as well as increase the data accuracy which inturn increases the level of customer satisfaction and customer loyalty.

Too Many Advertisings on Social Media Platform

While many organizations' promotional strategies focus on the use of social networking sites, there seems to be too much of 'too many Advertisings'on the social media platforms.

Objective:

Introduce a means of measuring the different marketing indicators that will facilitate the development of customized advertisements.

Benefit:

Improves marketing communication, increases customer interest and attention and optimize marketing communication ROI hence, increased revenues.

Need a Place to Share and Promote Packages

Objective:

It implies that it is essential to develop another distinct web page through which the customers can be able to find all the bundle packages available and should be able to comprehend all the things included in the bundles, the amount of money that they have to pay, and other information regarding the discounts given.

Benefit:

Facilitates the degree of customer know- how and consumption of packaged solutions, which give the customer a ready-made way of arriving at the required decision.

Inconsistency in Data Management

Objective:

This indicates that any kind of data should come together in a central database of information derived from records intending to organize the data in a manner that would increase the ease of retrieving analyzed data.

Benefit:

Helps with the rough filtering that starts with the search for the monetary capacity and helps to make better business strategy plans.

Need a Review and Feedback System

Objective:

Design an online review and feedback system in the business where customers can give their feedback after their visit or their stay at the business.

Benefit:

This can help to maintain a constant stream of improvement to the services being offered depending on the customers' reactions ultimately improving customer satisfaction and their loyalty.

3.Project Planning SDLC

3.1 Project Planning

3.1.1 Project Planning

Project Scope Definition

Activity:

Identification of the parameters and goals of the new management system of Escape Land depends on the specification of the project scope. This activity implies focused analysis of the current challenges of the safari, water park, and resort and club accommodation; specifically, the ticketing process, social media, and packaged offer promotion are to be accentuated. To solve these issues, the authors of this project, together with the members of the project team, shall define with the management of Escape Land what basic functions are necessary. Some of the incorporated features are an in-built social marketing module, fast-track ticketing system and a package builder. (Adobe Communications Team, 2022)

Function:

The purpose of this activity is to establish the extent of detail needed in the report of the deliverables of the project. This includes the determination of specific ingredients, for example the systems that deal with online tickets, hotel and other accommodation bookings and more importantly the sales and receipts collection. Also, it involves getting specific regarding what the project entails, what is excluded from the project and ensuring that everybody has the objective that is expected to be achieved in the process. (Adobe Communications Team, 2022)

Deliverable:

The major product of this activity will be the detailed scope statement of the project. The information about the system requirements for the presented modules is limited to the online ticketing system, hotel bookings, marketing and sales of package deals. The dependencies required between the modules and Escape Land will also be identified. To ensure that scope infect does not expand and to ensure that the product meets the needs of Escape Land, the scope document will be a reference document for the whole project. (Adobe Communications Team, 2022)

Principle:

Clearness and relevance to organizational goals are the activity's principles. It means that the project scope has to include the problematic areas that are relevant to Escape Land, such as the minimization of the waiting time, the enhancement of the vacancies in social networks, and the optimization of the customers' experience. At the same time, it can be stated that such a project as the RM 80,000 budget and up to 5 months to complete, the identification and implementation by the project team of value delivery improvements could be pertinent to the following factors: - establishing a clear understanding of the project scope and related business goals. (Adobe Communications Team, 2022)

Stakeholder Identification and Analysis

Activity:

Identifying and analyzing stakeholders is one of the key processes that are conducted during the project planning, especially if the project is a large and intricate system that will affect many aspects of Escape Land's operations. This activity requires a list of all the people and groups that will benefit from the new management system or that will have an impact in Escape Land's management system, which includes the managerial staff from the company, employees in the water park, the safari, and the resort, customers, and outside the company, external stakeholders like the tour operators and/or online travel agencies. (Martins, 2024)

Function:

The function of this activity lies twofold. First, it intends to identify all internal and external individuals who will either directly or indirectly be engaged or influenced by the execution of the project. This means deciding with whom the information will be shared, including the management and IT personnel, end-users such as employees who will be using the system on daily basis, clients who will be booking their tickets online, regulatory agencies who have a say in the management of data in the tourism sector. Second, it covers assessment of these stakeholders' requirements, expectations and, perhaps, concerns related to the new system (Martins, 2024)

Deliverable:

The main output of this activity will be the preparation of the stakeholder register and analysis report. This document will also point out all the identified stakeholders, their roles to the project, their power/interest matrix and their requirements/expectations towards the project. For instance, the study could establish that the exercising population at the water park is interested in an interface easy to use while purchasing tickets, whereas the personnel is concerned with the full report on ticket revenues. The study will also examine how each stakeholder group can be managed and influenced at every stage of the project's cycle (Martins, 2024)

Principle:

The approach used in this activity is called stakeholder engagement and it aims at inclusive planning. The stakeholders' engagements in the process of project identification ensure that the team has well understood all their expectations from the outcome of the project so that they can incorporate them in their designs. This initiates the process of engaging all the stakeholders right from the planning stage; it ensures that all the stakeholders are on the same page hence the minimal or no resistance toward the change hence leading to successful implementation of the new system. On this same note, it supports Escape Land's objective of improving general customer satisfaction by ought to be that the customer needs should be put into consideration when designing the system. (Martins, 2024)

Resource Allocation

Activity:

Budgeting is one of the important processes in the planning phase of the project and considering Escape Land's fixed financial resource of RM 80,000 and projected five months' timeframe. It entails managing the flow of money, personnel, and technology over different components of the program in a way that will bring about the intended accomplishment of a project. (Landau, 2023)

Function:

Hence, their main role is to manage and ensure that resources available in the organization are well utilized. Ss include defining how many team members are required, their responsibilities, and the amount of time they are going to spend on the project. It also relates to the proportion of expenses of the budget regarding various components of the project including the software part, equipment purchasing, and employees' training. Due to the fact that Escape Land includes a water park, wildlife safari, and a resort, the assignment must take into account the individual requirement for each of these sub facilities but connect in one system. (Landau, 2023)

Deliverable:

The major output of this activity will be the resource allocation plan that will chart the kind of resources to use where and when. This report will also unveil measures on how the RM 80, 000 budget will be proportioned to concerning the project aspects like: software, development tools, hardware, and staff training among others. It will also address the composition of the project team, where the responsibilities of team members toward the project will be described. The plan will contain a schedule which will indicate when resources will be required throughout the 5-month project period. (Landau, 2023)

Principle:

The working concept for this activity is the rational utilization of resources at the disposal. Given the context, the only way that the project team can fully deliver resources and get maximum value is by planning how the available resources will be used. This principle corresponds with Escape Land's strategic plan to improve its operations and the experience it offers to its clients within the context of their constrained budget and scope of project. (Landau, 2023)

Timeline Development

Activity:

For this reason, timeline development needs to be accomplished for the sake of completing the Escape Land Management System project within the time frame of five months. This activity involves development of the project schedule which comprises of the project's activities, the time estimates for each activity and the relationships/dependencies between those activities. (Holzer, 2024)

Function:

The purpose of developing a timeline is to come up with a strategy for the implementation of the project. It involves coming up with a list of activities which in turn are required to be done, making a rough assessment of the time required to complete each activity and determining the sequence of activities. This may therefore entail stages like requirements specification, system architecture documentation, creation of the individual subsystems (reservation, accommodation, revenue), integration, testing and implementation. (Holzer, 2024)

Deliverable:

The output of this activity will be a definite schedule and Gantt chart that must be submitted at the end of the activity. This will be a graphic display of the entire project's tasks, estimated time, schedule for starting and completion of the tasks and any linkage. Some of the milestone areas that will be earmarked as part of this process include the finishing of substantial modules, significant system interfaces, and the final system release. The timeline will also incorporate risks peculiar to Escape Land's operations, for instance, the times of high tourist pressure that might interfere with testing or implementation of the system. (Holzer, 2024)

Principle:

The main guiding concept for timeline development is accurate scheduling. However, though restricted to 5 months' project completion, the implementation of the timeline shall consider the complexity of dispatching the interconnection of systems of the three major rides in Escape Land. It should also contain extra time to accommodate any obstacles during the project to allow the project to be delivered on time with respective quality. (Holzer, 2024)

Risk Assessment

Activity:

Evaluating risks is a very important activity not only for the simplest of plans but for virtually any project, let alone designing a system for Escape Land. This one involves involvement of the recognition of possibles threats to the accomplishment of the project and the creation of ways of managing those risks. (Bell, 2022)

Function:

In this respect the function of risk assessment is the identification of issues which, if left unaddressed, may prove capable of undermining the project. Some of the risks that Escape Land might face might include data conversion problems when moving from manual system to an automated system, resistance to change from staff who are used to the current ways, or compatibility problems between the ticketing, accommodation, and revenue collection modules. (Bell, 2022)

Deliverable:

The key output of this activity will be a risk register and risk management plan. This paper shall contain details of all expired risks, their ramifications on the project, possibilities of occurrence, and measures to counter every risk. For example, it can consist of measures of staff training to overcome the upcoming change resistance or implementation of change in stages to cope with the multiple systems integration. (Bell, 2022)

Principle:

As for the evaluation criterion, it is resonant with the concept of anticipatory risk management. By getting ready for the worst precautions can be taken in the beginning of the project and reduce the chances of the options causing disturbances to the daily functioning of Escape Land and enhance the possibility of successful system deployment. This is in line with Escape Land objectives of improving on the operations of this business while at the same time availing excellent services to the visitors. (Bell, 2022)

Communication Plan Development

Activity:

One of the critical components of the project planning is the communication plan since it defines how the stakeholders would interact in the process of completing the tasks within diverse attractions of Escape Land Management System. (The & Semczuk, 2021)

Function:

This activity ensures the generation of well-coordinated communication structure to enhance relations between all members of project development. This encompasses actions such as determining how the information will be disseminated to the core project team, Escape Land management, other employees within attractions like water park, safari, and resort, or even other individuals or firms that may be involved in the project in one way or the other. It also implies identifying the schedule and plan of project communication, updates, or status reports, and meetings. (The & Semczuk, 2021)

Deliverable:

The main output of this activity will be the communication plan that will describe all the above aspects. This document will outline:

• Communication Media to be employed (e.g. E-mail, project-sharing software, face to face meetings)

• The frequency of each kind of communication such as the daily scrum meeting, weekly update or status meeting, monthly steering committee.

• Reporting lines, bureaucratic hierarchy, which person is responsible for different kinds of reporting, which persons should be taken into confidence about the information.

• The templates of the status reports and other recurrent messages

• The formal steps that should be followed for any issues or decisions that cannot be resolved using the previous procedures.

It will be specific to Escape Land's organization structure as well as the necessity required for the completion of the project. (The & Semczuk, 2021)

Principle:

The overarching rule for this activity is the modality, simplicity and openness of communication. In this way, all stakeholders will share with the project proper means to be informed, and if necessary, to contribute to the non-grossing of the objectives of Escape Land and the identification of emerging problems. This principle contributes to the primary objective of improving customer satisfaction through efficient project delivery. (The & Semczuk, 2021)

3.1.2 Project Analysis

Requirements Gathering

Requirements gathering is a crucial phase where the needs, preferences, and pain points of all stakeholders are collected and analysed. This phase involves engaging with various stakeholders through interviews, surveys, and direct observation to gain a comprehensive understanding of the current system's shortcomings and desired improvements. The objective is to collect comprehensive data that will guide the creation of a new, more effective system (Sire, 2024).

Activities:

- **Interviews and Surveys with Management:**
  - Schedule and conduct one-on-one interviews with senior management to understand their strategic goals, challenges, and vision for the new system.
  - Design and distribute surveys to capture management's feedback on current system shortcomings and desired features.
- **Interviews and Surveys with Staff:**
  - Conduct interviews and focus group discussions with staff members from different departments to gather insights on operational pain points and workflow inefficiencies.
  - Develop surveys to systematically collect staff feedback on the current processes and suggestions for improvement.
- **Interviews and Surveys with Customers:**
  - Approach customers in-person at the park, via email, or through social media to gather their experiences and satisfaction levels with the current ticketing process.
  - Use customer surveys to collect data on wait times, booking preferences, and overall experience.

- **Observation of the Current Ticketing Process:**
    - Perform on-site observation during peak and off-peak hours to identify bottlenecks and inefficiencies in the ticketing process.
    - Shadow ticketing staff to understand their workflow and the challenges they face during the ticket issuance and verification process.
    - Observe customer interactions and feedback during the ticketing process to identify areas for improvement.

Functions:

- **Collect Requirements:** Gather comprehensive data on the needs, preferences, and pain points of all stakeholders (management, staff, and customers).
- **Identify Pain Points:** Pinpoint specific issues in the current system that cause inefficiencies, delays, or dissatisfaction.

Deliverables:

- **Interview Reports:** Detailed documentation of insights and feedback gathered from interviews with management, staff, and customers.
- **Survey Analysis:** Aggregated and analysed data from surveys, highlighting key trends and common issues.
- **Observation Notes:** Comprehensive notes and diagrams from on-site observations, including process maps and identified bottlenecks.

Principles:

- **Stakeholder Engagement:** Ensure all relevant parties are involved in the requirements gathering process to capture a diverse range of needs and perspectives.
- **User-Cantered Design:** Focus on understanding the needs and experiences of end-users (staff and customers) to design a system that addresses their specific pain points.

Prepare Requirements Documentation

The preparation of requirements documentation is a phase where the collected data from requirements gathering is documented and structured. This phase translates the raw information into clear, detailed, and actionable requirements that will guide the design and development of the new system. It includes defining both functional and non-functional requirements, developing use cases, and creating user scenarios to ensure that all stakeholder needs, and system interactions are comprehensively captured. The purpose is to produce an understandable and detailed blueprint that will act as the basis for system development and design (Clark, 2022).

Activities:

- **Document Functional Requirements:**

    - Detail the essential functionalities the system must provide, such as online ticket purchasing, real-time availability updates, automated booking confirmations, and integration with payment gateways.
- **Document Non-Functional Requirements:**
    - Specify performance-related aspects of the system, including speed, reliability, scalability, and security measures.
    - Include user interface requirements to ensure the system is intuitive and accessible for all users.
- **Develop Use Cases:**
    - Make detailed use cases that specify the precise ways in which people and the system will interact. Each use case should cover different scenarios, such as purchasing tickets online, checking ticket status, and booking accommodations.
- **Develop User Scenarios:**
    - Craft scenarios that depict how different types of users (e.g., families, tourists, staff) will interact with the system, focusing on their unique needs and behaviours.
- **Create User Stories:**
    - Write user stories from the perspective of various users, capturing their specific needs and the value they expect from the system. For example, "As a visitor, I want to book tickets online so that I can avoid long queues."

Functions:

- **Define System Capabilities:** Provide a clear description of the system's functionality and performance in order to satisfy the needs of all parties involved.
- **Illustrate Interactions:** Provide visual and descriptive representations of how users will interact with the system, ensuring a clear understanding of user workflows.

Deliverables:

- **Requirement Specifications Document:** A detailed document that acts as a blueprint for the system, outlining all functional and non-functional needs.
- **Use Case Diagrams:** Visual representations of different use cases, illustrating the interactions between users and the system.
- **User Scenarios and Stories:** Detailed scenarios and stories that describe typical user interactions with the system.

Principles:

- **Clear Documentation:** Ensure all requirements and user interactions are documented in a clear, structured, and detailed manner.
- **Scenario-Based Analysis:** Use real-world scenarios and user stories to validate requirements and ensure the system will meet user needs.

Feasibility Analysis

Feasibility analysis assesses the viability of the proposed system from various perspectives. This phase involves evaluating whether the existing technology infrastructure can support the new

system, determining if the organization's staff can adapt to the new processes, and ensuring that the project is financially viable (Gopalan, 2024).

Activities:

- **Technical Feasibility Assessment:**
  - Analyse the hardware, software, network performance, and data storage systems that are currently part of the technology infrastructure.
  - Determine if existing infrastructure can support the new system or if upgrades are needed.
  - Research and compare technology solutions and platforms that can be used to develop the new system, considering scalability, compatibility, and vendor support.
  - Assess the ability to integrate the new system with existing applications, such as CRM, accounting software, and marketing tools.
- **Operational Feasibility Evaluation:**
  - Assess the readiness of staff to adapt to new systems and processes. Identify potential resistance and training needs.
  - Analyse the impact of the new system on current workflows and processes, determining what changes will be necessary to accommodate the new system.
  - Identify the training needs for different user groups and develop a comprehensive training plan to ensure smooth adoption.
- **Economic Feasibility Analysis:**
  - Perform a detailed cost analysis, including initial development costs, hardware and software expenses, implementation costs, and ongoing maintenance and support costs.
  - Identify and quantify the expected benefits of the new system, such as increased efficiency, improved customer satisfaction, and higher revenue.
  - Calculate the return on investment (ROI) by comparing the costs and benefits over a specified period. Ensure the project is financially viable and aligns with the organization's budget and financial goals.

Functions:

- **Evaluate Infrastructure:** Assess whether the current technology setup can support the new system or if it requires enhancements.
- **Assess Staff Adaptability:** Determine how well staff can adapt to new systems and identify necessary training programs.
- **Analyse Financial Viability:** Ensure the project is economically feasible and offers a good return on investment.

Deliverables:

- **Technical Feasibility Report:** A comprehensive assessment of the current technology infrastructure and its ability to support the new system.
- **Operational Feasibility Report:** An evaluation of staff readiness and the impact of the new system on current processes.

- **Economic Feasibility Report:** A detailed cost-benefit analysis and ROI calculation to ensure financial viability.

Principles:

- **Practicality:** Ensure the proposed solutions are realistic and can be effectively implemented within the existing environment.
- **Cost-Effectiveness:** Make sure the project offers good value for money and aligns with budgetary constraints.

Validation and Verification

Validation and verification ensure the gathered requirements and proposed solutions accurately reflect the needs and expectations of stakeholders. This phase involves presenting the documented requirements and initial design concepts to key stakeholders, for review and feedback. The goal is to confirm that all requirements are correct, complete, and aligned with the strategic objectives of Escape Land. This iterative process helps refine the requirements and system design, ensuring that the final product will meet user needs and operate effectively.

Activities:

- **Requirement Review Sessions:**
  - Organize review sessions with key stakeholders, including management, staff representatives, and selected customers. Present the gathered requirements, use cases, and feasibility analysis findings.
  - Facilitate discussions to gather feedback on the proposed requirements and system design. Address any concerns or suggestions raised by stakeholders.
- **Update Documentation:**
  - Incorporate stakeholder feedback into the requirements documentation, ensuring all critical needs and concerns are addressed.
  - Adjust use cases and scenarios based on stakeholder input to reflect a more accurate and comprehensive representation of system interactions.
  - Conduct a final review session to validate the revised documentation and obtain formal approval from all stakeholders before proceeding to the next phase.

Functions:

- **Validate Requirements:** Ensure all requirements are reviewed and validated by key stakeholders to confirm their accuracy and completeness.
- **Refine Requirements:** Continuously refine and update the requirements documentation based on stakeholder feedback to ensure it accurately reflects user needs and expectations.

Deliverables:

- **Updated Requirement Specifications:** Revised and validated requirements documentation that incorporates all stakeholder feedback.

- **Refined Use Case Diagrams:** Updated use case diagrams that reflect the validated requirements and stakeholder input.

Principles:

- **Iterative Refinement:** Continuously refine requirements and documentation through iterative feedback and validation processes.
- **Stakeholder Validation:** Ensure all key stakeholders review and validate the requirements to confirm they meet user needs and expectations.

3.1.3 Project Design

Project Overview

Objective: Specifically, the chief objectives of the Escape Land Management System are aimed at improvement of customer satisfaction and optimization of business processes on one hand and the escape land visitor experience and the facilitation of the management team's tasks, on the other

1) Budget: RM 80,000
2) Timeline: 5 months
3) Key Features

Online Ticketing

It is a web-based ticketing system that will enable the customers to book tickets for the various activities in Escape Land conveniently.

A) **Purchase Options**: The various services that customers can access include tickets to Water Park, ticket to Safari, Resort ticket or deals. Providing diverse packages will consider different customers' wishes and prices they are able to pay, thus being more appropriate.
B) **E-tickets**: The system will be using electronic tickets with Quick Response Codes incorporated in them. That modern mirror will help the company to speed up check-in, so clients will not have to wait for a long time.

- **Activities:**

- Besides, invoke an online ticketing system into the ecosystem.
- Integrate QR code functionality.

- **Functions:**

- Ticket purchase.
- Generation of QR code for the e-tickets.

- **Deliverables**:

- An application for effective Web-based ticket selling with sophisticated functionality.
- QR-coded e-tickets.

- **Principles**:

- User-Centric Design: Assure the efficiency of the ticketing system since this alone will make it possible for you to have a simple ticketing system.
- Efficiency: Minimize the waiting hours by using QR code Readers.
- Accessibility: It is easy to collect the ticket packages.

Reservation System

The reservation system should be easy to use for the customers so that they can book a service at the comfort of their homes.

A) **Room Booking**: There is a calendar view on whether there is availability of a given room or not. By using this visual representation, they will be able to quickly locate proper dates according to their preferences.

B) **Automated Confirmations:** Carbon copy of this confirmation will also be sent to the client through electronic mail once the booking is made. This kind of worksheet facilitates efficiency since it is automated and does not require a lot of time from the customer or the management.

- **Activities:**

- As for the next step, you should create a reservation system that has views that are in a calendar format.
- Implement automated email confirmations
  .
- **Functions**:

- Room booking.
- Automated confirmation emails.

- **Deliverables**:

- Functional reservation system.
- Automated confirmation email feature.

- **Principles:**

- User-Centric Design: This signifies that there are easy with booking rooms for the facilitation of intended activities.
- Efficiency: Confirmation process to be automated to reduce the workload.
- Transparency: Proper indication of the availability of the products/ services and bookings.

Customer Reviews

A customer feedback system is essential for gathering feedback and to highlight the brilliance in services delivered by Escape Land.

A) **Submission Form:** The system would include a form, using star ratings accompanied by comments. This will make it simple, and more customers will leave their feedback behind.

B) **Review Display:** Reviews will be visible on the attraction pages within your app, and can be shown in many different forms, whether it be text or banners. The ultimate in transparency helps your future visitors make a better decision.

- **Activities:**

- Build a form which will allow the user to give a review.
- This, in its turn, would make the reviews and ratings part of the attractions' information situated on the respective pages.

- **Functions:**

- Feedback collection.
- Review display.

- **Deliverables**:

- Customer review submission form.
- Employment of replies on the pages concerned the attraction.

- **Principles:**
- Transparency: Their text feedback should appear at the top of the screen so that people can read easily.
- User-Centric Design: Zero response time received with the appropriateness of the short process concerning the submission of the review.
- Continuous Improvement: Receive the points of view to improve services.

Social Media Integration

One of the important channels for marketing and customer engagement is social media.

A) **Links to Platforms:** Direct links to the Escape Land Facebook and Instagram pages will be provided so that individuals can easily follow the park for further engagement with the social media content.

B) **Campaign Analytics:** The system shall provide information related to the performance of social media campaigns specifically on how well advertisements are doing. This data will be vital in fine-tuning marketing strategies.

- **Activities:**

- Expand social link features on the system.
- Create SA tools beginning with social media campaigns analytics.

- **Functions**:
- Social media linking.
- Campaign performance tracking.

- **Deliverables:**
- Integrated social media links.
- Social media campaign analytics.

- **Principles**:
- Engagement: Social Media Customer Engagement: The organization should work towards increasing interaction with the customers via social media.
- Transparency: Certainly, giving clear social media links is important, especially if one prefers not to have a highly colorful and busy site.
- Continuous Improvement: Adapt the other elements of the marketing mix with the help of analytics.

Sales Tracking

The backbone of any financial management and strategic planning is accurate sales tracking.

A) **Dashboard:** The dashboard will illustrate monthly revenues as bar charts. This kind of visualization can be used to understand sales trends for any business easily and, hence, make effective decisions.

B) **Export Options:** Financial records can be exported either in CSV or PDF form. This means that your financial data is shared and analyzed easily. Any revision in these records implies a change in price, hence affecting consumer costs of products.

- **Activities:**

- Concoct sales tracking dashboard.
- Integrate the export function with the context of financial reports.

- **Functions:**
- Revenue tracking.
- Data export (CSV, PDF).

- **Deliverables:**
- Sales tracking dashboard.
- Exportable financial records.

- **Principles:**
- Transparency: Clear revenue tracking.
- Efficiency: It is also relatively easy to export database information for further analysis without having to copy large amounts of information to achieve the same goal.
- Strategic Planning: Based on data, make decisions about money.

Queue Management

Good queue management offers the visitor a better experience by reducing their waiting time and improving the flow of visitors within the park.

A) Real-Time Updates: The mobile wait time access feature updates the visitor on the waiting times of various rides in real-time. Therefore, the information will help them in the best scheduling of activities.

B) Notification: Visitors will get notices on the availability of services, such as a doctor, in good time.

- **Activities:**
- Establishing an alert of the time customers must wait.
- Notifications about service availability should be set up.

- **Functions:**
- Real-time queue updates.
- Service availability notifications.

- **Deliverables:**
- Real-time wait time feature.
- Notification system.

- **Principles:**
- User-Centric Design: Reduce the number of minutes customers will be forced to wait between different processes.
- Efficiency: Real time current news and alert.
- Transparency: Inform the visitors of the expected number of times they are going to wait for their turn.

User Interface Design

Escape Land Makes Planning Your Visit Easy.

A) Easy to Use Website:

1) Find everything quickly with clear menus and buttons.
2) See special offers and deals right away.
3) Buy tickets and book rooms in just a few clicks.

B) Ticket Purchases:

1) Pick the date and experience you want.
2) See what's included in different ticket packages.
3) Pay securely online.

C) Booking Rooms:

1) Choose the room that's perfect for you.

2) Enter your information easily.

3) Get a confirmation email with all the details.

D) Sharing Your Thoughts:

1) Leave a review and let others know about your visit.

2) Read reviews to get tips and see what other people liked.

E) Keeping Track of Things (for Staff):

1) See how Escape Land is doing with clear charts and reports.

2) Manage bookings and customer information in one place.

3) Easily share data for further analysis.

F) Making it Great for Everyone:

1) The website works well on both phones and computers.

2) The system is secure and protects your information.

3) Escape Land will always be looking for ways to improve based on your feedback!

- **Activities:**
- Ensure that the identified website fully satisfies all the user needs and is easily navigable.
- Ensure other sections and options of the home theatre are easily accessible.
- Incorporate forms for the staff, intended for bookings and the customers as well.

- **Functions:**
- Website navigation.
- Ticket and room booking.
- Feedback submission.
- Staff management tools.

- **Deliverables**:
- User-friendly website.
- Admittance to ticket and room booking services.
- Feedback submission and display.
- Tools for staff management.

- **Principles:**
- User-Centric Design: Straight forward hence easy to use without having to consult tutorials.
- Efficiency: Make the means of identifying the available choices and arrangements for the appointments easier.
- Transparency: Computing is therefore simplified and as a result the information that is given should also be easily comprehensible.
- Accessibility: This website is fully mobile and tablet friendly and fits all the view ports and works well.
- Continuous Improvement: They should be modified according to the reaction that the communication users have towards the information.

Online Ticketing System

Online ticketing system is one of the most important components of the Escape Land Management System. This is intended to help enable and allow clients to easily and swiftly purchase tickets, hence improving the general clients' experience. This way, all the offered purchase options including individual attraction tickets, combo deals, and seasonal passes are easily incorporated into one system taking into account the customers' variety of needs and financial capacities. To do this, an interactive online environment/interface will be created. This interface will take the users right through the process of choosing the attraction they want and date, then out of the available packages, the one they want and then a secure checkout will take place. This is because the e-ticketing system coded with QR-code will reduce check-in time and therefore visitors spend a lot of time on the attractions and not on the lines. This feature will be especially helpful during rush hours of multitudes because it will ensure that, within the premises, the satisfaction of all people visiting such places will be improved.

- **Activities:**
- Design an integrated ticketing interface.
- A variety of various tickets with options and safe checkout.

- **Functions:**
- Buy a Ticket
- Secure Checkout

- **Deliverables:**
- Integrated Online Ticketing System
- Checkout is Safe and Secure

- **Principles**:
- User-Centric Design: Easy and Safe Ticket Buy
- Efficiency: Lessen check-in time for passengers
- Accessibility: Provide service to all kinds of customers.

Reservation System

One of the major changes that will occur in Escape Land is the reservation system of the accommodation units. This approach of presenting availability of the room in a calendar helps the customers to quickly make their selections of available dates. This scheduling of availability shall be further accompanied by descriptions and portrayal imagery that shall assist customers in decision making. The system shall also dispense with confirmation emails, which will contain all essential information concerning the booking. This makes it convenient for the customers who will be able to access their reservation detail immediately and at the same time relieves the management team who would otherwise have to enter details of each booking to confirm if they are available to fulfil the given reservation.

- **Activities:**
- Create an extensive calendar view for room availability.
- Include detailed descriptions but add the facility of automated confirmation emails.

- **Functions:**
- Display available rooms
- Automated confirmations

- **Deliverables:**
- A detailed reservation system

- Automated email confirmations

- **Principles:**
- User-Centric Design: The user can easily pick dates that are available.
- Resource Efficiency: No hand work of resources to send confirmations
- Transparency: Detailed description and availability of a room.

Customer Reviews

The successful implementation of the customer review system is crucial for collecting feedback and proving the high quality of the services Encounter Land provides. Customers will be able to rate their positive experience with stars and leave a detailed comment on the submission form that will be easy but will contain all the necessary fields. Placing these reviews on pages showing attractions will be useful in the following ways. It will enable potential visitors to reach a decision based on credential information, help to establish confidence and assist the management team to identify parameters that require enhancement. It is also important to note that reviews can be presented in different forms and belong to the category of website design elements, such as text or banners.

- **Activities:**
- Feedback Collection System.
- Review Display Mechanism.

- **Functions:**
- Feedback Collection
- Review Display

- **Deliverables:**
- Customer Review System

- Visible Reviews on Attraction Pages

- **Principles:**
- Transparency: Customer feedback is clearly displayed.
- User-Centric Design: Easy review submitting by the end-user experience.
- Continuous Improvement: Using feedback for service enhancement.

Social Media Integration

Living in a generation with social media integration into the marketing strategy would be highly effective. This is where the link to Escape Land's Facebook and Instagram accounts are provided, enabling users to access and interact with the park's social media feeds. The integration will lead to an increase in the level of engagement due to the increased brand exposure which will in turn attract new visitors to the site. Also, the system will encompass a feature to track social media campaign performance to evaluate its efficiency. These analytics will aid in establishing exactly how the advertisements are performing to help the marketing crew optimize his/her operations and get a better return on his/her investment.

- **Activities:**
- Link social media accounts to the system.
- Develop analytics to understand campaign performance.

- **Functions:**
- Integrated Social Media.
- Campaign Analytics.

- **Deliverables:**
- Integrated links of social media.
- Analytics for Social Media Performance.

- **Principles:**
- Engagement: Customer interaction to be enhanced.
- Transparency: Clear visibility of social media links.
- Continuous Improvement: Marketing strategies improved based on analytics.

Sales Tracking

Sales tracking is essential in business for accounting and even strategizing for the company. The admin can also control the site from an admin dashboard; the sales tracking module will also include monthly revenues through bar graphs. Such representation of results allows you, for instance, to find trends within a short period of time and make decisions based on it. This export feature allows the records to be exported in CSV or PDF format hence the ease of sharing data for analysis. Of special significance is the fact that this feature can be used in the preparation of reports and presentations, which in turn helps the management team in disseminating information on the organization's financial performance.

- **Activities:**
- Design of sales tracking module with inclusion of Charts for Visualization.
- Data export features addition.

- **Functions:**
- Revenue tracking
- Export data in CSV and PDF forms

- **Deliverables:**
- Sales tracking module
- Exportable financial records

- **Principles:**
- Transparency: The revenue is transparently shown to the user.
- Efficiency: Data export for analysis is easy.
- Strategic Planning: Transparency of data to drive informed decisions.

Queue Management

Finally, queue management is an important factor that can be taken to a higher level to improve the visitor business. For instance, the mobile wait time access feature offers momentary updates on waiting times for sundry rides, since the system assists the visitors in prior planning of their activities. This decreases the wait time perception and increases satisfaction.

- **Activities:**
- Development of real-time wait time updates.
- Notice system on service availability.

- **Functions:**
- Real-time queue updates
- Service availability notice

- **Deliverables:**
- wait-time feature. Real-time
- Notification system

- **Principles:**
- User-Centric Design: The enhancement targets as little time as possible for waiting.
- Efficiency: This implies real-time updates and notices.
- Transparency: Visitors will be made aware of the wait periods.

3.1.4 System Implementation:

System implementation is a critical step of SDLC. The design created for Escape Land is going to be materialized here. In this phase, the design is going to take shape in the form of coding. We can start to see the actual product here. The development team is involved in the coding process. Communication among team members is crucial because of the difficulty and technical skills required to complete the task.

Programming

Activities: The programmers or the software development team write the code for the Escape Land management system according to the specifications mentioned in the system design. Additionally, an online ticketing system will be integrated into the ecosystem along with QR code functionality (SDLC in Software Testing, 2024; SDLC 5 Phases, n.d.).

Functions: This phase includes the creation of modules for ticket purchase and the generation of QR codes for e-tickets. Proper technological stack selection is necessary to complete the creation of the new system. Coding the software will lay the foundation for the rest of the steps that need to be taken.

Deliverables: The deliverables of this phase are a fully functioning web-based ticketing system with sophisticated functionality and QR-coded e-tickets. We can see the skeleton of the program in this phase.

Principles:

- **User friendly interface:** Ensure the efficiency of the ticketing system, making it simple and intuitive for users. User-friendliness is essential for a successful application.
- **Robustness:** Minimize waiting times by utilizing QR code readers.
- **Easy Access:** Ensure the ticket packages are easy to collect.

Testing

Activities: It is done after the coding phase to check whether the Escape Land system is workable and will be able to stand the test of time. The general testing techniques include Unit Testing, Integration Testing, System Testing, and User Acceptance Testing since it aims at establishing that the system is stable and free from any acts of corruption. Testing is crucial to ensure the integrity of the program (SDLC in Software Testing, 2024; SDLC 5 Phases, n.d.).

Functions:

• **Unit Testing**: This phase is done to test the lowest part of an application, a unit to make sure it performs as expected. Usually carried out by the software engineers or members of the QA team during the development phase of the software, this testing seeks to prove that each segment runs

successfully on its own. The unit testing procedure is a requirement because it indicates if something is wrong in the development phase.

• **Integration Testing:** This process involves simultaneously testing most of the components of a software so that the system functions properly. It is used in searching for problems that may result from interactions of modules with other components in the system and how data flows through these modules.

• **System Testing:** Integration testing checks if all the modules in the integrated application run and function perfectly. It is less specific and verifies the statistics of the working of an application to ensure that the given output is correct for a given input. It should also be noted that all the systems should be fine-tuned to pass this test.

• **User Acceptance Testing (UAT):** UAT enables the end-users give real life usage to the system to see if it can perform as expected. This form confirms that all relevant requirements of the business are met before the delivery of the final product, as the users discern whether the software meets various needs of the company.

Deliverables: The outputs of this phase also consist of the tested & validated Escape Land management system to be deployed. It helps ensure that the newly created system for escape land is error-free and contains no bugs.

Principles:

- **Thoroughness:** Ensure each component is rigorously tested to identify issues early.
- **Collaborate:** Involve end-users in UAT to verify the system meets their needs.
- **Reliability:** Guarantee the system performs reliably through comprehensive testing.

Deployment

Activities: The actual putting into practice of a system is referred to as deployment which is the last step of implementation. This involves activities such as the creation/definition of a product release plan, data conversion from the old system to the new system, getting the environment ready for production and training of users (SDLC in Software Testing, 2024; SDLC 5 Phases, n.d.).

Functions:

- **Release Schedule:** Develop a detailed release plan that includes the deployment schedule, rollback procedures, and a communication plan to ensure a controlled and organized release process. The release schedule should be created by collaborating with all the partners and stakeholders involved in the company.
- **Migrate Data:** Transfer data from the existing system to the new software to ensure continuity of operations. This involves assessing, cleaning, validating, planning, executing, and extensively testing data transfer.

- **Setting up Infrastructure:** In this phase of development the production environment is set up for how the production systems such as the servers, databases and even networking will handle the expected load.
- **User Training:** Inform the end-users about the changes that have taken place and give them user guides, conduct training sessions and seminars where they can learn how to use the new software

Deliverables: The output of this phase is the final version of the Escape Land management system, data import and training of the management heads as well as other users of the system and establishment of relevant structures.

Principles:

- **Accuracy:** This is in a bid to ensure that data is well migrated, in situations where business continuity have to be maintained.
- **Readiness:** Make sure the infrastructure is ready to take the required stress thrown at it for delivering robust numbers on security, scalability, and backup.
- **Support:** Make adequate provision of user training to avoid hitches when implementing the new system.

Thus, by following these structures of activities, functions, deliverables, and principles, the Escape Land management system can be properly implemented, tested, and deployed within the company to meet all their operational needs and be fully satisfactory for users.

3.1.5 System Security and Maintenance

Security Requirements Analysis and Design

Security requirements analysis and design is a vital phase focused on identifying potential security threats and vulnerabilities within the system and devising strategies to mitigate these risks. This entails carrying out thorough risk assessments, creating strong security guidelines, and putting authentication systems in place to guarantee that only authorized individuals have access to critical information and system features. The objective is to create a secure environment that protects the system against malicious activities, data breaches, and unauthorized access (Thampy, 2019).

Activities:

- **Conduct Risk Assessments:**
  - Identify potential security threats, vulnerabilities, and risks that could impact the system.
  - Evaluate the probability and possible influence of recognized hazards on the confidentiality, availability, and integrity of the system.
  - Develop a risk matrix to prioritize risks based on their severity and likelihood.
- **Develop Security Policies:**
  - Formulate comprehensive security policies and procedures to address identified risks.
  - Establish guidelines for user access controls, data encryption, incident response, and regular security audits.
  - Ensure compliance with relevant legal and regulatory requirements regarding data protection and security.
- **Implement Authentication Mechanisms:**
  - Create and put into use authentication techniques like single sign-on, role-based access control, and multi-factor authentication.
  - Ensure secure password policies and user credential management practices are in place.
  - Implement logging and monitoring to track and audit user activities for suspicious behaviour.

Functions:

- **Identify and Mitigate Security Threats:** Determine possible security flaws and dangers in advance, then create plans to reduce the risks.
- **Ensure Data Protection:** Implement measures to protect sensitive data from unauthorized access and breaches.

Deliverables:

- **Risk Assessment Reports:** Detailed documentation of identified risks, their potential impact, and mitigation strategies.
- **Security Policy Documents:** Comprehensive policies outlining security measures, user access controls, and incident response protocols.
- **Authentication Framework:** A robust authentication framework incorporating MFA, RBAC, and SSO mechanisms.

Principles:

- **Risk Management:** Proactively managing risks to ensure the system’s security and integrity.
- **Data Protection:** Make sure sensitive data is available, secure, and intact..

Security Testing

Security testing is a crucial process that involves evaluating the system's defences against potential threats and vulnerabilities. This phase includes performing penetration testing to simulate attacks and identify weaknesses, as well as conducting regular vulnerability scans to detect and address security gaps. The goal is to ensure that the system is resilient against attacks and that any vulnerabilities are promptly identified and mitigated.

Activities:

- **Perform Penetration Testing:**
  - Conduct simulated cyber-attacks to test the system's defenses and identify vulnerabilities.
  - Use ethical hacking techniques to explore potential security weaknesses and assess the system's ability to withstand attacks.
  - Document findings and provide recommendations for remediation.
- **Conduct Vulnerability Scans:**
  - Perform automated scans to identify security vulnerabilities in the system's software, hardware, and network infrastructure.
  - Analyze scan results to detect and prioritize vulnerabilities based on their severity.
  - Implement patches and updates to address identified vulnerabilities.

Functions:

- **Identify and Fix Security Weaknesses:** Proactively identify and address security weaknesses to enhance the system's resilience against attacks.
- **Ensure Continuous Security Improvement:** Continuously improve the system's security posture through regular testing and updates.

Deliverables:

- **Penetration Testing Reports:** Detailed reports on identified vulnerabilities, their potential impact, and recommended remediation measures.
- **Vulnerability Scan Reports:** Comprehensive scan results highlighting security gaps and actions taken to mitigate them.

Principles:

- **Proactive Security:** Taking proactive measures to identify and address security threats before they can be exploited.
- **Continuous Improvement:** Continuously improving the system's security through regular testing and updates.

Support and Maintenance

Support and maintenance activities are essential for ensuring the long-term security, reliability, and performance of the system. This phase involves scheduling regular updates to keep the system up to date with the latest security patches, as well as establishing backup and recovery plans to protect data integrity and availability. The objective is to maintain a secure and reliable system that can efficiently handle operations and recover swiftly in case of failures or breaches.

Activities:

- **Schedule Regular Updates:**
  - Develop a schedule for regular system updates, including security patches, software upgrades, and performance enhancements.
  - Ensure that updates are tested and deployed in a timely manner to minimize vulnerabilities.
  - Monitor the system for new threats and apply necessary updates to mitigate risks.
- **Establish Backup and Recovery Plans:**
  - Create comprehensive backup strategies to ensure that data is regularly backed up and stored securely.
  - Develop recovery plans to restore system functionality and data integrity in the event of failures, breaches, or disasters.
  - Test backup and recovery procedures regularly to ensure their effectiveness.

Functions:

- **Maintain System Security and Reliability:** Ensure the system remains secure and reliable through regular updates and proactive maintenance.
- **Ensure Data Preservation:** Protect data integrity and availability through robust backup and recovery plans.

Deliverables:

- **Update Schedules:** Detailed schedules outlining the timing and scope of regular system updates.
- **Backup and Recovery Plans:** Comprehensive plans for data backup and system recovery, including procedures and testing protocols.

Principles:

- **Maintenance:** Regularly maintaining the system to ensure its security and reliability.
- **Data Preservation:** Ensuring the integrity and availability of data through effective backup and recovery strategies.

User Training

User training is a critical component of system security and support, focusing on educating users about the new system's functionalities, best practices for secure usage, and the importance of adhering to security policies. This phase involves developing and conducting comprehensive training programs for all users, including creating detailed user manuals to assist in troubleshooting and system usage. Giving users the information and abilities they need to operate the system safely and successfully is the aim.

Activities:

- **Develop and Conduct Training Programs:**
  - Design training programs tailored to different user groups, including management, staff, and customers.
  - Conduct training sessions to educate users on system functionalities, security best practices, and compliance with security policies.
  - Provide hands-on training and workshops to enhance user proficiency and confidence in using the new system.
- **Create User Manuals:**
  - Develop comprehensive user manuals that provide step-by-step instructions for system usage and troubleshooting common issues.
  - Ensure manuals are easily accessible and user-friendly, with clear explanations and visual aids.
  - Update manuals regularly to reflect changes and improvements in the system.

Functions:

- **Educate Users on System Usage and Security:** Provide users with the knowledge and skills needed to use the system securely and efficiently.
- **Facilitate Knowledge Transfer:** Ensure that users are well-informed about system functionalities and security practices through effective training and documentation.

Deliverables:

- **Training Materials:** Comprehensive training materials, including presentations, handouts, and online resources.
- **User Manuals:** Detailed user manuals providing instructions on system usage and troubleshooting.

Principles:

- **Knowledge Transfer:** Effectively transferring knowledge to users to ensure they can use the system proficiently and securely.
- **User Empowerment:** Empowering users by providing them with the tools and knowledge needed to navigate the system confidently.

3.2 Gantt chart:

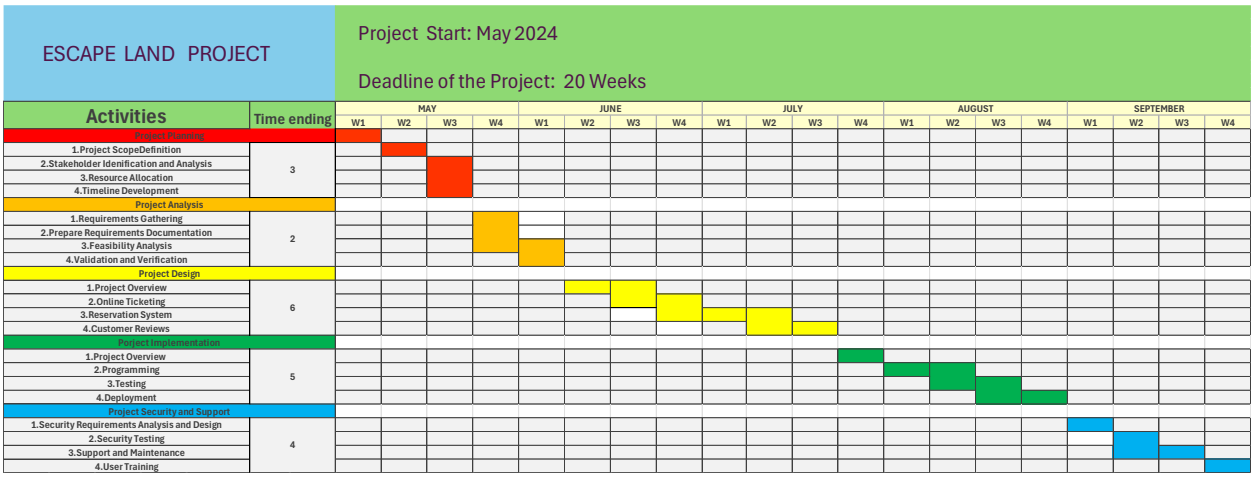


Figure 2: Gantt Chart

3.3 Workload Matrix:

ASIA PACIFIC UNIVERSITY OF TECHNOLOGY AND INNOVATON

CT026-3-1-SAAD

Student Coursework Workload Matrix - Grades and Feedback Attachment

INTAKE: APU1F2311IT	STUDENT NAME	Ammar Mohammed Saeed Qaid	Omar Alattas	MOHAMMED AHMED ABDULLAH AL-JOHI	Choy Cheng An	Mohammed Badruddin Haitham	Abrar Mahmud Taha
System Name: NEXGEN	TP NO.	TP078135	TP078158	TP076768	TP078958	TP076927	TP074039

A. Group Component

CLO	ASSIGNMENT COMPONENT	ALLOCATED MARKS	CONTRIBUTION PERCENTAGE	CONTRIBUTION PERCENTAGE	CONTRIBUTION PERCENTAGE	CONTRIBUTION PERCENTAGE	CONTRIBUTION PERCENTAGE	CONTRIBUTION PERCENTAGE	TOTAL %
1	Introduction	5	18.00	15.00	17.00	17.00	16.00	17.00	100
2	Problems and Proposed Solutions	5	17.00	18.00	15.00	17.00	17.00	16.00	100
3	Project Planning	5	16.00	17.00	18.00	15.00	17.00	17.00	100
4	Feasibility Study	10	17.00	16.00	17.00	18.00	15.00	17.00	100
5	System Analysis	10	17.00	17.00	16.00	17.00	18.00	15.00	100
6	Design Diagram (Context Diagram, DFD 0, ERD)	20	15.00	17.00	17.00	16.00	17.00	18.00	100
7	Interface Design	10	16.00	16.00	17.00	17.00	17.00	17.00	100
	Total Marks and Contribution	65	17%	17%	17%	17%	17%	17%	
			Signature						

print until this point only

4. Feasibility Study:

The evaluation of Escape Land's new information system project within the proposed case would be done through a feasibility study which considers the viability of the project based on various factors. Technically, it would assess if the two centers can be operated through one overall system that can address ticketing and water park and the safari, receiving reservation for the resort, and addressing matters concerning customers' feedback and social connectivity. Lastly, from the economies aspect, it would evaluate whether the implemented budget of RM 80,000 for the development and implementation of the system is efficiently and effectively to address all the need within the five months' time frame, as well as, whether the anticipated benefits such as efficiency improvement and improvement in customer satisfactory are proportional to the cost to bear. At an operational level, the research would seek to find out whether the staff can be switched to the new system without compromising organizational flow and whether the proposed system can support the volumes of throughputs experienced during the peak seasons. Also, take legal aspects into account since the system would have to meet the requirements of data protection regarding the customers' data. It will help the management of Escape Land to make the right decision either to go ahead and implement the investment project or not when this all-inclusive feasibility study is compiled. (Land, 2024)

4.1.1 OPERATIONAL Feasibility Study

Operational Feasibility is a key part of feasibility studies. Operational Feasibility is defined by the ability of the system to utilize, support and maintain the operational capability of the system without compromising qualities. It assesses the adaptability of the new system to the current system.

4.1.2 Technical Feasibility Study

Based on these investigation results, it drew the conclusion that the project is technically feasible. The solutions (hybrid ticketing system, reservation management system, data analytics tools) are implemented from technologies that are regularly in use in the tourism sector. In the case of Escape Land, there might be the need for the acquisition of new hardware and software technology in executing the project, but these tools are not obscure as they can be sourced and integrated within the time frame of the project. (Saifi, 2023)

1. Is the proposed technology or solution practical?

Yes, the listed technologies are quite realistic for Escape Land. The integrated ticketing and reservation systems, the data analytic tool for marketing and the review and feedback system are ideal to cope with the present day's problems. These solutions are widely implemented in the tourism and hospitableness industry, so it is possible to adjust them to Escape Land. (*What Is Technical Feasibility? (Process and Best Practices)*, 2022)

2. Do we currently possess the necessary technology?

Although Escape Land may still lack some technologies that are required, they already have most of the requirements implemented. Which means that the respective physical infrastructures should be able to be adapted to support the proposed solutions. This change of moving from manual to digital will be an enhancement that will augment their technological advancement. (*What Is Technical Feasibility? (Process and Best Practices)*, 2022)

3. Do we possess the necessary technical expertise, and is the schedule reasonable?

Probably, Escape Land employs people with significant achieved industry-related expertise that can be helpful now of implementation. It is only possible that some specialized technical expertise may be required, which again can be solved by recruiting people for that specific position or obtaining the services of IT consultants. The projected time frame of five months is quite tight but possible if an effective and efficient project manager and project team are put in place. Thus, it proves that Escape Land is willing to improve at a fast pace and can act as a source of inspiration for the project team. (*What Is Technical Feasibility? (Process and Best Practices)*, 2022)

4. If the technology is not available, can it be acquired?

Absolutely. All the suggested technologies are currently within the market. There are so many companies providing ticketing solutions and reservation management systems, business intelligence software and customer feedback software. Escape Land is faced with two options, either to obtain ready-made products that can be modified slightly to suit their needs or have their systems tailor-made. With the allocated budget of RM 80, 000, it becomes easy to source for these technologies as the starting point. (*What Is Technical Feasibility? (Process and Best Practices)*, 2022)

Hence, it can be stated that the project solutions to be implemented in Escape Land are of high technical practicality. The applicability of the solutions being proposed, the possibility of acquiring the necessary technology, the ability to build upon the existing competency, and the reasonable time frame makes the project realistic. Of course, with good planning, efficient project management and correct usage of resources, Escape Land is ready for the successful application

of these technological enhancements and the general improvement of the company's and customers' lives. (*What Is Technical Feasibility? (Process and Best Practices)*, 2022)

4.1.3 Economic Feasibility Study

Cost of the Management Systems of Escape Land:

We will, therefore, zero in on the following two critical tests to see whether or not the project for Escape Land can be completed within the budgeted costs and is economically feasible:

1. Infrastructure and Equipment Costs They need to establish how much it will take them to acquire or upgrade the necessary infrastructure and equipment for the new information system. This will include the servers, networking equipment, computers, software licenses, and any other hardware that will be needed to have the system up and running and implementable.
2. Training and Transition Costs: Account for the costs that training employees to properly use the new information system will require. Training may also involve some of the administrator's staff, customer service representatives, and technical support staff so that they are all adequately trained in the operation and servicing of the system.

Expected benefits:

Reduction in labour cost due to the automation of ticketing and reservation, along with many other administrative activities. The dependency on manual labor will thus be reduced, which will in turn reduce the cost of labor through salaries, benefits, and training for staff engaged in such activities.

Better customer service: Automation will greatly reduce the delay and error in a conventional approach, thus smoothing customer services related to ticketing and booking.

Increased Revenues: More bookings could be handled and packages (water park, safari, resort accommodation) effectively marketed by this system. This potential can improve the sales revenue.

Cost Savings due to Administrative Efficiency: The use of paperless operations and fewer administrative costs in maintaining manual procedures will save costs for the entity.

Enhanced Data Management: The new system is going to provide a holistic explanation of statistics related to performance in ticket sales, profitability, and other performance measures to ensure proper decision-making and operational efficiency.

4.1.4 Feasibility schedule Study

To assess the schedule feasibility for the element of control, focusing on whether it will be secure and accurate, we need to consider the following aspects: To assess the schedule feasibility for the element of control, focusing on whether it will be secure and accurate, we need to consider the following aspects:

1- **Security Requirements**: It requires that one should establish the appropriate precautionary measure that needs to be taken
2- **Implementation Timeline**: Assess the likely time that would be needed for these security measures to be put in place.
3- **Testing and Validation**: Describe the plan for the testing and validation of the security and accuracy of the given system.
4- **Resource Availability**: Analyses the availably of resources including human resources, equipment and technology within the timeline of the project.
5- **Risk Management**: Recall possible threats and their managerial responses on security and accuracy of results.
6- **Compliance Deadlines**: Make sure the timeline of the project incorporates due dates such as those prescribed by law.

Here is a detailed breakdown for a schedule feasibility assessment: Here is a detailed breakdown for a schedule feasibility assessment:

Security Requirements

Requirement Analysis:

- Duration: 2 weeks
- Activities: Determine all the security prerequisites such as encrypting data, access to special Sections, or other compliance issues.

Implementation Timeline

1- Design and Planning:

- Duration: 3 weeks
- Activities: Build up a design for the security architecture, develop the framework for data integrity and build the blueprints for implementation.

2- Development and Configuration:

- Duration: 6 weeks
- Activities: Create and tune security modules and options (firewalls, encryption standards, users' access rights), implement input data check procedures.

Testing and Validation

3- Testing Phase:

- Duration: 4 weeks
- Activities: Carry out the security testing (penetration testing, vulnerability scanning), data integrity testing, and User Acceptance testing.

4- Validation and Review:

- Duration: 2 weeks
- Activities: Compare results, make the necessary modifications, and affirm the last changes to security configurations.

Resource Availability

5- Resource Allocation:

- Duration: Ongoing
- Activities: The key personnel should consist of skilled security experts, testing tools, and the required technology properties.

Risk Management

6- Risk Assessment:

- Duration: 2 weeks
- Activities: To define opportunities, risks, and assess their effect on the company's operations, and to design solutions for their minimization.

Compliance Deadlines

7- Compliance Check:

- Duration: 1 week
- Activities: All security and data integrity functions and schedules have to be compliance with specific norms and requirements.

Total Estimated Time: Weeks 12: 13 weeks to 16 weeks & 17 weeks to 20 weeks

Summary

Security Requirements Analysis: The two-week period is specified as the time which is required for making up the sleep below 7 hours.

1- Design and Planning: 3 weeks
2- Development and Configuration: 6 full weeks
3- Testing Phase: 4 weeks
4- Validation and Review: 4 weeks
5- Risk Assessment: 2 weeks
6- Compliance Check: 1 week

4.2 PIECES FRAMEWORK:

4.2.1 PERFORMANCE

The main goal of this part of PIECES framework is to assess the overall performance of the current system and the performance gain after integrating the new system. The performance metrics include indicators like throughput, response time, reliability, latency, scalability and performance monitoring.

DOES THE CURRENT SYSTEM IN PLACE MEET ALL THE PERFORMANCE NEEDS? IF NOT, HOW WILL THE NEW SYSTEM IMPROVE THOSE PERFORMANCE INDICATORS?

No, the current system doesn't fulfill any of the required performance indicators. The current system of Escape Land is fully manual. So, it provides very low throughput, long response time, unreliable, high latency, poor scalability and no performance indicator monitoring system. The new system will address all these issues. Firstly, the throughput will be increased greatly due to the automation of ticketing, reservation and other manual systems. The manual ticketing and reservation system greatly increases the response time. But the hybrid system of the new system will shorten the response time increasing the performance greatly. Moreover, the manual process of the older system had very poor reliability. The modern new system will provide solid reliability to the entire Escape Land system. In case of any software and hardware, it will have backups to handle the situation which wouldn't be possible with the outdated system before. Reliability is crucial for the company in the long run to survive in the competitive market. The new system will have an acceptable level of latency for certain areas to make sure the end-users get access to real-time information quickly. Reducing latency is crucial to reduce response time. Another significant performance gain for the new system will be the scalability factor. In the previous manual system, upgrading the system was notoriously difficult because of the manual input system. With the new system in place, adding new tools or upgrading the current system will be very easy. Scalability is vital for the long-term growth of Escape Land. It will address the ever-changing needs of the end-users. Finally, performance monitoring ability will be added into the system which was absent in the older system. Performance monitoring will monitor the current performance and operations of

the Escape Land system and give proper feedback so the system can be scaled to meet those demands. All these will ultimately provide the best performance for Escape Land system.

4.2.2 INFORMATION

Does the current mode provide end users and managers with timely, pertinent, accurate and usefully formatted information?

No. The current mode of operation at Escape Land does not seem to supply end users and managers with timely, relevant, correct, and format-wise useful ISA. Here is why:

1. Timeliness:

- There is probably a delay in generating the daily count of visitors and the respective revenues due to manual ticketing.

- The system of booking accommodation where telephones calls are made to inquire about the available rooms and where reservations are made by counters does not offer real-time reports. (*What Is Timeliness in Data Quality? - Caniry*, 2022)

2. Pertinence:

- This may only give superficial knowledge and is probably not enough to satisfy the information demands of strategic management.

- Regarding the three major attractions, there is no information about the system that can identify customers' preferences or actions.

3. Accuracy:

- The case study points out improperly labeled data sets due to the manual ticketing system as a weakness.

- That is why overlapping dates in accommodation bookings leads to inconsistency in the reservation system.

- Another problem outlined by the management is 'difficulties in monitoring and measuring monthly sales revenue'; hence, there are shortcomings in financial information reliability. (*What Is Data Accuracy? Definition, Examples and KPIs*, 2023)

4. Useful Formatting:

- Given that businesses have been only inputting information manually and a primary source of data has been disparate, there is a high chance that information is not shared in a skip-and-click format.

- Again, there were no findings regarding the existence of any dashboard or automatic reviewing system that would display data in a format that is easier for a user to understand.

5. Accessibility:

- If the current mode still involves report compilation, then it implies that this may be a manual process and managers may not get the information they need at any given time easily.

6. Integration:

- Currently, there does not seem to be a coherent setup of computer record that draws information from the water park, the safari, and the resort in terms of accommodation, and it becomes hard to get an all-round view of the business.

7. Marketing Insights:

- When it comes to advertising through social media sites, Escape Land is hesitant to suggest there is no relevant information on the market performance.

8. Customer Feedback:

- They posed that the absence of a systematic way the customers can give reports of their experiences implies that good customer feedback data is not being collected and structured advantageously. (*10 Best Customer Feedback Examples & Answers [with Templates]*, 2024)

Therefore, currently at Escape Land, it seems that the mode of operation to provide speedy, relevant, correct, and appropriately transformed information to the end user and manager is inadequate. Given this, it can be assumed that the organization's ability to manage information is lacking, which prevents them from making optimal decisions and improving their operations, hence the need for the new information system.

4.2.3 Economy

Cost-Effective Information Services: Determine whether the current mode of operation at Escape Land yields cost-effective information services. In this regard, one will evaluate current manual processes of ticketing, reservation, and administration for efficiency and cost-effectiveness. Find out whether there are some inefficiencies in the system or some high costs in operation that arise from the current system.

Potential for Cost Reduction or Benefit Increase: Investigate opportunities for cost reduction and/or benefit increase from the new information system. Automation reduces labor costs, eliminates paperwork, and enhances operational efficiency. Reflect on how such improvements would pave the way toward reduced cost and service improvements.

Comparison of Cost Savings: Compare what the estimate cost to develop the proposed new system will be with what is being spent now. State the new system is targeted at saving 20% of maintenance costs; hence, better reliability, together with operational faults being cut down on.

Establish whether these savings, in addition to other potential benefits such as better customer service and revenue, will justify the investment in the new system.

Reduction in Maintenance Costs: State that the improvement in the new system of a 20% decrease in maintenance costs reveals better efficiency in operation and lower expenses. This reduction supports the argument for implementing the new system based on economic feasibility and cost-effectiveness.

4.2.4Control

At Escape Land, managerial control pays attention to the quality of processes that influence efficiency and the customers. There is also the area of ticketing and reservations, which is an area in dire need of redevelopment since it is characterized by delay and inaccuracy. With the help of the automated ticketing system and the central electronic reservation, Escape Land can avoid queues, cases when people book slots at the same time and works as a map for visitors. Further, proper incorporation of the correct data management and the customer feedback system shall guarantee the correct revenue tracking and a perpetual improvement of the services offered. These improvements will provide high scenarios for operational activity, and transform Escape Land into a touristic star

4.2.5 EFFICIENCY

Will the new system automate manual tasks and reduce administrative overhead?

Yes, the new automated system at Escape Land will automate manual tasks such as ticketing and reservations processes. By eliminating manual data entry and processing, the system will significantly reduce administrative overhead. This automation will streamline workflows, improve operational efficiency, and allow staff to focus on more strategic and important tasks rather than routine administrative duties.

Will the new system minimize errors and delays in booking and ticketing processes?

Yes, the new system is designed to minimize errors and delays in booking and ticketing processes at Escape Land. Automation reduces the chances of human error associated with manual data entry, leading to more accurate bookings and transactions. Real-time updates and availability checks will ensure that customers receive quick responses and accurate information, thereby reducing delays and improving overall efficiency in the booking and ticketing processes.

4.2.6 SERVICE

Will the new system improve service delivery by reducing wait times and enhancing booking convenience?

Yes, the implementation of the new automated system will significantly improve service delivery at Escape Land by reducing wait times and enhancing booking convenience. With automated ticketing and reservations, customers will experience shorter queues and faster processing times. Real-time availability updates will allow customers to make bookings conveniently and quickly, improving overall satisfaction and reducing wait times significantly.

Is there adequate user training and support in place for staff and customers using the new system?

Yes, Escape Land has prioritized overall user training and support for both staff and customers using the new system. Staff will receive training on system operation, customer interaction techniques, and troubleshooting procedures to ensure efficient service delivery. Customers will have access to user-friendly interfaces and support channels to assist with any queries or issues they may encounter while using the new booking and ticketing system. This proactive approach to training and support ensures smooth adoption and optimal utilization of the new system, enhancing overall service delivery and customer satisfaction.

4.3 Costing Table for Enhancing Efficiency and Customer Satisfaction at Escape Land

Total Budget: 80,000 RM
Time Frame: 5 months

Solution	**Item**	**Estimated Cost (RM)**	**Month 1 (RM)**	**Month 2 (RM)**	**Month 3 (RM)**	**Month 4 (RM)**	**Month 5 (RM)**
1. Hybrid Ticketing System	Development and Integration	15,000	5,000	5,000	5,000	0	0
	QR Code Scanning Infrastructure	4,000	4,000	2,000	2,000	0	0
	Training for Staff	1,000	0	500	500	0	0
	Marketing and Promotion	2,000	0	0	1000	1000	0
Total for Hybrid Ticketing System		22,000	7000	7500	6500	1000	0
2. Hybrid Reservation Management System	Development and Integration	10,000	4000	2000	2000	0	0
	Centralized Database	4000	2000	2000	0	0	0
	Training for Staff	1000	0	500	500	0	0
	Marketing and Promotion	2000	0	0	1000	1000	0
Total for Reservation System		17000	6000	6500	3500	1000	0
3. Data Analytics Tool for Marketing	Software Purchase/Development	8,000	4000	4000	0	0	0
	Integration with Existing Systems	2000	1000	1000	0	0	0
	Training for Marketing Team	1000	0	500	500	0	0
Total for Data Analytics Tool		11000	5000	5500	500	0	0

4. Dedicated Packages Section on Website	Development and Integration	4000	2000	2000	0	0	0
	Content Creation and Design	2000	0	1000	1000	0	0
	Marketing and Promotion	2000	0	0	1000	1000	0
Total for Packages Section		8000	2000	3000	2000	1000	0
5. Centralized Data Management System	Development and Integration	4000	2000	2000	0	0	0
	Data Migration and Setup	2000	1000	1000	0	0	0
	Training for Staff	1000	0	500	500	0	0
Total for Data Management System		7000	3000	3500	500	0	0
6. Review and Feedback System	Development and Integration	4000	2000	2000	0	0	0
	Marketing and Promotion	2000	0	0	1000	1000	0
	Training for Staff	1000	0	500	500	0	0
Total for Feedback System		7000	2000	2500	1500	1000	0
Grand Total		72,000	25,000	28,500	14,500	4,000	0

Figure 3: Cost Benefit Analysis of Escape Land Management

Summary

Total Budget: 80,000 RM

Total Estimated Cost: 72,000 RM as stated in the objectives that concretely point out specific targets as mentioned in the company's management goals sections.

Surplus: 8,000 RM

Thus, with this cost analysis for 5 months, Escape Land can increase efficiency and

5 System Analysis

Functional Requirements

Ticket Purchase and Management System

- **F1.1:** The system should give an online platform for guests to buy tickets for the water park, safari, and resort.
- **F1.2:** The system is able to enable guests to select dates and times for their visit.
- **F1.3:** The system can allow guests to view availability in real-time.
- **F1.4:** The system can offer various payment options (credit card, debit card, online banking, e-wallets).
- **F1.5:** The system is able to generate and email tickets with unique QR codes for entry.
- **F1.6:** The system can provide an option to buy package deals that include water park, safari, and resort accommodations.

Reservation System for Accommodations

- **F2.1:** The system can centralize booking and reservation data.
- **F2.2:** The system should enable online booking for resort accommodation.
- **F2.3:** The system can display room availability and pricing in real-time.
- **F2.4:** The system should allow guests to modify or cancel their reservations online.
- **F2.5:** The system is able to send automated booking confirmations and reminders via email and SMS.

Customer Feedback and Review System

- **F3.1:** The system can enable guests to submit reviews for the water park, safari, and resort accommodations.
- **F3.2:** The system should allow guests to rate their experience on a 1 to 5-star scale.

- **F3.3:** The system can provide a text box for customers to leave detailed feedback.
- **F3.4:** The system is able to implement a review moderation system to filter inappropriate content.
- **F3.5:** The system should display client reviews and ratings on the website.

Social Media Integration

- **F4.1:** The system should integrate social media platforms for marketing and guest engagement.
- **F4.2:** The system is able to track the effectiveness of social media campaigns.
- **F4.3:** The system can allow guests to share their experiences directly from the website to social media.

Sales and Profit Tracking

- **F5.1:** The system should automate monthly sales and profit tracking.
- **F5.2:** The system can generate detailed sales reports and analytics.
- **F5.3:** The system is able to provide management with real-time insights into financial performance.

Non-Functional Requirements

Portability

- **NF1.1:** The system should be compatible with various operating systems (Windows, macOS, Linux) and devices (desktops, laptops, tablets, smartphones).
- **NF1.2:** The system can support multiple web browsers (Chrome, Firefox, Safari, Edge).

Security

- **NF2.1:** The system should implement SSL encryption for all data transactions.
- **NF2.2:** The system should use multi-factor authentication for administrative access.
- **NF2.3:** The system can regularly update and patch to protect against vulnerabilities.
- **NF2.4:** The system should ensure data privacy and compliance with local regulations such as Malaysia's Personal Data Protection Act (PDPA).

Maintainability

- **NF3.1:** The system should be easy to maintain with comprehensive documentation.
- **NF3.2:** The system can implement modular design to facilitate updates and feature additions.
- **NF3.3:** The system can provide automated testing and deployment tools to streamline maintenance processes.

Reliability

- **NF4.1:** The system should have an uptime of 99.9% to ensure availability during peak times.
- **NF4.2:** The system can implement data backup and recovery mechanisms to prevent data loss.
- **NF4.3:** The system can conduct regular system checks and health checks to ensure continuous operation.

Scalability

- **NF5.1:** The system should be scalable to accommodate future growth and additional features.
- **NF5.2:** The system can design the architecture to support easy integration with third-party services.
- **NF5.3:** The system should ensure it can handle increased traffic and data loads without performance degradation.

Performance

- **NF6.1:** The system should handle up to 10,000 concurrent users without performance degradation.
- **NF6.2:** The system should ensure page load times do not exceed 2 seconds.
- **NF6.3:** The system can ensure fast sale processing times for ticket purchases and reservations.

Reusability

- **NF7.1:** The system can design components to be reusable across different modules (e.g., payment processing, user authentication).
- **NF7.2:** The system should implement standard APIs to facilitate integration with other systems and future enhancements.

Flexibility

- **NF8.1:** The system should be flexible enough to accommodate changes in business processes and requirements.
- **NF8.2:** The system can allow for customization and configuration of features without requiring significant code changes.
- **NF8.3:** The system should support multiple languages and currencies to cater to a diverse customer base.

Architecture Requirements

System Structure:

- Use a multi-layer design for organization.
- Keep the client-side (user interface) separate from the server-side (business logic and database).

Database:

- Use reliable databases like MySQL or PostgreSQL.
- Organize data efficiently to avoid duplication and speed up queries.

Scalability:

- Ensure the system can handle more users by adding servers when needed.
- Use load balancers to distribute traffic evenly.

Security:

- Protect the system with firewalls and security checks.
- Follow secure coding practices to prevent common vulnerabilities.

Integration:

- Ensure the system can connect with external services like payment gateways and social media.
- Use standard security protocols for these connections.

Backup and Recovery:

- Regularly back up data to prevent loss.
- Have a plan to quickly restore the system if something goes wrong.

Business Requirements

Automation:

- Automate tasks like ticketing, reservations, and feedback collection.
- Implement a system to manage customer interactions.

Revenue Management:

- Provide tools to track and analyze sales data.
- Adjust ticket and room prices based on demand.

Marketing:

- Integrate with social media for marketing campaigns.
- Create a website section to promote special offers.

Customer Experience:

- Make the system easy to use for buying tickets, making reservations, and giving feedback.
- Provide real-time updates on ticket availability and wait times.

Reporting:

- Develop tools for detailed sales and customer behavior reports.
- Use data analytics to identify trends and make informed decisions.

System / Technical Requirements

Compatibility:

- Ensure the system works on various operating systems and devices.
- Support major web browsers like Chrome, Firefox, Safari, and Edge.

Maintainability:

- Make the system easy to maintain with good documentation and a modular design.
- Use automated testing and deployment tools.

User / Stakeholders Requirements

User Interface:

- The interface should be easy to use and navigate.
- Support multiple languages.

Customer Needs:

- Allow customers to easily buy tickets, make reservations, and provide feedback online.
- Offer various payment options and secure transactions.

Staff Needs:

- Provide tools for staff to manage tickets, reservations, and customer interactions.
- Ensure staff have access only to the information they need.

Management Needs:

- Provide tools for management to monitor sales and operations.
- Offer real-time data and insights for decision-making.

Security Requirements

Data Protection:

- Encrypt data both when stored and during transmission.
- Comply with data protection laws like Malaysia's PDPA.

Access Control:

- Use role-based access control to limit access to sensitive data.
- Implement multi-factor authentication for additional security.

Vulnerability Management:

- Regularly check for and fix security vulnerabilities.
- Keep the system updated with the latest security patches.

User Interface Requirements

Design:

- Ensure the interface is clean, intuitive, and visually appealing.
- Use responsive design to work well on both desktop and mobile devices.

Navigation:

- Provide clear and consistent navigation.
- Include search functionality for easy information access.

Feedback:

- Provide users with confirmation messages for successful actions and error messages for issues.
- Allow users to submit feedback and suggestions easily.

This structure ensures that the Escape Land Management System is easy to use, secure, and efficient, meeting all essential requirements for both the business and its users.

Overall Impact

By focusing on these key functional and non-functional requirements, the new system for Escape Land will meet current operational demands and provide a solid foundation for future growth. This will reduce inefficiencies, improve customer satisfaction, and support business growth, strengthening Escape Land's position in the tourism market.

6.Design Diagram

6.1 Context Diagram

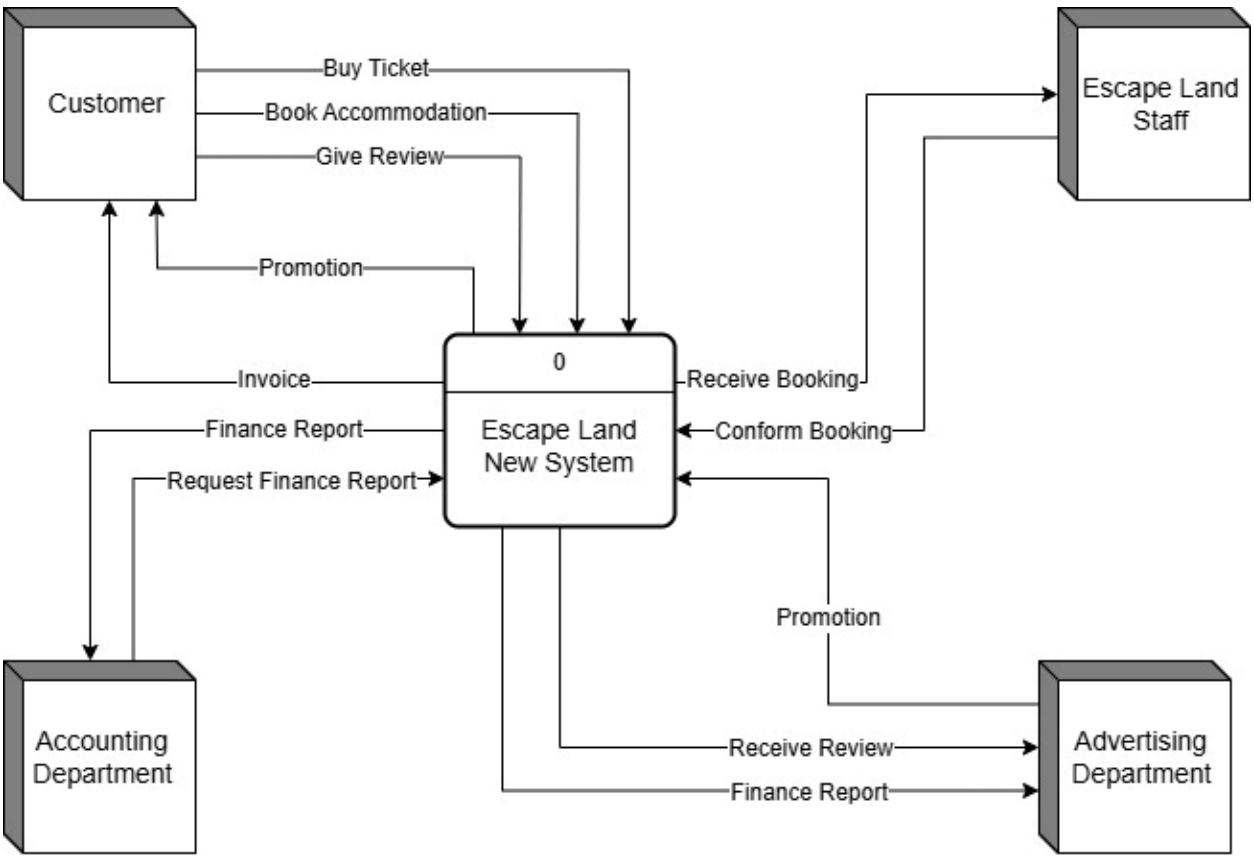


Figure 4: Context Diagram

6.2 DFD Level 0:

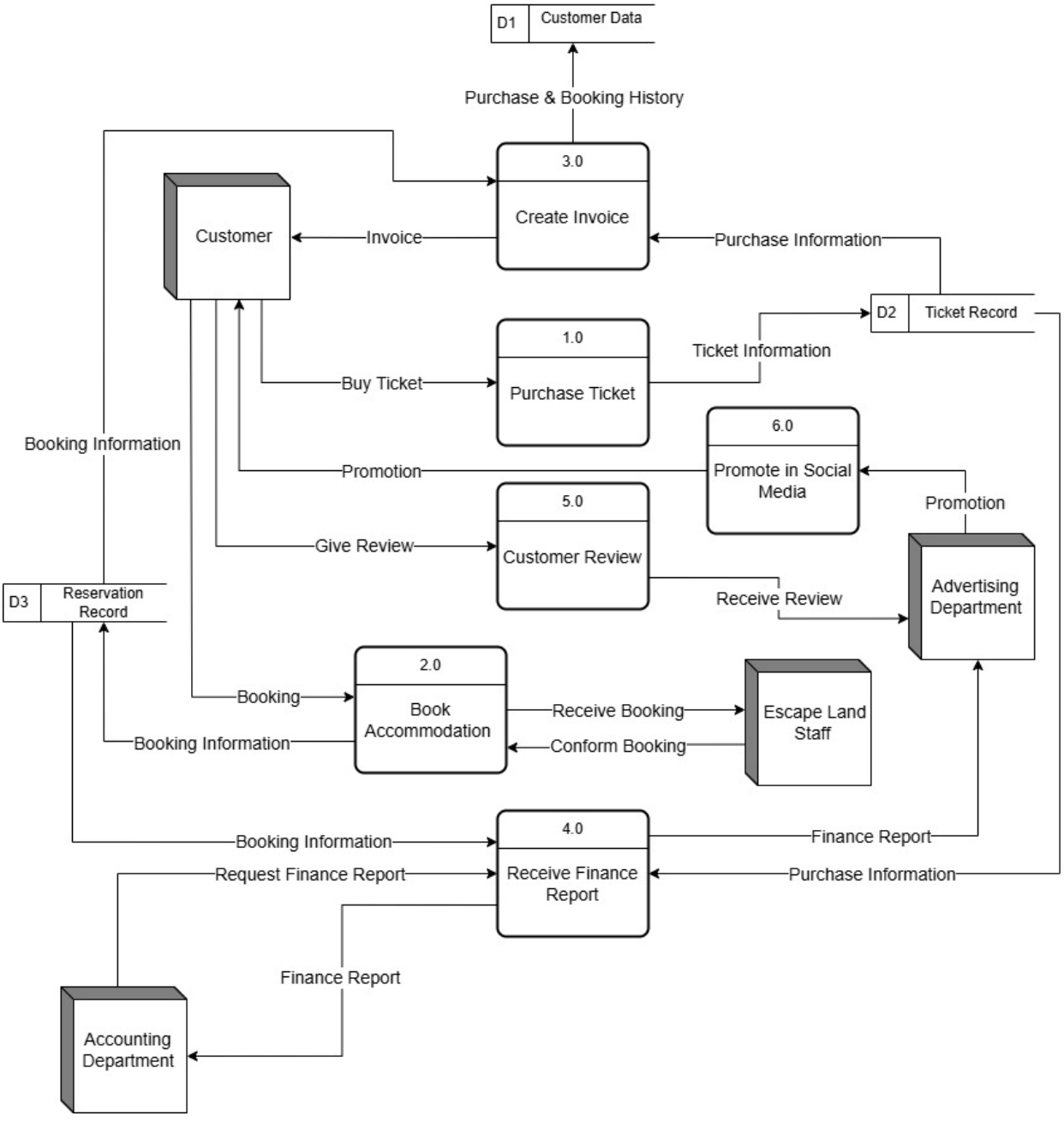


Figure 5: DFD Level 0

6.3 Entity Relationship Diagram (ERD)

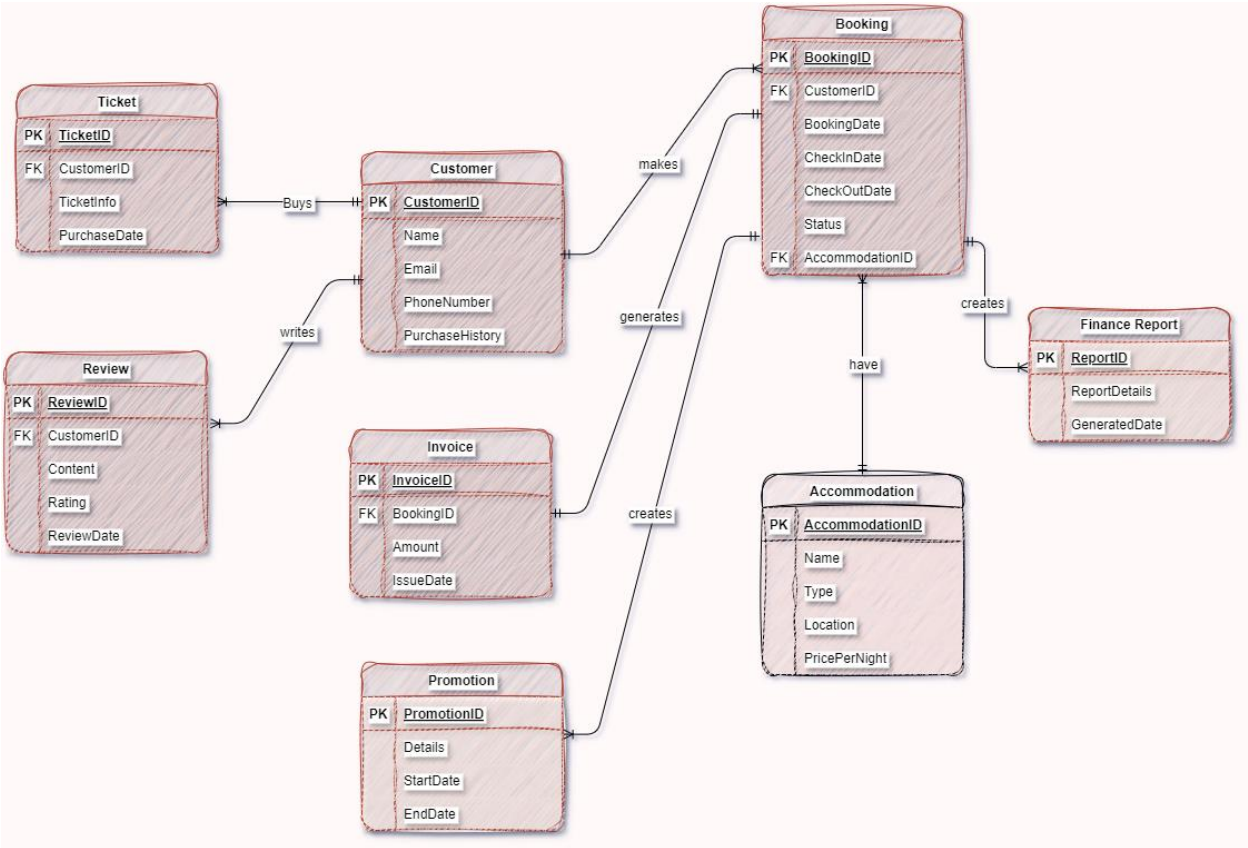


Figure 6: ERD

These intertwined relations include possibilities like “Customer buys Ticket” or “Customer makes Booking” and indicate business processes of Escape Land. This ERD will help to visualize and systematize the necessary data to solve the mentioned issues, for example, to enhance the system of ticketing, to optimize the management of accommodations, to provide more accurate data on finances.

7.Interface Design

7.1 Prototype Design

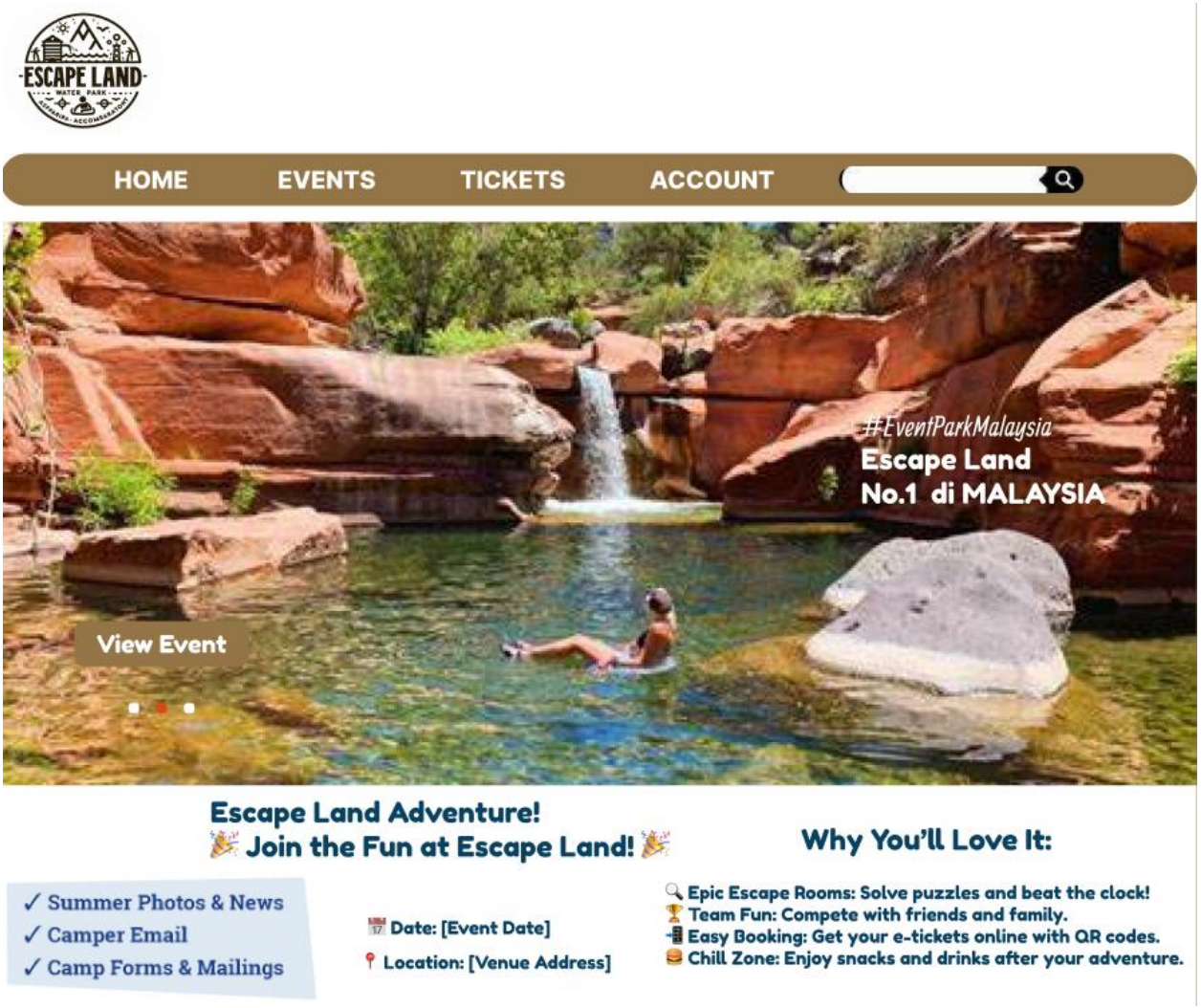


FIGURE 7: HOMEPAGE

This is the home page of Escape Land. The section at the top contains the logo for Escape Land. Just below it we have the navigation which has links to Home, Events, Tickets and Account section. A large scenic image is chosen in the hero section to immediately catch the attention of the users. An overlaid text is used to promote Escape Land as the best event park in Malaysia. A call-to-action button "View event" is adjusted over the image perfectly. This will prompt the user to explore the event details. A highlight section is added right below the image to promote the reasons to visit the park. It tries to catch the attention of the users by mentioning attractions like

escape rooms, fun with friends, hassle free booking process and a chill zone for relaxation. Some electronic icons together with brief pop-up texts inform each of the interesting things that the visitors may come across, stressing the fun activities.

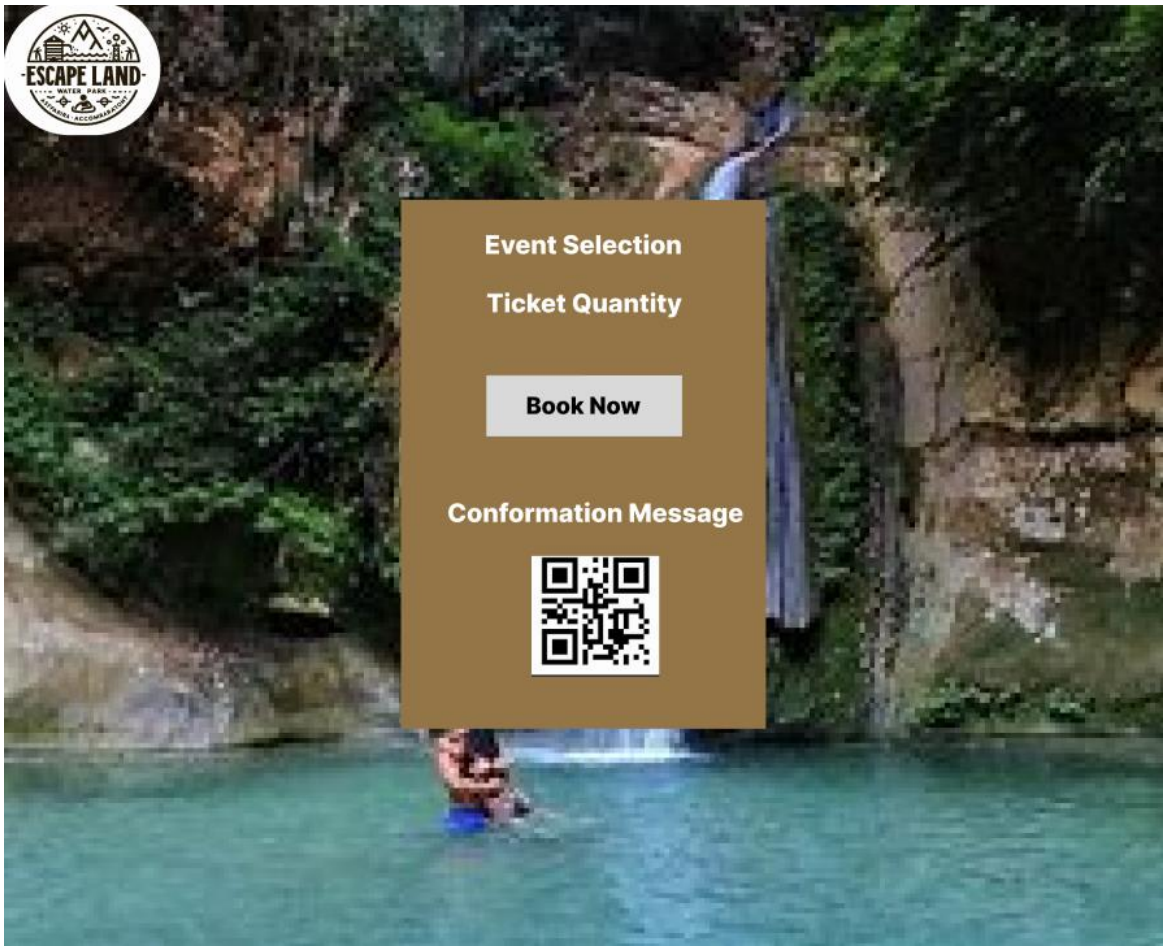


FIGURE 8: BOOKING PAGE

A picturesque area with a waterfall is chosen as a background image on the booking page. On one hand, located centrally, the booking interface contains the options to select specific events and user enters the quantity of tickets for an event and clicks ‘Book Now’. Confirmation Message: Below the ‘book now’ button a QR code and a message stating that booking confirmations are easy to obtain are placed. Users can scan the QR to get the relevant information about the booking.

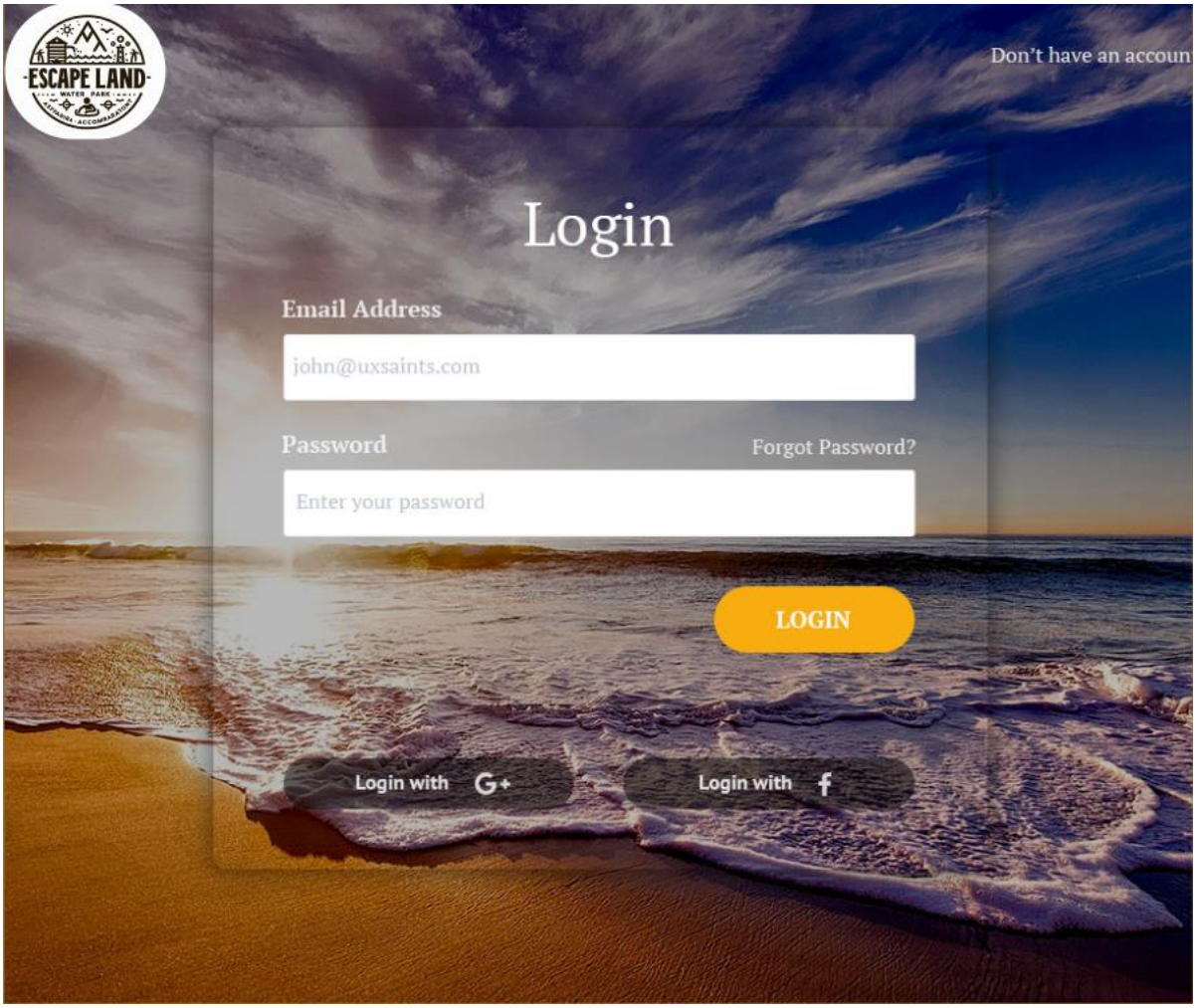


FIGURE 9: LOGIN PAGE

The login page is created with a calming background to enhance the aesthetic appeal. A login form is created for the users. The form includes fields for entering the email address and password. It also includes a "Forgot Password" button for account recovery or resetting password. This aids the users incase if they forget their password. A "Login" button is placed below the password field for users to access their account. A "Don't have an account button" is put in the right corner for new users. Social media login options are also made available keeping the convenience of the users in mind. Options to login with Google or Facebook a gives alternative ways for users to login if they don't want to use Email. Proper security measures and protocol are taken to secure the account information of the users and to maintain user privacy.

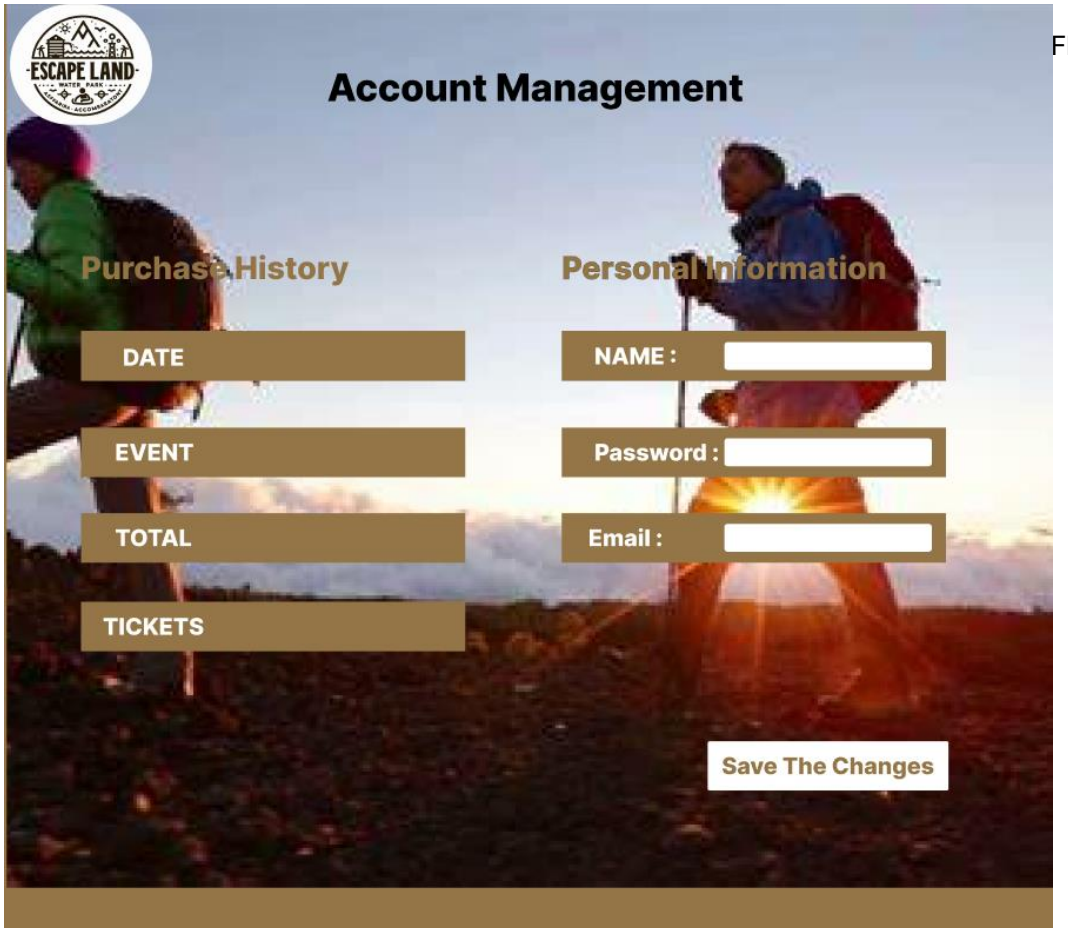


FIGURE 10: ACCOUNT MANAGEMENT

The account management feature is also added in the Escape Land System to enhance the user experience. A personal information section is introduced for the users to update their information if they want to. The user can change his/her name, password as well as email address. A “Save the changes” button is added to save the new information updated by the users. In the left side of the page we have the purchase history section. The purchase history will give a comprehensive description of all the previous purchases including details such event names, dates, quantities of tickets and the total cost of all these combined. This feature is crucial in any modern website.

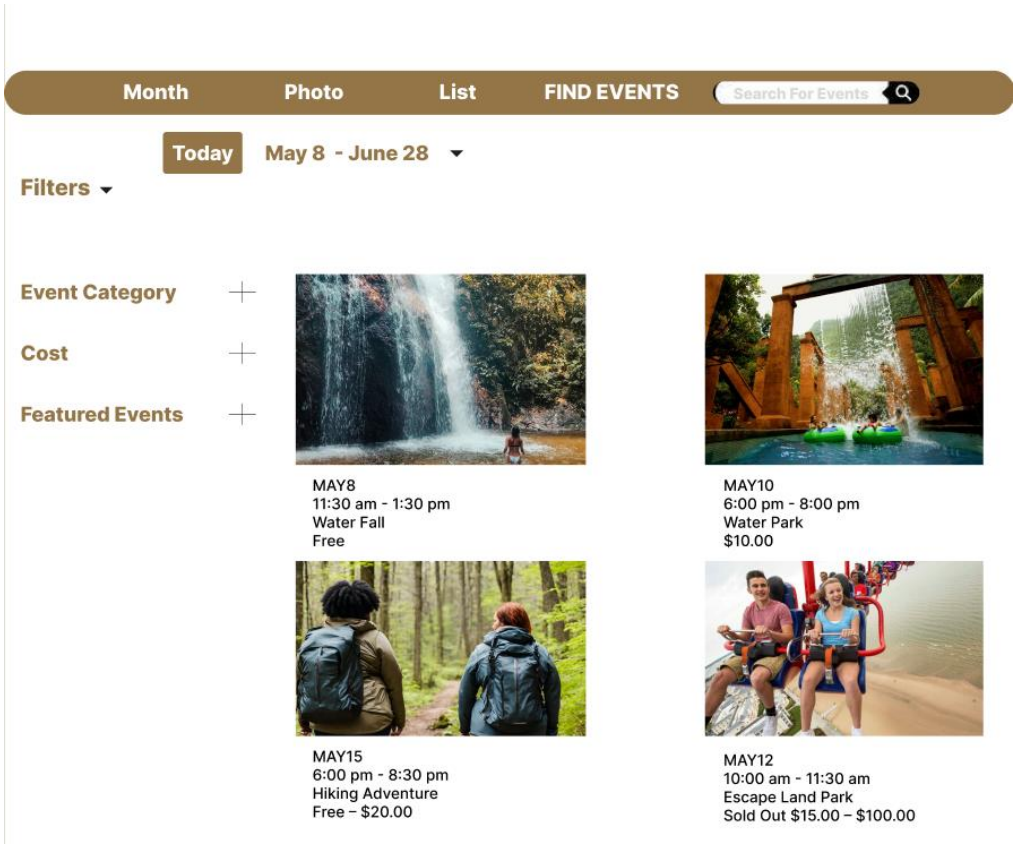


FIGURE 11: EVENT LISTING PAGE

An Event Listing page is also included that provides a detailed list of all the upcoming events. Users can also use the filter feature added in the site to find the most interesting events to them. The filter options include filtering by event category, cost and special featured events. This feature helps the user choose a specific event quickly instead of searching through the entire page. Event categories include concerts, sports, theater, fun time etc. At the top of the page the navigation bar includes month, photo, list and a manual search bar for users to search for specific event using keywords which makes the process hassle free. The event catalogue consists of event cards that clearly display the date, event type, thumbnail image, time and cost. Users can click on the event cards to get even more detailed information and special instructions.

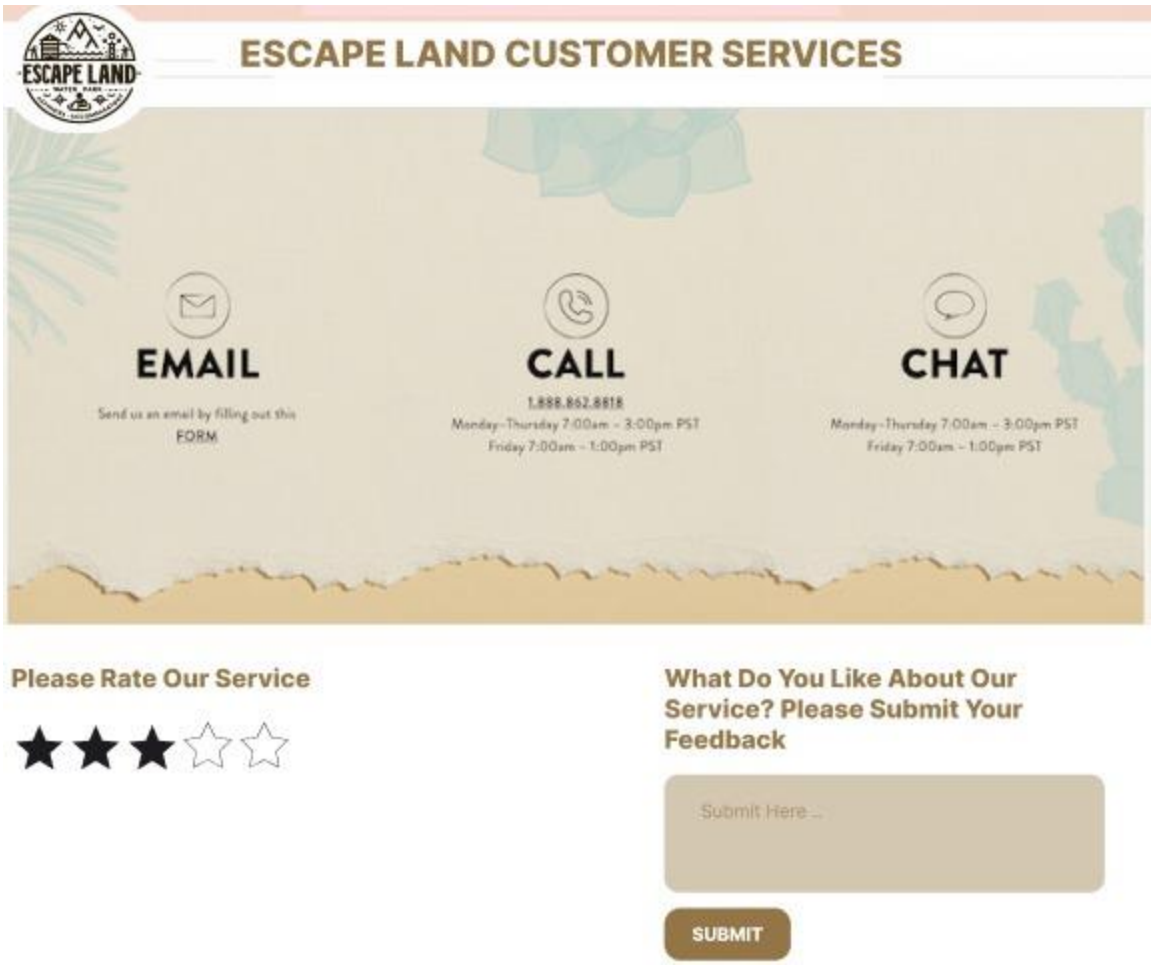


FIGURE 12: CONTACT AND SUPPORT PAGE

The customer support page includes options like email, direct call and live chat options assisted by AI bot. To reach out to the Escape Land employee's customers can send email by clicking the forum and filling out the necessary details on the form. A customer can also call directly to the Escape Land staff to get any information he/she wants to know. Finally, a chat option is also available for users who like chatting. The customers can also provide feedback about their entire experience using the forum attached to the bottom right and by clicking submit. This will help the Escape Land System to improve their services by analyzing the feedback. Multiple methods of communication cater to different user preferences. A specific time schedule for calling and chatting is defined. A service rating feature is also added to the bottom left of the page to express their satisfaction and dissatisfaction.

7.2 UI DESIGN CONCEPTS AND PRINCIPLES:

ABRAR MAHMUD TAHA (TP074039)

SIMPLICITY AND CLARITY:

This principle was the first principle that was applied in the UI design for Escape Land. Following this principle, unnecessary and complex details were trimmed to make it easy for the user to navigate. Only the practical elements of the system were applied. Unnecessary complexity was discarded by reducing the steps and grouping the relevant tasks with logic. Clear signposts were applied by providing a clean layout and proper information labelling. This in turn helps with user navigation. ((Dribbble - Discover the World's Top Designers & Creative Professionals, 2024)

USER CONTROL AND PREDICTABILITY:

The UI of Escape Land is designed in such a way that users feel in complete control. This was accomplished by making the UI intuitive and predictable. The interface should pop out according to the necessity of the user and fade into the background when not in use. This ensures the users that they are in control and makes them feel they are making their own choice. Each user has to be understood to ensure that the right tool plus information will be made available at the right time. Expect certain user behaviors and lead the user where you want them to go without making them do it. (Dribbble - Discover the World's Top Designers & Creative Professionals, 2024)

CONSISTENCY AND FAMILARITY:

This principle makes sure that users feel at home browsing across the entire site. It helps to avoid confusion and makes them familiar with the interface. To achieve this, the elements of design, style and the terminology used across the platform were consistent following a specific acceptable standard. A good balance between innovation and familiarity was considered while designing the UI of Escape Land. New functions should be introduced in the system without confusing the users and enhancing the overall user experience. (Staff, 2023)

FEEDBACK AND TOLERANCE FOR MISTAKES:

The UI for Escape Land was developed using methods for the users to be updated on what they are doing and their accomplishments. An example includes operations where details of what was

accomplished and what went wrong should be clearly stated to the users detailing what should be done next. Functions like undo/redo were included to the platform so that can be used when the user makes a mistake and enables correction without great difficulty. This kills any frustration, and the user feels free to continue scrolling through the application without any penalty.

Accessibility and Inclusivity:

Special care was taken so that the user interface is readable by all classes of users. Employing colors and the other parameters to make distinctions between the elements implements this principle. In this way, the application will be developed for users with color deficits. In multiculturally designing, careful considerations were taken with the gray zones in design like reading the directions or the meaning of certain colors. The UI was designed with a world in mind so that the UI makes sense and can be operated by a range of users.

Discuss the concepts

PART-B – INDIVIDUAL COMPONENT (30%)

8.0 Requirement Gathering

8.1 Interview~(TP076927) Mohammed Badruddin Haitham

a) Method of Information Gathering: Face to face interviews

were conducted to obtain contextual, specific information about men and boys and information concerning them and their circumstances.

As for the functional elements of the system to be utilized, it is Interview that fit structurally in the Escape Land Management System project for managing the means of collecting information.

Benefits of Interviews:

1. Detailed Information: Improved understanding of the needs and/or Co about the stakeholders.
2. Clarification: A brief probe of the answers given and making sure that they have not misunderstood the answers given to them.
3. Personal Interaction: Denies what the customer is saying but at the same accepts what the other party is saying.
4. Adaptability: Chance of getting within the realm of new relevant issues.

Setbacks of Interviews:

1. Time-Consuming: Interviewing can be achieved through appointment and the analyzing of the appointment is tiresome.
2. Subjectivity: According to the type of method, information quality can be determined by the interviewer/interviewee.

3. Limited Reach: Less encompassing than surveys but can be web- or face-to-face based.

4. Resource Intensive: Uses a lot of time and the number of people one can involve in this exercise is very small.

b) Conducting the Interview

Steps:

- Preparation: Identify stakeholders and design tailored questions.
- Scheduling: Scheduling can be done at a convenient time with the use of video conferencing software, if possible.
- Execution: Carry out interviews while obtaining the respondents' permission to record their answers.
- Analysis: Write down the answers given and sync them to see the patterns and things that could be demanded from students.
-

Sample Interview Questions:

For Management:

- There are a lot of questions which can be asked: What difficulties do you meet using the current ticket promotion? –
- What methods do you use for managing your selling activities and customers' responses?

- What would the features of the new system be like?
- How can one determine that the social media promotions are being pulled through and
- delivering value?

- What are your ideas about unification of all types of attractions?

For Marketing Team:

- How do you want to devise and facilitate promotional content?

- To what extent are the different social media good for promotions?
- What difficulties do you encounter in making the post and in monitoring the promotions?

- What are the approaches used in your organization to gather and process customers' responses?

- Which options would make the management of promotions easier?

For Ticketing Staff:

Explain the present workflows that exist when it comes to tickets- purchases and inquiries.

- What general problems are associated with the products and services?

- Can you explain how ticket records are managed and updated correctly?

- What specific changes would you like to see?

- Regarding the availability of tickets, how do you inform the customers?

For Resort Staff:

In relation to accommodation, the service activities may involve reservations and any kind of inquiries from the clients.

- What is difficult for you concerning the current system?

- Which procedures and plans do you use to address the customer's request and feedback?

- Which of the following features would be useful in enhancing the reservation process?
- As the manager, is there anything that I can do to guarantee that the information that is
- associated with the accommodation is correct?

For Customers:

- How can I get a ticket for the attractions in Escape Land?

- What common problems have you faced?

- How can one get information about Escape Land promotions?

- Which aspects would you like to have in an online ticketing system?

- In what way do you like to give your feedback regarding your experience?

Through interviews, yes, we shall be able to get the right information, which shall help in the development of the new information system for Escape Land.

8.2 OBSERVATION ~ Abrar Mahmud Taha TP074039

Observation is the activity of supervising someone or something with the intention of collecting data. It is a powerful way of requirement gathering.

ADVANTAGES:

- This technique will provide us with reliable and accurate information about Escape Land. A skilled observer can gather invaluable information about the entire system using this technique.

- Using observation is particularly useful if the stakeholders are finding it difficult to verbalize the requirements clearly.
- Real time interaction with the people involved in the system can give us detailed insight into the purpose of the process and its result.
- The outcomes of observation technique are clear and precise.
- Immediate feedback is possible, allowing us to adapt to the system requirements accordingly.
- Gives a full assessment of the workplace environment

SETBACKS:

- The "Hawthorne Effect" is one of the major setbacks in using observation as requirement gathering. There is a good chance for users to change their behavior because they know they are being monitored which can cause data inaccuracy and lower reliability. (Sharp et al., 2007)
- Time consuming process to carry out this technique. Observation generally takes a long time to gather required information. A lot of follow-up interviews may need to be carried out to complete this step.
- There is a good possibility of analyst bias. The observers might misinterpret data leading to corrupt and incomplete data.
- It only targets a particular environment in which the observations are taken and may not include other ways through which the users may use the system.
- Resource intensive in both human and equipment wise. Multiple observers need to be used for accurate increasing the overall demand for human resource. Expensive software and equipment may also be needed to carry out this task.

HOW TO CONDUCT OBSERVATION:

Defining the objective of the observation is the first step. It is essential to be specific and systematic to write meeting notes since meeting discussions are easily forgotten. It is recommended that in your note's formation, you write your note's document in a way that reflects the agenda of the meeting as well as the points that are to be made (The Digital Project Manager, n.d.). A list of questions that will be asked should be determined along with the specific schedule. While at the

meeting, ensure that you brief down what was discussed so that you can note down all that was agreed upon, especially the points that gained the most attention, who was charged with which action, time frame given or required and other facts that may have been agreed or discussed. Real time recording session is a good policy to follow during this step. The observer should also ask questions to the participants during the session. After that send the notes to the internal project team and get their confirmation and validation; then send them to the client (The Digital Project Manager, n.d.). These notes should be used to create tasks and update the requirement documentation. A proper reflection needs to be done on the requirement gatherings to identify potential red flags. Last of all, submit the requirements document to the clients for their stamping using the fine option provided, this stamps it, and no changes can be made to it, this completes the formalities of approval. This approach keeps the flow of communication well defined, all documentation proper, and the management of the project unhampered.

OBSERVATION QUESTIONS:

- How quick is the system's response to user input?
- What is the purpose of the system?
- How does the system respond to errors?
- What are the challenges and limitations faced by the current system?
- What are the prime functions that need to be addressed?
- How do users use the current system?
- What will be the specific security requirements the system will have?
- Will the current system be integrated with the new one?
- What kind of support and maintenance is necessary to support the system?

8.3 Surveys and Questionnaires ~Ammar Mohammed Saeed Qaid "TP078135"

Surveys and questionnaires are two of the most preferred techniques of data collection in which several questions are set and administered to a selected group of respondents. They are crucial for comprehending customers' attitudes and behaviors, as well as their experiences, which makes them beneficial for the Escape Land Management System.

Definition

Survey: A method of getting information on a sample of the population with a view of answering questions relating to individuals' thoughts, actions, or occurrences.

Questionnaire: A set of questions on paper that is used in a survey to obtain the information from the concerned respondent.

Survey and Questionnaires are beneficial in the following ways:

Wide Reach: They can be taken to a broader population of people, which helps in getting a wide response from the clients.

Cost-Effective: In comparison with other techniques such as performer interviews, these tools are relatively cheap where they are done online.

Anonymity: It could be that the respondents are able to give more truthful answers than they would when they are face to face with the researcher because of the anonymity that is usually accorded to surveys.

Standardization: Helps the researcher provide the same questions to all the respondents; hence comparison of results is made easier.

Quick Responses: It is possible to collect responses faster and feedback, analyze it and make required decisions more quickly.

Setbacks of Surveys & Questionnaires:

Limited Depth: They seldom can probe deeper into the issues since their structure enables them to do so in a limited manner.

Response Bias: There is a likelihood that the respondents give their answers that are socially desirable as opposed to their actual perceptions.

Misinterpretation: Some of the questions that are asked can be misunderstood and therefore people will give wrong answers.

Low Response Rates: One disadvantage, especially for voluntary surveys, is that someone can find it quite hard to reach a high response rate.

Steps on How to do Questionnaire:

-The researcher must be very clear about what results they would like to find out and what exactly population they would like to study.

-The third way is to write the answer in a plain language in terms that people can relate to, and ensure the stylistic sentence used are correct to prevent getting the wrong information that has no correlation with the central topic.

-The researcher sits/stands the question in an appropriate manner, directs them to the process till the last step so that the respondent can respond to the question as conveniently as possible.

Questions used in investigation:

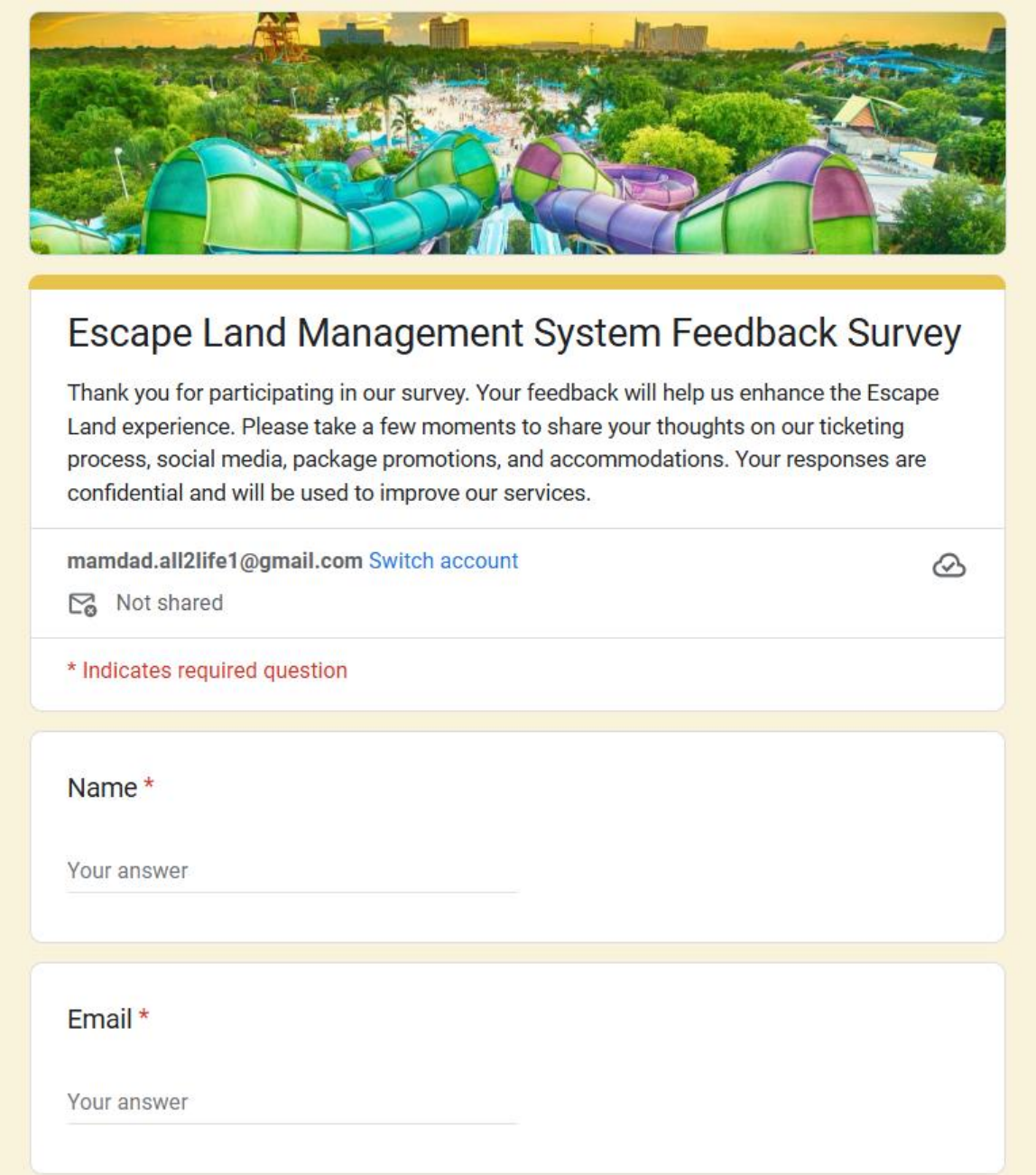


Figure 13: Escape Land Survey

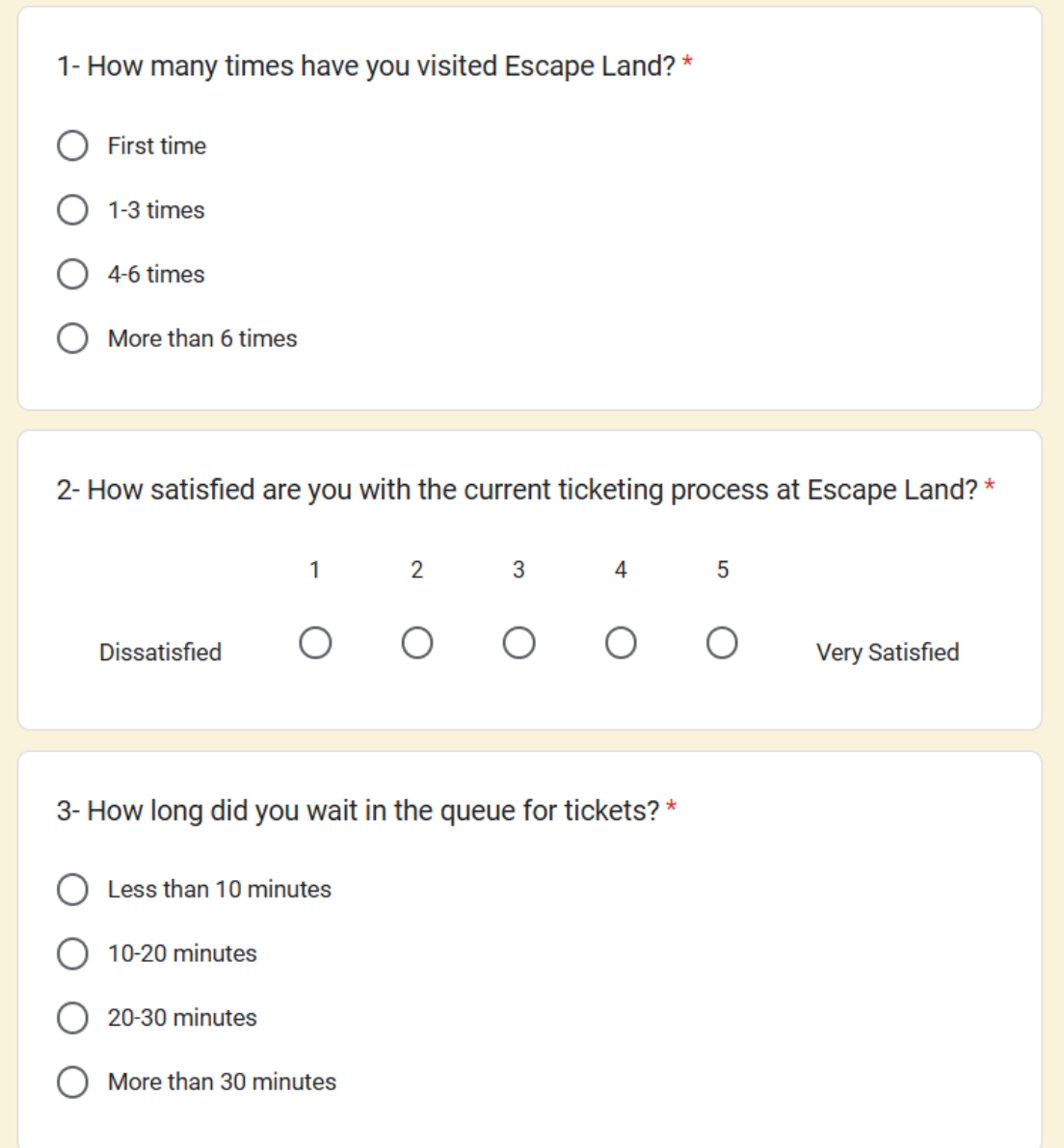


Figure 14: Escape Land Survey

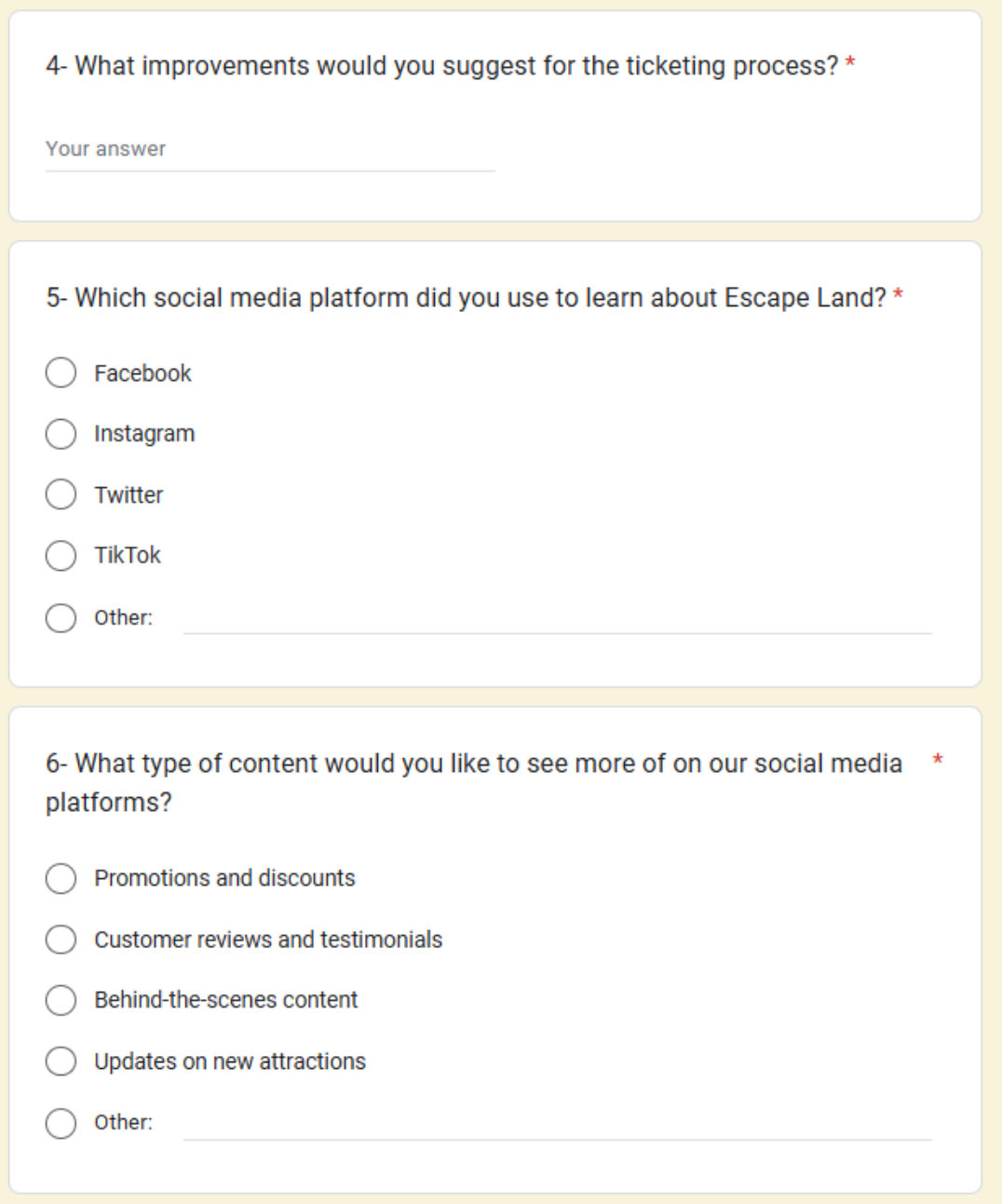


Figure 15: Escape Land Survey

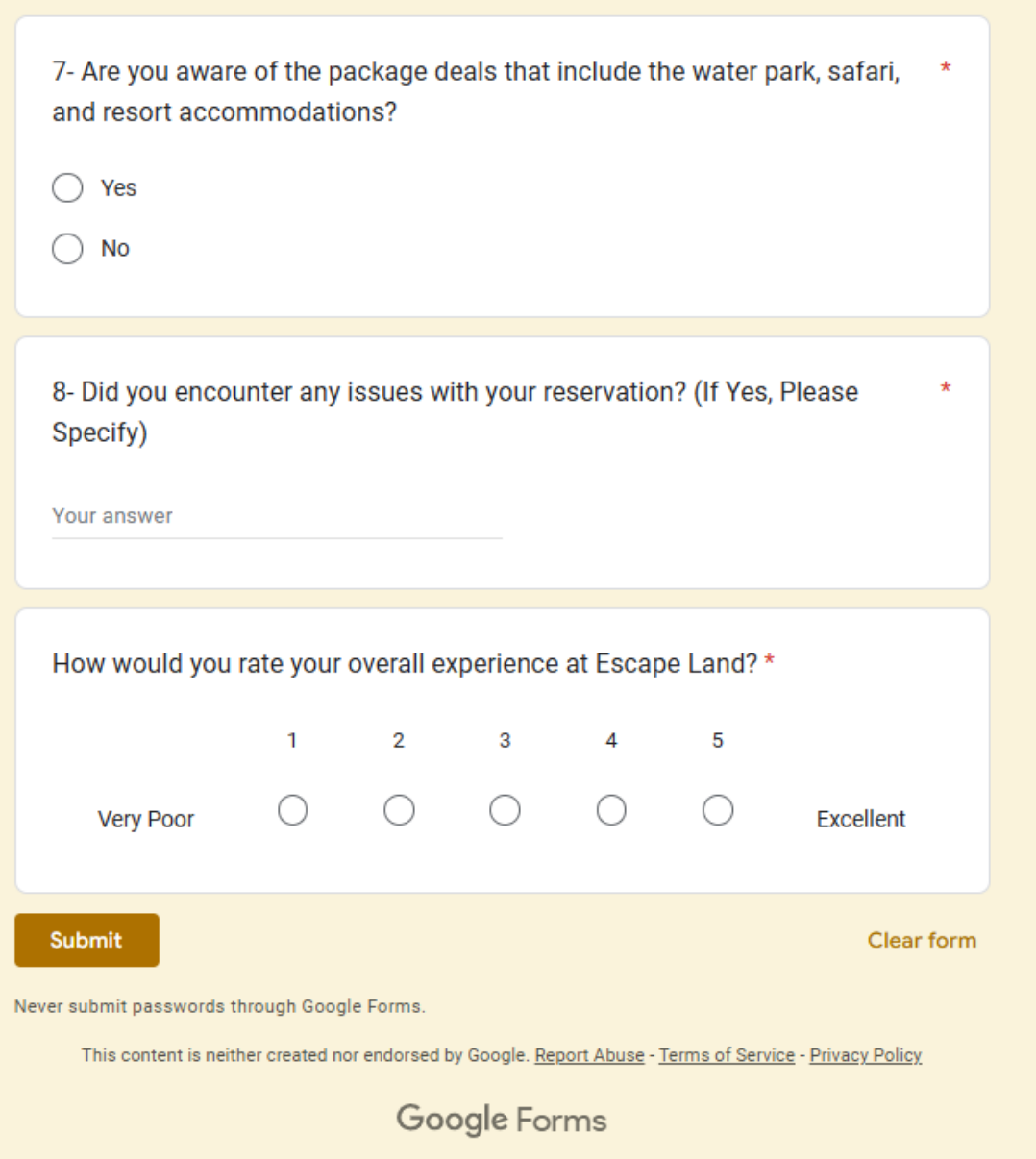
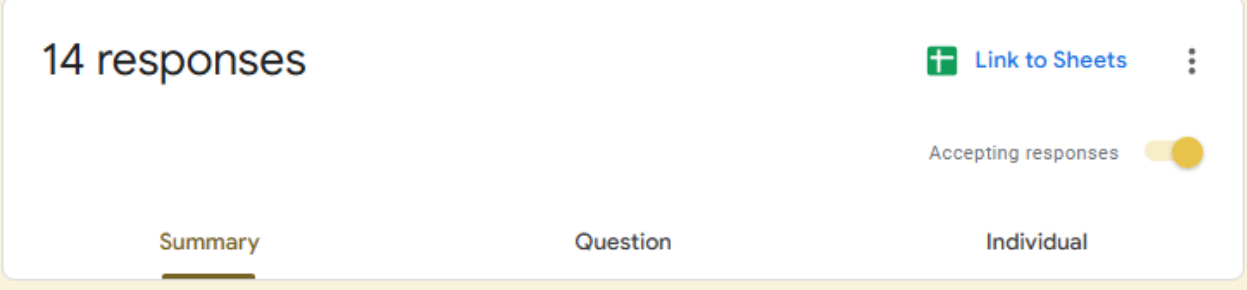


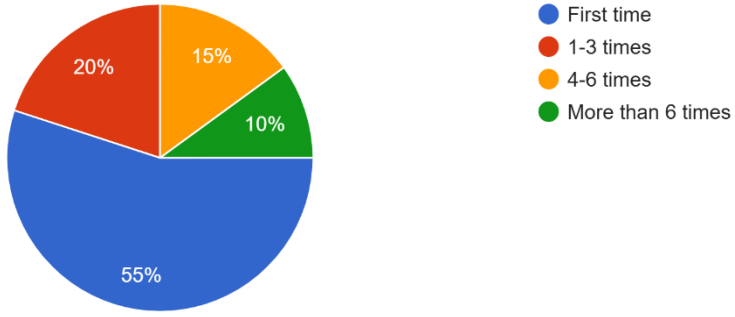
Figure 16: Escape Land Survey

Some visitors' responses:



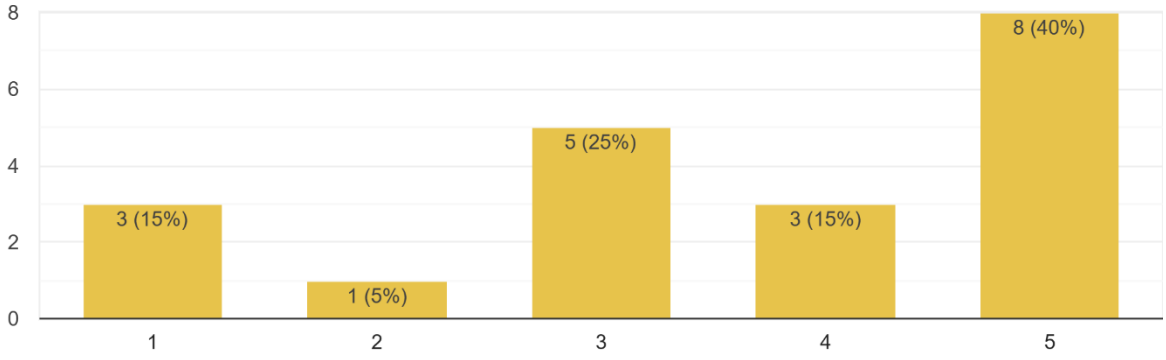
1- How many times have you visited Escape Land?

20 responses



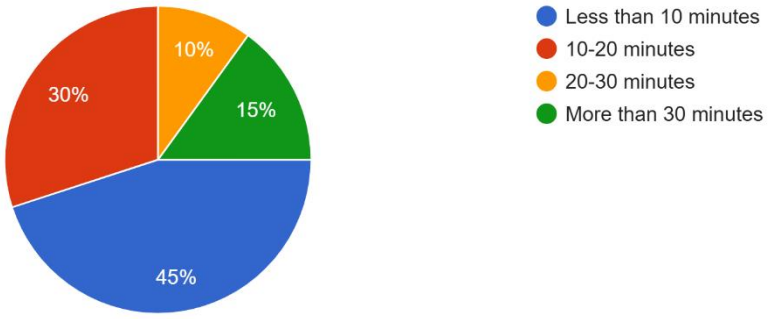
2- How satisfied are you with the current ticketing process at Escape Land?

20 responses



3- How long did you wait in the queue for tickets?

20 responses



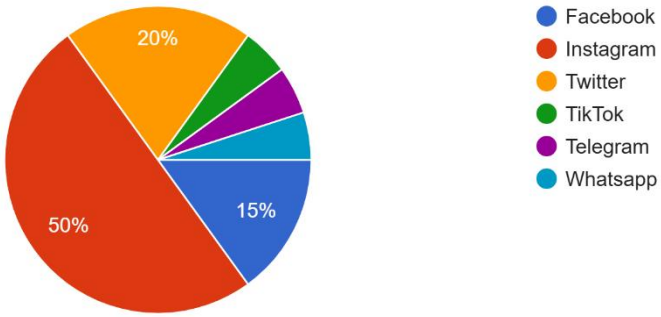
4- What improvements would you suggest for the ticketing process?

20 responses

Provide online check in
Everything is already perfect
Keep promoting and provide it i guess
Functionalities
All good
To do online tickets
I don't know
Use an online system
Not sure everything seems perfect

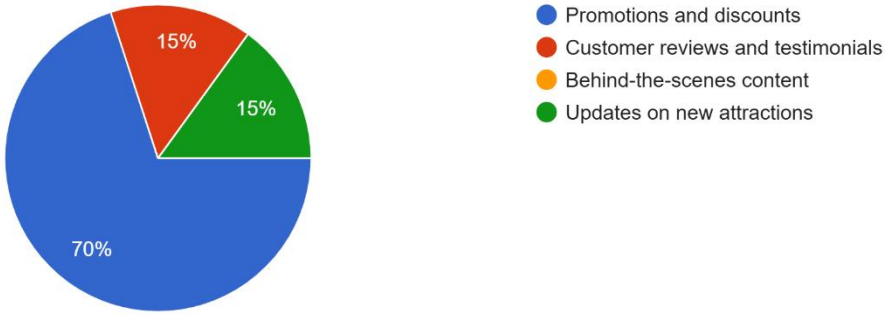
5- Which social media platform did you use to learn about Escape Land?

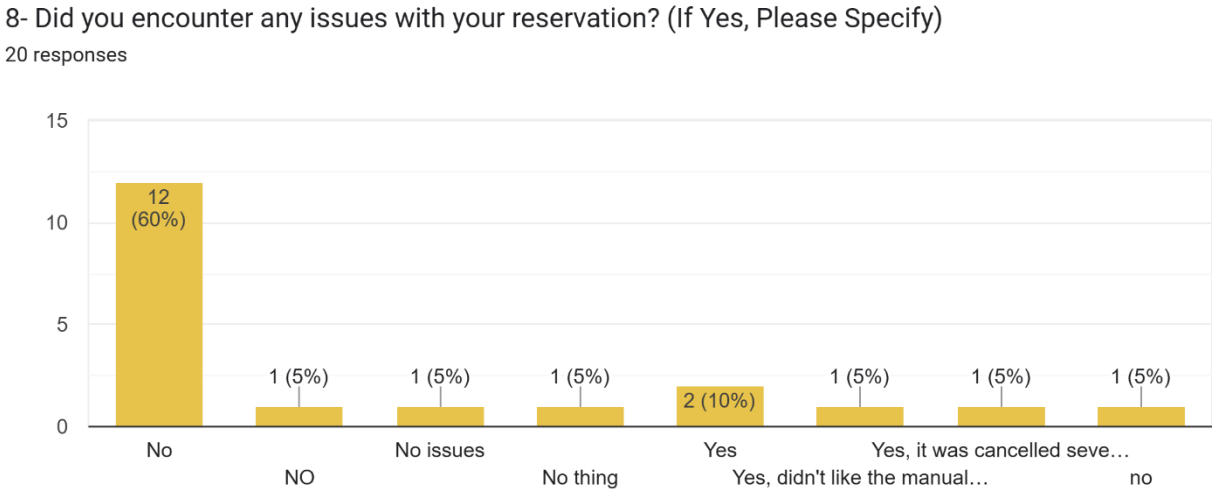
20 responses



6- What type of content would you like to see more of on our social media platforms?

20 responses





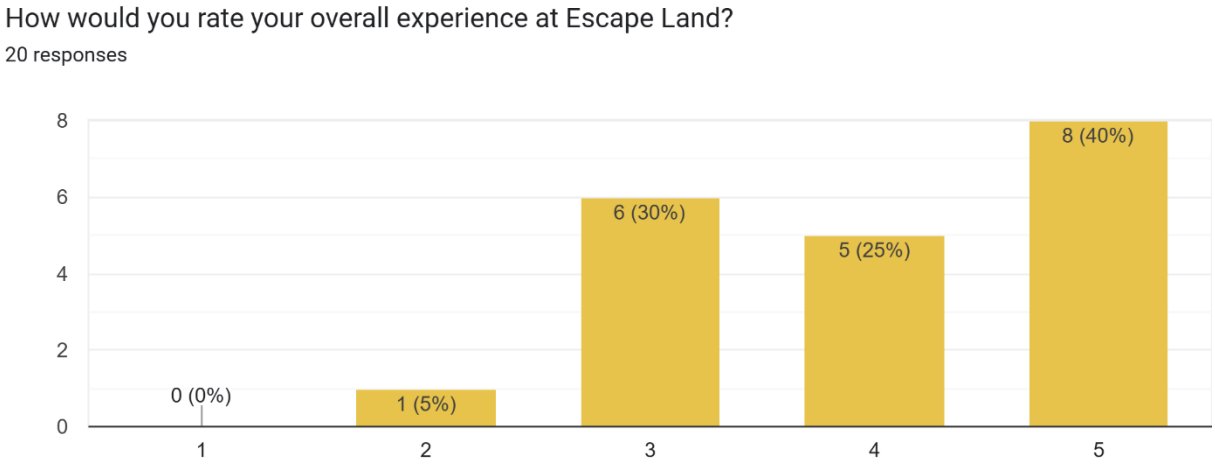


Figure 17: Visitor Response

This is some of the visitors' feedback that we will take in our consideration to enhance the experience system to meet the Customers' expectation.

8.4 Sampling ~ (TP078958 - Choy Cheng An)

Sampling is a process of selecting a predetermined number of observations from a larger population to gather insights and requirements for a system. Sometimes, it will be difficult for researchers to conduct accurate studies on large populations. So, they will choose a small portion to represent the entire group (Tuovila, 2024). Companies usually use sampling as one of the methods to gather the information they want.

Benefits of Sampling

- **Time Efficiency**

  Sampling cuts down the time required to gather and analyze data significantly. Since sampling does not need to go through each of the individual data (Tuovila, 2024).

- **Manageable**

  Sampling avoids monotony in works and it simplifies the data collection process by dealing with a smaller, more manageable data set.

Setbacks of Sampling

- **Potential Biases**

  Choosing a sampling method involves judgment, which can introduce bias based on the researcher's mindset. Participants may also give misleading answers to affect the outcome, resulting in biased and unreliable results.

- **Relies on Population**

  Sampling is impossible for small populations, and it relies on population count to determine the sampling interval. When the population size is small, it can lead to incorrect sample selection and produce unreliable results (Shukla, 2020).

At Escape Land, sampling for surveys stratified sampling will be used to ensure representation of different visitor types and staff roles, and surveys will be distributed online and on-site. Systematic sampling will be used in observations of customer interactions and process bottlenecks. This combined approach will provide a comprehensive insight about the current system performance, which will be analysed for improvements.

8.5 Document Review ~ Mohammed Ahmed Abdullah Al-Johi TP076768

Advantages:

1. Comprehensive Insight

The documents that hold relevant information about Escape Land's current operations and problems include ticketing logs, customer feedback forms, social media analytics reports, and financial records. This can be useful in discovering more about the phenomenon under investigation since the incidents that may be recurring are well understood, despite the overview that interviews or observations may give.

2. Historical Data

The use of historical data ensures analysis of the trends that has been in existence for sometime now. For instance, accessing previous records of sales, customers' feedback information can be used for purposes of establishing tendencies in the year sales, peak hours of visitation, and frequent customer complains.

3. Unbiased Information

The use of documents also limits bias in information that is generated in that unlike humans, documents do not have memory hence the information generated is not tainted. It is particularly

important concerning the analysis of the impact of specific social media campaigns and veracity of a firms' financial statements.

4. Time Efficiency

Document review can be easily performed without staff and/or customers' involvement, which in its turn makes it a relatively fast method of getting data. This can be positive particularly due to the fact that the project require a duration of five months.

Disadvantages:

1. Outdated Information

Turning to documents as the primary resource might prove unwise because certain components might be no longer relevant, while new problems or changes might be missed. For example, certain trends in customers' behavior or certain procedures of employees that occurred rather recently might be omitted from the documents.

2. Incomplete Data

Writing does not always record all the details that would be useful. For instance, where the records are substandard or where they are missing some details, this would affect the analysis. This is especially the case for records concerning manual ticketing logs and the varying degrees of compliance with proper data management.

3. Contextual Misunderstandings

There may be simple or complicated misconceptions or interpretations of the data because the results are arrived at without direct communication with the staff or customers. For example, records of financial performance may reveal that sales have gone down and yet the cause is not indicated since it may be known to staff and hence not documented.

4. Data Sensitivity

Some documents like credit statements or the customer feedback forms have to be accessed with the proper rights and hence trigger privacy issues. Security and confidentiality of the data is very important.

Document Review Questions:

1. The primary problems are, what slender concerns have been revealed by Free Power's customers about their experience?
2. Is there any trend to be seen in the peak times observed in ticketing log?
3. The following is the last one on how effective is the use of social media platforms in engaging customers.
4. What variations concern the records of sales?
5. Is there a repetition of certain complaints on financial reports?
6. Who can be deduced from trends that may be identified from the records of reservations?
7. What measures should be taken to increase data accuracy in the present day documents?
8. Is there any signs of security followed or threatened mentioned in the documents?
9. What are the sources of work documentation within the current workflow and how can they be optimized?

8.6 RESEARCH OMAR ALATTAS (TP 078158)

Advantages and Disadvantages of the Escape Land Management System

Introduction

The Escape Land Management System aims to improve the current manual processes used for ticketing, reservations, customer feedback, marketing, and data management at Escape Land. The new system promises to make these processes more efficient and customer-friendly.

Research Definition

This research evaluates the pros and cons of implementing an integrated management system at Escape Land. The system includes components like hybrid ticketing, reservation management, data analytics, package promotion, centralized data management, and customer feedback collection.

Advantages and Disadvantages

1. **Hybrid Ticketing System**
   - **Advantage**: Reduces queues and wait times, offers more payment options, and eases staff workload.
   - **Disadvantage**: High initial costs and complexity. Requires learning new procedures.
2. **Hybrid Reservation Management System**
   - **Advantage**: Simplifies booking, reduces errors, and provides real-time updates.
   - **Disadvantage**: Needs significant changes and staff training. Some staff may resist the new system.
3. **Data Analytics Tool for Marketing**
   - **Advantage**: Improves marketing effectiveness and return on investment (ROI) with real-time data.
   - **Disadvantage**: Expensive to set up and maintain. Requires technical knowledge.
4. **Dedicated Section for Bundled Packages**
   - **Advantage**: Increases sales by making packages easy to find and compare.
   - **Disadvantage**: Needs regular updates to keep information current.
5. **Centralized Data Management**

- **Advantage**: Ensures data accuracy and improves decision-making and financial reporting.
- **Disadvantage**: Initial data migration is challenging. Strong security measures are necessary.

6. **Review and Feedback System**
   - **Advantage**: Gather valuable feedback to improve services. Easy for customers to leave reviews.
   - **Disadvantage**: Needs constant monitoring and management.

Disadvantages

1. **Implementation Complexity**
   - Transitioning from manual to automated systems requires careful planning and execution.
2. **Cost**
   - High initial setup and ongoing maintenance costs.
3. **Technical Challenges**
   - Integrating different parts of the system requires advanced technical skills and careful planning.
4. **Staff Resistance**
   - Staff used to the old system may resist changes, requiring effective change management and training.
5. **Security Concerns**
   - Centralized data management and online transactions increase security risks, necessitating robust security measures.

Conclusion

The Escape Land Management System offers many benefits, such as improved efficiency, better customer satisfaction, and accurate data management. However, it also presents challenges like high initial costs, technical complexities, and the need for effective change management. Addressing these challenges carefully will help Escape Land improve its operations and customer experience.

9.0 Design

9.1 DFD Level 1 ~ Promote on social media ~ (TP076927) Mohammed Badruddin Haitham

DFD Level 1

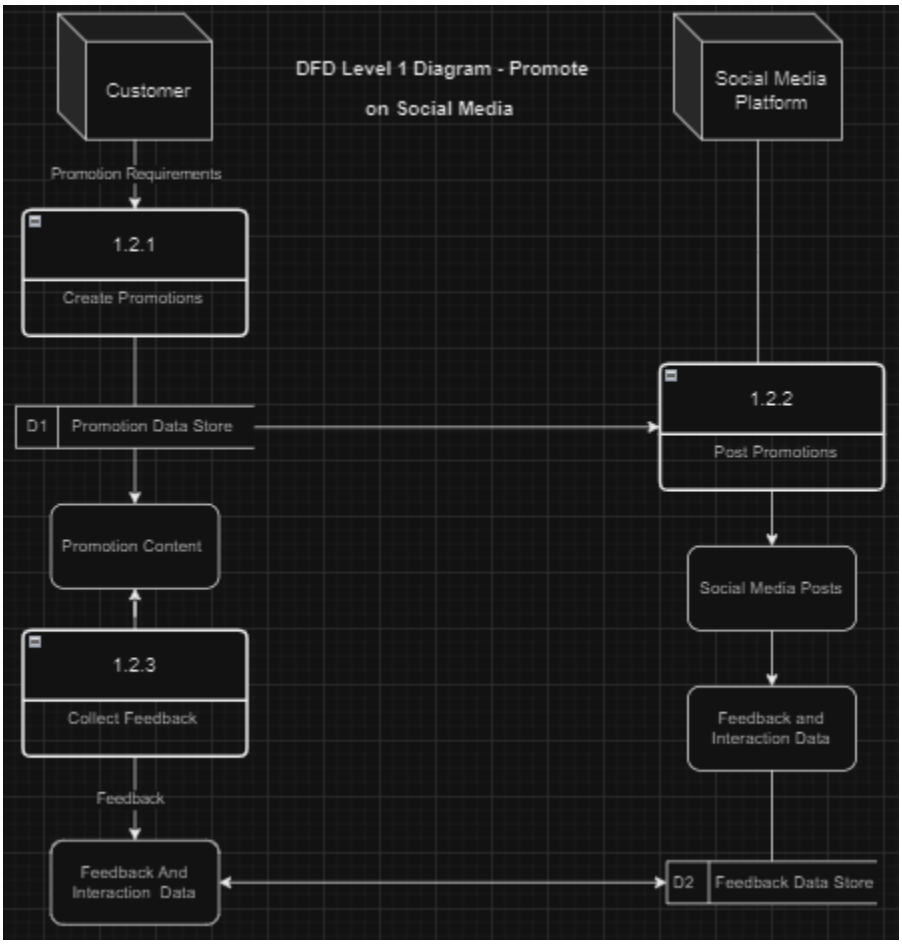


Figure 18: Promote on Social Media

Explanation Tables

Processes Table:

Process	Description	Input Data Flows	Output Data Flows	Data Stores Affected
1.2.1 Create Promotions	Creates promotional content based on requirements from management and marketing	Promotion Requirements	Promotion Content	Promotion Content
1.2.2 Post Promotions	Posts the created promotions to various social media platforms	Promotion Content	Social Media Posts	N/A
1.2.3 Collect Feedback	Collects feedback from customers and stores it for analysis	Feedback	Customer Interaction Data	Feedback Data

Data Store Table:

Data Store	Description	Input Processes	Output Processes
Promotion Content	Stores the content of promotions created	Create Promotions (1.2.1)	Post Promotions (1.2.2)
Feedback Data	Stores feedback collected from social media	Collect Feedback (1.2.3)	N/A

Promoting Data Store (D1)

Process ID	Process Name	Interaction with Data Store	Description
1.2.1	Create Promotions	Input	Stores the generated promotion content created based on customer requirements
1.2.2	Post Promotions	Output	Retrieves promotion content to post on social media platforms

Feedback Data Store (D2)

Process ID	Process Name	Interaction with Data Store	Description
1.2.3	Collect Feedback	Input	Stores collected feedback and interaction data from social media platforms
1.2.3	Collect Feedback	Output	Provides feedback data for analysis and reporting

Data Flow Explanation

Data Flow: Promotion Content

Data Flow ID	From Process	To Data Store	Description
DF1	Create Promotions (1.2.1)	Promotion Data Store (D1)	Promotion content created by the process is stored in the data store for future use
Data Flow ID	**From Data Store**	**To Process**	**Description**
DF2	Promotion Data Store (D1)	Post Promotions (1.2.2)	Retrieves stored promotion content to be posted on social media platforms

Data Flow: Feedback Data

Data Flow ID	From Process	To Data Store	Description
DF3	Collect Feedback (1.2.3)	Feedback Data Store (D2)	Stores feedback and interaction data collected from social media platforms
Data Flow ID	**From Data Store**	**To Process**	**Description**
DF4	Feedback Data Store (D2)	Collect Feedback (1.2.3)	Provides feedback data for further analysis and reporting

Entities Table:

Entity	Description	Input Data Flows	Output Data Flows
Customer	Individual using social media to interact with promotions	Promotion Requirements	Feedback
Social Media Platform	Platforms where promotions are posted, and feedback is collected	Social Media Posts	Customer Interaction Data

Through the help of this simplified diagram and the tabular form below, the “Promote on Social Media” step of the Escape Land Management System can be core and easily understood.

Thus, according to the DFD, the organization of data stores and processes’ interactions reveals the proper management and flow of data in the “Promote on Social Media” system, which allows streamlining data storage and retrieval and providing appropriate data for promotion and feedback.

9.2 DFD Level 1 ~ Mohammed Ahmed Abdullah Al-Johi TP076768

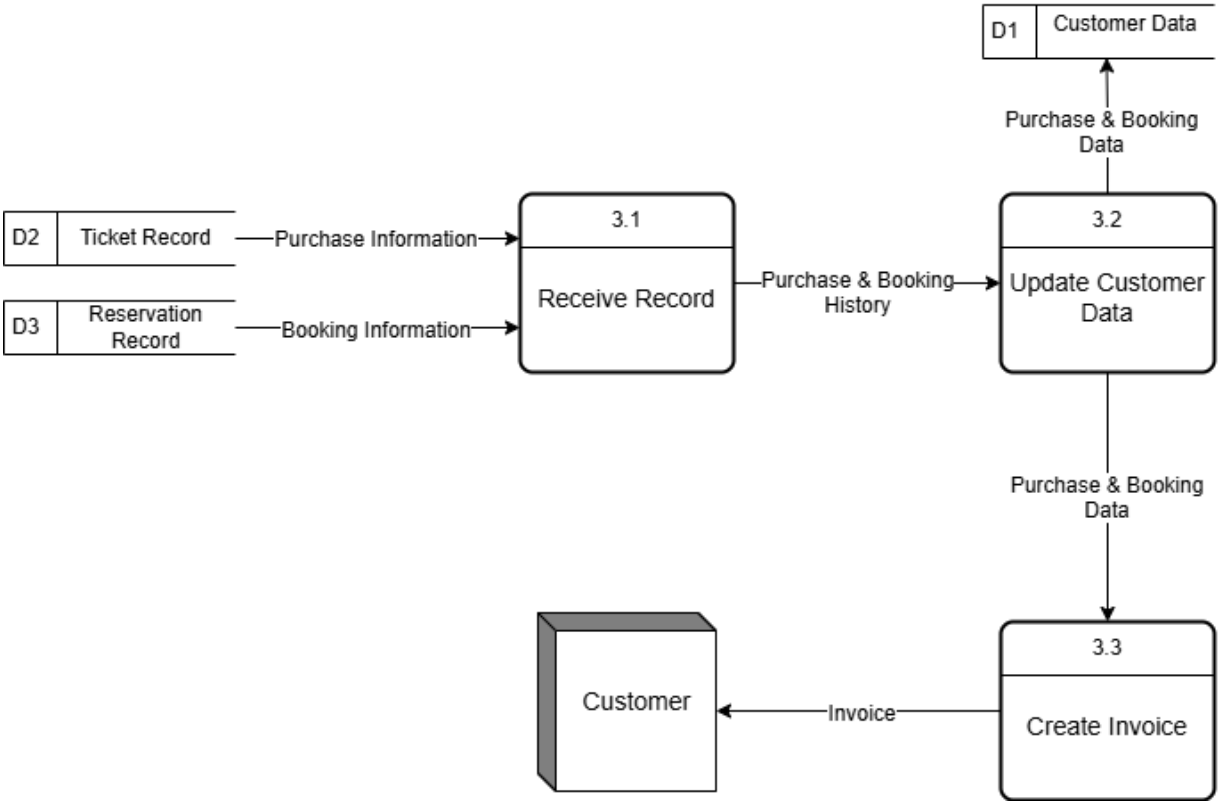


Figure 19: Invoice

Process Table:

Process Name	Validate Purchase Information
Description	Receives purchase information and checks if it is valid by consulting the ticket and reservation records. Returns validated purchase information or an error message.
Inputs data flows	Purchase Information
Outputs data flows	Validate Purchase Information

Process Name	Generate Invoice
Description	Generates an invoice based on the validated purchase information and stores it in the customer data store.
Inputs data flows	Validated Purchase Information
Outputs data flows	Invoice Data

Process Name	Update Customer Data
Description	Generates an invoice based on the validated purchase information and stores it in the customer data store.
Inputs data flows	Invoice Data
Outputs data flows	Updated Customer Data

Process Name	Send Invoice to Customer
Description	Sends the generated invoice to the customer and the accounting department.
Inputs data flows	Invoice Data
Outputs data flows	Invoice

External Entity Table:

Name	Customer
Description	The individual who made the purchase and will receive the invoice.
Input data flows	Purchase Information
Output data flows	Invoice

Name	Accounting Department
Description	The department responsible for financial management and receives a copy of the invoice.
Input data flows	Invoice
Output data flows	None

Data Flow Table:

Name	Purchase Information
Description	Information related to ticket purchases
Origin / Source	Customer
Destination	Validate Purchase Information process
Data structure	Customer ID, Ticket ID, Purchase Date, Amount

Name	Validated Purchase Information
Description	Verified purchase details
Origin / Source	Validate Purchase Information process
Destination	Generate Invoice process
Data structure	Customer ID, Ticket ID, Purchase Date, Amount, Validation Status

Name	Invoice Data
Description	Data used to generate an invoice
Origin / Source	Generate Invoice process
Destination	Update Customer Data process, Send Invoice to Customer process
Data structure	Invoice ID, Customer ID, Purchase Details, Amount, Date

Name	Updated Customer Data
Description	Customer information including new invoice details
Origin / Source	Update Customer Data process
Destination	Customer Data store
Data structure	Customer ID, Purchase History, Invoice Details

Name	Invoice
Description	The final invoice sent to the customer and accounting department
Origin / Source	Send Invoice to Customer process
Destination	Customer, Accounting Department
Data structure	Invoice ID, Customer ID, Purchase Details, Amount, Date

Data Store:

Name	Customer Data
Description	Stores information about customers, including purchase and booking history.
Input data flows	Updated Customer Data
Output data flows	Purchase & Booking History
Data structure	Customer ID, Name, Contact Details, Purchase History, Booking History

Name	Ticket Record
Description	Stores information about purchased tickets.
Input data flows	Ticket Information
Output data flows	None
Data structure	Ticket ID, Purchase Information, Customer ID, Event Details

Name	Reservation Record
Description	Stores information about reservations.
Input data flows	Booking Information
Output data flows	Booking Information
Data structure	Reservation ID, Customer ID, Dates, Status

9.3 Level-1 Booking Accommodation – Ammar Mohammed Saeed Qaid "TP078135"

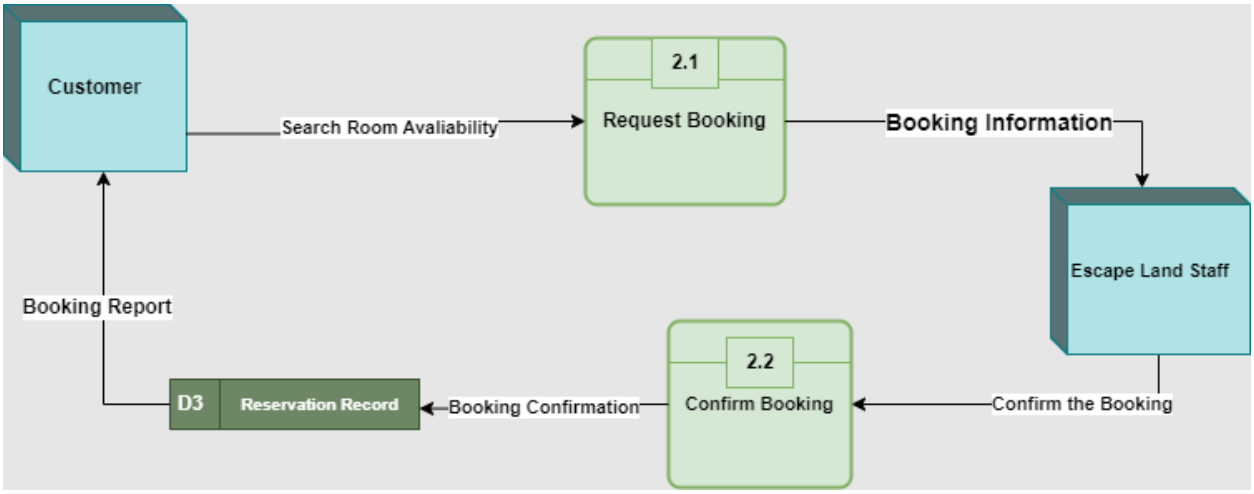


Figure 20: Booking Accommodation

Booking Accommodation Process:

Process Name	Booking Request
Description	In this subprocess the function is to receive and assess a booking request made by a customer. It makes sure that all the preparatory requisites are availed, and the application is legitimate before advancing to the subsequent stages.
Input Data flow	Search Room availability
Output Data flow	Booking Information

Process Name	Confirm Booking
Description	This subprocess entails closing on the booking data in accordance with the availability info. It reserves the table and gets back to the customer with the confirmation.
Input Data flow	Confirm the Booking
Output Data flow	Booking Confirmation

External Entity:

External Entity Name	Customer
Description	Customer search for a room availability for booking Reuest
Input Data flow	Booking Report
Output Data flow	Search Room Availability

External Entity Name	Escape Land Staff
Description	The bookings are handled and managed by the Escape Land Staff. They communicate with the system to get reservation details, verify if rooms are available, and get booking confirmations.
Input Data flow	Booking Information
Output Data flow	Confirm the Booking

Data Store:

Data Store Name	Reservation Record (D3)
Description	This is called data store which keeps all reservation records. To guarantee that the system maintains accurate and current records of every reservation, it is updated with new or amended booking information.
Input Data flow	Update Reservation
Output Data flow	Booking Information
Data Structure	Customer Name, ReservationID, CustomerID, RoomNumber, Payment

Data Flow Table:

Data Flow Name	Search Room Availability
Description	Customer Request a booking
Origin	External entity Customer
Destination	Process Request Booking
Data Structure	Customer Name, ReservationID, CustomerID, RoomNumber, Payment

Data Flow Name	Booking Information
Description	Booking information from Customer to Escape Land Staff
Origin	Process Request Booking
Destination	External Entity Escape Land Staff
Data Structure	Customer Name, ReservationID, CustomerID, RoomNumber, Payment

Data Flow Name	Confirm the Booking
Description	Check availability
Origin	External Entity Escape Land Staff
Destination	Process Confirm Booking
Data Structure	Customer Name, ReservationID, CustomerID, RoomNumber, Payment

Data Flow Name	Booking Confirmation
Description	The Escape Land confirm the booking
Origin	Process Conform Booking
Destination	Data Store Reservation Record
Data Structure	Customer Name, ReservationID, CustomerID, RoomNumber, Payment

Data Flow Name	Booking Report
Description	The data store produce report to the customer
Origin	Data Store Reservation Record
Destination	External entity Customer
Data Structure	Customer Name, ReservationID, CustomerID, RoomNumber, Payment

9.4 DFD Level 1 ~ Purchase Ticket (TP078958 - Choy Cheng An)

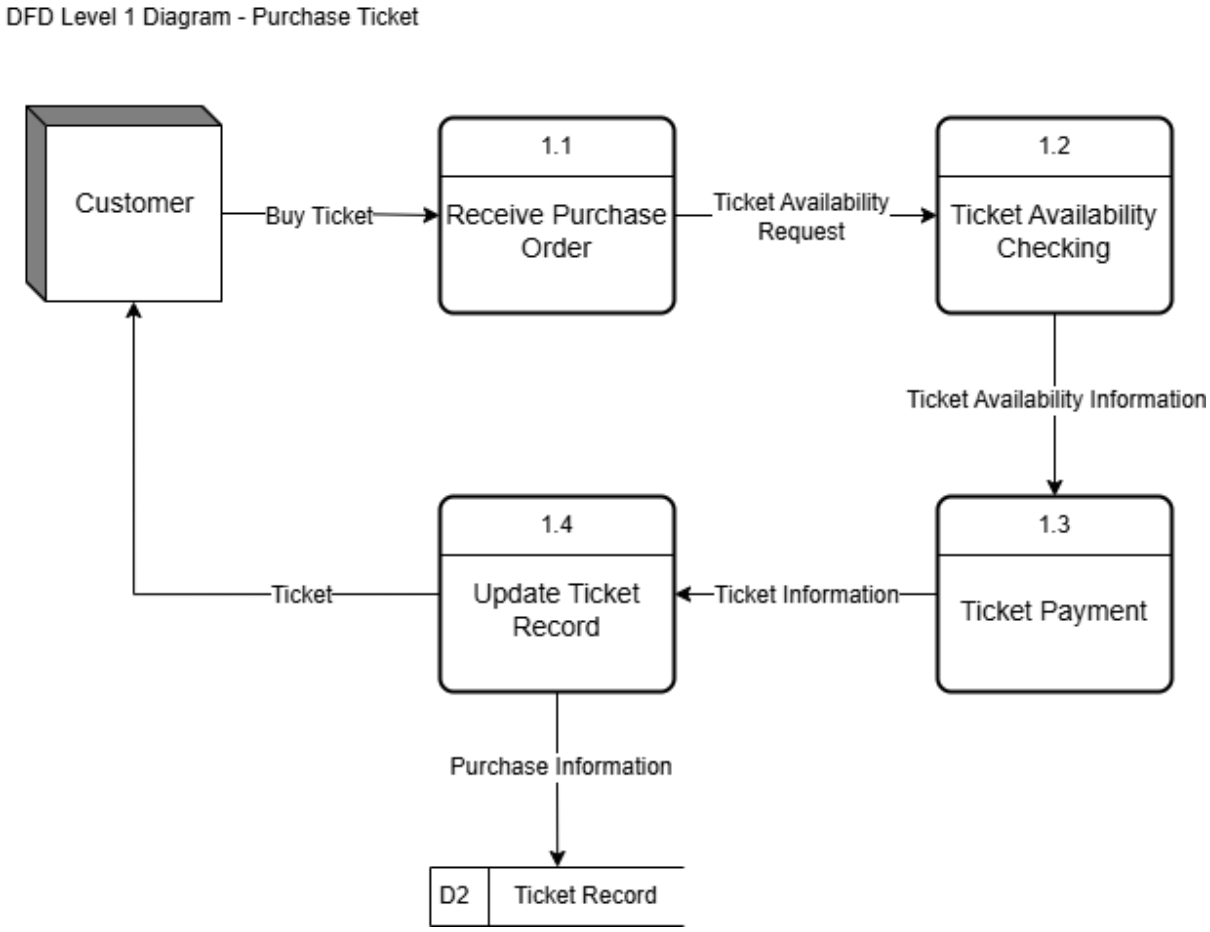


Figure 21: Purchase Ticket

Process Table:

Name	Receive Purchase Order
Description	Receive ticket purchase request from the customer. Then it will send availability checking request to the next process.
Input Data Flow	Ticket purchase request
Output Data Flow	Ticket availability checking request

Name	Ticket Availability Checking
Description	Retrieve availability checking request, then it will send the availability information. If yes then it will proceed to the payment process, if no then the system will let the customer know there is no ticket left.
Input Data Flow	Ticket availability checking request
Output Data Flow	Ticket availability status (Yes / No) and status message

Name	Ticket Payment
Description	In the ticket payment process, after the customer has paid for the ticket, the information of that ticket will be sent out. The customer will also receive message when the payment is success.
Input Data Flow	Ticket availability status (Yes)
Output Data Flow	Ticket information and payment status message

Name	Update Ticket Record
Description	During this process the ticket record in the database will be updated. The customer will also receive the ticket.
Input Data Flow	Ticket information
Output Data Flow	Ticket and Update ticket record

External Entity Table:

Name	Customer
Description	Customer is the user who initiates the ticket purchase process and will provide necessary information.
Input Data Flow	Ticket
Output Data Flow	Ticket purchase request

Data Flow:

Name	Ticket Purchase Request
Description	Request to buy ticket from customer

Origin / Source	Customer
Destination	Receive Purchase Order
Data Structure	Request ID

Name	Ticket Availability Request
Description	Request to check for ticket availability
Origin / Source	Receive Purchase Order
Destination	Ticket Availability Checking
Data Structure	Request ID

Name	Ticket Availability Information
Description	Information about ticket availability
Origin / Source	Ticket Availability Checking
Destination	Ticket Payment
Data Structure	Boolean, Ticket ID, Price, Date and Time

Name	Ticket Information
Description	Information of ticket
Origin / Source	Ticket payment
Destination	Update Ticket Record
Data Structure	Ticket ID, Price, Date and Time, Customer ID

Name	Purchase Information
Description	Information of the purchase
Origin / Source	Update Ticket Record
Destination	Ticket Record
Data Structure	Ticket ID, Price, Date and Time, Customer ID

Name	Ticket
Description	Ticket the customer purchase
Origin / Source	Update Ticket Record
Destination	Customer
Data Structure	Ticket ID, Date and Time

Data Store:

Name	Ticket Record
Description	All the ticket purchase record will be store here
Input data flows	Purchase Information
Output data flows	None
Data Structure	Ticket ID, Price, Date and Time, Customer ID

9.5 DFD Level 1 ~ Customer Review Process (TP074039 – Abrar Mahmud Taha)

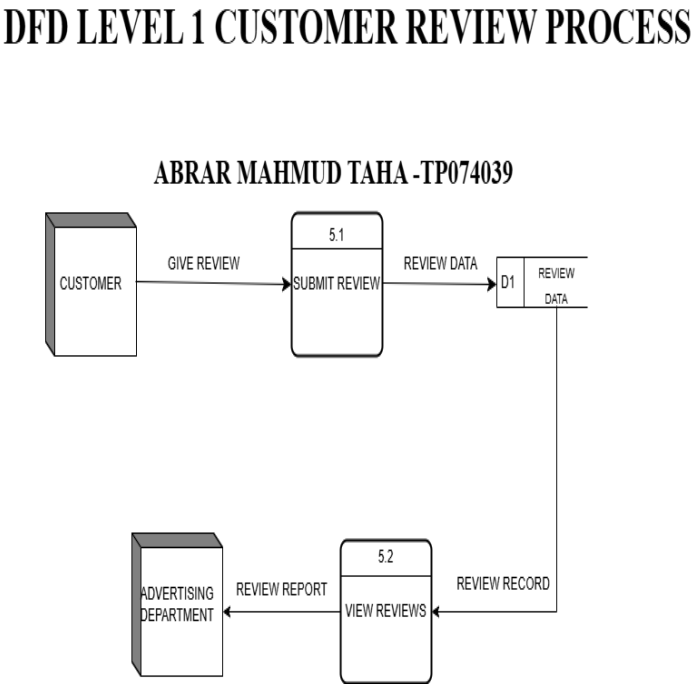


Figure 22: Customer Review

Process	SUBMIT REVIEW
Description	In this process, customers submit their review into the system from there it will travel to the stored data review.
Input Data Flows	Give review
Output Data Flows	Review data

Process	VIEW REVIEWS
Description	The view review process allows the advertising department to view the views submitted by the customers. After analysing the views, the advertising department generates a view report.
Input Data Flows	Review record
Output Data Flows	Review report

External Entity	CUSTOMER
Description	The customer entity starts the process by submitting the reviews through different platforms we created. The customer is the source entity.
Input Data Flows	-
Output Data Flows	Give Review

External Entity	ADVERTISING DEPARTMENT
Description	The Advertising Department receives the data from the view review process and analyses the submitted reviews. After that it generates reports about the overall customer experience.
Input Data Flows	Review Report
Output Data Flows	-

Data Store	Review Data
Description	Stores all the review data submitted by the customers. The Store Data Review and View review process access this data
Input Data Flows	Review data
Output Data Flows	Review Record
Data Structure	Customer name, comments, ratings, review date

Data Flow	**Give Review**
Description	Customer gives review
Origin	External entity Customer
Destination	Process Submit Review
Data Structure	Customer name, comments, ratings, review date

Data Flow	**Review Data**
Description	The data is processed and stored in the review data store
Origin	Process Submit Review
Destination	Review Data store
Data Structure	Customer name, comments, ratings, review date

Data Flow	**Review Record**
Description	The review record is sending to view data process
Origin	Review Data store
Destination	Process view Reviews
Data Structure	Customer name, comments, ratings, review date

Data Flow	**Review report**
Description	The advertising department can view the report
Origin	Process view Reviews
Destination	External entity Advertising Department
Data Structure	Customer name, comments, ratings ,review date

9.6 DFD Level 1 ~ Receive Finance Report Process (TP078158 – Omar Alattas)

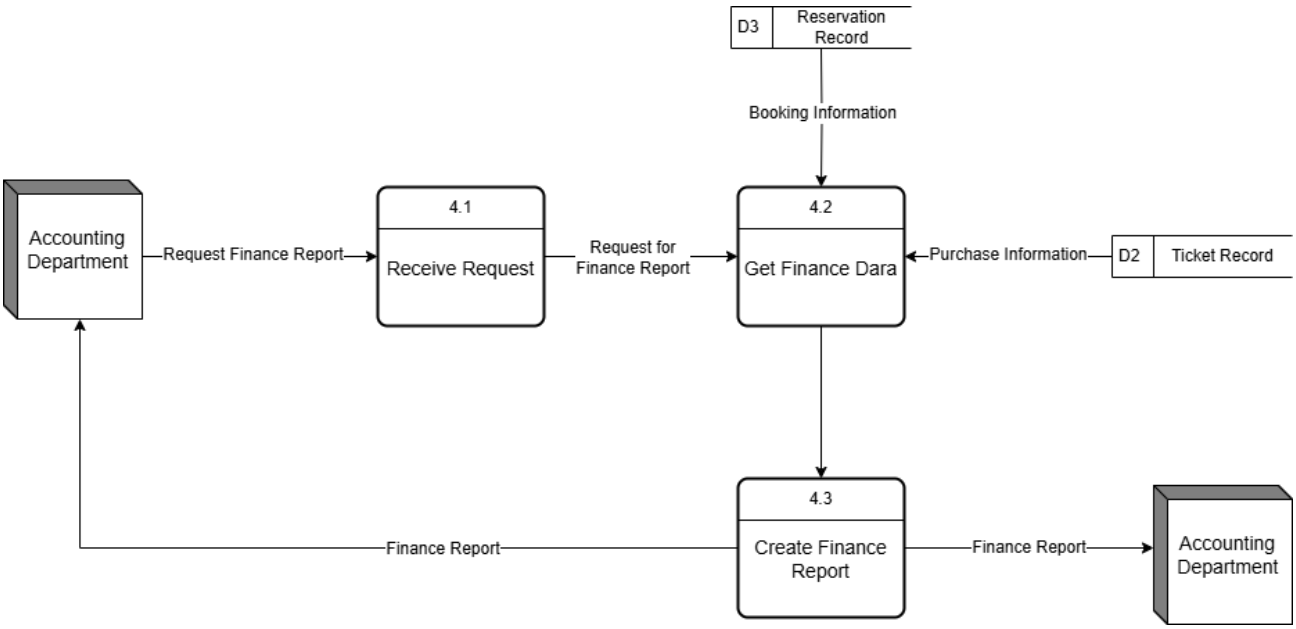


Figure 23: Receive Finance Report

Processes

Receive Request (4.1)

Component	Details
Name	Receive Request
Description	Handles receiving a request for a finance report from the accounting department.
Input Data Flows	Request Finance Report
Output Data Flows	Request for Finance Report

Get Finance Data (4.2)

Component	Details
Name	Get Finance Data

Component	Details
Description	Retrieves necessary financial data such as purchase and booking information.
Input Data Flows	Request for Finance Report
Output Data Flows	Purchase Information, Booking Information

Create Finance Report (4.3)

Component	Details
Name	Create Finance Report
Description	Compiles and creates the finance report from the gathered data.
Input Data Flows	Purchase Information, Booking Information
Output Data Flows	Finance Report

External Entities

Accounting Department

Component	Details
Name	Accounting Department
Description	Initiates the request for finance reports and receives the completed reports.
Input Data Flows	Request Finance Report
Output Data Flows	Finance Report

Data Flows

Request Finance Report

Component	Details
Name	Request Finance Report
Description	Initiates the process by requesting a finance report.
Origin/Source	External Entity (Accounting Department)
Destination	Process (Receive Request)

Request for Finance Report

Component	Details
Name	Request for Finance Report
Description	The processed request within the system for finance data.
Origin/Source	Process (Receive Request)
Destination	Process (Get Finance Data)

Purchase Information

Component	Details
Name	Purchase Information
Description	Financial data related to purchases.
Origin/Source	Data Store (D2 - Ticket Record)
Destination	Process (Get Finance Data)

Booking Information

Component	Details
Name	Booking Information
Description	Financial data related to bookings.
Origin/Source	Data Store (D3 - Reservation Record)
Destination	Process (Get Finance Data)

Finance Report

Component	Details
Name	Finance Report
Description	The final finance report generated and sent to the accounting department.
Origin/Source	Process (Create Finance Report)
Destination	External Entity (Accounting Department)

Data Stores

D2 - Ticket Record

Component	Details
Name	D2 - Ticket Record
Description	Contains purchase information necessary for creating the finance report.
Data Structure	Purchase Information
Interaction	Provides data to Process (Get Finance Data)

D3 - Reservation Record

Component	Details
Name	D3 - Reservation Record
Description	Contains booking information necessary for creating the finance report.
Data Structure	Booking Information
Interaction	Provides data to Process (Get Finance Data)

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