Chapter 1

Introduction

Background

We are dedicated to transforming the safari booking experience in Sri Lanka because even though our country is rich in wildlife tourism, there is no centralized platform for booking safaris, making it difficult for travelers, especially foreigners to plan their trips in advance. Our platform connects multiple safari operators under one system, allowing users to compare options, bookings before arrival, and access transparent pricing. By eliminating overcharging and simplifying the process, we are determined to enhance the convenience for tourists while supporting local safari businesses. Our mission is to streamline safari tourism in Sri Lanka through innovation, accessibility, and fairness.

What is a Safari Booking System?

A Safari Booking System is an online platform that simplifies the task of booking safari tours. It brings together various safari operators in one platform so travelers can compare safaris, see prices, and book in advance. The system provides clear pricing, eliminating the need for a client to overpay for the range of services offered. It saves time since a person can book directly without going to more than one place or sending someone to deal with a travel agent. Funds hereby accrue to local safari operators that interact with tourists by facilitating efficient management of bookings while extending their reach into expansive territory.

Problem and Motivation

Problem

Sri Lanka is home to several world-renowned safari experiences, such as Yala National Park, whale watching in Mirissa, and the elephant gathering at Minneriya, attracting international tourists. However, despite the booming tourism industry, there is no centralized website for safari bookings, creating several challenges, especially for foreign travelers:

- Lack of Online Booking – Most safari bookings are made through local travel agents or by visiting the safari locations in person. This makes it difficult for travelers to plan their trips in advance.

- Inconsistent Pricing & Overcharging – Different operators charge varying rates for the same safari, with prices often inflated for foreign tourists. This lack of pricing transparency leads to confusion and unfairness.

- Multiple Operators in One Market – Numerous safari businesses operate under different names, making it hard for tourists to compare options and find the best service.

- Inconvenience for Tourists – Without a standardized system, tourists rely on online reviews and local contacts to find reputable safari operators, which can be tedious and unreliable.

- Missed Opportunities for Local Operators – Smaller safari businesses struggle to reach international tourists due to a lack of online presence, resulting in missed opportunities and limited exposure.

Motivation

- Online Booking Convenience – The goal is to provide tourists with online access to book safaris without the necessity of being there in person or relying on local agents.

- Pricing Transparency and Assurance of Fairness – The fact that safari prices have been predetermined prevents the chance of overpricing or raising shed variables, thus fair and equitable arrangements for both local and foreign tourists.

- Simplified Comparison of Safari Options – The consideration of the service or safari being offered is manageable on a single platform because all operators are digitally present there.

- Improved Convenience for Tourists – The systemized approaches reduce dependence on unverified web reviews and personal contacts to provide authentic information for easy trip planning.

- Leveling the Field for Local Safari Operators – One disadvantage, the small operators should soon consider a move online, as digital marketing is one of the great tools for them to win international clients and prospects.

Literature Review

With the rise of digital technologies in the travel and tourism industry, online booking systems have become essential tools for well-organized reservations and improving customer experience. However, Sri Lanka lacks a dedicated safari booking application that combines multiple safari providers, offers transparent pricing, and allows foreign tourists to plan their excursions before arriving in the country. Several online platforms facilitate travel and tourism bookings, including global solutions such as TripAdvisor, Viator and Tour Radar [1]–[3]. These platforms provide tourists with the ability to book guided tours and activities worldwide. While these platforms do offer convenience to the customers, they have notable drawbacks when applied to Sri Lankan safaris. The main drawback is that it only has a limited local coverage, and this is an issue since many local safari operators in Sri Lanka do not list their services on these platforms due to high commission fees and other technical barriers. Another drawback is there is a lack of transparent pricing and evenness, tourists often face inconsistent pricing depending on the vendors and also some vendors charge foreigners significantly high prices more than locals. Lastly there is an absence of operator selection in these applications, which means travelers cannot directly compare different operators or customize their experience according to their own preference.

Another relevant system is Sri Lanka's domestic travel agencies, which primarily operate through in-person bookings or private websites. Although some travel agencies have digital booking features, they still have critical weak points. In the first place there is no centralized booking system which means most agencies operate independently, making it difficult for tourists to compare and book safaris easily. Furthermore, the travel agencies have a manual confirmation process which will require direct communication with agents, leading to delays. Finally, when it comes to the prices for tourists there is no transparency and no visibility into actual prices or even the real time availability of the safaris. Given the limitations of existing travel and safari booking platforms, a dedicated safari booking system for Sri Lanka is essential. Our web application, SafariGo includes all these key features that are missing. First and foremost, our platform provides centralized access to multiple safari providers, which means it acts as a single platform that lists various safari providers across different national parks allowing tourists to choose. Our platform also provides a transparent pricing avoiding unfairness and provides tourists with real and accurate prices. Foreign travelers also have the ability to book safaris pre-arrival allowing them to make reservations before arriving in Sri Lanka which will ensure a convenient experience. We also provide a filtering option for customers so that they can filter safaris based on factors like price, reviews, duration of the safari and also the availability. Our system provides secure digital payments ensuring a smooth transaction process for tourists.

While existing travel and tour booking platforms offer convenience, they don't fully address the unique challenges of safari booking in Sri Lanka. The absence of a dedicated, transparent and centralized safari booking platform results in inefficiencies and unfair pricing for tourists. By developing SafariGo we strive to build an all-inclusive and user-friendly safari booking application that Sri Lanka's tourism industry can use to provide a smooth experience for international travelers. Our system will fill a critical gap in the market, making sure that safari bookings are more accessible, fair and also efficient.

Furthermore, the implementation of a system like this can significantly boost Sri Lanka's tourism economy by attracting more foreigners who want the ease of online bookings. Providing an efficient and transparent booking process not only increases customer satisfaction but also will encourage repeating visits and positive reviews for marketing. SafariGo is a new step towards digitalizing and expanding Sri Lanka's tourism sector in an increasingly modernizing world.

Aims and Objectives

Aims

- Customizable Safari Packages: Safari operators will be able to easily update their package offerings, adjust availability, or introduce special deals during peak seasons, festivals, or promotional events.

- Rating and Feedback: The clients can rate the safari packages and leave feedback, therefore assisting future travelers to make informed decisions about other people's experiences.

- Safari Details: The system offers detailed information on each safari regarding itinerary, length, location, wildlife, and facilities for easy decision-making on the best options for the users' needs.

- Cost Transparency: The system gives clear breakdowns of prices, taxes, and additional charges, ensuring the user knows what they pay for without hidden costs.

- Advanced Search Filters: Customers can filter safari packages based on preferences like location, wildlife type, activity level, or price range, helping them find the perfect match quickly.

- Security and Privacy: All user information and payment details are securely handled with encryption and privacy measures to ensure a safe and trustworthy booking process.

- Admin Dashboard for Operators: The safari operators will be able to have a full view of the admin dashboard in terms of management that will include handling bookings, monitoring sales, and evaluating customer data for improvements in their services.

This saves the time of users, gives better price transparency, and presents a hassle-free booking experience while moving towards an honest and efficient safari industry.

Objectives

- Smooth Safari Package Management: The system should provide easy creation, updates, and management of safari packages regarding price, itinerary, availability, and location.

- Simplify Booking and Reservation Process: The system should offer a user-friendly platform for users in order to search, compare, and book safari packages online, resulting in a smooth and hassle-free booking experience.

- Ensure Fixed and Transparent Pricing: The system should adopt fixed pricing so that locals and foreigners are charged one price, which is a fair one to be charged to every customer.

- Offer Variety in Payment Options: The system should allow customers to make safe and different forms of payment, like credit/debit card and other forms of online payments, to be flexible in transactions.

- Real-Time Confirmation of Bookings: After a booking has been made, the system should confirm this instantly to assure the user that the safari booking has been secured.

- Improve Customer Communication: The system should provide a communication feature for customers to contact the operators of safaris for inquiries or special requests, and for receiving updates on their booking or changes in the schedule of the safari

- Feedback and Rating: The system should allow users to rate and review safari experiences, enabling future customers to make informed decisions and promoting transparency in the process.

- Easy Modification and Cancellation: The system should grant the user access to view, modify, or cancel their bookings with ease; this will enhance customer flexibility.

- Advanced Search and Filter Options: The system should allow the user to search for safaris based on preference, such as location, wildlife.

- Enhance Safari Operator Management: Safari operators will be provided with an admin dashboard through which they can manage their bookings, track sales, and update their package offerings to optimize their operations.

- Provide Analytics and Reporting for Operators: The system should also have reporting capabilities that will enable safari operators to study booking trends, customer preferences, and financial performance in refining their business strategies.

These objectives are geared toward enhancing the functionality of the Safari Booking System by making its booking process smooth, transparent, and user-friendly, while supportive of the needs of safari operators. The goal is to increase the overall customers' experience in ensuring the seamless flow of a safari booking.

Solution Overview

SafariGo is an online platform to make safari bookings in Sri Lanka easier, fairer, and more accessible. Right now, tourists especially foreigners struggle with planning safaris due to the lack of online options, and unclear pricing.

Our web application solves this by allowing users to discover, compare, and book safaris in advance from a range of trusted local providers all in one place. Our platform offers transparent pricing, secure payments, and filtering options to choose the best experience. This not only improves convenience for travelers but also helps local safari operators grow by giving them better visibility and access to international customers.

Key Points:

- Centralized platform for safari bookings across Sri Lanka
- Compare multiple operators with clear, fair pricing
- Book in advance with secure online payments
- Boosts visibility and revenue for local safari providers

Methodology

Our project is built upon agile and Lean methodologies which focuses on delivering the web application that is adaptable for any user requirement. We also make sure that the software is created using cost effective methods.

1. **Requirements Engineering**

   - **Methods**

     - **Stakeholder Interviews**: We will conduct interviews with agents at safari agencies and understand their goals for the business and also vehicle owners and providers of accommodation in the areas where safaris take place.

     - **Surveys and Questionnaires**: Distribute surveys to potential customers to get their insight on the experience

     - **User Personas**: Creating a persona for each user of the website to identify their requirements and how it will affect the overall functioning of the website

   - **Tools**

     - **Google Forms:** For creating questionnaires and distributing them

   - **Alternatives**

     - **Focus Groups:** Instead of conducting surveys we can get more in depth insight using focus groups. This method was not considered due to the difficulty in organizing large groups of people.

   - **Justification**

     - Interviews lets the developer get a better understanding of the users' requirements and surveys can be scalable.

2. Design Methods

➢ Methods

- **Wireframing:** To outline the layout of the pages on the website
- **UI/UX Design:** Design the user interface. Deciding on the themed colours, images and aesthetics

➢ Tools

- **Figma:** For wireframing
- **Canva:** For creating banners, posters etc.

➢ Alternatives

- **Adobe XD:** For creating user interfaces and other visual assets

➢ Justification

- Figma and Canva is easier to use than Adobe XD which is a complex Design tool

3. Development Tools and Technologies

➢ Tools

- **MERN Stack: MERN Stack:** For building full-stack web applications, where MongoDB handles the database, Express.js and Node.js handles the backend, and React.js handles the frontend
    - **MongoDB**: No SQL database that stores data in a flexible, JSON-like format.
    - **Express.js**: A web application framework for Node.js, used to handle HTTP requests and responses.
    - **React.js**: A JavaScript library for building user interfaces
    - **Node.js**: A JavaScript runtime that allows you to run JavaScript code on the server-side.
- **Git:** For the source code management of the team
- **Visual Studio Code:** Using as the IDE of the website
- **Genie:** Online payment platform of the website

- **Alternatives**

    - **HTML/CSS/ JavaScript:** To develop frontend
    - **MySQL:** For the database
    - **Laravel:** For the backend development

- **Justification**

    - MERN Stack can be used to build full-stack web apps without having to use JavaScript throughout the whole stack

4. **Testing Methods**

- **Methods**

    - **Functional Testing:** To test the overall functioning of the website
    - **Performance Testing:** To test how the website will perform when there is a high workload

- **Tools**
    - **Selenium:** For functional testing
    - **Google Lighthouse:** For performance testing

- **Alternatives**

    - **Manual testing:** Would be less efficient

- **Justification**

    - Selenium helps test the web app across various browsers(wide scale adoption.

5. Integration Methods

- **Methods**

  - **API Integration:** Integrate API for the map
  - **Payment Gateway Integration**: Integrating Genie for online payments

- **Tools**

  - **Google Maps API:** To test the connection of the map with the website
  - **Genie:** For online payment processing

- **Alternatives**

  - **Pay Here:** Online payment transaction getaway

- **Justification**

  - Genie can be used overseas and is a popular payment portal among locals

The Structure of the Report

SECTION 1:

The first section of the report introduces the background of the project, highlighting the existing issues in Sri Lanka's safari booking experience such as lack of centralized booking, overpricing, and inconvenience for tourists. It explains the motivation for developing the system, outlines the proposed solution, and defines the project's main objectives, along with a brief overview of how the system is expected to address the identified problems.

SECTION 2:

The second section of the report presents the requirement analysis and system design in detail. It includes use case diagrams, activity diagrams, and descriptions of the functionalities of different modules. The section also explains the development process, database structure, and the overall system architecture. It covers how the application was built, the tools and technologies used, and the main workflow of the user and admin interactions.

SECTION 3:

The third section focuses on testing, evaluation, and the final outcome of the system. It outlines the acceptance criteria, presents selected test cases with results, and includes user or expert feedback if available. The section concludes with an evaluation of how effectively the system meets its objectives and summarizes the benefits it offers to both tourists and local safari operators.

Git Hub Repository

IT Number and Name	Link
IT23479746 Appuhamy W.A.D.A.K.	https://github.com/Dilshan-Nadeeranga/SAFARI_GO/tree/AlokaNew
IT23250574 Dilshan N.	https://github.com/Dilshan-Nadeeranga/SAFARI_GO/tree/Dilshan
IT23400122 T.R Fernando	https://github.com/Dilshan-Nadeeranga/SAFARI_GO/tree/Riana
IT23369160 Rajapaksha R.H.L	https://github.com/Dilshan-Nadeeranga/SAFARI_GO/tree/Lakshika
IT23410572 De Mel L.M.V.S.M.D.	https://github.com/Dilshan-Nadeeranga/SAFARI_GO/tree/Shivani

Table 1.1: Git Hub Repository table

Chapter 2

Requirements

Stakeholder Analysis

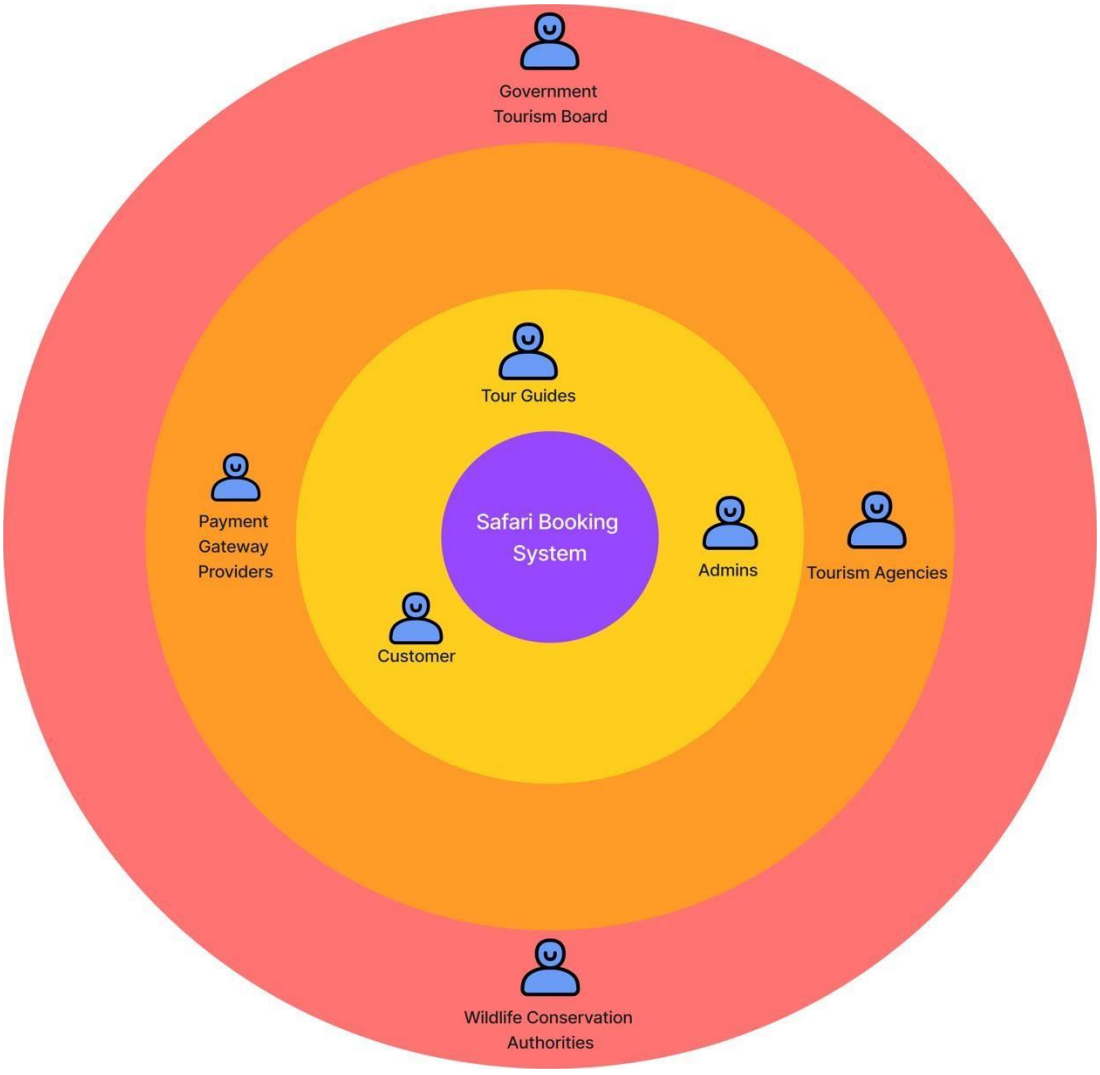

Figure 2.1: Stakeholder Analysis Diagram

Requirements Analysis

1. User Registration & Login

- Tourists and guides must be able to create accounts using **email or phone number**.
- The system should have **separate login portals** for tourists and safari guides (role-based access).
- Include **account verification** (e.g., via email/SMS code) to ensure valid users.
- Implement **password recovery** via email or phone-based reset links.

2. Safari Package Listings

- The system must list available safari tours with **detailed descriptions** (e.g., location, duration, wildlife expected).
- Include **filters** for searching based on **price range**, **location**, and **operator**.
- Each listing should display **images**, **guide information**, and a **list of included services** (e.g., transport, meals, park entry).

3. Online Booking & Payment System

- Users must be able to **select a safari package and book it** directly through the platform.
- Support **secure online payments** through **multiple options** (credit/debit cards, possibly local payment gateways).
- After payment, users should receive a **booking confirmation** via email/SMS with all booking details and a receipt.

4. Customer Feedback & Reviews

- After a safari, users should be prompted to **leave feedback and rate their experience**.
- All reviews should be **publicly viewable** on package or operator profiles to help future customers.
- Include an **admin panel to monitor, hide, or delete** inappropriate or offensive reviews.

5. Offers & Discounts

- Admins should be able to **create and manage promotional offers** (e.g., seasonal discounts, early bird deals).
- The system should **highlight ongoing offers** on the homepage and relevant safari listings.
- Users can receive **email or in-app notifications** about upcoming or expiring promotions.

6. Profile Management

- Both tourists and guides should be able to **edit their personal details**, such as:
  - Name, email, phone number
  - Address (optional)
  - Profile picture (optional for guides)
- Guides may also manage their own **safari listings**, availability, and pricing from their profile/dashboard.

Requirements Modeling

1. User Management

1.1. The system will allow users (tourists and guides) to register using email or phone number.
1.2. The system will provide different user account types: Tourist, Safari Guide, and Admin.
1.3. The system will allow users to log in and authenticate using secure credentials.
1.4. The system will provide password recovery and account verification options.
1.5. The system will allow users to update their personal profile information (email, phone, address).

2. Safari Package Management

2.1. The system shall allow guides and admins to create and manage safari packages.
2.2. Each safari package shall include title, description, images, guide details, services offered, price, and location.
2.3. The system shall display all packages in a searchable and filterable catalog view.
2.4. Users shall be able to filter packages based on price, location, and operator.
2.5. The system shall support availability settings for each package (dates/times).

3. Online Booking & Payment

3.1. The system shall allow users to select and book safari packages through the platform.
3.2. The system shall support multiple payment methods, including credit and debit cards.
3.3. Users shall receive booking confirmation via email and/or SMS.
3.4. The system shall securely process payments and store transaction records.
3.5. The system shall allow users to view their booking history in their account.

4. Feedback & Review System

4.1. Users shall be able to leave feedback and star ratings after completing a safari.
4.2. Reviews shall be publicly visible on the relevant safari package or operator profile.
4.3. Admins shall have the ability to monitor, approve, or remove inappropriate reviews.
4.4. The system shall notify users when their review is published or moderated.

5. Offers & Discounts Management

5.1. The system shall allow admins to create, edit, and schedule seasonal discounts and promotions.
5.2. The system shall display active offers on relevant safari listings and the homepage.
5.3. Users shall receive notifications about ongoing or upcoming promotions.
5.4. Discounts shall be automatically applied during checkout if conditions are met.

6. Profile & Contact Management

6.1. Tourists and guides shall be able to edit their personal information via their profile page.
6.2. Guides shall be able to manage their safari offerings and availability from their dashboard.
6.3. The system shall support uploading a profile picture and updating passwords.
6.4. Admins shall have access to view and manage all user profiles.

7. Admin & Operator Dashboard

7.1. The system shall provide an admin dashboard to monitor bookings, users, reviews, and payments.
7.2. Admins shall be able to approve or remove safari packages and operator accounts.
7.3. Guides shall have access to a dashboard for managing their packages, bookings, and earnings.
7.4. The system shall provide analytics and reports for admin users (e.g., bookings per month, top-rated guides).

Chapter 3

Design and Development

Component Diagrams

Book Safari Tour

Name	Book Safari Tour	
Summary	This use case describes how a registered user can book a safari tour through the Safari Booking System. The user selects a safari package, chooses a date, makes a payment, and receives a booking confirmation.	
Priority	1	
Pre-conditions	The user has a registered account and is logged into the system.	
Post- conditions	The booking is successfully recorded in the system.	
Primary Actor(s)	Registered User	
Secondary Actor(s)	System Admin	
Main Scenario	**Step**	**Action**
	1	The registered user logs into the Safari Booking System.
	2	The user navigates to the available safari packages.
	3	The user selects a preferred safari tour package.
	4	The system displays the package details, including price, itinerary, and available dates.
	5	The user selects a tour date and specifies the number of participants.
	6	The user proceeds to the checkout page and selects a payment method.
	7	The payment gateway processes the payment and confirms success.
	8	The system records the booking details.
	9	The system updates the safari package availability.

	10	The system sends a booking confirmation email to the user.
	11	The user can view the booking details in their dashboard
Extensions	**Step**	**Branching action**
	7.a	The payment gateway fails to process the transaction.
	7.a	The system notifies the user of the failed payment.
	7.a	The user is prompted to retry the payment or select another payment method.
	6.a	The user decides to cancel before completing the payment.

Table 3.1: Book Safari Tour Component Diagram

Vehicle Management

Name	Add Vehicle	
Summary	Vehicle Owner registers a new vehicle	
Priority	1	
Pre-conditions	The Vehicle Owner must be registered and logged into the system.	
Post-conditions	The vehicle is added to the system in a *pending* state.	
Primary Actors(s)	Vehicle Owner	
Trigger	The Vehicle Owner initiates the process by clicking on "Add Vehicle" in the dashboard.	
Main Scenario	**Step**	**Action**
	1	Vehicle Owner logs into the system.
	2	Navigates to the “Vehicle Management” section.
	3	Clicks on the “Add New Vehicle” button.
	4	Fills in required details (e.g., vehicle type, registration number, seating capacity, insurance info, license, photos).
	5	Uploads supporting documents (e.g., registration certificate, insurance).
	6	Submits the vehicle form.
Extensions	**Step**	**Branching action**
	4.a	System highlights missing or invalid fields.
	6.a	If document upload fails, system displays an error message.

Table 3.2: Vehicle Management Component Diagram

Submit Feedback Form

Name	Submit Feedback Form	
Summary	The User submits the Feedback Form	
Priority	5	
Pre-conditions	The user has access to the system	
Post- conditions	The user gets the successful message for the feedback form submission	
Primary Actors(s)	Registered User	
Trigger	The user has chosen to fill in and submit the feedback form	
Main Scenario	**Step**	**Action**
	1	The user must login to the system.
	2	The user clicks the “Feedback” button.
	3	The system displays the feedback form.
	4	The user enters his/her private email.
	5	The system checks the validity of the email.
	6	The user enters his/her feedback.
	7	The user clicks the “Submit” button.
	8	The system displays a success message to the user.
Extensions	**Step**	**Branching action**
	5.a	If the entered email of the user is invalid, the system asks the user to re- enter a valid email.
	7.a	If the feedback section is empty, the system avoids the form submission and asks the user to fill in the feedback section in order to perform the form submission.

Table 3.3: Submit Feedback Form Component Diagram

Manage Safari Packages

Name	Manage Safari Packages	
Summary	Tour guide managing and updating safari packages	
Priority	1	
Pre-conditions	The tour guide must be logged into the system	
Post-conditions	New or updated safari package details are saved successfully and displayed	
Primary Actor(s)	Tour guide	
Trigger	Tour guide creating or updating the safari packages	
Main Scenario	**Step**	**Action**
	1	The tour guide logs into the system
	2	The tour guide navigates to the package management section
	3	The tour guide selects an action (create, update, or remove packages)
	4	The required details are entered in by the tour guide
	5	The system validates the provided details
	6	If validation is successful, the system saves the new/updated package information
	7	The system displays the new/updated package on the platform
	8	Customers can view, search, and filter packages
Extensions	**Step**	**Branching action**
	1.a	If the details entered by the tour guide when logging in is incorrect the system asks the user to re-enter their details

	5.a	If the updated details are invalid and not filled properly the system will prompt the guide to re-enter the package details

Table 3.4: Manage Safari Packages Component Diagram

Customer support executive attending to customer inquiries

Name	Customer support executive attending to customer inquiries	
Summary	The customer support executive replies to the customer's inquiries and complaints that were received through the feedback portal	
Priority	3	
Pre-conditions	The website has the support portal where the customers can leave reviews	
Post-conditions	Customers receives responses within 48 hours for their inquiries and complaints	
Primary Actors(s)	Customer Support Executive, Customers	
Secondary Actor(s)	Tour guide	
Main Scenario	**Step**	**Action**
	1	The customer support executive logs into the web application
	2	The customer support executive navigates to the reviews and feedback section
	3	The customer support executive goes through all the reviews received during the past 24 hours
	4	The customer support executive replies to positive reviews with a "Thank you" message.
	5	The complaints are generated into a ticket with a unique ID
	6	The customer support executive reviews the complaint and responds to the customer through the portal
	7	The customer support executive marks the complaint as "Resolved" once the issue is addressed
	8	The customer support executive sends a private response to inquiries by sending them the necessary details
	9	The customer support executive redirects the inquiries to relevant personnel if they need further clarification
Extensions	**Step**	**Branching action**
	6.a	If the same issue is repeated multiple times the customer support executive will mention it to the higher authorities

	6.b	If the complaint cannot be solved it will be redirected to a manager

Table 3.5: Attending to Customer inquiries Component Diagram

Confirmed Safari Booking –

Name	Safari Guide Conducts Safari for Booked Customers	
Summary	A safari guide takes the customers who booked the package he/she created on a safari	
Priority	1	
Pre-conditions	The customers have booked the "Yala 2 hour Safari" package	
Post-conditions	The system updates the guide's availability for future bookings	
Primary Actors(s)	Safari guide, Customers	
Secondary Actor(s)	Payment Gateway Provider	
Main Scenario	**Step**	**Action**
	1	The guide receives a notification on his phone : " New booking for Yala 2 hour Safari"
	2	The guide logs into the website
	3	The guide reviews the booking details
	4	The guide Messages the customer via the website messaging feature to confirm the safari booking
	5	Once confirmed by the customer the guide marks his calendar in this profile as "booked" during the days of the safari
	6	After the safari the guide marks the tour as "Completed" on the web application
	7	Customer receives an automated request to review and rate the safari
	8	The system updates the tour guide's profile with the rating and reviews automatically
Extensions	**Step**	**Branching action**
	4. a	If the customer doesn't reply the guide emails or calls them
	5.a	If the customer cancels the safari the guide's profile status has to change to "Available"

	4.a	If a package is overbooked: The system suggests an alternative available package.
	5.a	If an admin needs additional details: The system allows viewing package details and customer preferences.

Table 3.6: Confirmed Safari Booking Component Diagram

Pricing and Discounts Management (Tour Manager)

Name	Pricing and Discounts Management	
Summary	The Tour Manager sets and updates the pricing for safari packages and applies discounts based on promotional strategies	
Priority	1	
Pre-conditions	• The Tour Manager must be logged into the system. • There should be existing safari packages in the system.	
Post-conditions	• Updated prices are reflected in the system. • Discounts are applied to eligible packages. • Customers see updated pricing and discounts on the website	
Primary Actors(s)	Tour Manager	
Secondary Actor(s)	System, Customer	
Main Scenario	**Step**	**Action**
	1	The Tour Manager logs into the system.
	2	The Tour Manager navigates to the pricing management section.
	3	The system displays a list of safari packages with current prices.
	4	The Tour Manager updates package pricing based on business strategy.
	5	The Tour Manager applies seasonal or promotional discounts.
	6	The system updates the pricing details.
	7	Customers see updated pricing and discounts on the website.
	8	The system logs changes for reporting and analysis.
Extensions	**Step**	**Branching action**
	5.a	If a discount period expires: The system automatically removes the discount.
	5.b	If a new discount is added: The system applies it to selected packages.
	5.c	If there are conflicting discounts: The system prompts the Tour Manager to resolve conflicts.

Table 3.7: Pricing and Discounts Management Component Diagram

User login and Registration

Name	User Login and Registration	
Summary	The system allows users to register and log in to access personalized services and manage their bookings.	
Priority	1	
Pre-conditions	• The user must have an internet connection. • The user should have a valid email address for registration.	
Post-conditions	• New users successfully register and gain access to the system. • Registered users log in and access their accounts. • The system verifies and authenticates user credentials securely.	
Primary Actors(s)	Customer	
Secondary Actor(s)	System, Admin(for account verification)	
Main Scenario	**Step**	**Action**
	1	The user navigates to the login/registration page.
	2	If registering, the user fills in personal details (name, email, password).
	3	The system verifies the provided email.
	4	The system creates an account and sends a confirmation email.
	5	If logging in, the user enters email and password.
	6	The system verifies credentials.
	7	Upon successful login, the user is redirected to their dashboard.
	8	If credentials are incorrect, the system notifies the user and allows retry.
Extensions	**Step**	**Branching action**
	2.a	If the email is already registered: The system prompts the user to log in instead.
	4.a	If email verification fails: The system requests re-verification.
	6.a	If login attempts exceed a limit: The system locks the account temporarily.

Table 3.8: User Login and Registration Component Diagram

Process Diagrams

Feedback and Rating System – Rajapaksha R.H.L (IT23369160)

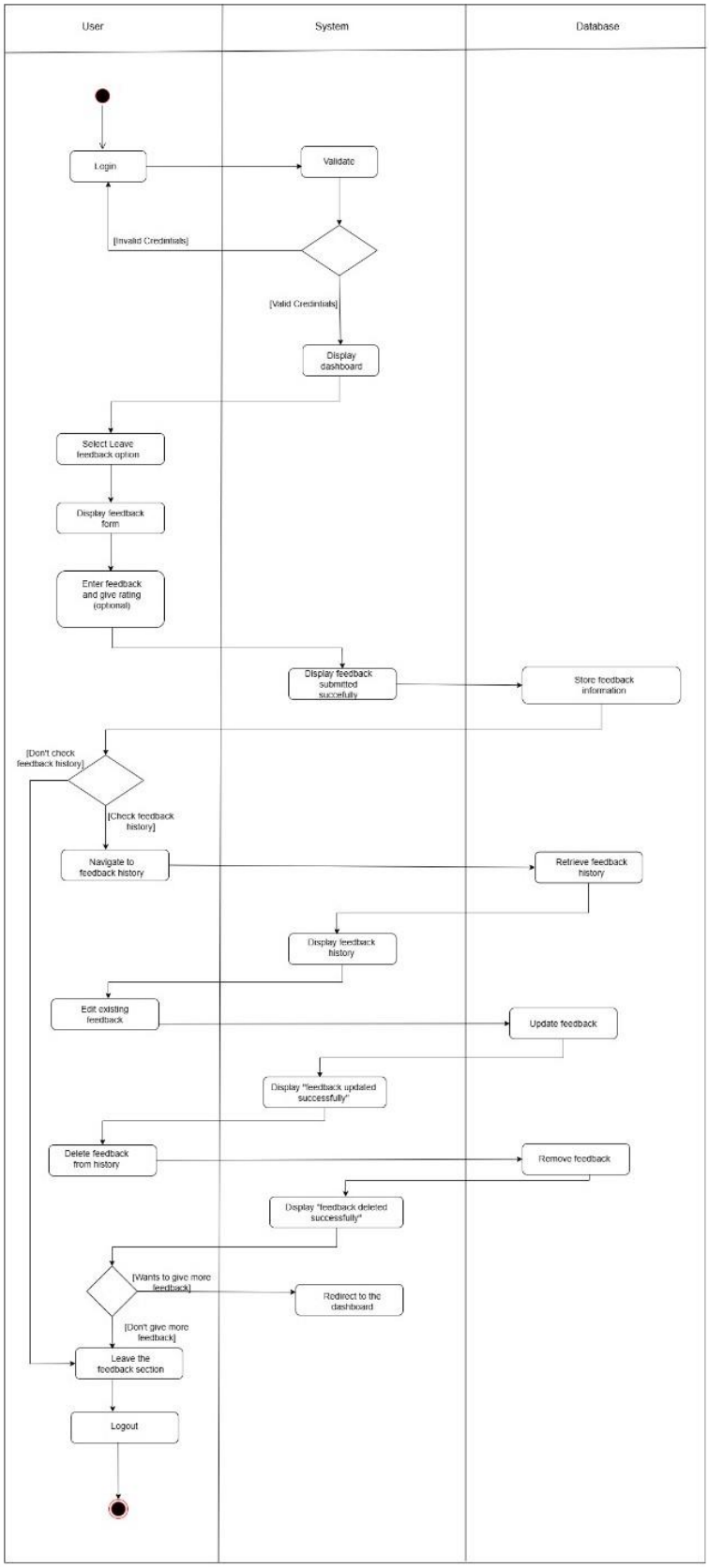

Figure 3.1: Feedback and Rating System Process Diagram

Vehicle Management System - Appuhamy W.A.D.A.K. (IT23479746)

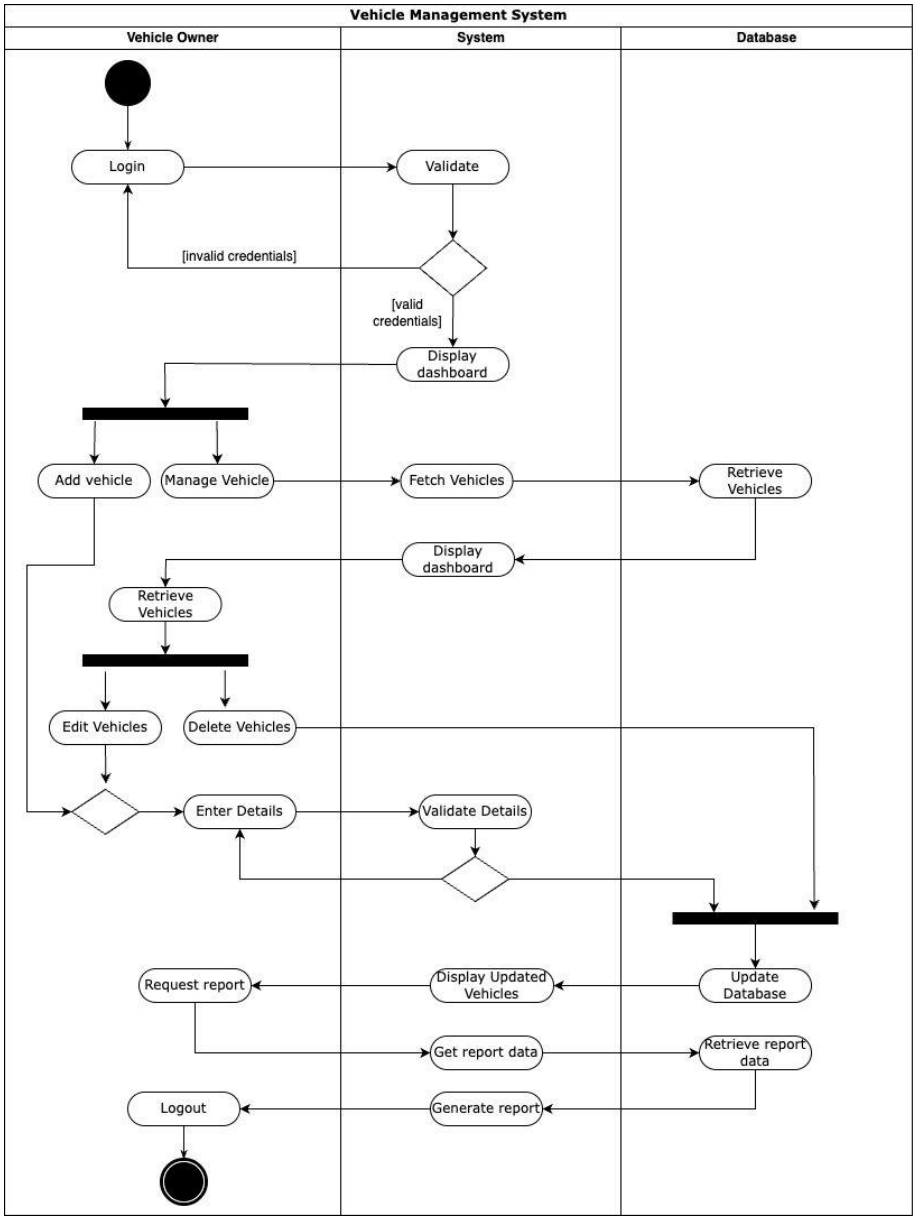

Figure 3.2: Vehicle Management System Process Diagram

Safari Package Management System – T.R Fernando (IT23400122)

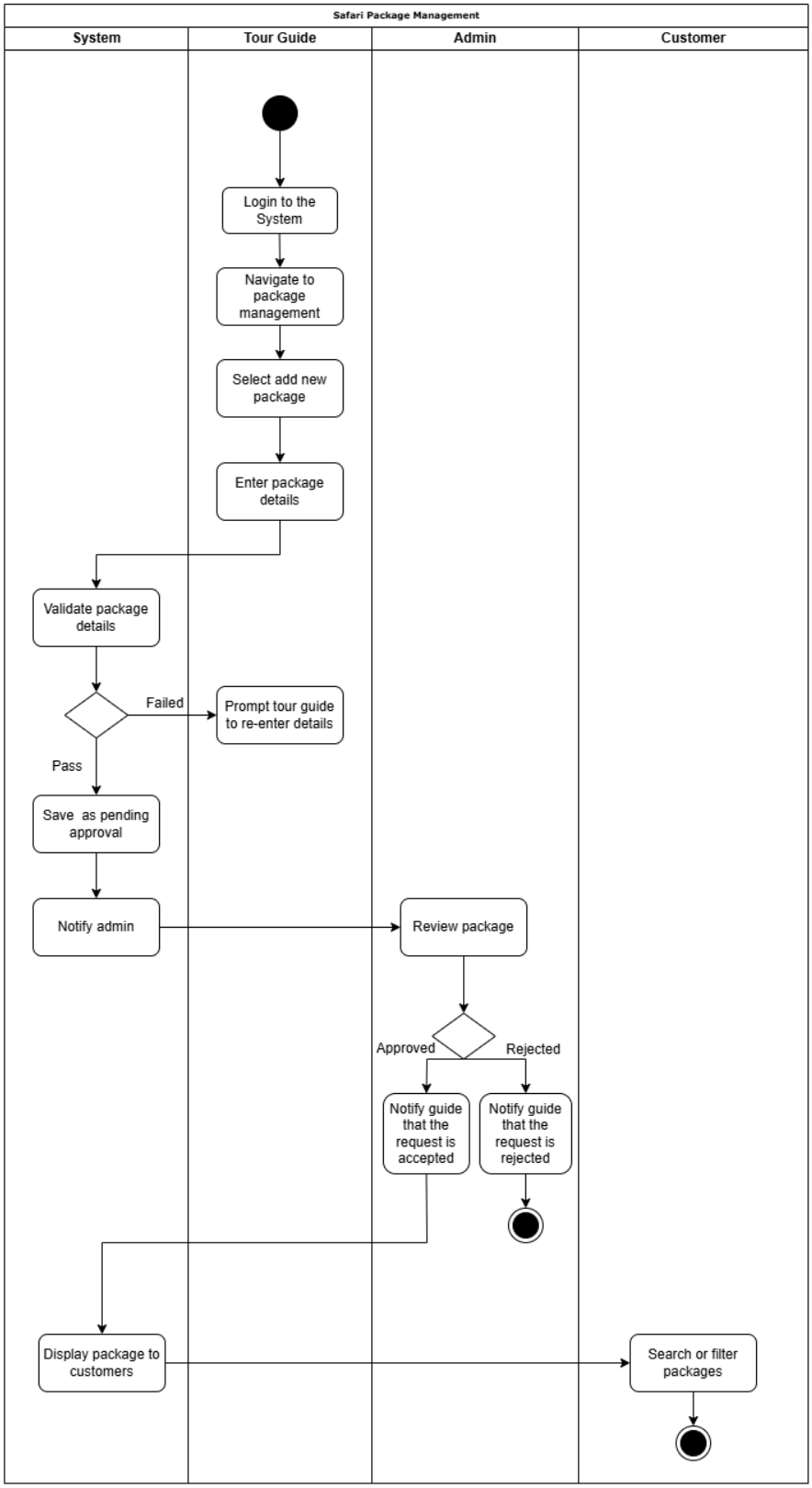

Figure 3.3: Safari Package Management System Process Diagram

Booking Management System - DE MEL L.M.V.S.M.D. (IT23410572)

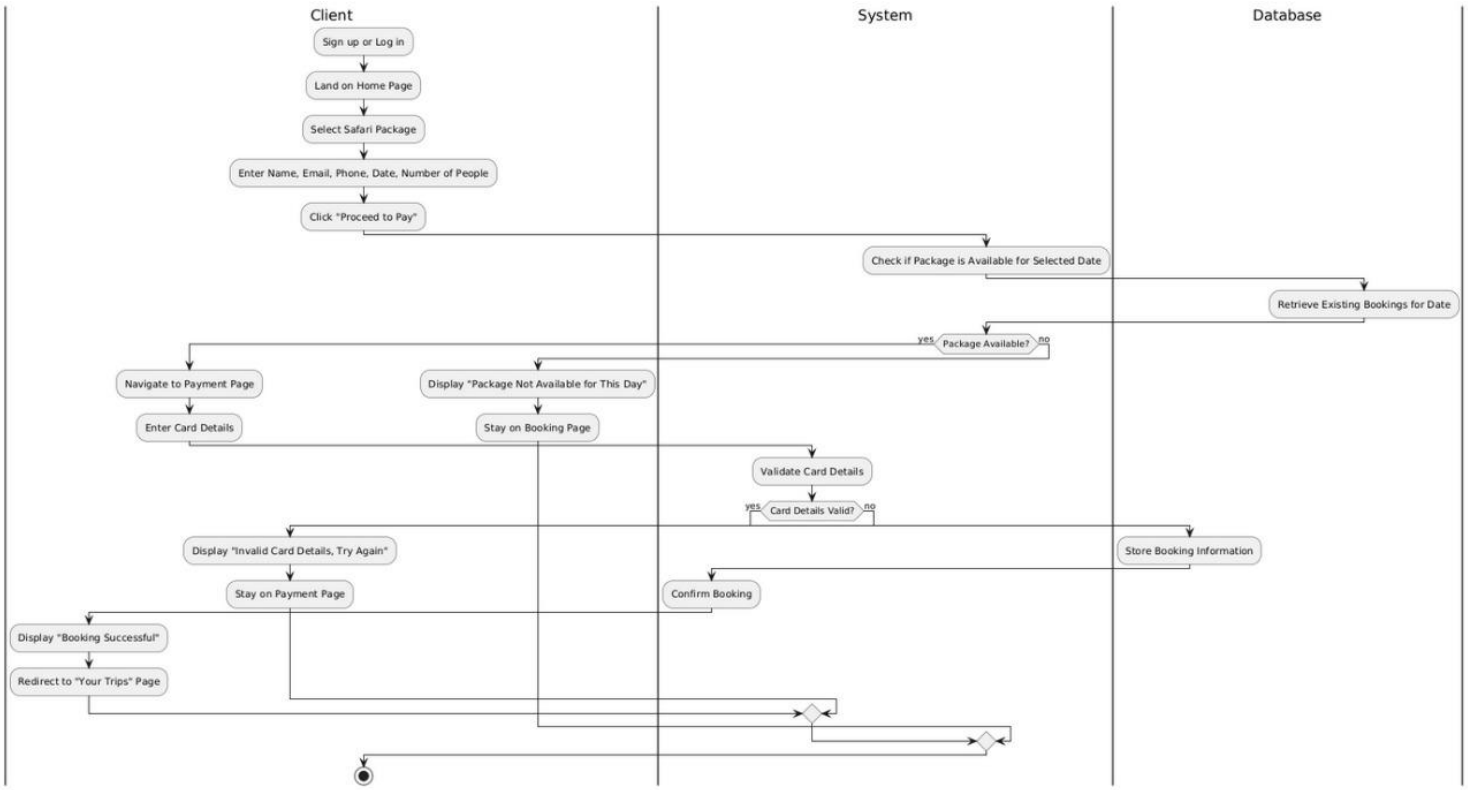

Figure 3.4: Booking Management System Process Diagram

User Account Management System - Dilshan N. (IT23250574)

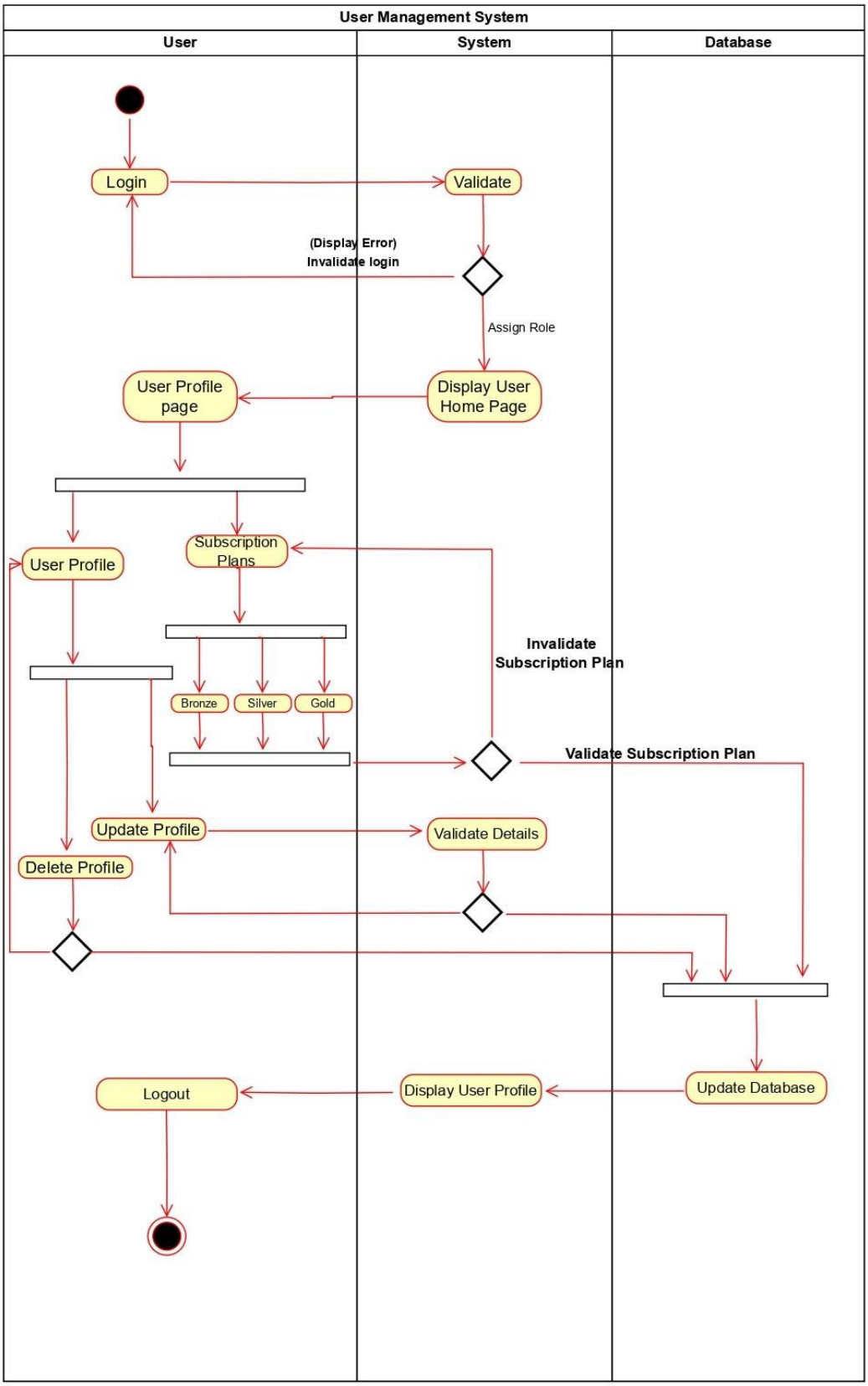

Figure 3.5: User Account Management System Process Diagram

Workflow Diagrams

Overall System

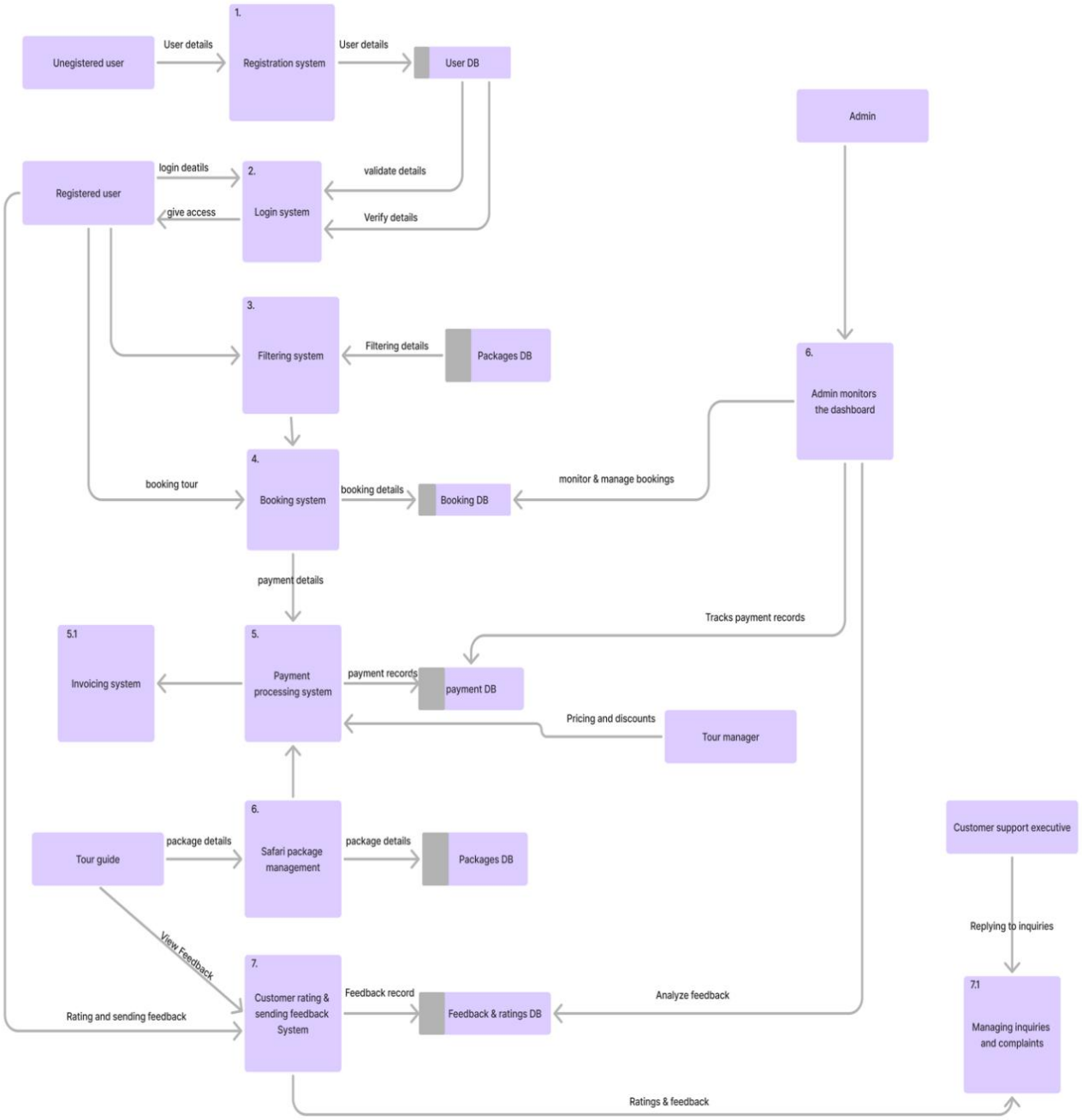

Figure 3.2.1: Overall System Workflow Diagram

- The process begins when an unregistered user creates an account by submitting personal details, selecting a unique username, and setting a password. This information is securely stored in the user database. Once registered, the user can log in with their credentials, which are verified by the login system to ensure secure access. Upon successful authentication, the user gains access to the platform.

- After logging in, the user is directed to the tour package browsing section. Using the filtering system, the user can search for safari packages based on preferences such as location, price, and operator. The system displays available packages from the package database, allowing the user to compare options. Once a suitable package is found, the user can select it for booking.

- After selecting a safari package, the user moves to the booking process, where reservation details are reviewed. The user confirms their choice, and the booking details are saved in the booking database. The system then ensures that the reservation information is accurately stored, allowing for seamless future interactions and bookings.

- The user proceeds to make payment through the integrated payment system, choosing their preferred method of payment. The payment gateway processes the transaction securely, and all payment records are logged in the payment database. The system also supports tour managers in applying pricing adjustments or discounts as needed. Successful payment grants access to additional features within the system.

- Once payment is successful, the user gains access to their safari package and related services. This includes viewing the safari itinerary, interacting with assigned guides, and managing booking details. The information is retrieved from the package management system, which keeps track of all user selections and bookings, ensuring smooth service delivery.

- After completing their safari experience, the user is prompted to provide feedback. The feedback system allows users to rate their experience, including the quality of the service, tour guides, and overall satisfaction. All submitted feedback is stored in the feedback ratings database, where it can be analyzed for insights on service quality and customer satisfaction.

- Administrators have a comprehensive dashboard through which they can monitor all system activities. This includes managing bookings, reviewing payment records, and tracking customer feedback. Admins also have the ability to update safari packages, ensuring that the system reflects the most current information. They oversee the smooth running of the platform and handle any operational issues.

- Dedicated customer support staff are available to address any inquiries or complaints from users. Through a support interface, users can easily reach out for assistance regarding bookings, payments, or general queries. The customer support system ensures that all issues are addressed promptly, contributing to a smooth and responsive user experience.

- The system generates reports based on key operational metrics, such as tour package popularity, customer feedback, payment history, and inventory management (if applicable). These reports provide valuable insights for the business, helping administrators and managers make data-driven decisions to improve services and optimize performance.

- Once all tasks are completed, the system ensures that all data is updated and sessions are securely closed. This final operation ensures that user data is safely stored and that any changes made during the session are reflected accurately across the system. The workflow ends with the safe termination of user and admin sessions.

Payment System - Appuhamy W.A.D.A.K (IT23479746)

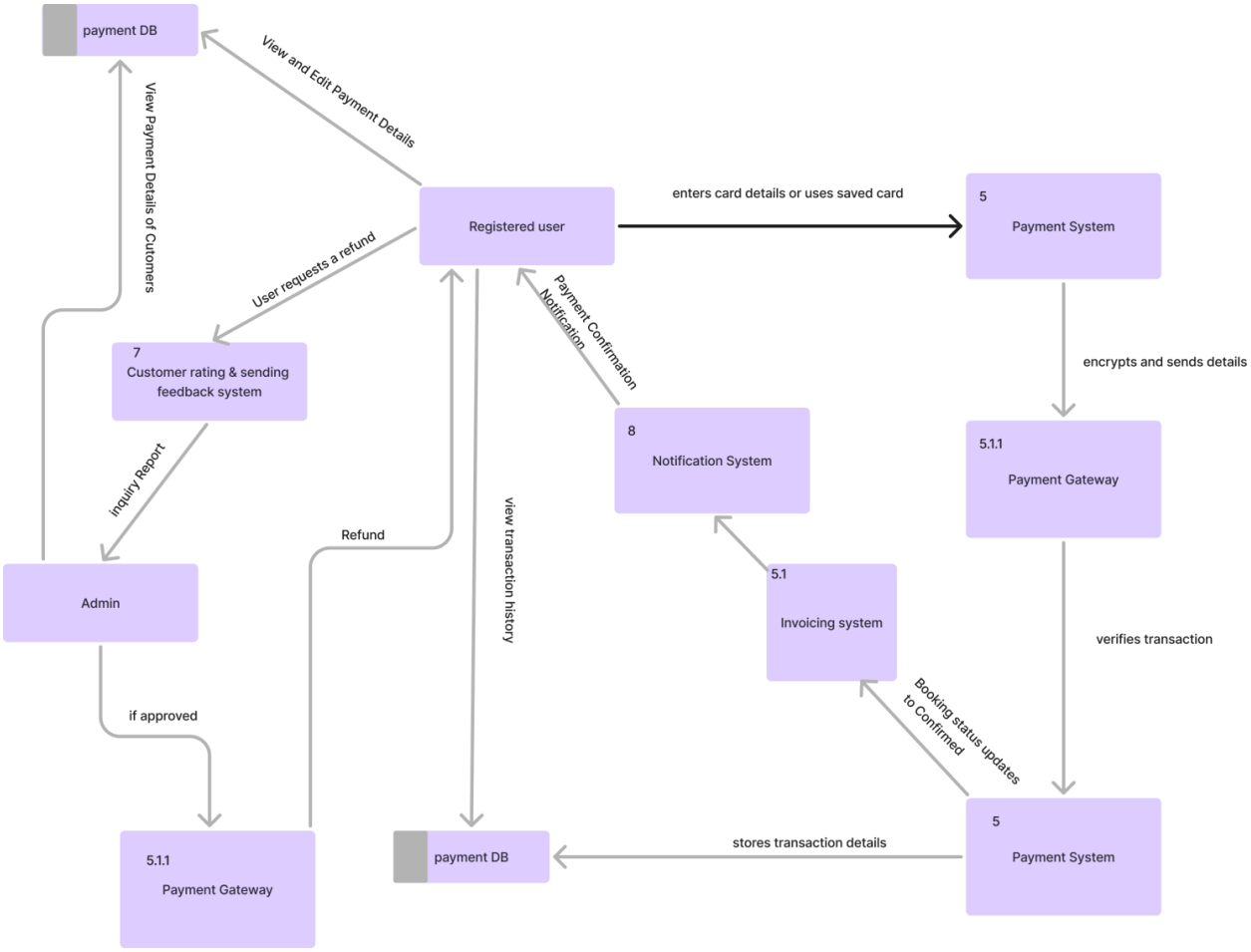

Figure 3.2.2: Payment System Workflow Diagram

Feedback and Rating System - Rajapaksha R.H.L - IT23369160

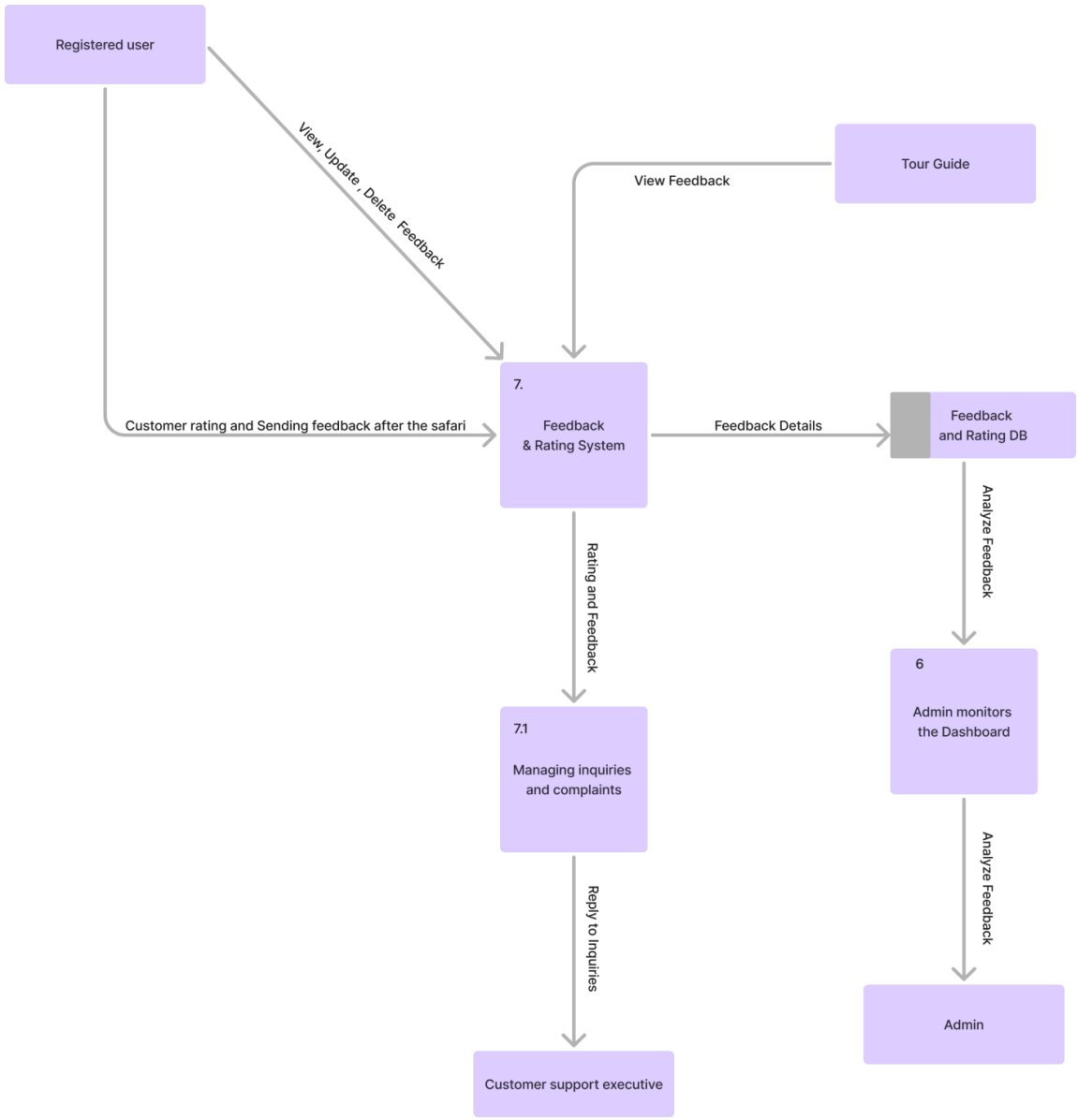

Figure 3.2.3: Feedback and Rating System Workflow Diagram

Book Safari Tour (Registered User) - DE MEL L.M.V.S.M.D. (IT23410572)

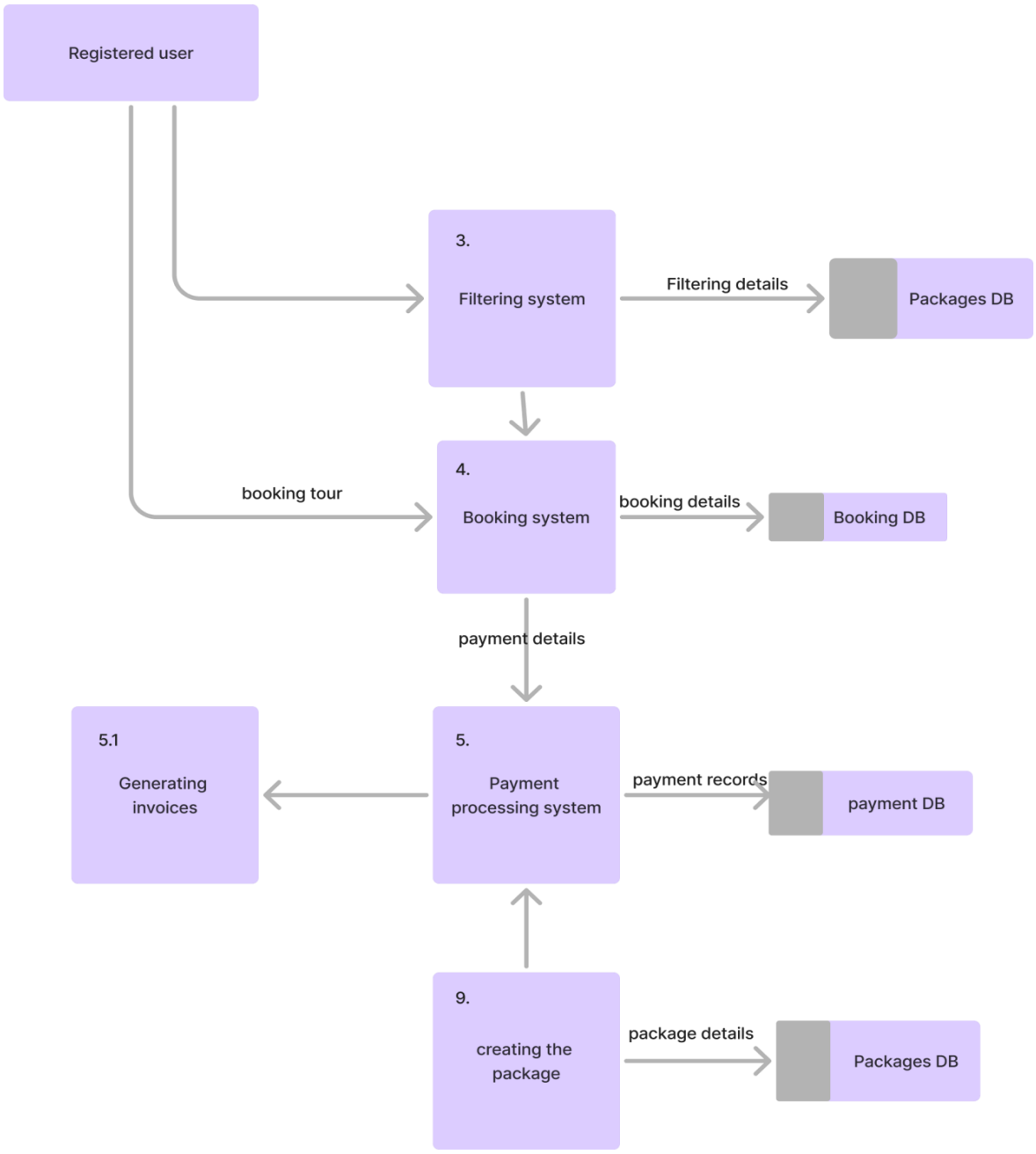

Figure 3.2.4: Book Safari Tour Workflow Diagram

Safari Management System (Tour Guide) – T.R Fernando (IT23400122)

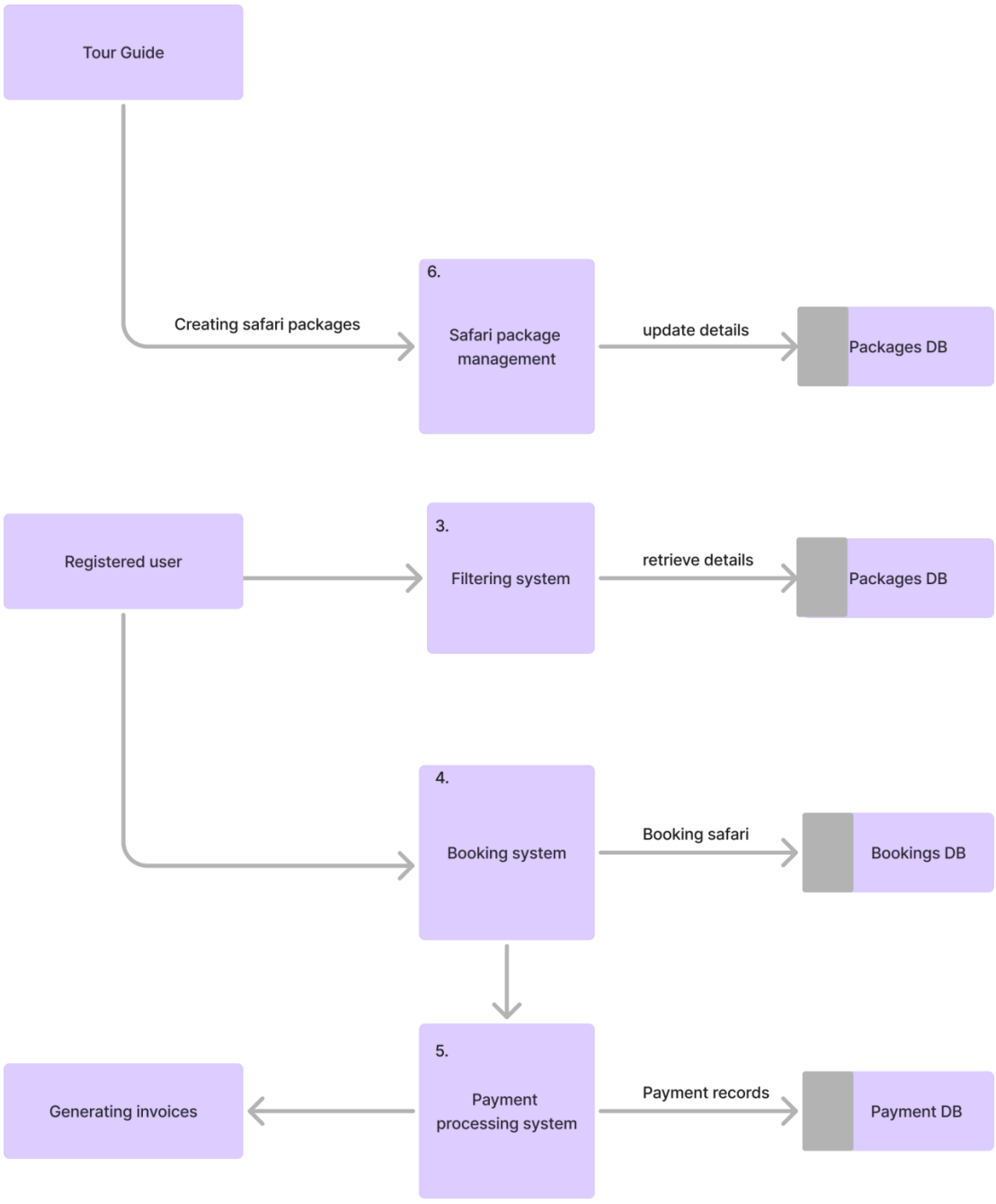

Figure 3.2.5: Safari Management System Workflow Diagram

User Management System (User) - Dilshan N. (IT23250574)

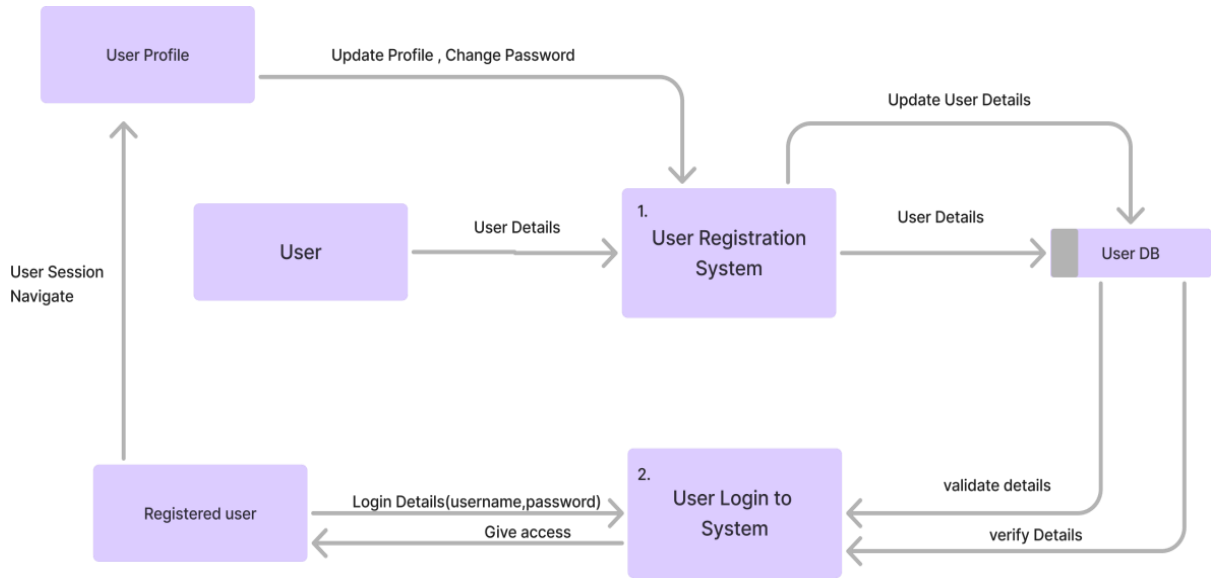

Figure 3.2.6: User Management System Workflow Diagram

System Overview Diagram

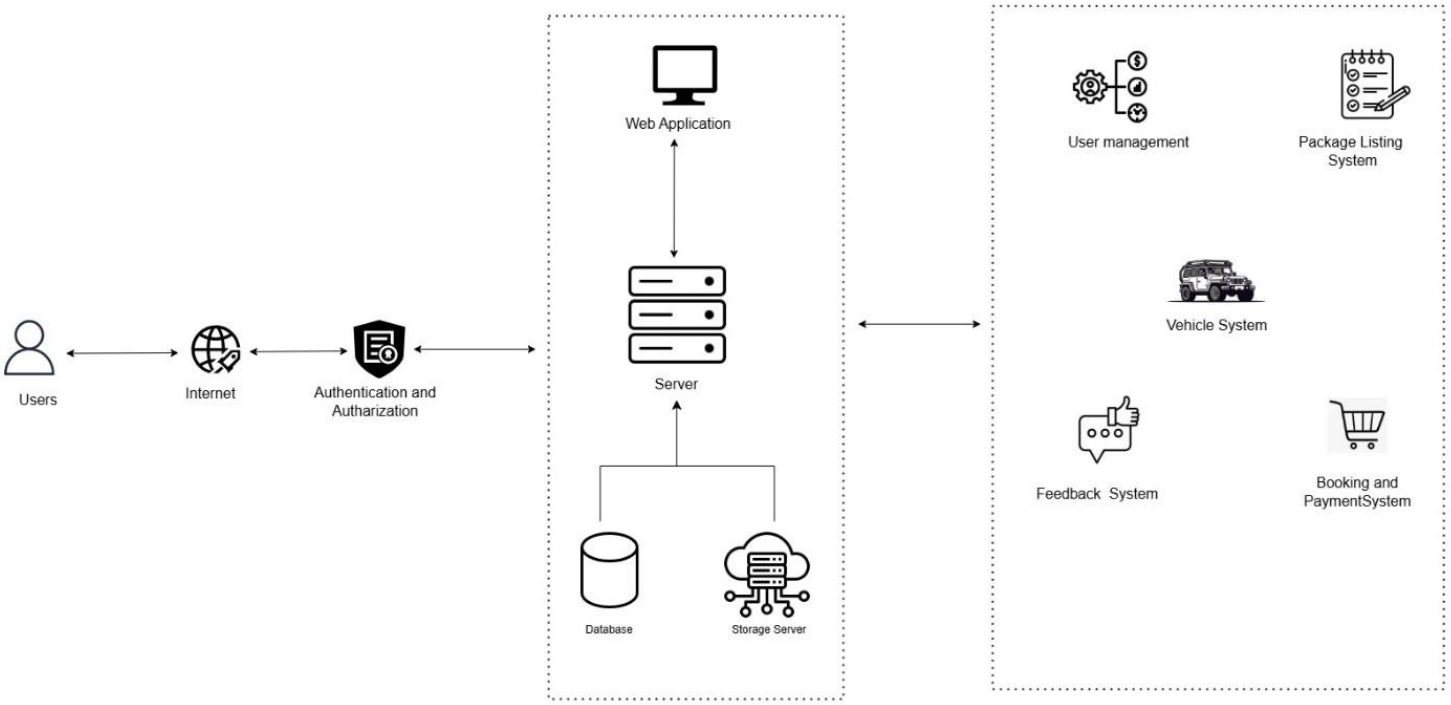

Figure 3.3.1: System Overview Diagram

Database Diagram

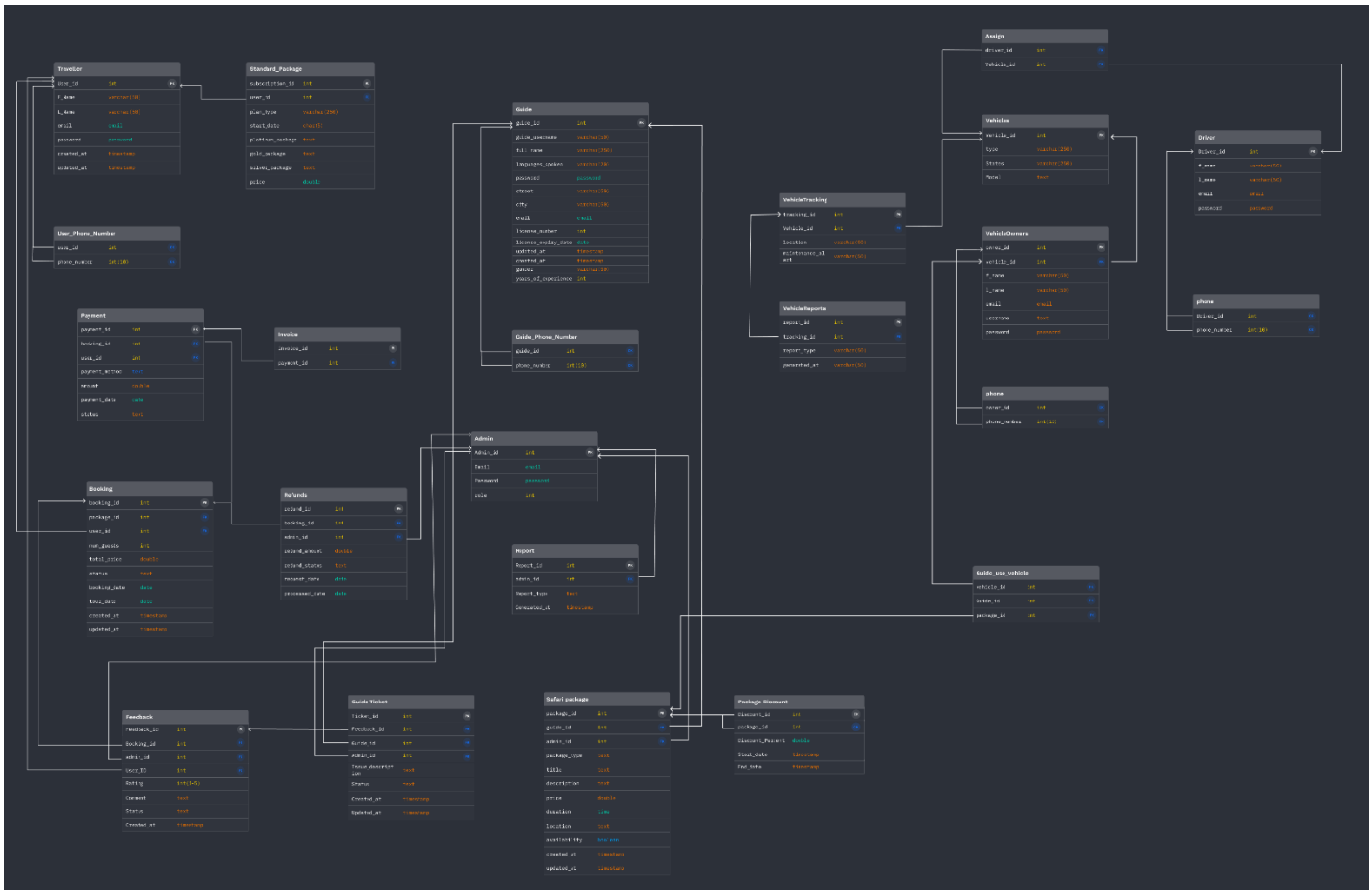

Figure 3.3.2: Database Diagram

Link - https://shorturl.at/4Nzl3

Development Aspects

Figure 3.3.3: Development Aspects Diagram

Chapter 4

Testing

Acceptance Criteria

The following acceptance criteria is met by our website to meet the expectations of tourists, local safari operators and vehicle owners:

1. User Experience & Accessibility

- Users are able to access the platform from any device with a responsive interface.
- Tourists are able to view and book safaris before arriving in Sri Lanka.
- The website is available in English, with future support planned for additional languages commonly spoken by tourists.

2. Safari Listings & Operator Integration

- Our platform supports listings from multiple safari operators per safari location (e.g: Yala, Minneriya, etc.).
- Each safari listing includes operator name, service details, duration, vehicle type, guide info, and location.
- Operators have the ability to register and manage their own listings via a dedicated dashboard.

3. Booking Functionality

- Users are able to search, filter (by location, price, operator), and compare safari options.
- The booking process includes a clear summary of selected safari, including all costs and details.
- Bookings are confirmed by email or in-app notification upon successful payment.

4. Transparent Pricing

- Each safari listing displays official and standardized pricing to prevent overcharging.
- Pricing is visible before the user proceeds to booking.
- Our platform doesn't allow hidden or dynamic pricing that varies per user without justification.

5. Secure Payments

- Our platform integrates a secure payment gateway that supports international credit/debit cards.
- Payment transactions are encrypted and compliant with applicable financial and data protection standards.
- Operators are notified of successful bookings and payments automatically.

6. Operator Support & Fairness

- Small and medium safari operators have equal access to list their services regardless of size.
- Operator profiles include reviews, ratings, and credentials to support customer decision-making.
- Our system ensures no preferential listing unless through clearly disclosed sponsorship or ranking criteria.

7. Reliability & Performance

- Our platform maintains 99.9% uptime during high tourist seasons.
- Search, filtering, and booking functionalities responds within 3 seconds under normal load conditions.

8. Security & Data Protection

- All user and operator data are stored securely and in compliance with data protection regulations.
- Users are able to delete their accounts and associated data upon request.

9. Customer Support

- The platform includes customer support.
- Users and operators receive support responses within 48 hours.

Test Cases

Test Scenario ID	Test Scenario Description	Test Case ID	Test Case Description	Test Steps	Preconditions	Postconditions	Expected Result
TS001	Test the User Account Management functionality	TC001	Verify that a user can register and log in successfully	1. Navigate to the website 2. Click on 'Sign Up' or 'Login' 3. Enter valid credentials 4. Click 'Submit'	User is not logged in	User is registered or logged in	System creates or logs in the user and confirms with a message
TS002	Test the Safari Package Management functionality	TC002	Verify that a guide can manage safari packages	1. Log in as a guide 2. Navigate to package management 3. Select Add, Update or delete package 4. Enter details and submit	Guide is logged in	Package is updated in the system	Package details are successfully added or updated and visible
TS003	Test the booking and payment system functionality	TC003	Verify that a user can book a safari tour successfully	1. Log in as a registered user 2. Select a safari package 3. Choose a date and the number of participants 4. Proceed to checkout and select payment method 5. Complete Payment	User is logged in	Booking is confirmed in the system	Booking details are stored, and confirmation is sent

TS004	Test the Payment Processing functionality	TC004	Verify that the finance admin can manage payments	1. Log in as finance admin 2. Navigate to payment management 3. Review transactions 4. Mark payments as verified or process refunds	Finance admin is logged in	Payments are verified or refunded	Payment records are updated successfully
TS005	Test the Vehicle Reservation System functionality	TC005	Verify that a vehicle owner can list and manage vehicles	1. Log in as a vehicle Owner 2. Navigate to vehicle management 3. Add or Edit vehicle details 4. Submit the updates	Vehicle owner is logged in	Vehicle listing is updated	Vehicle information is successfully stored and displayed
TS006	Test the Feedback and Review System functionality	TC006	Verify that a user can submit feedback	1. Log in as a user 2. Navigate to the feedback section 3. Enter a valid email and feedback 4. Submit the form	User is logged in	Feedback is recorded in the system	System confirms successful submission
TS007	Test the Customer Support System functionality	TC007	Verify that a support executive can manage inquiries	1. Log in as a customer support executive 2. Navigate to the feedback portal 3. Review customer inquiries 4. Respond to the issue	Support executive is logged in	Inquiries are resolved	Customer receives a response within the specified time

TS008	Test the Confirmed Safari Booking Process	TC008	Verify that a safari guide can manage confirmed bookings	1. Log in as safari guide 2. Check new bookings 3. Confirm with the customer 4. Mark the calendar as booked	Guide is logged in	Safari Booking is confirmed	Guides availability is updated and user receives confirmation

Table 4.1: Test Case Table

Chapter 5

Evaluation and Conclusion

The introduction of a centralized safari booking website represents a transformative solution to key challenges in Sri Lanka's wildlife tourism industry. For years, travelers, particularly international visitors have faced difficulties in booking safaris due to the absence of an online system for booking safaris, inconsistent pricing, and a lack of transparency. SafariGo successfully solves these problems by offering a streamlined digital platform where tourists can discover, compare, and book safari adventures with ease and confidence before even arriving in the country. By bringing together multiple safari operators, the system ensures fair competition, transparency, and significantly reduces the risk of overcharging, which has been a common issue in the tourism industry.

Moreover, our platform creates meaningful opportunities for local safari operators, particularly smaller businesses that previously lacked the resources or reach to connect with a global audience. By digitizing their presence and simplifying the booking process, these operators can now expand their customer base, increase bookings, and grow sustainably within a competitive market. The system also contributes to a more responsible and organized form of tourism by encouraging advance planning, which can help reduce overcrowding and also helps visitors to plan their journey ahead. Overall, our platform demonstrates how thoughtful technological innovation can deliver benefits to both tourists and local communities. In conclusion, our safari booking system not only enhances user convenience and fairness but also helps create a fairer, easier to use, and better organized tourism system in Sri Lanka. Our system does not just improve traveler experience, but also uplifts local businesses and contributes to the sustainable development of the country's wildlife tourism industry.

References

[1] TripAdvisor - https://www.tripadvisor.com/

[2] "MongoDB documentation," MongoDB, [Online]. Available: https://www.mongodb.com/docs/.

[3] "Documentation | Node.js," Node.js, [Online]. Available: https://nodejs.org/en/docs.

[4] "Express routing," Express, [Online]. Available: https://expressjs.com/en/guide/routing.html.

[5] "Quick Start – React," React, [Online]. Available: https://react.dev/learn.