Online Travel Planning System

Project Report

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Sri Lanka Institute of Information Technology

IT2080 Information Technology Project

ITP_WD_B02_07

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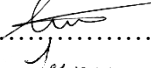IT21069390 - Madarasinghege S.
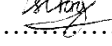
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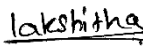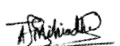May 2023

Declaration

This project report is our original work and the content is not plagiarized from any other resource. References for all the content taken from external resources are correctly cited. To the best of our knowledge, this report does not contain any material published or written by third parties, except as acknowledged in the text.

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Date: 18/05/2023

Abstract

The project is aimed at the development of a online travel planning system where the user has access to all the necessary components needed to plan a successful trip. The previous system which was used by the client was a file based manual system which proved highly inefficient when it comes to managing users properly combined with security risks. With the development of the proposed system, it will overcome all the above mentioned problems along with reducing the required physical space significantly. The project was designed by dividing the whole system into 8 components as Outdoor and adventure experience, hotel reservation, vehicle management system, destination management system, advertising management system, insurance management system, payment management system and tour-guide management system. The end system was able to achieve all the set objectives while exceeding the expectations of the client.

Acknowledgement

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List of Abbreviations

Adobe XD – Adobe Experience Design

AI – Artificial Intelligence

AWS – Amazon Web Services

DB - Database

ER Diagram– Entity Relationship Diagram

JS – Java Script

MEAN - MongoDB, Express, Angular, Node

MERN – MongoDB, Express, React, Node

MEVN - MongoDB, Express, Vue , Node

SVG – Scalable Vector Graphics

Chapter 1 Introduction

Background

The Online Travel Planning System is a web-based application that provides a platform for both tourists and service providers in the tourism industry. The system allows tourists to plan and book their trips online, while service providers can use it to manage their business operations. The client plans to convert their existing manual system to an online system. Due to the economic crisis, countries that depend on tourism, like Sri Lanka, have been greatly affected. The main goal of the client's website is to attract foreign tourists and promote Sri Lanka as an ideal vacation destination. The website integrates various services such as tour guides, hotel reservation, destination management, insurance, advertising, outdoor and adventure activities and vehicle rentals to provide a one-stop-shop for tourists to plan their trip. The website offers a range of hotels and amenities for users to choose from, based on their budget. The website also aims to provide tourists with worry-free vacation options by avoiding overpriced services. The administrator can manage every aspect of the website, including adding or removing hotels, reviewing customer feedback, recruiting new tour guides, monitoring hotel, publishing advertisements, generate reports and vehicle booking status.

Client/Company Background

Southern Lanka is a company that was established in 2018, and it has three partners who are actively involved in the business. The person who is responsible for overseeing the company's administrative activities is Hallaba Gamage Bhanu Bdrawansha, while the other two partners are Warahena Liyanage Prabath Chandima Kumarada De Alwis and Sahitha Weerasinghe. The company currently operates using a manual system, which makes it difficult to maintain a proper system when there is a need to insert data in a large quantity. It is worth noting that the person who oversees the company's work is also engaged in the field of valuations with another company named Southern Associates Vehicle Valuation Service. This company has 32 branches across Sri Lanka and was established in 2014. In addition to the valuation company, he also owns various other establishments. Despite the existence of the valuation company and other businesses owned by the person who oversees Southern Lanka's work, the current situation of the company is not practical. Bringing foreigners from abroad using a travel agency is quite difficult to manage manually, especially when dealing with a large quantity of data. Therefore, Southern Lanka may need to consider adopting a digital system that can streamline its operations and make it easier to manage its business. With the advancement of technology, it is now possible to automate many of the processes that were once done manually. By doing so, Southern Lanka can improve its efficiency and effectiveness, leading to better business outcomes.

Problem

- Client keeps the records manually.
- No proper payment system.
- Customers can't plan the trip from anywhere.
- Client needs to get income in dollars, cashless transactions
- Client don't have any website to promote his business.
- Customers facing difficulties when it comes to planning the trip (Determining a total budget around the world)

Motivation

- Improved efficiency.
- Enhanced productivity.
- Better data management.
- Compliance with regulations.

Literature review

Table 1.1: Similar website pro and cons

Web site name	Advantages	Disadvantages
Expedia [1]	• Have many filters to choose hotels and vehicles • Have a virtual agent which powered by AI • A good amount of reviews given to the places and vehicles	• The web site is not optimized for Sri Lanka. • User may choose random hotels without a plan. • Prices are higher that other web sites
Klarna. Trip [2]	• User friendly interface • User can get a proper travel plan the web site • Web site is optimized for Sri Lanka	• No options to book hotels from the web site it will redirect to another web site • No other options like rent a vehicle or find a tour guide
SriLanka.Travel [3]	• The hotels are validated by Sri Lankan tourism	• Limited rooms are available in the website • Only the home page is user-friendly • No user reviews to places and rooms • There no wide range of events
wander log [4]	• Calculate the budget for the trip • Web site recommend places to visit • Recommend hotels to stay in the area which the user add the places to the timeline	• All the good options unlock when the user upgrade his package to pro • Some functions unlock after write an email to the web site
Trip Adviser	• Have a huge user base so the reviews are better • User-Friendly interface • Competitive pricing • Many options to choose from	• Tour guides cannot be book from the web • Some features for Sri Lanka appear to be available but not when selecting the requirements

Above mention web site are provide many useful functionalities but our aim is not full filled by those.

1. The client requested to make a web site under his business name so putting his properties to those web sites are not an option

2. Our group have a suggestion to add insurance for user's safety based on the current situation in country. There are no any web site capable of doing that

3. These web sites have loyalty programs but according to the owners it just adding a complexity to the user. Most of the people will not use loyalty programs it just waste of resources. [5], the president of Expedia Brands

Aim

With the implementation of our system, we aim to address virtually all the issues faced by users when interacting with a travel planning system. With the management of a database by our system the need to keep track of everything and maintain records manually won't be needed. Previously, the process of registering a new user involved manually asking them questions and recording their responses in a book, which was a time-consuming task for both the owner and the user. The major difficulty faced by the users of the previous system was the inability to plan their trips before coming to Sri Lanka which resulted in a significant loss of users. With the implementation of the new system, the users have the ability to plan their whole vacation from anywhere with 24/7 availability of the website with full flexibility when it comes to postponing or cancelling their vacation plans, making their payments from across the world which will give our client the competitive edge when compared with other similar Sri Lankan businesses. In order to address the issue of not having a proper payment and payment management system of the previous system, we have taken steps in order to integrate the services of a secure payment gateway into our system. With the new payment gateway, all the transactions are fully encrypted and secured, making it impossible for any sensitive information to be compromised. This gives our customers the peace of mind they need when making online payments, knowing that their personal and financial information are safe. This solution will not only be beneficial to the customer but also to our client who has the need to get their income in dollars. By advertising a website, it is possible to create a passive influence on users to at least visit the relevant site. With the recent implementation of the new system, our client now has the ability to self-promote their own website while simultaneously generating revenue by advertising other businesses. This approach not only provides our client with the opportunity to expand their reach but also allows them to create mutually beneficial partnerships with other businesses.

Objectives

- Requirement gathering and analysis: Interview and discuss directly with the client to gather information to identify functional and non-functional requirements.
- Design: The database schema provides a structure for storing and retrieving data, ensuring that it is well-organized.
- Implementation: The MERN stack which includes Mongo DB, Express.js, React, and Node.js is used to develop the system.
- Testing: During the implementation process, we used three different types of testing to ensure that the system was functioning properly and meeting the requirements of the client or customers. Unit testing to test functions individually, Integration testing to check how functions work together and system testing to check the entire system to ensure that it meets the client's requirements.
- Deployment and maintenance: By making the system available for the client, the client can use the system to achieve their goals productively.

Solution Overview
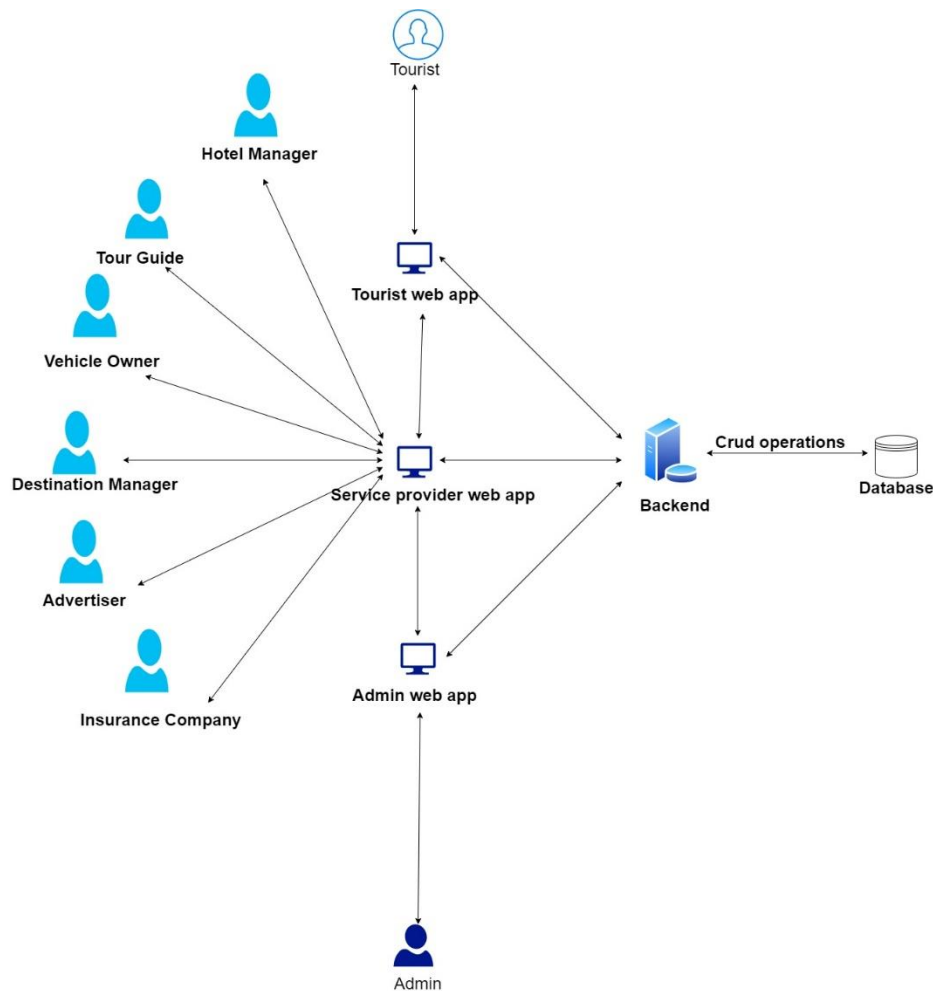
Figure 1.1: Solution overview for the whole system

Our system has 8 main components. And 8 types of users that use it. We have identified two types of users who primarily use the website as expert and amateur travelers. New users can't plan a trip properly. They usually miss important locations or book hotels in an area not near to the locations that they are planned to visit. We have identified that new travelers are often scammed when they using three wheelers in Sri Lanka. On the other hand expert travelers knows how to find hidden, important locations and knows how to deal with the issues a traveler would experience. When we are developing the system we consider both of the users. Amateur users can book a whole holiday plan according to budget they can customize some of the recommended hotels, vehicles, event and outdoor activities. While expert travelers can fully customize the holiday with the website.

Methodology

- Requirements engineering methods: To gather stakeholder requirements, we conducted interviews and questionnaires. We also analyzed documents and observed the previous manual system. The requirements were documented using use-case diagrams (draw.io) and use-case scenarios (MS Word). These will be updated based on stakeholder input to ensure the new system is accurate and efficient.

- Design methods: For designing interactive interfaces, we chose Figma as our collaborative design tool. We considered options like Adobe XD and Sketch but excluded Adobe XD due to limitations with importing .SVG images and omitted Sketch because it is only available on Apple devices. Figma met our requirements and provided a suitable platform for our project.

- Development tools and technologies: For system development, we chose the MERN stack, which includes MongoDB for database management, Express.js and Node.js for backend development, and React.js for frontend development. We considered alternatives like MEAN and MEVN, but MEAN was more suitable for enterprise projects, and MEVN was relatively new. We selected GitHub as our version control system due to its familiarity among our team members compared to other options like AWS CodeCommit and Plastic SCM.

- Testing methods: To test the final product, we will employ a combination of automated and manual testing methods. Automated testing will be performed using Postman. The testing will encompass unit testing, integration testing, system testing, and acceptance testing.

- Integration methods: In order to seamlessly integrate the different components of the system, we will be using the incremental integration method which will allow the members to detect errors early and reduce the risk when compared with the other integration methods.

Structure of the report

Chapter 02 – In the chapter 02 the following will be done. Stakeholder analysis through onion diagram which will show how different stakeholders interact and affect the organization along with the proposed system. The requirements gathering will be done through analyzing functional and non-functional requirements. After all the analyzing is done, requirements modeling will be done with the use of Use-Case diagrams and Activity diagrams.

Chapter 03 – Within chapter 03 we will be discussing about ER diagrams, Class diagrams and User interfaces. ER diagrams will show the structure of the database and the relationships between all the entities that are related while class diagrams will show the relationships between the objects and describe whats done by those objects.

Chapter 04 – In chapter 04 testing will be carried out where certain functionalities of the components are tested to ensure the results shown are the results that are expected. Each test case is given three inputs and the relevant outputs will be monitored.

Chapter 05 - Within chapter 05 overall system's performance will be evaluated using the end results of the test cases.

Git repository

https://github.com/SLIITITP/y2_s2_wd_it_01-itp_wd_b02_g07.git

Chapter 2 Requirements
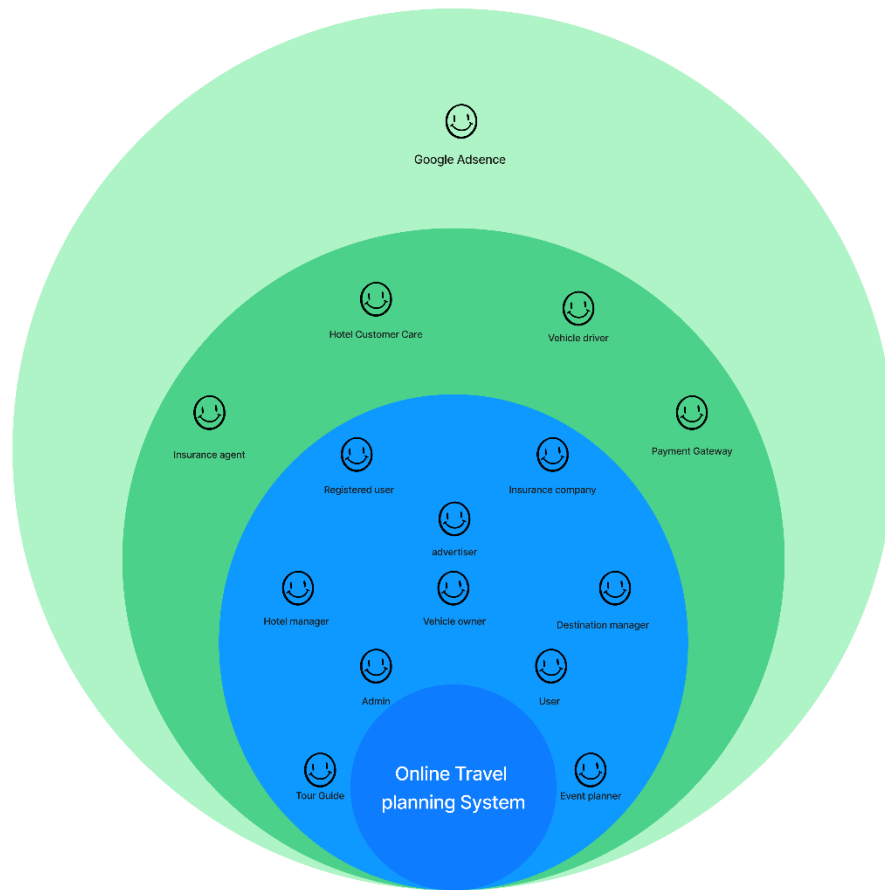
Figure 2.1: Onion diagram for the whole system

Requirements analysis

Functional requirements

- User registration and login to the System.
- Add Outdoor and adventure Activities.
- Room availability and booking
- Room descriptions and types
- Online payment
- Room cancelation
- Report and analytics
- Vehicle registration
- Vehicle maintenance management

- Insurance Policy management
- Insurance Claim management
- Customer chooses a destination
- Adds new destination packages
- Choose an advertising package (Ad placement)
- Add advertisement and ad details

Non-Functional requirements

- The system should be perform responsively, fast and handle high traffic volumes.
- The interfaces should be user-friendly, easy to navigate and simply designed.
- The system should be highly reliable with less down times and quickly recover from errors.
- This system should be scalable to add more features
- This web site will be access many users from different ,it compatible for everyone
- The system should available 24/7 for the users to reserve rooms

Requirements modeling

Use case diagram
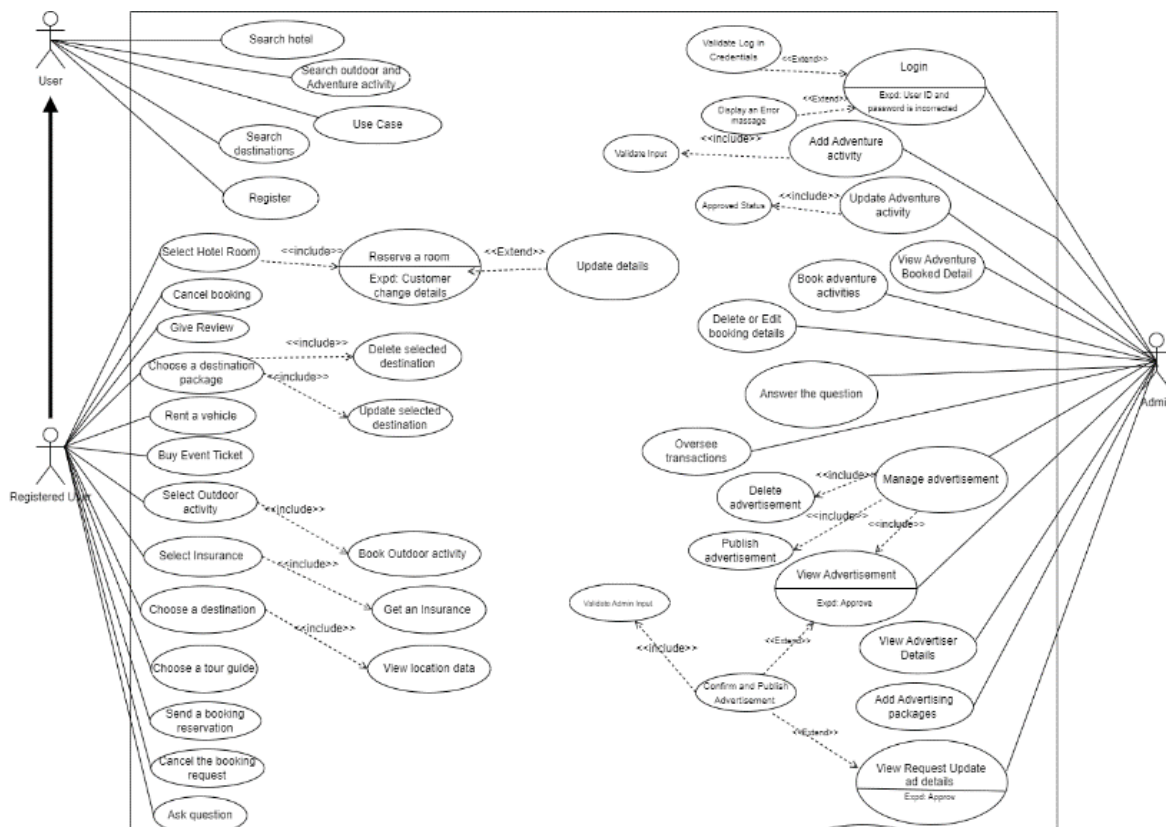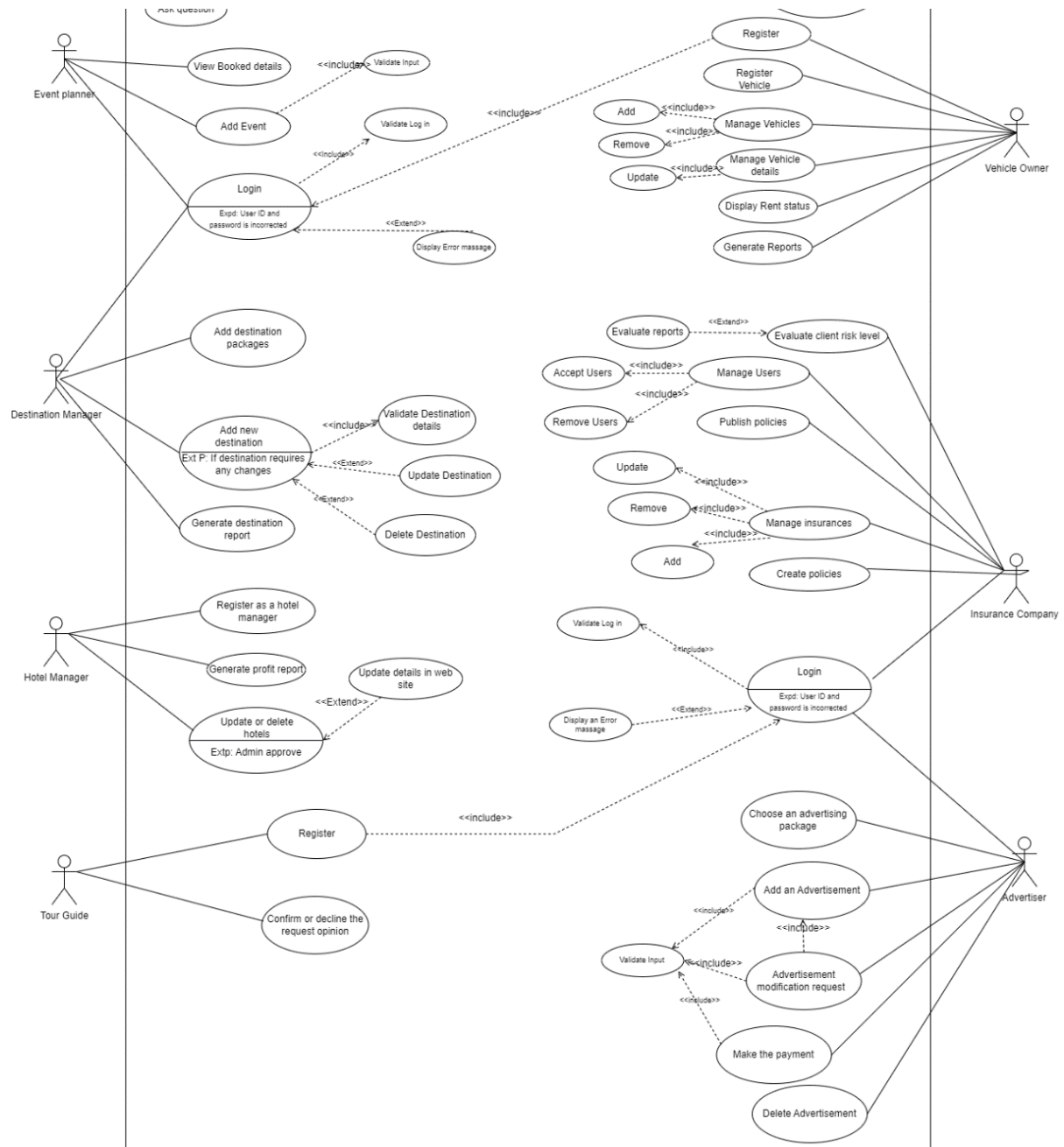
Figure 2.2: Use Case diagram for the whole system

Chapter 3 Design and Development

Diagrams of components

ER Diagram
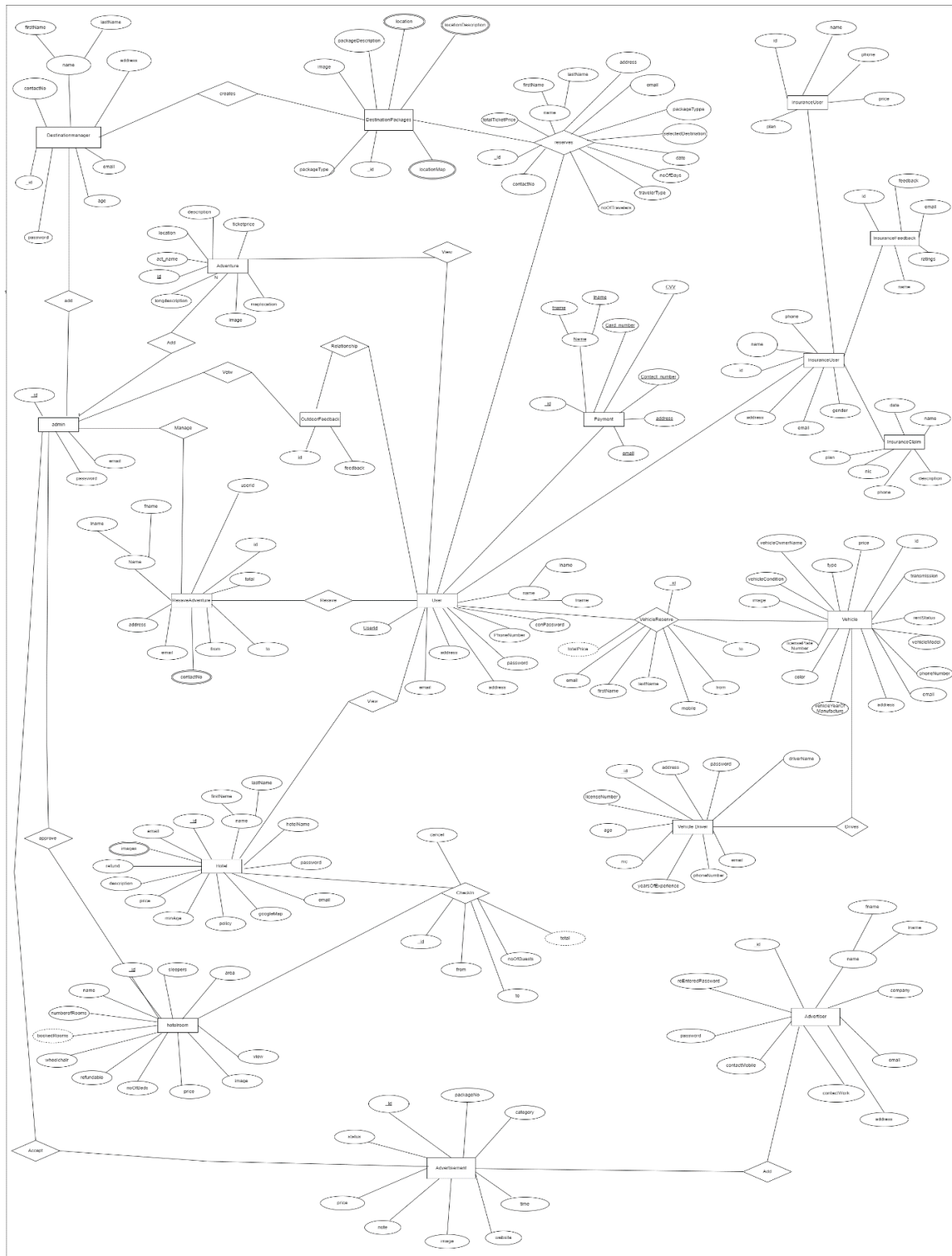
Figure 3.1: ER diagram for the whole system

Class Diagram
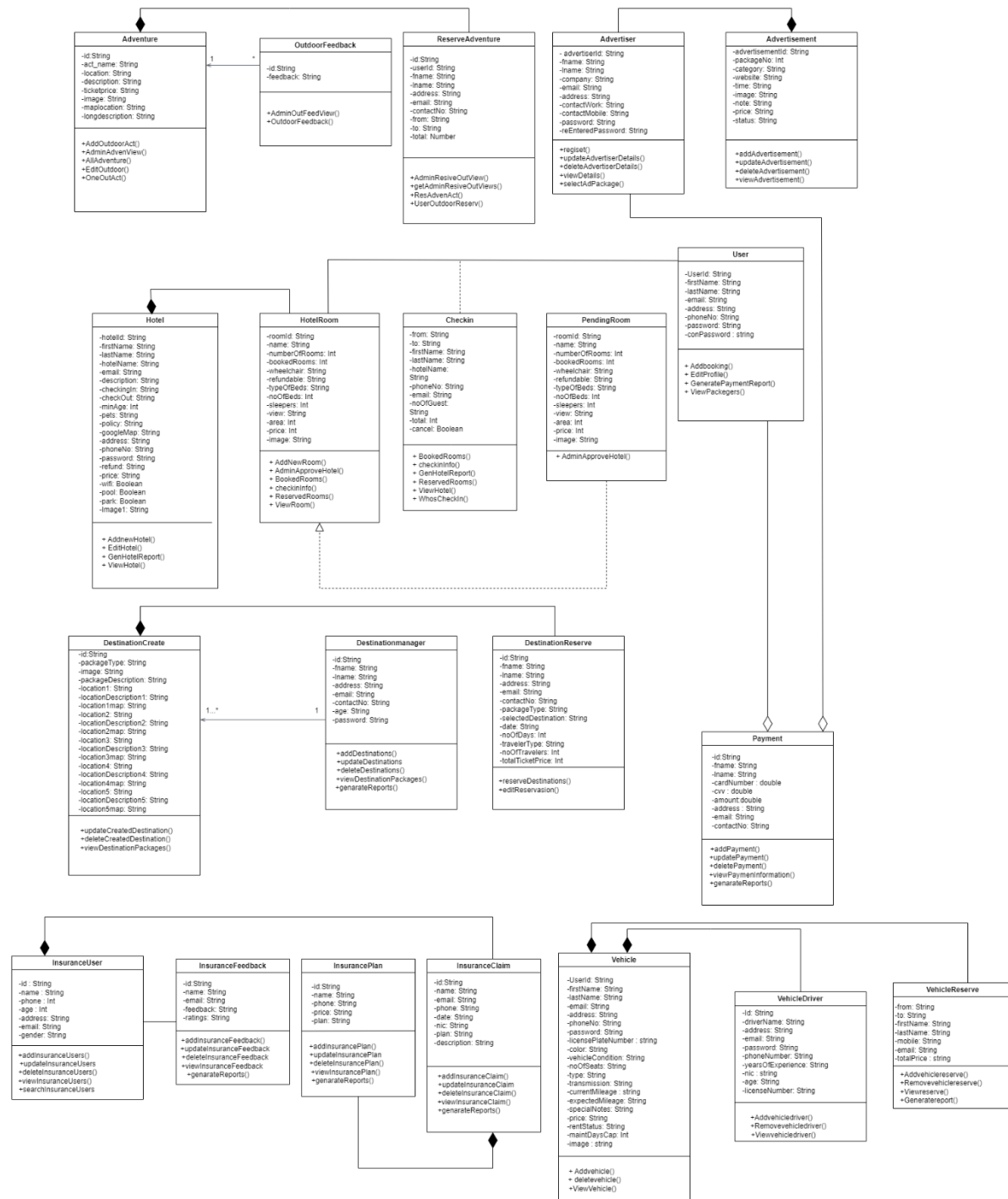
Figure 3.2: Class diagram for the whole system

Component Diagram
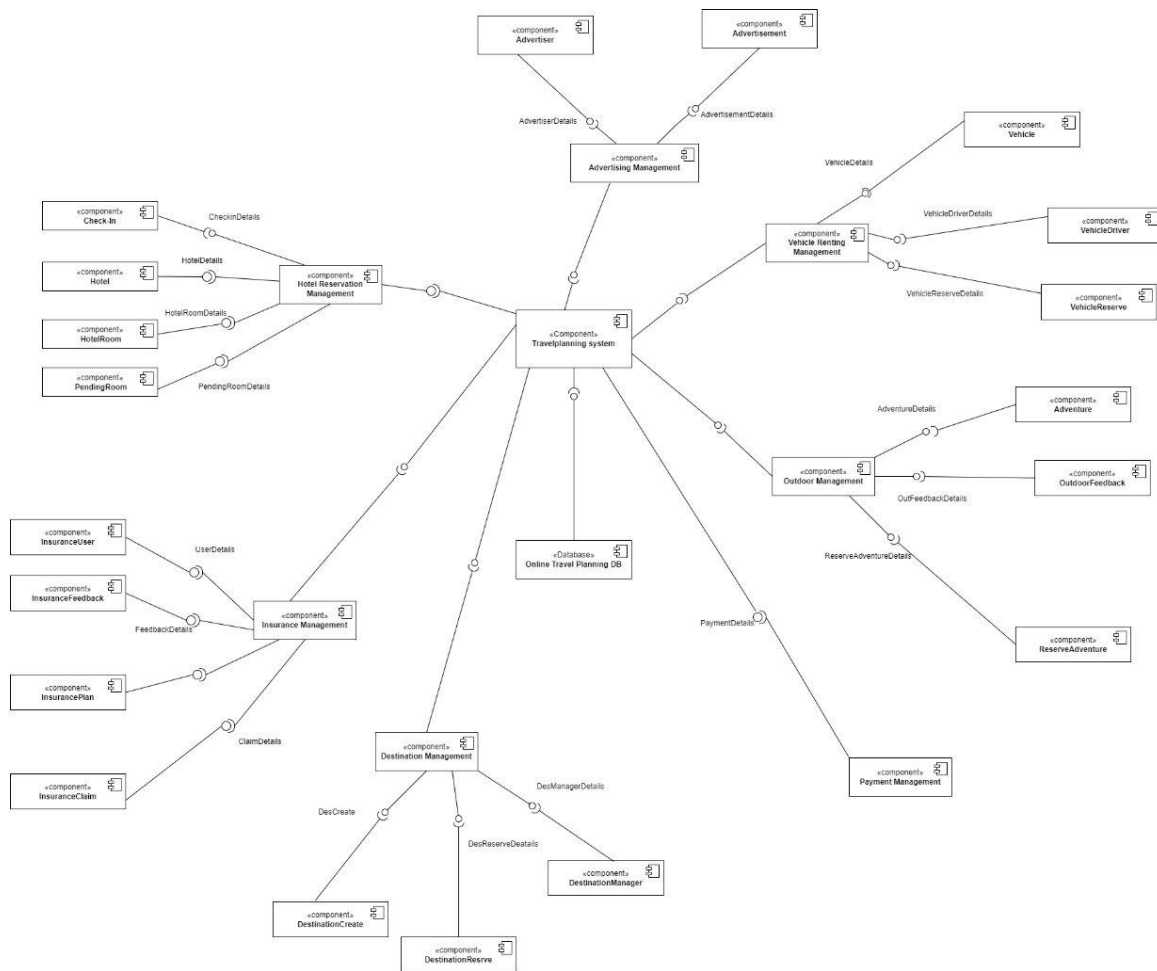
Figure 3.3: Component diagram for the whole system

Workflow (Activity Diagram)
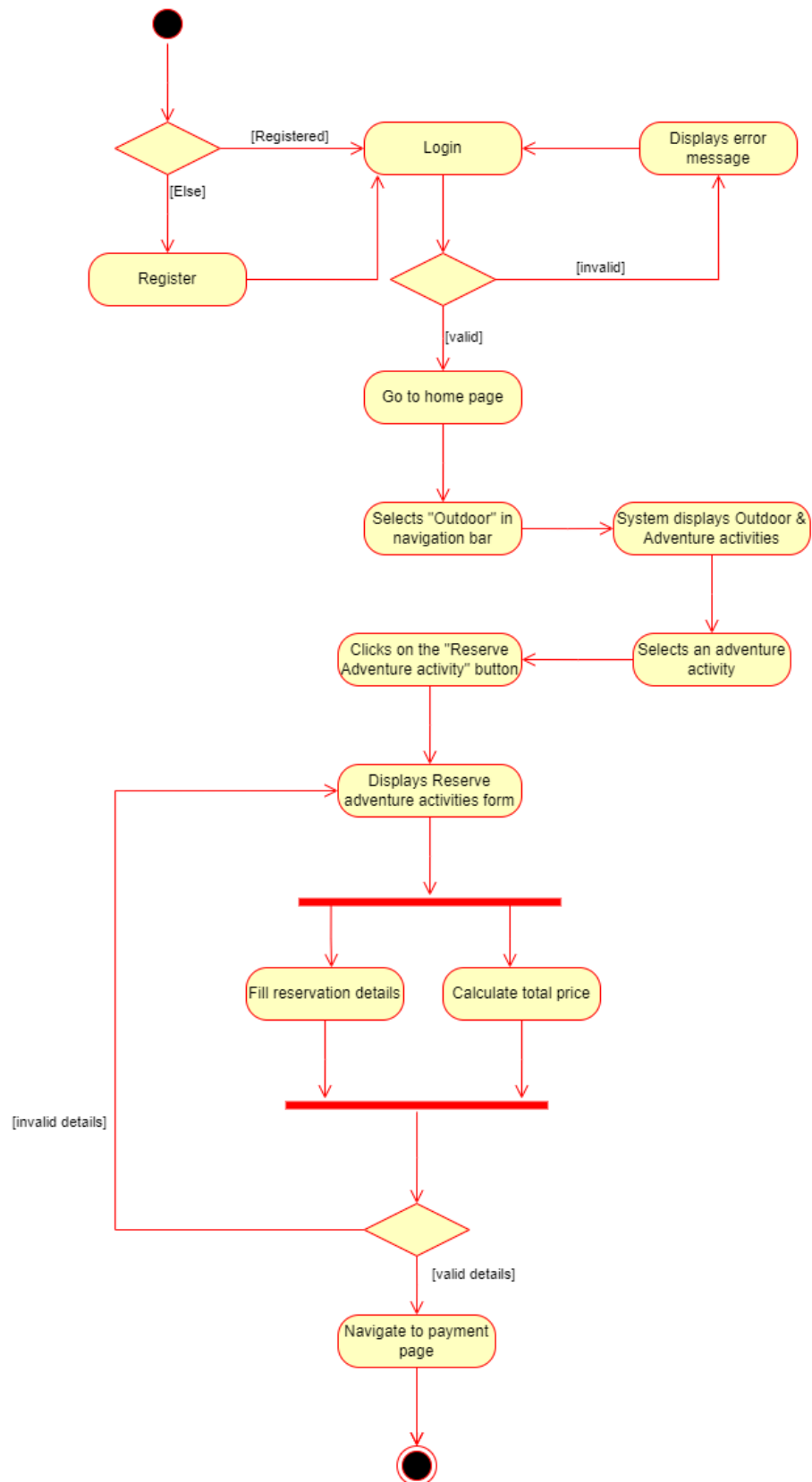
Figure 3.4: Activity diagram for reserving an outdoor activity

Workflow (Activity Diagram)
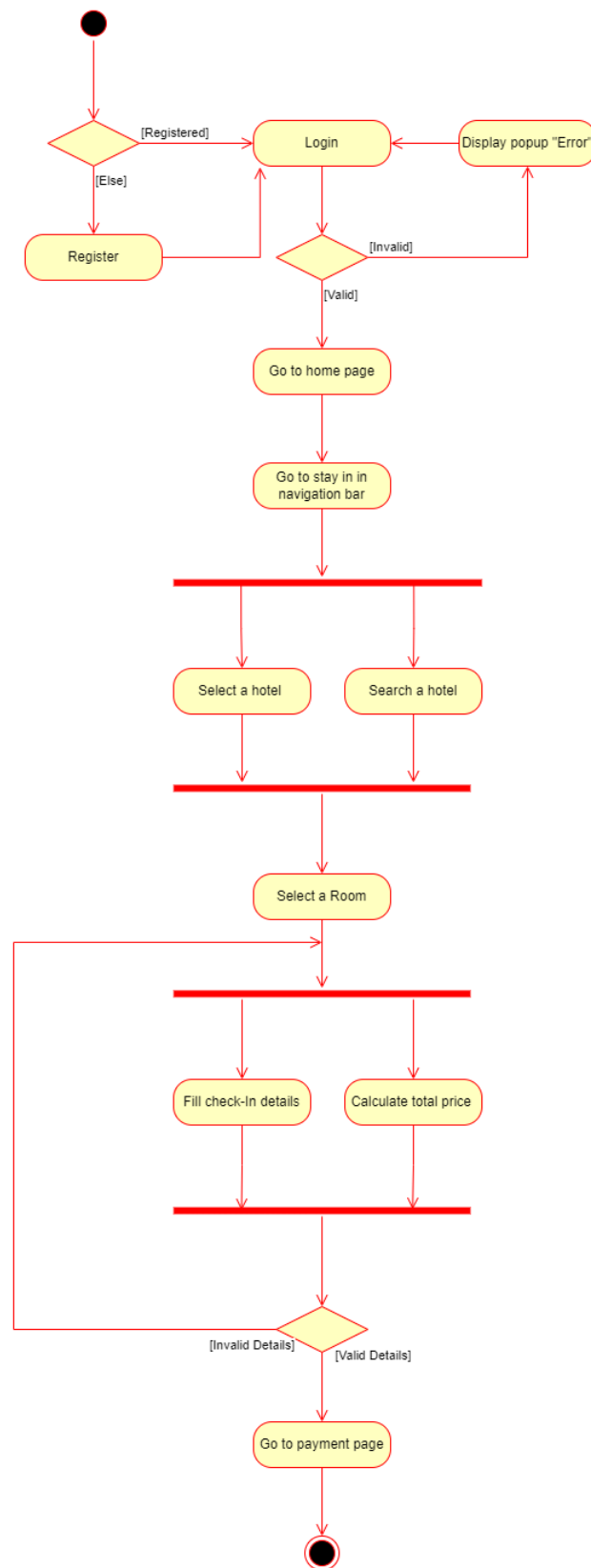
Figure 3.5: Activity diagram for hotel reservation
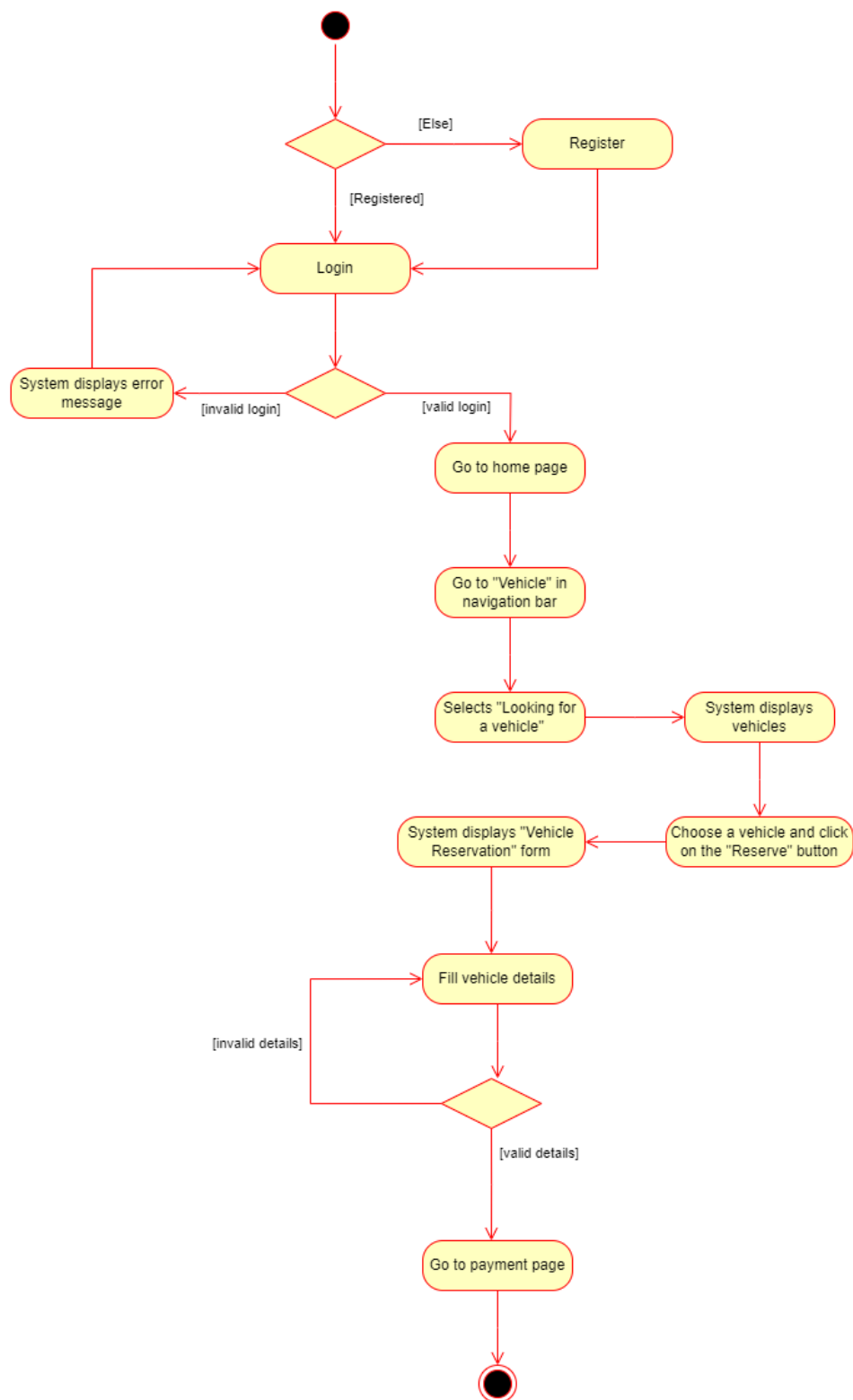
Figure 3.6: Activity diagram for vehicle reservation
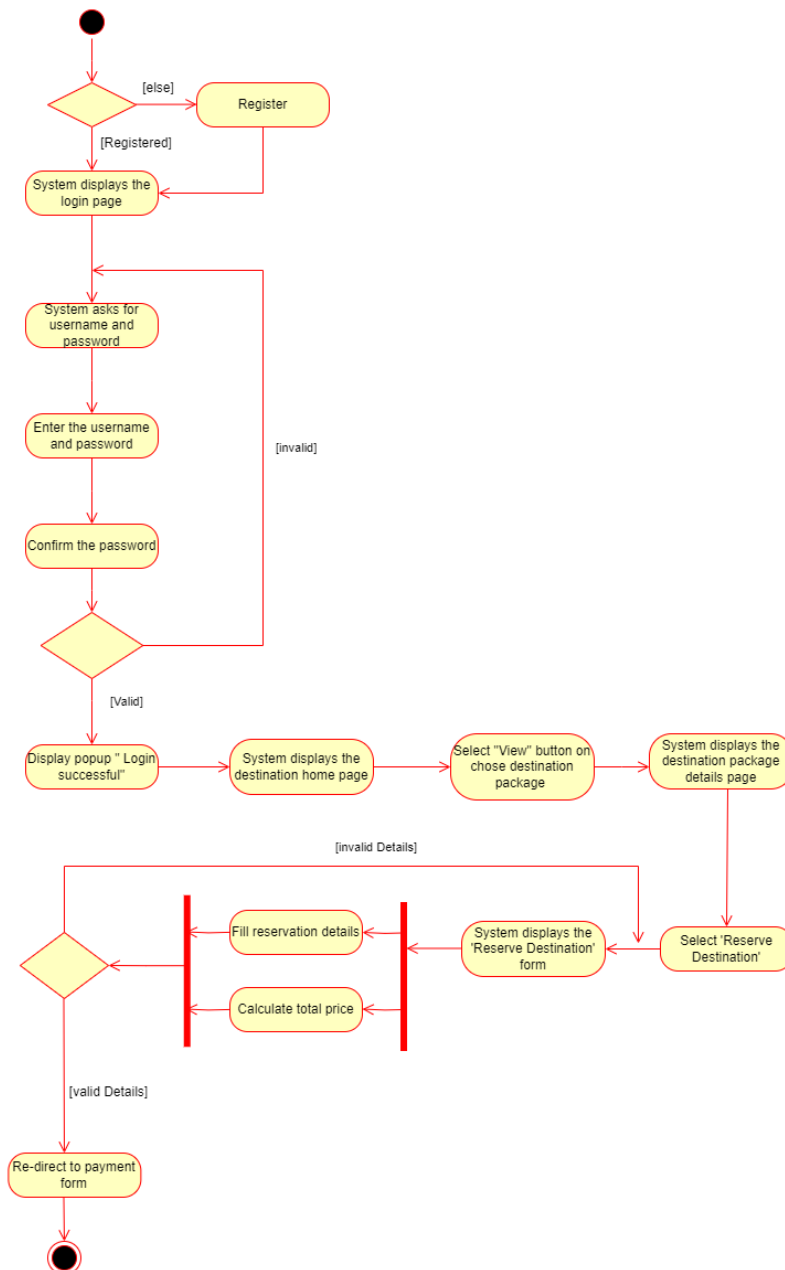
Figure 3.7: Activity diagram for reserve destination
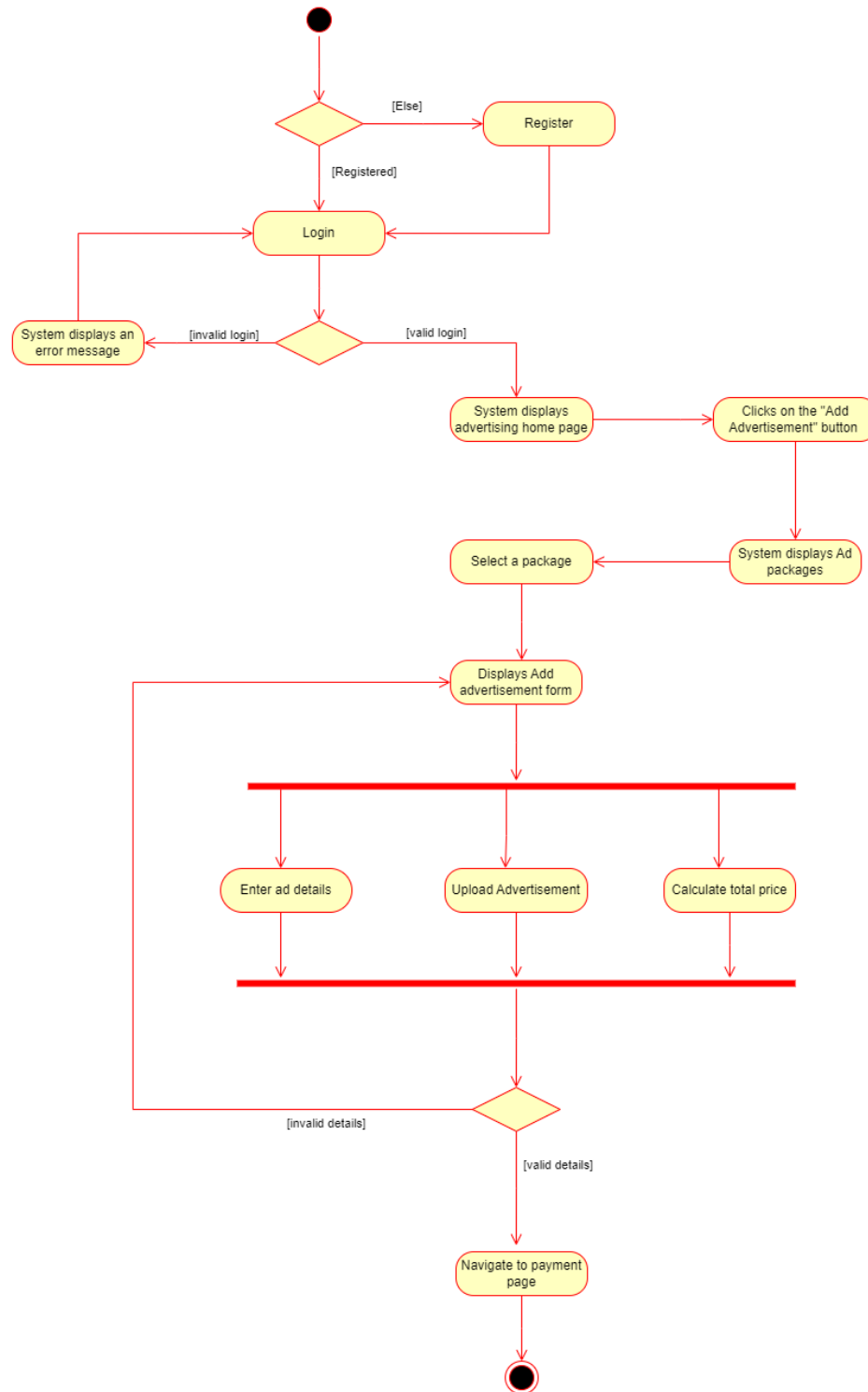
Figure 3.8: Activity diagram for add advertisement
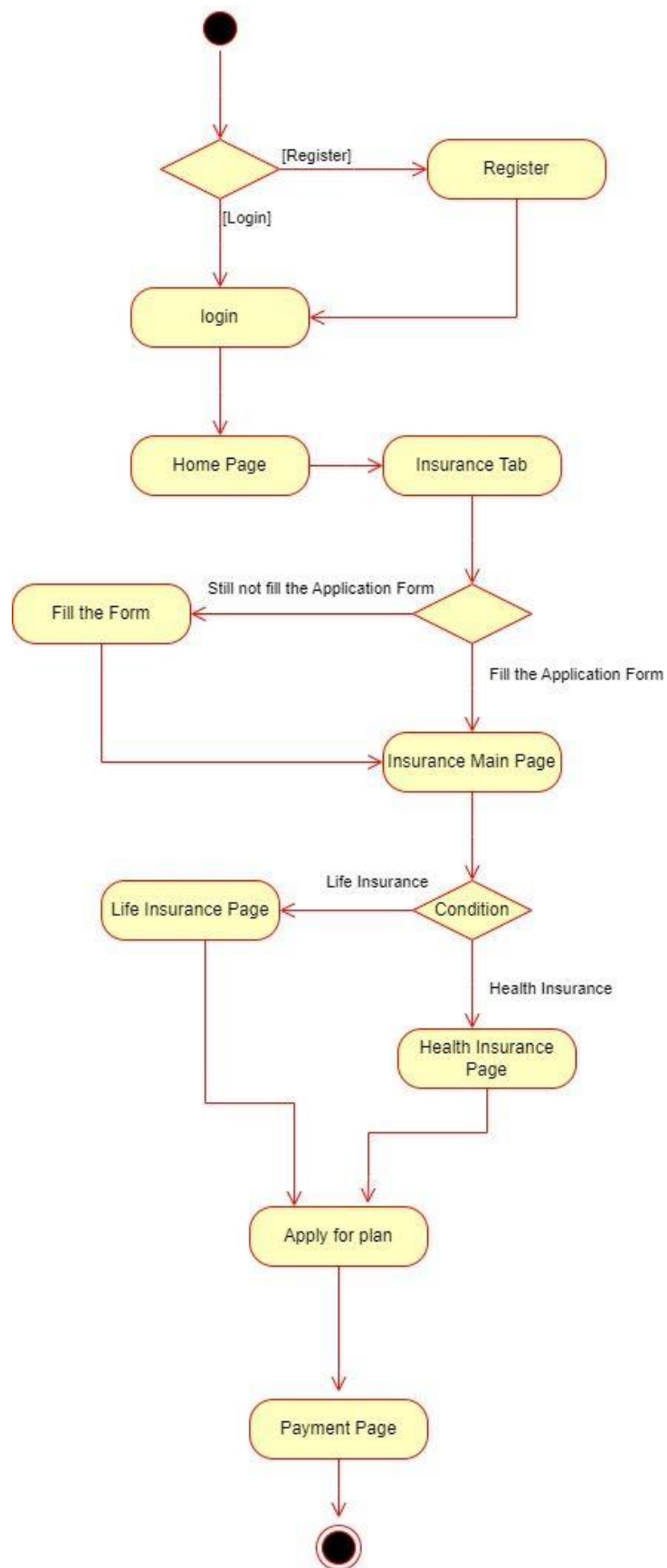
Figure 3.9: Activity diagram for add insurance
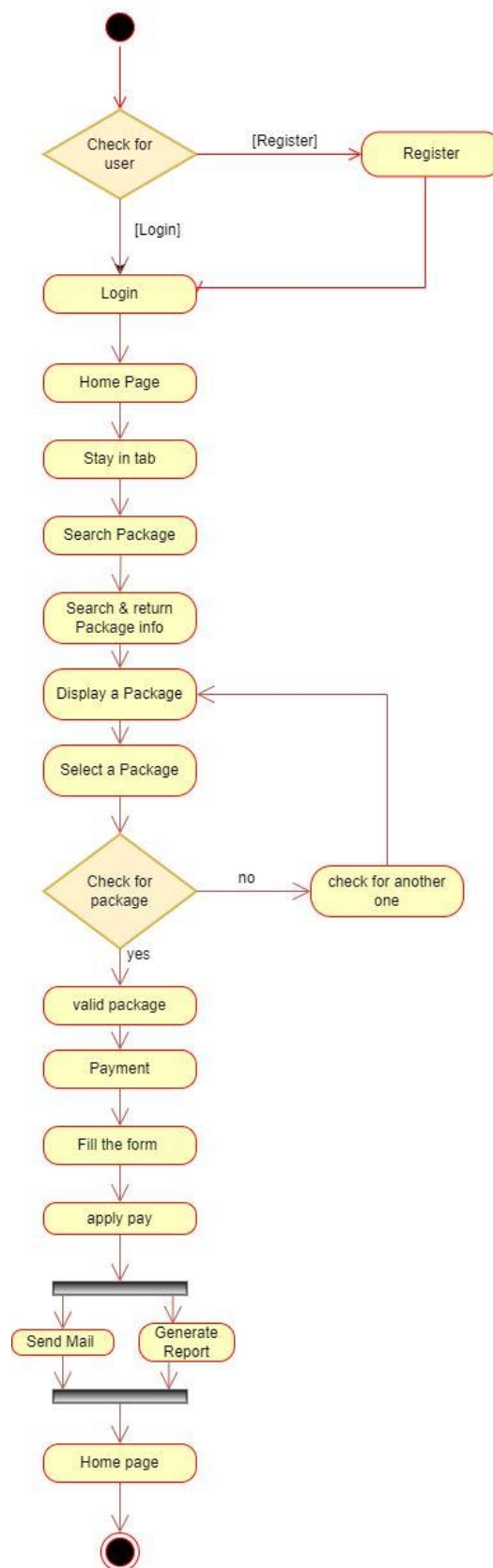
Figure 3.10: Activity diagram for payment

Gantt chart
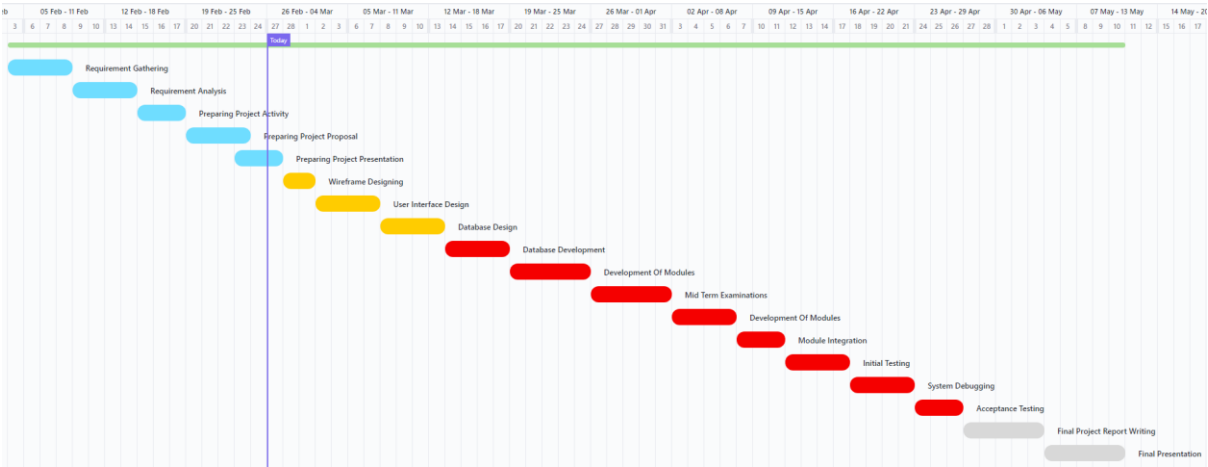
Figure 3.11Gantt chat

Development aspects

For the development of the system MERN has been used where for the frontend design React, for the backend Node.js and Express.js is used while for MongoDB is utilized for the creation of the database. For the version control of the purposes to track changes done to the code by group members, GitHub has been used.

Certain libraries were used for the system development. Such libraries include mongoose, connect-mongo to connect mongo DB to the backend. Twilio to enable SMS generation for the vehicle owners of vehicle component. Multer for image uploading. Jspdf and jspdf-autotable for report generation and designing of the report structure. Sweetalert2 for generation of custom alerts instead of using the default alert message design of the web browser. Body-parser which parses incoming request bodies and allows access to the data sent within the request, cors, dotenv for making managing of onfiguration of settings easier, express to simplify building server side of the system, express-session adds session management for users that have logged into the system and makes creation of logout capability easier, react-router-dom provides necessary resources for enabling navigation between different components within the system, axios which is used for making requests from client and server-side, moment for formatting dates and time, web-vitals, react-dom, react-icons, react-router-dom, react-scripts have also been used.

The development process was similar to MVC architecture where React,js handles the view component by rendering the frontend. Both Express.js and Node,js controls the server-side functionalities while mongodb is used as the model where the data is stored.

Chapter 4 Testing

Table 4.1: Test case for Reserve outdoor activity

Test Case ID: A001	Test Designed By: Heras U.A.A.S
Test Title: Test check-in functionality	Test Designed Date: 11/05/2023
Test priority: High	Test Executed By: Heras U.A.A.S
Module Name: Outdoor Experience	Test Executed Date: 11/05/2023
Description: Enter the details to check-in, total price will display, save to database	
Precondition: User login to the system	
Dependencies:	
Test steps: • Navigate to "Outdoor" page • Select a activity and navigate to "Select Activity" page • Select a activity from room list and click "Reserve" • Fill the form • Submit the form	

Table 4.2: Test Results for Reserve outdoor activity

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
A001	First Name: Adeepa Last Name: Sasmitha Address: Galkanda Estate, Parakaduwa. Email: adeepa@gmail.com Contact No: 0717176767 From: 2023/05/25 To: 2023/05/27	"Check In details Added" alert pop up and when click ok redirect to payment page	"Check In details Added" alert pop up and when click ok redirect to payment page	Pass	Data saved to database
A001	First Name: Adeepa Last Name: Address: Galkanda Estate, Parakaduwa. Email: adeepa@gmail.com Contact No: 0717176767 From: 2023/05/25 To: 2023/05/27	Display "Please fill out this field" when click "book now"	Display "Please fill out this field" when click "book now"	Pass	Data do not save to database
A001	First Name: Adeepa Last Name: Sasmitha Address: Galkanda Estate, Parakaduwa. Email: adeepa@gmail.com	Display " Please match the requested format" when click "book now"	Display "Please match the requested format" when click "book now"	Pass	Data do not save to database

	Contact No: 0717 From: 2023/05/25 To: 2023/05/27				

Table 4.3:Test case for Add new outdoor activity

Test Case ID: A002	Test Designed By: Heras U.A.A.S
Test Title: Add new hotel functionality	Test Designed Date: 11/05/2023
Test priority: High	Test Executed By: Heras U.A.A.S
Module Name: Hotel Reservation	Test Executed Date: 11/05/2023
Description: Enter hotel owners details and hotel details to the form and register the hotel to the system	
Precondition: User login to the system as a customer	
Dependencies:	
Test steps: • Navigate to "stay-in" page • Select "Add your hotel" button • Fill hotel details to the form • Enter password and re-enter the same password • Get the google map location as the given in the instructions • Click "Pay Now" button	

Table 4.4: Test Results for Add new outdoor activity

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
A002	Activity Name: ROCK CLIMBING Location: Kandy Description: Colombo Ticket Price: 2700$ image: IMG27_01 Map location: https://goo Long Description: Half day rock climbing	"Outdoor added" alert pop up and when click "Add Outdoor " redirect to "Admin profile"	Outdoor added alert pop up and when click "Add Outdoor " redirect to "Admin profile"	Pass	Data saved to database
A002	Activity Name: ROCK CLIMBING Location: Kandy Description: Colombo Ticket Price: 2700$ image: IMG27_01 Map location: https://goo Long Description: Half day rock climbing	Display "Please fill out this field" when click "Add now"	Display "Please fill out this field" when click "Add now"	Pass	Data do not save to database
A002	Activity Name: ROCK CLIMBING Location: Kandy Description: Colombo Ticket Price: 2700$ image: IMG27_01	Display " Please match the requested format" when click "Add now"	Display "Please match the requested format" when click "Add now"	Pass	Data do not save to database

24

	Map location: goo Long Description: Half day rock climbing				
		25			

Table 4.5: Test case for Check-in a hotel

Test Case ID: B001	Test Designed By: Sapukotana K.R
Test Title: Test check-in functionality	Test Designed Date: 11/05/2023
Test priority: High	Test Executed By: Sapukotana K.R
Module Name: Hotel Reservation	Test Executed Date: 11/05/2023
Description: Enter the details to check-in, availability and total price will display, save to database	
Precondition: User login to the system	
Dependencies:	
Test steps: • Navigate to "stay-in" page • Select a hotel and navigate to "Select room" page • Select a room from room list and click "Reserve" • Fill the form to check-in • Click "Pay Now" button	

Table 4.6: Test Results for Check-in a hotel

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
B001	From: 2023/05/25 To: 2023/05/27 First Name: Kavija Last Name: Sapukotana Mobile Number: 0716983663 Email:kavija@gmail.com Number Of guest : 3	"Check In details Added" alert pop up and when click ok redirect to payment page	"Check In details Added" alert pop up and when click ok redirect to payment page	Pass	Data saved to database
B001	From: 2023/05/25 To: 2023/05/27 First Name: Last Name: Sapukotana Mobile Number: 0716983663 Email:kavija@gmail.com Number Of guest : 3	Display "Please fill out this field" when click "Pay now"	Display "Please fill out this field" when click "Pay now"	Pass	Data do not save to database
B001	From: 2023/05/25 To: 2023/05/27 First Name: Kavija Last Name: Sapukotana Mobile Number: 0716 Email:kavija@gmail.com Number Of guest : 3	Display " Please match the requested format" when click "Pay now"	Display "Please match the requested format" when click "Pay now"	Pass	Data do not save to database

Table 4.7: Test case for add new hotel

Test Case ID: B002	Test Designed By: Sapukotana K.R
Test Title: Add new hotel functionality	Test Designed Date: 11/05/2023
Test priority: High	Test Executed By: Sapukotana K.R
Module Name: Hotel Reservation	Test Executed Date: 11/05/2023
Description: Enter hotel owners details and hotel details to the form and register the hotel to the system	
Precondition: User login to the system as a customer	
Dependencies:	

Test steps:
   • Navigate to "stay-in" page
   • Select "Add your hotel" button
   • Fill hotel details to the form
   • Enter password and re-enter the same password
   • Get the google map location as the given in the instructions
   • Click "Pay Now" button	

Table 4.8: Test Results for add new hotel

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
B002	Hotel name: Shanri-La Description: locati…. City: Colombo Phone No: 0717821321 Email: Razer@gmail.com Password: Password@ Re-Enter Password: Password@ GoogleMap: https://goo	"Hotel added" alert pop up and when click "Add hotel " redirect to "Hotel Owner profile"	Hotel added alert pop up and when click "Add hotel " redirect to "Hotel Owner profile"	Pass	Data saved to database
B002	Hotel name: Shanri-La Description: locati…. City: Colombo Phone No: 0717821321 Email: Razer@gmail.com Password: Password@ Re-Enter Password: Pass GoogleMap: https://goo	Display "Password do not match" and prevent add hotel	Display please "Password do not match" and prevent add hotel	Pass	Data do not save to database
B002	Hotel name: Shanri-La Description: locati…. City: Colombo Phone No: 0717821321 Email: Razer@gmail.com Password: Password@ Re-Enter Password: Password@	Display "Input cannot contain a double quote" and prevent add hotel	Display "Input cannot contain a double quote" and prevent add hotel	Pass	Data do not save to database

GoogleMap:" https://goo"					

Table 4.9: Test case for Calculate total rental price

Test Case ID: C001	Test designed by: Ashen Pradeep
Test Title: Test total rental price calculation	Test designed date: 11/05/2023
Test priority: High	Test executed by: Kavija Sapukotana
Module name: VehicleReserve	Test executed day: 11/05/2023
Description: Verify when the from and to dates are entered the total number of days are calculated and multiplied with the per day price of the selected vehicle	
Preconditions: User has to be logged in	
Test Steps: Login to the system Navigate to the vehicle component Select a particular vehicle Enter relevant details including the from and to dates Click pay button	

Table 4.10: Test case for Maintenance status

Test Case ID: C002	Test designed by: Ashen Pradeep
Test Title: Test maintenance status	Test designed date: 11/05/2023
Test priority: Medium	Test executed by: Kavija Sapukotana
Module name: VehicleReserve	Test executed day: 11/05/2023
Description: Verify that when the number of days a vehicle is reserved exceed 180 days the maintenance status is changed to "Notify" and sent to vehicle maintenance page	
Preconditions: Vehicle has to be reserved for 179 days	
Test Steps: Login to the system Navigate to the vehicle component Select a particular vehicle Enter relevant details including the from and to dates which exceeds 2 days Click pay button	

Table 4.11: Test Results for Calculate total rental price and Maintenance status

Test ID	Test Input	Expected Output	Actual Output	Result	Comments
Test Case ID: C001	To: 11/05/2023 From: 15/05/2023 Per day price: $50	$200	$200	Pass	
Test Case ID: C002	To: 12/05/2023 From: 14/05/2023 Maintenance Days: 179	Maintenance Status: "Notify"	Maintenance Status: "Notify"	Pass	

Table 4.12: Test case for Reserve Destination

Test Case ID: D001	Test designed by: Hasini Hewage
Test Title: Reserve Destination Functionality	Test designed date: 12/05/2023
Test priority: High	Test executed by: Kavija Sapukotana
Module name: Destination Reserve	Test executed day: 12/05/2023
Description: Fill the form with the necessary details, after enters the package type ,system will auto generate the total price and save data to the database	
Preconditions: User needs to login to the system as a customer	
Test Steps: 1.Navigate to the "Destination Home" page 2.Clicks on "View" button 3.View the "Destination Packages" page 4.Clicks on "Reserve Destination" button 5.Fill the "Reserve Destination" form with relevant details 6.Clicks on "Save" button	

Table 4.13: : Test Results for Reserve Destination

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
D001	Name: Moshadi Perera Address: Kadawatha Email: moshi@gmail.com Contact No: 0714840678 Package Type: Nature Total Price: $500 Selected Destination: Diyaluma Date: 12/05/2023 No of days:2 Traveler Type: Local No of travelers: 5	Display "Destination Reserved" alert and when click on "Confirm" button and it will redirect to the "Payment Form"	Display "Destination Reserved" alert and when click on "Confirm" button it will redirect to the "Payment Form"	Pass	Successfully data Saved to the database
D001	Name: Moshadi Perera Address: Kadawatha Email: moshigmail.com Contact No: 0714840678 Package Type: Nature Total Price: $500 Selected Destination: Diyaluma Date: 12/05/2023 No of days:2 Traveler Type: Local No of travelers: 5	Display "Please include '@' in email address and prevent the destination reservation	Display "Please include '@' in email address and prevent the destination reservation	Pass	Data do not save to the database
D001	Name: Moshadi Perera Address: Kadawatha Email: moshi@gmail.com Contact No: 0714840678 Package Type: Nature Total Price: $500 Selected Destination: Diyaluma Date: 08/02/2025 No of days:2 Traveler Type: Local No of travelers: 5	Display "Enter the current date" alert and prevent the reservation	Display "Enter the current date" alert and prevent the reservation	Pass	Data do not save to the database

Table 4.14: Test case for Add Destination Manager

Test Case ID: D002	Test Designed By: Hasini Hewage
Test Title: Add Destination Manager Functionality	Test Designed Date: 12/05/2023
Test priority: High	Test Executed By: Kavija Sapukotana
Module Name: Destination manager	Test Executed Date: 12/05/2023
Description: Fill the form with the relevant details and the data will be successfully added to the database	
Preconditions: User needs to login to the system as the Admin	

Test steps:
   1.Navigate to the "Admin" Page
   2.Select "Destinations"
   3.Redirect to the "Manage Destination Manager Details" page
   4.Click on "Add" button
   5.Redirect to the "Destination Manager Form"
   6.Fill the form with the relevant details
   7.Click on "Save" button	

Table 4.15: Test Results for Add Destination Manager

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
D002	First Name: Gayani Last Name: Silva Address: Colombo Email: gayani@gmail.com Contact No: 0767893456 Age: 35 Password: gayanisilv123	Display "Destination Manager Added" alert and when click on "Confirm" button and it will redirect to the "Manage Destination Manager Details" Page	Display "Destination Manager Added" alert and when click on "Confirm" button and it will redirect to the "Manage Destination Manager Details" Page	Pass	Successfully data Saved to the database
D002	First Name: Gayani Last Name: Silva Address: Colombo Email: gayani@gmail.com Contact No: 0767893456 Age: 35 Password: 123	Display "Password must have at least 8 characters" massage and prevent add destination manager	Display "Password must have at least 8 characters" massage	Pass	Data do not save to the database
D002	First Name: Gayani Last Name: Silva Address: Colombo Email: gayani@gmail.com Contact No: 0767893456 Age: Thirty Five Password: gayanisilv123	Display "Enter valid number to the input field" and prevent add destination manager	Display "Enter valid number to the input field"	Pass	Data do not save to the database

Table 4.16: Test case for Calculate advertisement price

Test Case ID: E001	Test designed by: Jayaweera J.A.S.M
Test Title: Test calculation of advertisement price	Test designed date: 10/05/2023
Test priority: High	Test executed by: Ashen Pradeep
Module Name: Advertisement	Test executed day: 10/05/2023
Description: Verify that the price is changed from the standard price and added an additional fee when changing from standard 25 days to 30 days.	
Preconditions: Advertiser has to be logged into the system	
Test Steps: Login to the system Navigate to the advertiser component Select a preferred advertisement package Enter the necessary details Select either default time of 25 days or 30 days with additional fees Click save button	

Table 4.17: Test Results for Calculate advertisement price

Test ID	Test Input	Expected Output	Actual Output	Result	Comments
E001	Package Price: $100 No. of Days: 30	$110	$110	Pass	Data saved to the database
E001	Package Price: $60 No. of Days: 25	$60	$60	Pass	Data saved to the database
E001	Package Price: $30 No. of Days: 30	$30	$40	Pass	Data saved to the database

Table 4.18: Test case for Add Advertiser

Test Case ID: E002	Test Designed By: Jayaweera J.A.S.M
Test Title: Add advertiser functionality	Test Designed Date: 10/05/2023
Test priority: High	Test Executed By: Kavija Sapukotana
Module Name: Advertiser	Test Executed Date: 10/05/2023
Description:	
Precondition: User login to the system as a customer	
Dependencies:	
Test steps: Navigate to the "Home" page Click on "PLACE YOUR AD" button Redirect to the "adHome" page Click on "GET STARTED" button Fill the form with the necessary details Enter password and re-enter the same password Click on the "Register" button	

Table 4.19: Test Results for Add Advertiser

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
E002	Name: Mohan Silva Company: Daraz Email: mohan@gmail.com Address: Kandy Contact No:0765345678 Password: 12345vfj Re-Enter Password: 12345vfj	"Successfully Registered" alert pop up and when click "confirm" redirect to "Login" page	"Successfully Registered" alert pop up and when click"confirm" redirect to "Login" page	Pass	Data saved to database
E002	Name: Mohan Silva Company: Daraz Email: mohangmail.com Address: Kandy Contact No:0765345678 Password: 12345vfj Re-Enter Password: 12345vfj	Display "Please include '@' in the email address" and prevent add advertiser	Display "Please include '@' in the email address" and prevent add advertiser	Pass	Data do not save to database
E002	Name: Mohan Silva Company: Daraz Email: mohan@gmail.com Address: Kandy Contact No:0765345678 Password: 12345 Re-Enter Password: 12345	Display "Password must be at least 8 characters long." and prevent add advertiser	Display "Password must be at least 8 characters long." and prevent add advertiser	Pass	Data do not save to database
E002	Name: Mohan Silva Company: Daraz Email: mohan@gmail.com Address: Kandy Contact No:0765345678 Password: 12345vfj Re-Enter Password: 12345	Display "Passwords do not match." massage and prevent add advertiser	Display "Passwords do not match." massage and prevent add advertiser	Pass	Data do not save to database

Table 4.20: Test case for Claim Insurance

Test Case ID: F001	Test Designed By: Silva W.I.S.
Test Title: Fila a claim functionality.	Test Designed Date:
Test priority: High	Test Executed By: Silva W.I.S.
Module Name: Insurance Claim	Test Executed Date:
Description: Enter the details to claim, save to database	
Precondition: User login to the system	
Dependencies:	
Test steps: • Navigate to "Insurance" page. • Select the insurance "claim" option button. • Fill the form. • Click "Submit" button.	

Table 4.21: Test case for Claim Insurance

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
F001	Name: Isuranga Silva Email: silva@gmail.com Phone: 07856935689 Date: 16/05/2023 NIC: 200114302103 Plan: Group Plan Description: I want to reclaim for my group	"Insurance Claim details Added" alert pop up with "success" message.	"Insurance Claim details Added" alert pop up with "success" message.	Pass	Data saved to database.
F001	Name: Email: silva@gmail.com Phone: 07856935689 Date: 16/05/2023 NIC: 200114302103 Plan: Group Plan Description: I want to reclaim for my group	Display "Please fill out this field" when click "Submit" button.	Display "Please fill out this field" when click "Submit" button.	Pass	Data do not save to database.

Table 4.22: Test case for Add new Insurance plan

Test Case ID: F002	Test Designed By: Silva W.I.S.
Test Title: Add new insurance plan functionality	Test Designed Date:
Test priority: High	Test Executed By: Silva W.I.S.
Module Name: Insurance Plan	Test Executed Date:
Description: Enter plan details and price to the system	
Precondition: User login to the system as a customer	
Dependencies:	
Test steps: • Navigate to " • Insurance" page. • Select an insurance type. • Click the Apply button. • Enter plan details. • Click the submit button. • Click "Pay Now" button.	

Table 4.23: Test Result for Add new Insurance plan

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
F002	Name: Isuranga Silva Phone:0785965236 Price: $100 Plan: Investment Plan	"Plan added" alert pop up and when click "Submit "redirect to "Payment Page"	"Plan added" alert pop up and when click "Submit "redirect to "Payment Page"	Pass	Data saved to database
F002	Name: Isuranga Silva Phone:078 Price: $100 Plan: Investment Plan	Display" Please match the requested format" when click "Submit" button	Display" Please match the requested format" when click "Submit" button	Pass	Data do not save to database

Table 4.24: Test case for Update payment details

Test Case ID: G003	Test Designed By: Perera L.s
Test Title: Test update Payment	Test Designed Date: 10/05/2023
Test priority: High	Test Executed By: Perera L.s
Module Name: Payment	Test Executed Date: 10/05/2023
Description: Verify the update payment records successfully	
Precondition: Admin needs to login to the system.	
Test steps: Visit to the login page Enter the valid login credentials Click on the Payment records button in admin dashboard Navigate to the payment dashboard page Click update records Enter the new payment records Click on the add details button.	

Table 4.25: Test Results for Update payment details

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
G001	Name on Card: NSB Bank Card Number : 4321-5678-7654 CVV : 876 Email : adeepa.@gmail.com Address: Colombo Contact Number:0765678980	"Check In details Added" alert pop up and when click ok redirect to Admin page	"Check In details Added" alert pop up and when click ok redirect to Admin page	Pass	Data saved to database
G001	Name on Card: Sampath Bank Card Number : 6789-6543-7654 CVV : 659 Email : Kavija.@gmail.com Address: Kottawa Contact Number:0765677768	Display "Please fill out this field" when click "Update now"	Display "Please fill out this field" when click "Update now"	Pass	Data do not save to database
G001	Name on Card: DFCC Bank Card Number : 4532-0976-7654 CVV : 847 Email : hasini.@gmail.com Address: Piliyanda Contact Number:0765678980	Display " Please match the requested format" when click "Update now"	Display "Please match the requested format" when click "Update now"	Pass	Data do not save to database

Table 4.26: Test case for User Registration

Test Case ID: G002	Test Designed By: Perera L.s
Test Title: Add new User functionality	Test Designed Date: 10/05/2023
Test priority: High	Test Executed By: Perera L.s
Module Name: User	Test Executed Date: 10/05/2023
Description: Enter User details in form and register the Customer to the system	
Precondition: User login to the system as a customer	
Dependencies:	
Test steps: Navigate to the registration page Fill User details to the form Click on "Registration Button" Navigate to the User profile	

Table 4.27: Test Results for User Registration

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
G002	First Name : Nalaka Last Name : Perera Email: Nalaka.@gmail.com Address: Colombo Contact No:0765765565 Password: 123uyerbs Re-Enter Password: 123uyerbs	"Successfully Registered" alert pop up and when click "confirm" redirect to "Login" page	"Successfully Registered" alert pop up and when click "confirm" redirect to "Login" page	Pass	Data saved to database
G002	First Name : kamal Last Name : Perera Email: Kamal.gmail.com Address: Kandy Contact No:0767874563 Password: 123$wesac Re-Enter Password: 123$wesac	Display "Please include '@' in the email address" and prevent add advertiser	Display "Please include '@' in the email address" and prevent add advertiser	Pass	Data do not save to database
G002	First Name : Hansi Last Name : abeykon Email: Hansi.@gmail.com Address: Kaduwela Contact No: 0765631238 Password: 098ewnf Re-Enter Password: 098ewnf	Display "Password must be at least 8 characters long." and prevent add advertiser	Display "Password must be at least 8 characters long." and prevent add advertiser	Pass	Data do not save to database

Chapter 5 Evaluation and Conclusion

Test B001: This test case passed successfully. The system displayed the "Check In details Added" alert and redirected to the payment page upon clicking "OK". The data was saved to the database, indicating that the check-in details were successfully added. This suggests that the check-in functionality is working correctly.

Test B002: This test case passed successfully due to the expected and actual outputs being the same. The system displayed the "Please fill out this field" alert when the "Pay now" button was clicked. This shows that the system correctly found the empty field and prevented the payment action. The data was not saved to the database.

Test C001: This test case passed successfully. Both the expected and the actual outputs were equal. The system calculated the total price as $200 based on the provided inputs. The data was saved to the database, indicating that the information was successfully stored. This shows that the price calculation works properly.

Test C002: This test case passed successfully. The system updated the maintenance status to "Notify" for the specified maintenance days and updated the changes in the database. The data was successfully changed, indicating that the maintenance status update functionality is working correctly.

Test D001: This test case successfully passed as the expected output matched the actual output. The system correctly displayed the "Destination Reserved" alert and redirected the user to the "Payment Form" when clicking the "Confirm" button. The data was also successfully saved to the database. This shows that the system is functioning as expected for a valid reservation.

Test D002: The test case passed as the expected output matched the actual output. The system correctly detected the invalid email address format and displayed the alert. It prevented the destination reservation and did not save the data to the database. This shows that when a user enters an invalid email, through proper frontend form validation the user will get notified in order to correct their mistakes.

Test E001: This test case passed successfully. The expected output matched the actual output, and the total price of $110 was correctly calculated based on the package price of $100 for the duration of 30 days. The data was saved to the database.

Test E002: This test case passed successfully. The expected output matched the actual output. The total price of $60 was correctly calculated based on the package price of $60 for the duration of 25 days and the data was saved to the database.

Test F001: This test case passed successfully due to the expected and actual outputs being the same. The system displayed the "Check In details Added" alert and redirected to the Admin page when clicking "OK" The data was saved to the database.

Test F002: This test case passed successfully. The expected output matched the actual output. The system displayed the "Please fill out this field" alert when the "Update now" button was clicked. This

test result shows that when the user leaves an empty fields the system will detect the empty fields and show the necessary alerts.

Test G001: This test case passed successfully. The system displayed the "Plan added" alert pop-up and sent the user to the "Payment Page" when "Submit" button was clicked. The data was saved to the database. Which shows that the plan addition functionality is working correctly.

Test G003: This test case passed successfully. The expected output matched the actual output. The system displayed the "Please match the requested format" alert when the "Submit" button was clicked. This indicates that the system detected an invalid format for the phone number and stopped the data from being saved to the database.

When evaluating overall results of the test cases carried out by the fellow members, it shows that the system is performing as expected. All the above conducted tests were successful which shows how reliable and error free the system is.

Expert feedback were provided by Mr. Jeewaka Perera, Ms Indika Thuiyadura and Mr Nisal Mandira. The issues were solved which were pointed out during the discussions with the experts where the user interfaces were made even more user friendly, the color scheme was made to be consistent throughout the website.

Conclusion

After identification of the problems found within the system and solving those problems, the following limitations and sectors where further improvements can be made was identified. Some such sectors include lack of a rating system within the hotel management system, lack of a proper review system within the destination management system, lack of speed when fetching data with big files sizes such as images due to having a free mongodb cluster, lack of a proper notification system where advertisers will get an early alert when the advertisement period is about to be finished and the inability to send messages that are not manually verified by the Twilio website due to having the free package. These mentioned problems will be aimed to improved by providing future updates to the system subsequently making small changes to improve quality of usage and further improve user friendliness. Also instead of using free account for mongoDB and twillio, paid accounts will be bought.

Chapter 6 References

[1] Expedia. [Online]. Available: https://www.expedia.com/.

[2] Klarna.Trip, [Online]. Available: https://trips.klarna.com/en/.

[3] Sri Lanaka.Travel, [Online]. Available: https://www.srilanka.travel/.

[4] Wanderlog, [Online]. Available: https://wanderlog.com/home.

[5] E. Glusac, "The New York Times," [Online]. Available: https://www.nytimes.com/2022/08/17/travel/online-travel-planning.html.

Appendix

Student Id	Contribution
IT21037092	Designed and implemented the Outdoor and Adventure Experience Management component. Contributed for use case Diagram, ER Diagram, Class Diagram Design Test cases
IT21333620	Designed and implemented Hotel Management Component Designed Onion diagram Wrote Literature review Wrote problems and motivations Wrote Requirements analysis List of tables Designed Hotel reserve Activity diagram Contributed for use case Diagram, ER Diagram, Class Diagram Designed Test cases References Formatted the document
IT21365614	Designed and implemented the vehicle management component. Designed the Gantt chart. Wrote the Abstract. List of figures Wrote the background and the client background. Wrote the Aim Wrote Methodology and Structure of the report Contributed for the use case diagram, class diagram and ER diagram Drew the vehicle reservation activity diagram Wrote development aspects Designed test cases Wrote Evaluation and Conclusion
IT21006784	Designed and implemented the Advertising Management component. Designed the Component diagram. Wrote the Objectives. Wrote the Acknowledgment. Designed the Solution overview diagram. Contributed for the use case diagram, class diagram and ER diagram. Drew the activity diagram for the Add advertisement. Designed test cases.
IT21053078	Designed and implemented the Destination Management component. Designed the Solution overview diagram. Wrote the Objectives. Drew the activity diagram for the reserve destination. Contributed for the use case diagram, class diagram and ER diagram. Designed test cases.
IT21053900	Designed and implemented the Insurance management component. Contributed for use case Diagram, ER Diagram, Class Diagram Design Test cases
IT21126574	Designed and implemented the Payment management component Contributed for use case Diagram, ER Diagram, Class Diagram Design Test cases

IT21069390	Absent for report making