



# **Sri Lanka Institute of Information Technology**

## **Domestic Tours And Travel Management System**

### **Information Technology Project (IT2080)**

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## **Background**

Rapid Travels is a tours and travel management company which provides domestic tours and travel services within Sri Lanka. This system is an integrated management system which combines multiple management systems namely rides management system, train reservation system, flight management system, boat tours reservation system and finally bus reservation system. Rapid Travels is company which offers a convenient way for a customer to book or reserve cars, three-wheelers, busses, trains, boats and flights which provides domestic services within the country.

This system is designed as a result of minimizing the physical interaction of customers who are planning to travel which saves a lot of time and effort. This system will also replace the currently existing systems, which will all of the systems will be integrated to a single system, which helps in managing the records of the components related to the system namely, clients, drivers, staff, vehicles, vehicle owners, destinations and payments. The company believes in developing this system in order to create and promote forms of travels and tours that provide better interaction opportunities for local and as well as for the tourists visiting the country.

Rapid Travels provides easy and effective solution for domestic travels and tours reducing the major risk factors which arise physically and the components which directly and in-directly interact with the system. The company's mission is to operate using innovative technology to improve the customer experience, bring positive change to the market, expand the business, increase revenues and the most important which is attracting new clients to designed system.

## **Problem And Motivation**

### **Current Process:**

- Rapid Travels relies on a manual process to manage clients, vehicles, staff, vehicle owners, drivers, destinations and incomes/expenses.
- The current process involves maintaining physical records such as vehicle registers, staff registers and payment registers. Staff must spend a considerable amount of time maintaining these relevant records, which can lead to errors and inconsistencies.
- The current process involves tracking and analyzing the travel history of the client manually which could be really challenging.

### **Problems:**

- The traditional method of managing data is time-consuming, prone to errors, and is not scalable as the number of clients and vehicles increases.
- Manual attendance marking for each employee which takes up a significant amount of time.
- The current system lacks an efficient method to track income/expenses leading to delays and errors in financial management.
- The lack of automation in the process results in mismanagement of data, making it difficult to track the travel history of a client manually.
- The current system lacks the ability to provide notifications to clients making it difficult to notify about new travel itineraries and discounts.
- Customer service is not always available for the clients to resolve their problems which arise using the system.

### **Motivation:**

- Rapid Travels is interested in implementing a system to automate the entire process of data management.
- The attendance of the employees working in the company should be taken in an automated process such as fingerprint scanning or QR code.
- The system should be able to track income/expenses which contributes or helps to make future decisions for the improvement of the company.
- The new system should provide a centralized platform for storing all information related to clients, vehicles, staff, drivers, vehicle owners, destinations and financial records.
- The system should have separate dashboards for each component enabling them to access relevant information easily.
- The system should include a report generation feature to generate customized reports on client travels and income/expenses.
- Implementing a FAQ chatbot to the system gives the customer ability to solve their problems related to the system operations.

## **Aim**

The aim of this project is to design and develop a “Domestic Tours and Travel Management System” which integrates multiple systems to a single system in order to provide the customer with convenient and effective way to plan the travel itinerary. This system also automates the process of managing clients, vehicles, staff, drivers, vehicle owners and financial data.

This system will enable Rapid Travels company to streamline its administrative process effectively and improve the business operations.

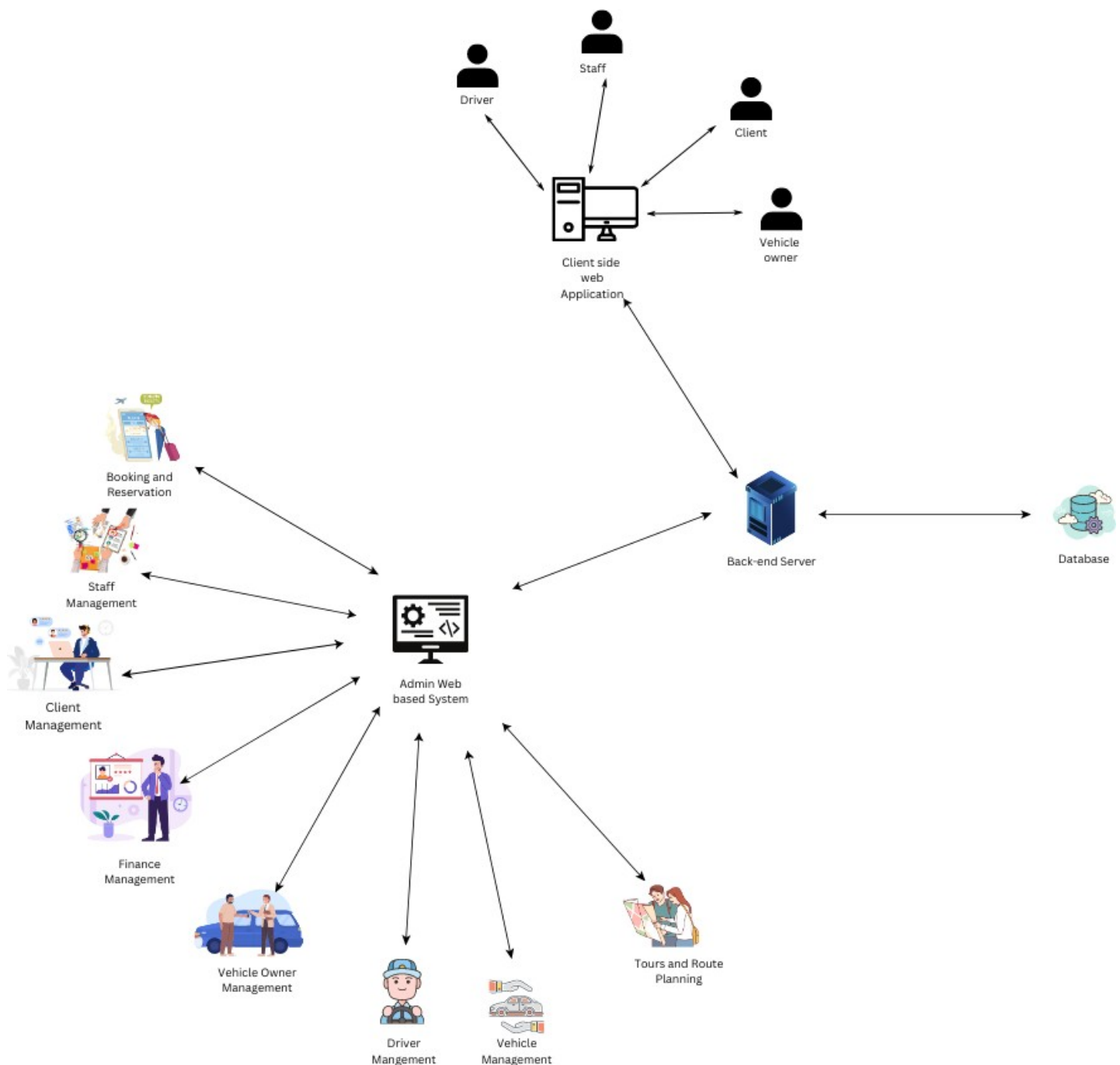
## **Objectives**

- Develop a centralized database to store clients, vehicles, staff, drivers and vehicle owners’ information.
- Develop a module to manage income/expenses which also includes automatic computation of EPF/ETF of employees.
- Create features to track travel history of clients and provide personalized support.
- Integrate a notification system for discounts and travel itineraries.
- Design and develop a user-friendly interface for convenient navigation for the users of the system.
- Test and refine the system to ensure until it meets the needs of the company and is free of bugs and errors.
- Implement the system in a timely manner and ensure a smooth transition from the current or existing manual process to a new system with advance functionalities developed using innovative technologies.

## System Overview

Our proposed Domestic Tours and Travel Management System is designed to streamline and automate the company's operations by providing a web-based application that is highly sophisticated and user-friendly.

The system also integrates with other multiple systems to provide and manage multiple aspects of the company operations in line with multiple standards. The system also offers separate dashboards for each of the major stakeholders involved in the system and as well as separate portals for registrations and payments.



## **System Functions**

### **1) Booking And Reservation**

Booking and reservation function in this system is a specialized feature to facilitate various travel arrangements for customers exploring destinations. This function in the system is designed to simplify the process of exploring and booking local travel experiences, offering customers the convenience of tailored journeys. The functionalities of the booking and reservation function are as follows: -

- The booking and reservation function is designed to provide the customers to choose their preferred domestic travel services, input the necessary details and complete the booking process.
- This function can add, update, and delete tours and travel destinations. It can also retrieve existing tours with travel medium for bookings and reservations by searching.
- When a new tour or a travel plan is added to the system, the system will notify that the new tour/travel plan is added.
- The system also provides the admin the ability to track the popularity of various travel itineraries.
- Moreover, the “Bookings & Reservations” module in the client’s dashboard provides clients with a centralized platform to view their travel history. They can view their completed tours and keep track of their tour budgets.
- Additionally, the admin has the ability to generate weekly reports.

### **Functional Requirements:**

- Administrators can add new tours and travel plans.
- Administrators can view, search, edit, and delete existing tours and travel plans as needed.
- Administrators have the ability to generate reports based on the data.
- Administrator can monitor the popularity of the tours and travels on each medium of travel.

### **Non-functional Requirements:**

- **Performance:** The system should be able to handle a large amount of information of tours and data without any significant impact on the system’s speed or performance.
- **Usability:** The admin dashboard should be easy to navigate and the interface for booking filled by clients must be user-friendly making it accessible for clients of all technical backgrounds.
- **Scalability:** The system should be scalable and able to store information related to tours and travel destinations as it expands rapidly.

## 2) Tours And Route Planning

Tours and route planning is the most important and crucial part of the system. Efficient tour and route planning gives end customers a considerable advantage. Tour planning is much more extensive than route planning because, a tour includes several routes that coordinated by it where the cost of each route to destination is different and should be optimized accordingly. The customer can select a route of his/her choice where the cost of travel will be computed automatically by the system. The functionalities of the tours and route planning function are as follows: -

- The tours and route planning function provides administrators with tools to efficiently manage routes.
- Administrators can add new routes for the tours and other travel services such as rentals that are available in the system.
- The system gives the ability to view, search, edit and delete existing routes.
- The system automatically computes the cost for the route selected among various routes and optimizes the cost for the tour.
- Additionally, the admin has the ability to generate reports based on the data available on specific routes.

### **Functional Requirements:**

- Administrators can add new routes for specific tours.
- Administrators can view, search, edit, and delete existing routes for tours and travel plans accordingly.
- Administrators have the ability to generate reports based on the data.
- Administrator can analyze and track the route selected by the majority for tours as well as for rentals.

### **Non-functional Requirements:**

- **Reliability:** The system should be available and functional at all times, with minimum downtime and disruptions to the route selection process.
- **Maintainability:** The admin should be able to maintain the system efficiently and effectively.
- **Scalability:** The system should be scalable and able to store routes and specific details related as it grows with respect to time.
- **Performance:** The system should be fast and responsive, with quick loading times and minimal lag. Accessing of routes as well as the cost-optimizations must be accurate any quick.



### 3) Client Management

The client management function involves in managing and coordinating customers. The client has the ability to register to the system and use the client dashboard to access and interact with different modules consists in the system. The functionalities of the client management process are as follows: -

- The client module of the admin dashboard is designed to manage the client accounts easily and efficiently.
- Administrator can create new client account, view, search, edit and delete account as administrator needs.
- When a new client is registered to the system, system will send a welcome email to client, which includes information about their instructions on how to login and access the system.
- After a tour or reservation is completed, the client can give his/her feedback, which will be added to the homepage under “Reviews” section.
- The system also provides the admin the ability to monitor client’s performance.
- Additionally, the admin has the capability to generate reports for weekly based on client’s data.

#### **Functional Requirements:**

- Administrators can create new client accounts.
- Clients can edit and delete the account.
- Administrators can view, search, edit, and delete account as needed.
- The clients can add their feedbacks and also have the ability delete them.
- Administrators can generate reports based on the data.
- Administrator can track the client travel history.

#### **Non-functional Requirements:**

- **Security:** The system should be secure and ensure the confidentiality, integrity, and availability of client data all times.
- **Reliability:** The system should be reliable and available 24/7, ensuring that clients can access their information and perform necessary tasks at any time.
- **Usability:** The client dashboard should be user-friendly, intuitive, and easy to navigate, making it accessible for clients of all technical backgrounds.
- **Scalability:** The system should be scalable and able to accommodate an increasing number of client accounts and data.
- **Performance:** The system should be able to manage and handle a large number of client accounts and related data.

#### 4) **Finance Management**

Finance management involves handling all the financial aspects of the business to ensure smooth and efficient financial operations, displaying and performing all financial and payment details comprehensively. Finance management manages all incomes and expenses in the system which are billing, invoicing, generating electronic invoices for clients and accurate EPF and ETF calculations for employees. The functionalities of the finance management process are as follows: -

- The admin dashboard's finance module provides a centralized approach to income/expense tracking.
- The administrator has complete visibility into the payment status of each client.
- Administrator can add, view, edit, search and delete payment records.
- Additionally, the system provides detailed reports on payments received, enabling the administrator to make informed decisions about the financial status of the company.
- Moreover, the system sends notifications of the payments to the clients.

#### **Functional Requirements:**

- Administrators can add, view, edit, search and delete payment records.
- Administrator can view the payment status of each client.
- The administrator has the ability to track the financial activities of the client.
- Administrators can generate reports based on the payments received by clients.
- The administrators also have the ability to generate income/expense reports.

#### **Non-functional Requirements:**

- **Security:** The system must ensure the confidentiality, integrity, and availability of all financial information.
- **Usability:** The system should be convenient to use and navigate.
- **Reliability:** The system must be reliable and available at all times. It should have a high uptime and provide automatic failover and redundancy options in case of system failure or outage.
- **Scalability:** The system should be able to scale up or down based on needs which frequently changes of the company. It should be able to handle a growing number of payment transactions without compromising on performance or security.
- **Performance:** The system should be fast and responsive, with minimal latency in processing payment transactions. It should be able to handle large number of transactions simultaneously without affecting system performance.

## 5) Vehicle Management

The vehicle management module integrated into the system is purposefully crafted to streamline the process of effectively managing the fleet of rental vehicles and reserved vehicles. Its main objective is to ensure the availability of vehicles to customers and optimize the reservation process. The system maintains an extensive inventory of all available rental vehicles such as cars, three-wheelers, busses and other mediums of travels to various destinations such as trains, boats and flights. This platform provides a user-friendly environment for vehicle owners to list their vehicles for rentals and as well as for the company where the rental process can be carried out seamlessly ensuring transparency and convenience for all parties involved. The functionalities of the vehicle management process are as follows: -

- The admin dashboard's vehicle management function streamlines vehicle organization and management.
- It gives the ability for the administrators to create, view, search, edit and delete vehicles as needed.
- The function also gives the ability to retrieve the details of the vehicle owners who is stakeholder to the system who has rented the vehicles to the company.
- Additionally, the vehicle management module enables to generate reports of the vehicles which are currently in the system.

### **Functional Requirements:**

- Administrators can add, view, edit vehicles records.
- Administrators can view and search vehicles in the system.
- Administrators can generate reports based on the vehicle records.

### **Non-functional Requirements:**

- **Usability:** The system should have an intuitive and user-friendly interface, making it easy for administrators to navigate and manage vehicles.
- **Availability:** The system should be available 24/7, with minimal downtime for maintenance and upgrades.
- **Performance:** The system should be designed to handle a large number of vehicles without experiencing any lag or delay in response time.
- **Security:** The system should have robust security measures in place to protect the sensitive data of vehicles.

## 6) **Staff Management**

The staff management module in the system involves the management and organization of essential information about the company's workforce. In the fast-paced and dynamic world of tour and travel businesses, managing the workforce efficiently is crucial for seamless operations and delivering exceptional experiences to customers. This comprehensive function empowers tour and travel businesses to optimize their workforce, streamline administrative processes, and enhance overall productivity. This function also plays a pivotal role in ensuring that accurate and up-to-date details of staff members are readily available to support various aspects of the company's operations. The functionalities of the vehicle management process are as follows: -

- The staff management function allows the administrators to create new employee accounts, view, search, edit and delete existing accounts,
- The administrator can grant the employees privileges ensuring that only authorized individuals have access to the information and carry out various tasks and actions.
- When a new employee is added to the system, the system will automatically generate a new secure password and send it to the employee via email.
- Additionally, the employee will receive a welcome email containing information about their account and instructions on how to log in and access the system.
- The system provides the capability to generate reports based on the employee records.

### **Functional Requirements:**

- Administrators can add new employees to the system.
- Administrators can view, search, edit and delete existing employee accounts.
- Employees with different privileges can manage and access information related to clients and vehicles in the system.
- Administrators can generate reports and view reports in real-time, allowing for quick and informed decision-making.

### **Non-functional Requirements:**

- **Security:** The system must ensure that all employee accounts and information are secure and only accessible by authorized individuals.
- **Scalability:** The system must be scalable to accommodate future growth and changes in the company's workforce.
- **Performance:** The system must be able to handle large amounts of data without compromising performance or functionality.
- **Reliability:** The system must be available and reliable at all times to ensure that employees can access information and carryout tasks efficiently.

## 7) Vehicle Owner Management

The vehicle owner management function is a comprehensive application designed to handle the registration, verification, and management of vehicle owners and their associated vehicles. This module provides vehicle owners to register, login to the system and manage their vehicles efficiently. The vehicle owner management module consists of various functionalities such as vehicle registration, verification, dashboard components and report generation. By offering these capabilities, the system simplifies the vehicle management process for all the stakeholders involved. The functionalities of the vehicle management process are as follows: -

- The vehicle owner management function provides administrator with a comprehensive solution for managing vehicle owner accounts.
- The admin has the ability to create new vehicle owner accounts, view, search, edit and delete existing accounts.
- When a new vehicle owner is added to the system, the system will automatically generate a password and send it via email.
- The system also allows the admin and the vehicle owners to monitor the usage of vehicles.
- Additionally, the admin has the capability to generate reports based on the vehicle owners and their vehicles.

### **Functional Requirements:**

- Administrators can add new vehicle owners to the system and vehicle owners can add and edit their accounts.
- Administrators can view, search, edit and delete existing vehicle owner accounts.
- The administrators can generate reports and view reports of the vehicle owners and their vehicles.

### **Non-functional Requirements:**

- **Performance:** The system should be able to handle a large number of vehicle owner accounts and data without any harm in performance.
- **Security:** The system must be secure and ensure confidentiality, integrity, and availability of vehicle owner data.
- **Scalability:** The system should be scalable to in order accommodate more vehicle owners in the future.
- **Reliability:** The system must be reliable ensuring vehicle owners can access information anytime.

## 8) Driver Management

Driver management module is an essential component aimed at ensuring efficient driver management and maintaining an organized record of the driver pool. This function allows to manage drivers, display and also allow modifications to the driver's details. This will help in ensuring that the correct drivers are assigned to vehicles and also have an organized record of the drivers which minimizes the redundancy and to search and filter driver records efficiently with maximum accuracy. The functionalities of the vehicle management process are as follows: -

- The driver management function provides administrators with the tools to efficiently manage driver accounts.
- Administrators can create new driver accounts, view, search, edit and delete existing driver accounts.
- As a driver is registered to the system, the system will generate a password and send it via email.
- The administrator can also track and monitor drivers in the system.
- Additionally, the function also allows the administrator with the ability of generating reports.

### **Functional Requirements:**

- Administrators can add new drivers to the system.
- Drivers has the ability to register and add, edit their accounts.
- Administrators can view, search, edit and delete existing drivers in the system.
- The drivers also can monitor their performance and the income.
- The administrators can generate reports based on the driver records.

### **Non-functional Requirements:**

- **Security:** The system must ensure that the passwords generated for driver accounts are secure and safe.
- **Performance:** The system should be quick with minimal lag to the drivers to be able to access and manage their accounts efficiently.
- **Scalability:** In order to accommodate and handle more drivers the system should be scalable.
- **Reliability:** The system should be available and functional every time with minimum downtime.

## 9) Rule-Based Chatbot Implementation

Implementing a chatbot to the system is important as it helps clients to get through the tasks quickly and effectively. There are several benefits of implementing a chatbot to this system and one major benefit is that it reduces the workload and operational costs. If a client is to ask a question from a customer service representative, it takes a day or two to get a response which is downside and reduces the efficiency. Rule-based chatbot has the ability to provide clients with responses to basic and common branching questions in real-time which will be more efficient. The features of implementing a rule-based chatbot to the domestic tours and travel management system are as follows: -

- The chatbot will present options to the client to be selected where it acts as a decision tree or hierarchy based on conditional statements.
- The implementation of rule-based chatbot to the system is faster and secure and less risky and expensive.

### **Non-functional Requirements:**

- **Accuracy:** Chatbot must provide with the relevant responses for the clients selected options.
- **Security:** The system must be designed with adequate security measures to avoid data breaches on confidential information.
- **Availability:** Chatbot should be available 24/7, so that the users can access it anywhere anytime without any problem.
- **Response Speed:** The chatbot should be able to respond quickly to the user's selected options in real-time.
- **Scalability:** The system must be able to handle large number of user requests simultaneously without the reduction in the response speed.
- **Usability:** The chatbot should be user-friendly and easy to use allowing users to interact with it.
- **Reliability:** Chatbot must be highly reliable, ensuring that the responses for the user's requests are consistent and correct.

## **Technical Requirements**

### **Minimum requirements:**

- **Processor:** Intel i3 2<sup>nd</sup> gen  
AMD Ryzen 3 1<sup>st</sup> gen
- **RAM:** 4 GB
- **Storage:** 5 GB
- **Browsers:** Google Chrome  
Mozilla Firefox  
Microsoft Edge  
Safari  
Opera
- **OS:** Windows 7 or higher  
MAC OS X 10.6

### **Recommended requirements:**

- **Processor:** Intel i3 7<sup>th</sup> gen or higher  
AMD Ryzen 3 3<sup>rd</sup> gen or higher
- **RAM:** 6 GB
- **Storage:** 5 GB or higher
- **Browsers:** Google Chrome  
Mozilla Firefox  
Microsoft Edge  
Safari  
Opera
- **OS:** Windows 7 or higher  
MAC OS X 10.6



## **Literature Review**

Domestic tours and travel managements system have recently become popular due to several factors. One of the main reasons is the increasing use of technology in the travel industry and the need for more efficient and streamlined processes. Manually managing the clients, vehicles, drivers and finances can be time-consuming and error-prone. Domestic tours and travel management system provide an automated solution to manage these processes, reducing administrative workload and allowing for more accurate and timely reporting. In this literature review, we will compare the domestic tours and travel management system described in this project with existing systems to identify unique features and advantages which are specific to this system.

Firstly, booking and reservation is a feature of the domestic tours and travel management system which gives clients the ability to make bookings and reservations conveniently. It is designed to help operators manage their businesses more efficiently from one central place. This simplifies time-consuming administrative tasks, organize bookings, track and monitor bookings, and help grow the business. This feature helps the administrator to manage tours and travels for different mediums of travel effectively and efficiently. Also, the administrator has the privilege to generate reports based on the destinations and tours by tracking and monitoring the popularity.

Secondly, tours and route planning is a feature which is considered as an important and crucial part of the domestic tours and travel management system. Efficient tour and route planning give the end customers a considerable advantage. Tour planning is much more extensive than route planning. The client has the ability to select a tour and a route of his/her choice which will be optimized accordingly. The tours and routes are organized which helps in managing and accessing the tours and routes. Efficient route planning enables to minimize travel time, reduce fuel consumption, and streamline operations. With the ability to provide accurate estimated arrival times (ETAs), we can provide enhance customer satisfaction and built trust. The administrator has the ability to manage the tours and routes and generate reports based on the records.

Compared to other systems, the domestic tours and travel management system stands out due to several unique features. Client management is the process of overseeing and coordinating an organization's interactions with its clients and potential clients. In client management, the ultimate goal is to build and maintain good client relationships, so a company can retain more of its customers and ensure ongoing success. Our system provides administrators with the ability to efficiently manage clients, vehicles, staff, drivers and vehicle owners. This allows for more effective communication and collaboration between all parties involved in the process. Administrators can create new client accounts, view, search, edit and delete existing client accounts as needed. Additionally, when a new client is added to the system, the system will automatically generate a new secure password and send it to the user via email.

Tracking and monitoring is another unique feature of the domestic tours and travel management system. The administrator has the ability to track and monitor each modules performance at the given time namely client monitoring, vehicle monitoring and popularity of destinations are some of them. This feature helps to in enhancing the and improving the system.

When compared to other projects, our domestic tours and travel management system offers a significant advantage over other systems. For example, Kabtamu Atale Reta et al. (2014) of Hawassa University developed a web-based tours and travel management system. Although their system was efficient, it lacked the finance management module that administrators could use to monitor the payments and income/expenses of the company. The finance management function gives administrators complete visibility into the payments done for bookings and reservations. Furthermore, the system gives the ability for the administrators to manage the finances and automatically generate reports based on the income/expense records.

Sreeraj Menon (2016) developed a tours and travel management system that provides a platform for reserving bus tickets although the system implies that it is a tours and travel management system. However, our domestic tours and travel management system gives the ability to book and reserve various travel mediums such as cars, three-wheelers which provides rental services along with or without a driver where busses, boats and flights which provides local travels and tours.

In conclusion, domestic tours and travel management system have become a valuable tool in travel industry, and the system described in this project offers several unique features and advantages over previously done projects. Our system provides a user-friendly and comprehensive dashboard for all the stakeholders enabling them to manage their respective tasks easily and efficiently. Additionally, the system's financial module offers detailed reporting and insights into the company's financial status.

Overall, our domestic tours and travel management system offers a complete solution for tours and travel companies providing them with a powerful tool to streamline their administrative processes and enhance their financial management. We believe that our system can make a significant contribution to the travel industry, and we are confident that it will be well-received companies looking to improve their efficiency and effectiveness in the travel sector.

## **Methodology**

Our project will follow an agile development methodology to ensure that we deliver a quality product without risking time and budget.

For this project we will use the following methods, development tools and technologies, project management tools and testing methods for different stages of the project.

### **Requirements Engineering Methods:**

- **User Interviews:** We will conduct interviews with key stakeholders such as clients, vehicle owners and drivers to gather their requirements and expectations for the domestic tours and travel management system.
- **Surveys:** We will conduct surveys to gather feedback and opinions from a considerable number of users.
- **Use Case Diagram:** Use case diagrams will be used in this project in order to model the system's requirements and identifying the interactions between the users and the system.

### **Design Methods:**

- **Unified Modeling Language (UML):** UML diagrams such as activity diagrams, sequence diagrams, and class diagrams are used to model and design the system.
- **Wireframes:** Wireframes will be designed prior to the development process in order to visualize the user interfaces of the system.

### **Development Tools and Technologies:**

- **MERN Stack:** To develop the system we will use the MERN stack to develop the web application.
- **Git:** We will use Git to enable collaboration of team members for the development of the project and to monitor the changes.
- **Visual Studio Code:** As the IDE for developing the project we will use Visual Studio Code.

### **Project Management Tools:**

- **Jira:** To manage and assign project tasks, track and monitor progress, and keep team members regularly updated of project updates Jira will be used.
- **GitHub:** A repository will be used in GitHub to store the project source files and track changes made over the development period.

### **Testing Methods:**

- **Frontend and Backend Testing:** We will use “Selenium” as the testing tool for frontend testing to verify the user-interface and as well as for the backend to verify the functionality of the applications server-side and database.

### **Alternatives and Justifications:**

- Design tools such as Sketch and Figma were considered but not used because, they were not suitable for specific requirements of the project. Both tools are visually appealing but, MockFlow which used to design wireframes offered better support. Additionally, our development team had experience with MockFlow, making it the more efficient and effective.
- Agile was chosen as the methodology for requirements engineering and development due to its flexibility, collaboration and ability to accommodate changing requirements throughout the process. As the domestic tours and travel management system is a complex project, it has a high probability of changes in requirements over the development period, which is why agile methodology is more suitable for the success of the project.

## Project Plan

### Gantt Chart

Tasks	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Requirements Engineering														
Project Charter and Proposal														
Project Presentation														
Database Design														
Interface Design														
Coding and Development														
Unit Testing														
Integration Testing														
Acceptance Testing														
Final Report Writing														
Final Presentation and Viva														

### Work Breakdown Structure

Task No	Main Task	Sub Tasks	Duration (Days)	Members
01	Requirement Gathering & Analysis	<ul style="list-style-type: none"> <li>Client interview</li> <li>Gather requirements</li> <li>Create project charter document</li> <li>Understand project risks</li> <li>Create project documentation</li> </ul>	28	<ul style="list-style-type: none"> <li>Nithila</li> <li>Shehan</li> <li>Pasindu</li> <li>Theekshana</li> <li>Zaheem</li> <li>Naveen</li> <li>Thisal</li> <li>Kalpa</li> </ul>
02	Design & Development	<ul style="list-style-type: none"> <li>User-Interface design (Wireframes)</li> <li>Database design</li> <li>Coding and development               <ol style="list-style-type: none"> <li>Booking and reservation</li> <li>Client management</li> <li>Finance management</li> <li>Vehicle management</li> <li>Staff management</li> </ol> </li> </ul>	42	<ul style="list-style-type: none"> <li>Nithila</li> <li>Shehan</li> <li>Pasindu</li> <li>Theekshana</li> <li>Zaheem</li> <li>Naveen</li> <li>Thisal</li> <li>Kalpa</li> </ul>

		6. Vehicle owner management 7. Driver management 8. Payment UI		
03	Testing	<ul style="list-style-type: none"> <li>• Unit testing (Testing each module functionalities)</li> <li>• Integration testing (Testing all modules after integrating)</li> <li>• Acceptance testing</li> </ul>	28	<ul style="list-style-type: none"> <li>• Nithila</li> <li>• Shehan</li> <li>• Pasindu</li> <li>• Theekshana</li> <li>• Zaheem</li> <li>• Naveen</li> <li>• Thisal</li> <li>• Kalpa</li> </ul>

## **Evaluation Method**

The system will be evaluated through several methods in order to ensure its reliability, effectiveness and efficiency.

- **User Testing:** The system will undergo user testing with a sample group of clients, employees, vehicle owners and drivers to gauge their satisfaction with the system's usability, functionality and overall performance.
- **Usability Testing:** The usability of the system will be evaluated to ensure that it meets the needs of its users.
- **Performance Testing:** The performance of the system will be evaluated under various conditions to determine its responsiveness, stability, and scalability.
- **Functionality Testing:** The overall system functionality is evaluated to ensure that it meets the requirements of the system functions which includes booking and reservation, tours and route planning, client management, finance management, vehicle management, staff management, driver management and vehicle owner management.
- **Security Testing:** The system will undergo security testing to ensure that it is protected against potential security threats.
- **Acceptance Testing:** The acceptance testing is to make sure that it meets the requirements and expectations of the client, which includes the system functionalities such as usability, responsiveness and most importantly the performance of the overall system.

The system's evaluation is a continuous process to make sure it meets the needs of its users. The results obtained from the evaluation process will be used to make new improvements to the system and as well as enhancing the system.

## **References**

Kabtamu A.E (2014) Development of Web-Based Tours and Travel Management System.  
*Hawassa University, Department of Information Technology.*

Sreeraj M (2016) Development of Tours and Travel Management System.  
*University of Mumbai.*





# DOMESTIC TOURS AND TRAVEL MANAGEMENT SYSTEM

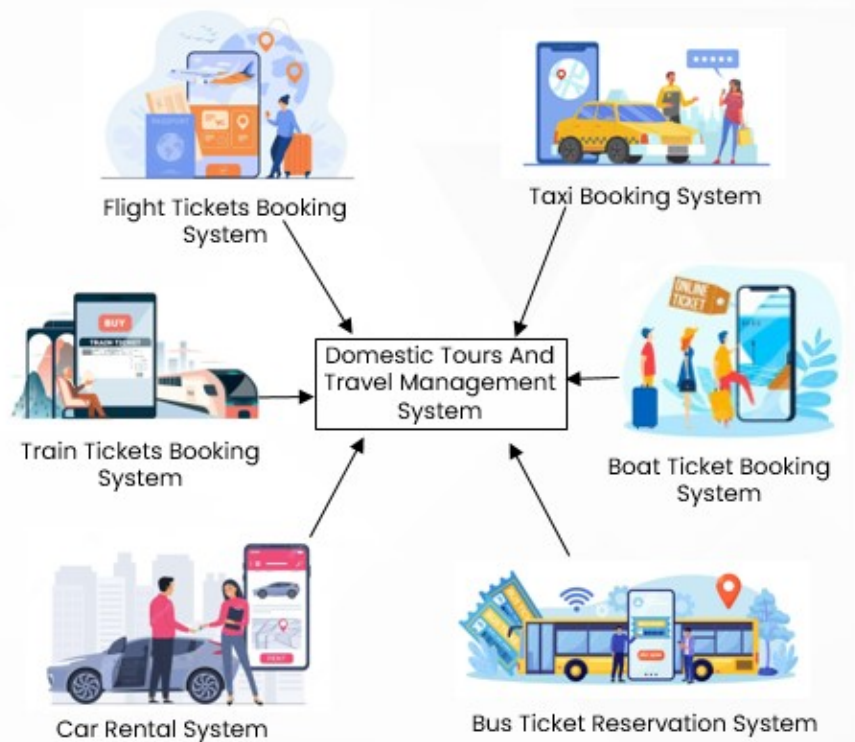
## Contents

- Background
- Problems and Motivation
- Aim and Objectives
- System Overview
- Literature Review
- Methodology
- Features of the system



## Background

- Rapid Travels is an integrated management system.
- All travel related services in one place which makes it convenient.
- Minimizes the physical interaction of customers who are planning to travel.



## Problems and Motivation

### Problems

- Traditional method of managing data is time –consuming.
- Lacks an efficient method to track income and expenses.
- Difficult to track client history as it lacks automation.



# Problems and Motivation

## Motivation

- Automate the entire process of data management.
- Implementing a way to track income and expenses.
- Develop and improve automation.



## Aim and Objectives

### Aims

- Deployment of an automated system.
- Optimize utilization of vehicles in every travel medium.
- Manage the costs and budgets efficiently and effectively.



### Objectives

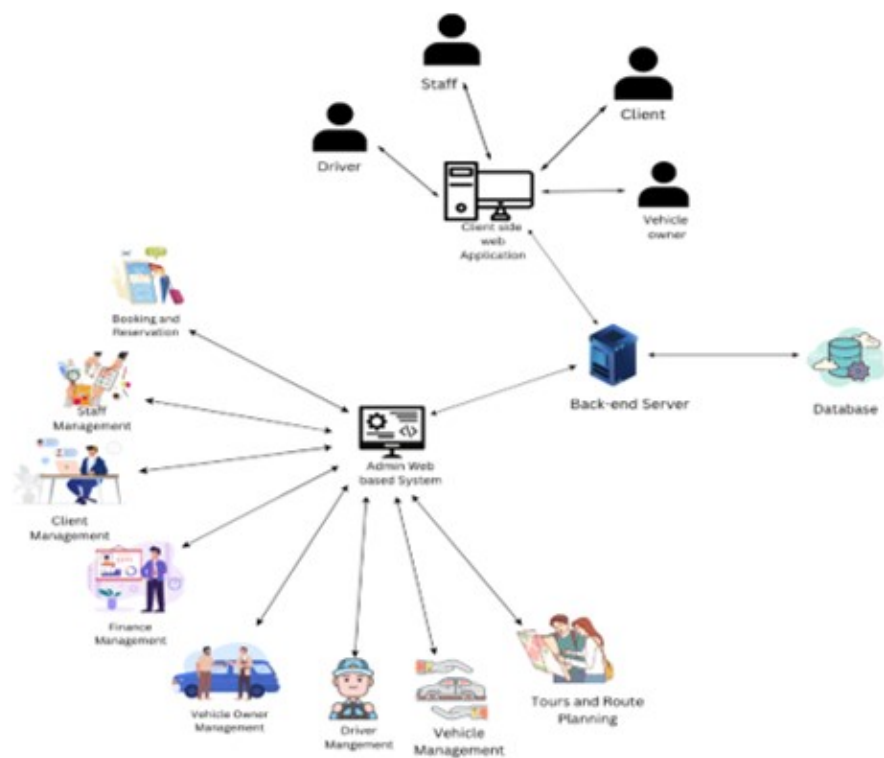
- Requirements Engineering.
- Design user-friendly interfaces.
- Develop a centralized database.
- Test and refine the system.





## SYSTEM OVERVIEW

## S Y S T E M O V E R V I E W



## Literature Review

- According to Kabtamu Atale Reta et al. (2014) of Hawassa University developed a web-based tours and travel management system.
- Although the system was efficient it lacked the finance management module which would be helpful to track and monitor payment flows.

## Literature Review (cont.)

- According to Sreeraj Menon (2016) University of Mumbai intended to develop a "Tours and Travel Management System".
- But this system was developed as a bus ticket reservation system although the system implies that it as a booking system for various mediums of travel.

# Methodology

## Designing Tools



MockFlow

## Development Tools & Technologies



## Project Management Tools

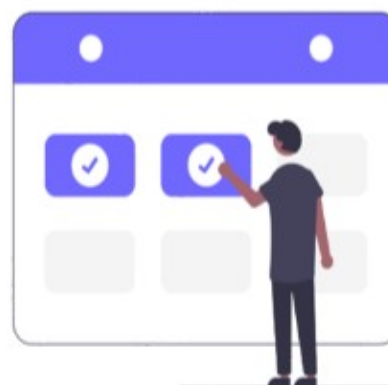


## Booking And Reservation

Kaluarachchi D.N.N.W  
IT21827976

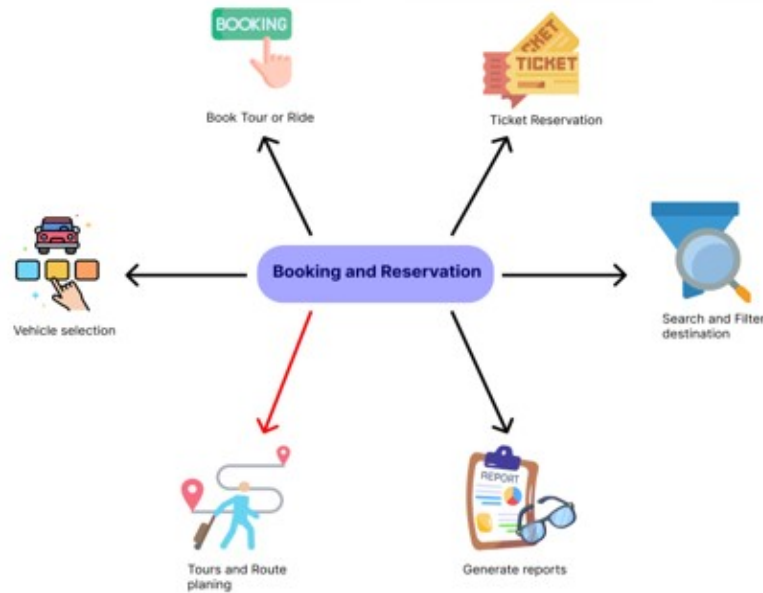


RAPID TRAVELS



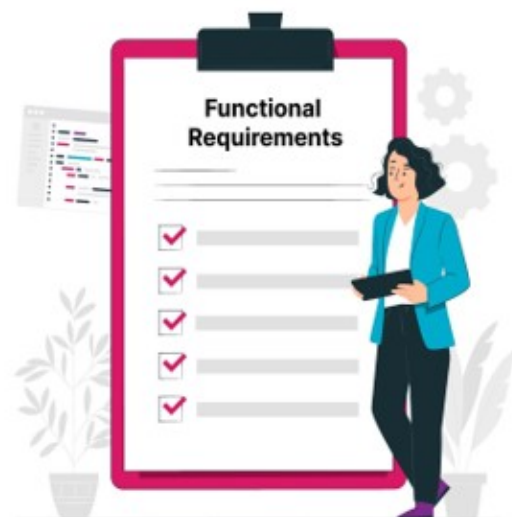


## Booking and Reservation



## Functional Requirements

- The System should be able to search and filter travel destinations as needed.
- The System should be able to generate reports based on the data.
- The System should be able to can monitor the popularity of the tours and travels on each medium of travel.





## Non-functional Requirements

- **Performance:** The system should be able to handle a large amount of information of tours and data without any significant impact on the system's speed or performance.
- **Usability:** The admin dashboard should be easy to navigate and the interface for booking filled by clients must be user-friendly making it accessible for clients of all technical backgrounds.
- **Scalability:** The system should be scalable and able to store information related to tours and travel destinations as it expands rapidly.

## CRUD

### Create

- 1.**Create a New Tour:** Allow admin users to add new domestic tours to the system with details such as tour name, description, itinerary, price, and dates.

### Update

- 1.**Edit Tour Information:** Enable admin users to modify tour details like name, description, itinerary, and price. Update the tour information across the system.
- 2.**Modify Reservation:** Allow customers to make changes to their reservations, such as changing the tour date or the number of participants.

### Read

- 1.**List Available Tours:** Display a list of available domestic tours for customers to browse, including brief details and an option to view more information.
- 2.**View Tour Details:** Allow users to see comprehensive details of a specific tour, including the itinerary, pricing, available dates, and other relevant information.

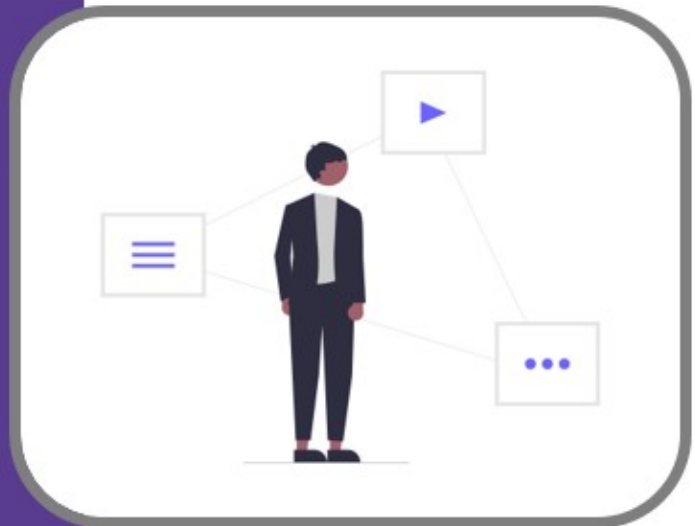
### Delete

- 1.**Delete a Tour:** Admin users should have the ability to remove a tour from the system, updating the availability accordingly.
- 2.**Cancel Reservation:** Allow customers to cancel their reservations, updating the availability of the tour and possibly initiating refund processes if applicable.



# Tours And Route Planning

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IT21823398



## Tours and Route Planning



## Functional Requirements

- System should be able to assign the default routes for specific tours and rides.
- System should be able to search and filter specific routes for destinations.
- System should be able to compute and optimize the cost for each tour automatically.
- System should be able to track the popularity of routes.
- The system must have the ability to generate reports on route data.



## Non-functional Requirements

### Reliability

- The system should be always available and functional.
- Minimum downtime and disruptions for route selection process.

### Maintainability

- The system must be in a way that it will be easier to maintain effectively and efficiently.

### Scalability

- The system should be scalable and able to store route details as it grows with respect to time.

### Performance

- The system should be fast and responsive with minimal lag and accessing of routes and cost-optimizations must be accurate and quick.



## **CRUD**

### Create

1. Create a relation of travel routes for each medium of travel.
2. Add new routes for specific travel mediums and tour destinations.

### Update

1. Update details of existing routes in the system

### Read

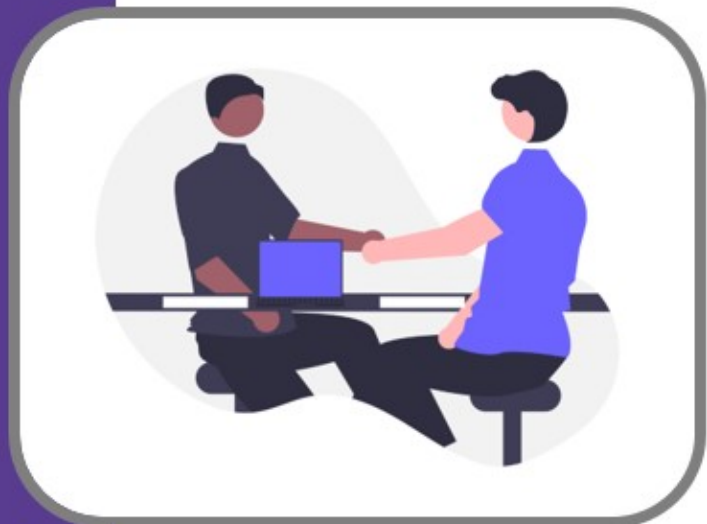
1. Retrieve route records of each travel medium and tours.
2. Display the route status which are permitted and not permitted.

### Delete

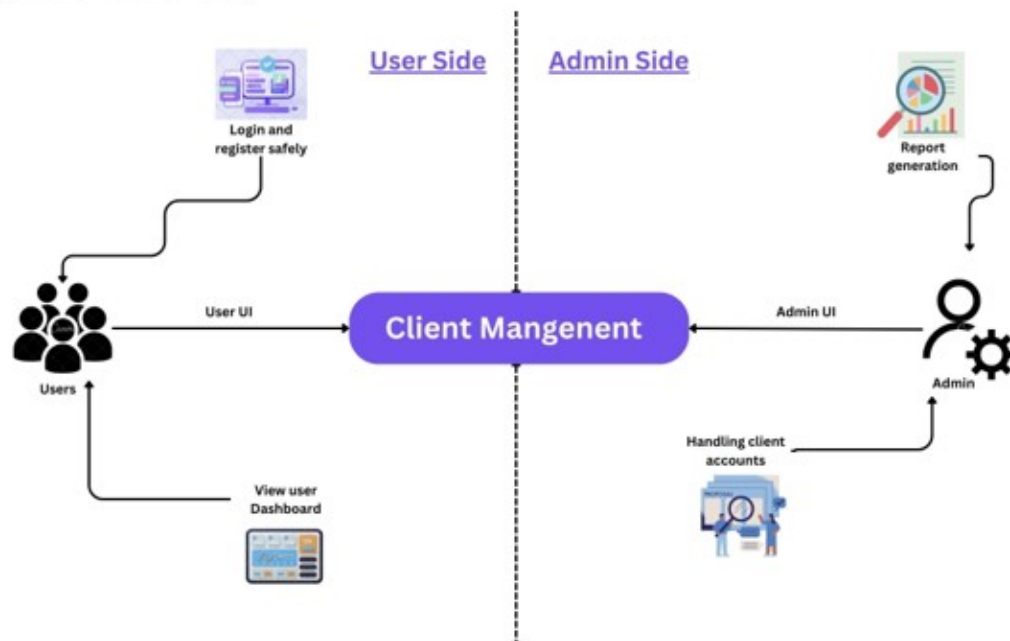
1. Delete existing records of routes in the system.

## **Client Management**

Ihalagamage P.P.P  
IT21831454

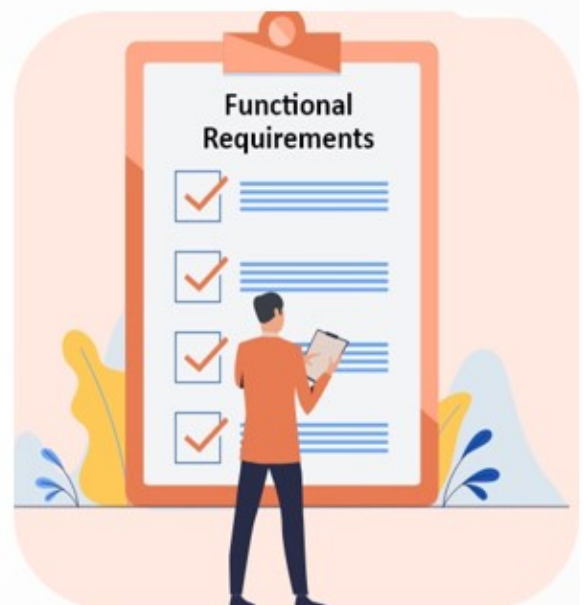


## Client Management



## Functional Requirements

- System should be able to register and login to the system
- System should be able to view, edit and delete his/her Account details.
- System should be able to view, search, create, edit, and delete account as needed.
- System should be able to generate reports based on the client data.



## Non-functional Requirements

### Performance

- Any changes in the system database must be updated within 2 seconds
- Notifications must be sent under 2 minutes. (Password reset notification)

### Scalability

- The system should be able to manage and handle a large number of client accounts and related

### data Usability

- The Login, register page and client dashboard should be user-friendly

## CRUD

### Create

1. Client Register to the system (User)
2. Add Account (Admin)

### Update

1. Client Edit details (User)
2. Update Client data (Admin)

### Read

1. Client Information in Client Dashboard
2. Admin dashboard view

### Delete

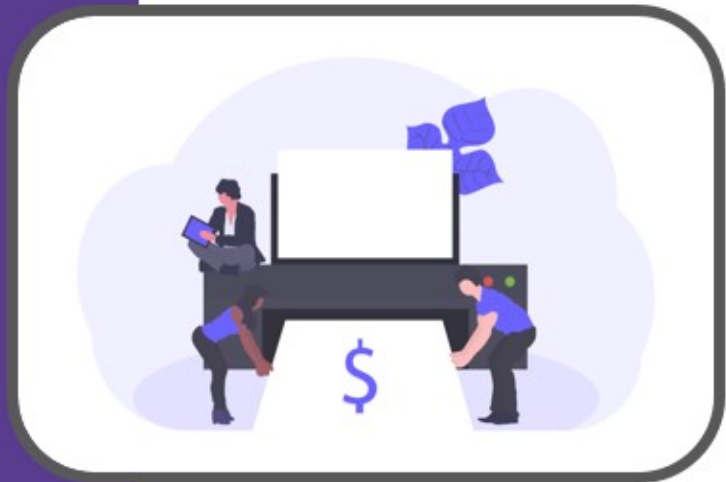
1. Client Delete account
2. Admin remove account



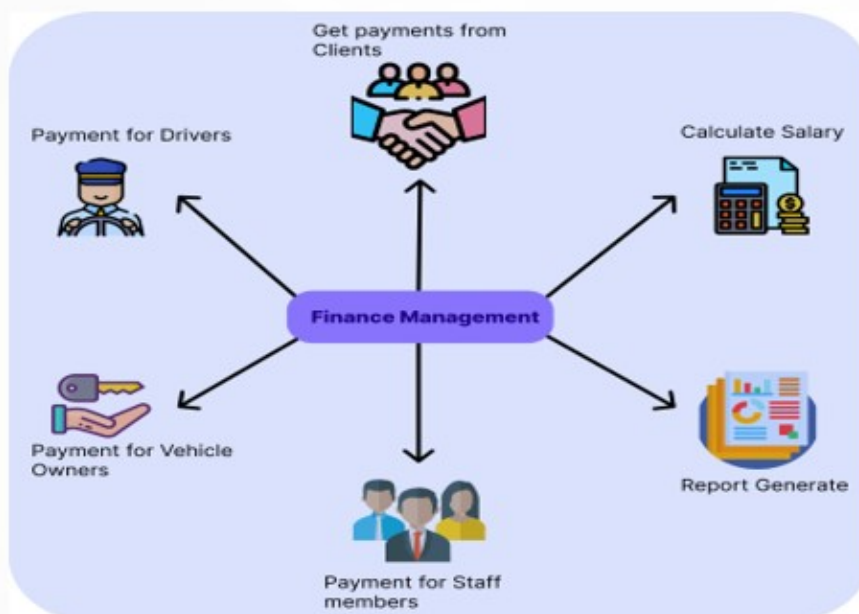
RAPID TRAVELS

# Finance Management

Theekshana M.A.N  
IT21806490



## Finance Management





## Functional Requirements

- System should be able to view the payment status of each client.
- System should be able ability to track the financial activities of the client.
- System should be able to generate reports based on the payments received by clients.
- System should be able to have the ability to generate income/expense reports.



## Non-Functional Requirements

### **Performance**

- The system should be fast and responsive, to the payment transactions.
- It should be able to handle a large number of transactions at the same time without any issues.

### **Usability**

- The system should be convenient to use and navigate.

### **Reliability**

- The system must be reliable and available at all times.

### **Security**

- The system must be secure from unauthorized persons.



## **CRUD**

### Create

- Create basic salary
- Create OT or Bonus
- Create ETF , EPF

### Update

- Update basic salary
- Update OT or Bonus rate
- Update ETF , EPF rate

### Read

- View each employee's paid sheet
- View all the incomes and expenses

### Delete

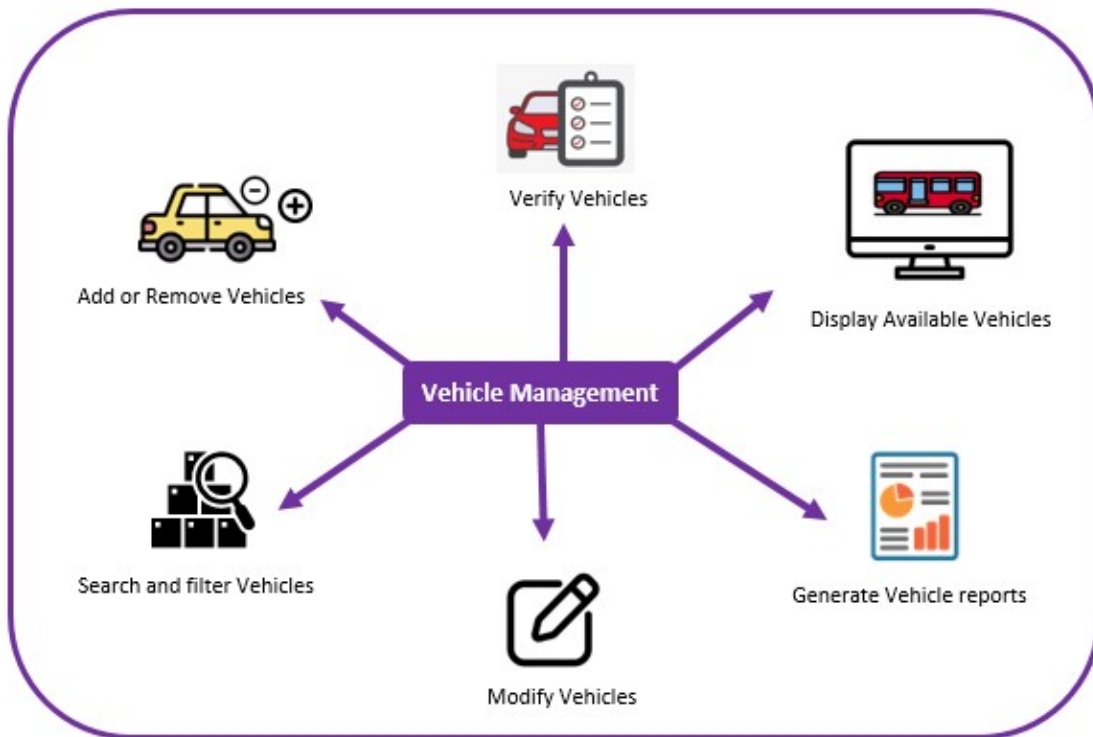
- Remove the unwanted payments

## **Vehicle Management**

Saldin M.Z  
IT21802744







## Functional Requirements



- **Add, View, Edit or Remove vehicle records:** The system provides administrators can add new vehicles to the system, view existing vehicles, and edit the details of existing vehicles.
- **Display and Search vehicles:** The system allows administrators can search for specific vehicles .This is useful for finding specific vehicles quickly and easily.
- **Generate reports:** The system allows administrators can generate reports based on the vehicle records in the system. Reports can be generated on a regular basis or on demand.

## Non-functional Requirements

- **Usability:** The system should have an intuitive and user-friendly interface, making it easy for administrators to navigate and manage vehicles.
- **Availability:** The system should be available 24/7, with minimal downtime for maintenance and upgrades.
- **Performance:** The system should be designed to handle numerous vehicles without experiencing any lag or delay in response time.
- **Reliability:** Implement error handling and data validation to prevent data inconsistencies to minimize downtime.
- **Security:** The system should have robust security measures in place to protect the sensitive data.

## CRUD

### Create

- Create a new vehicle record by adding vehicles.

### Update

- Update the details of existing vehicles in the system.

### Read

- Read existing vehicle records where it can display details of vehicles.

### Delete

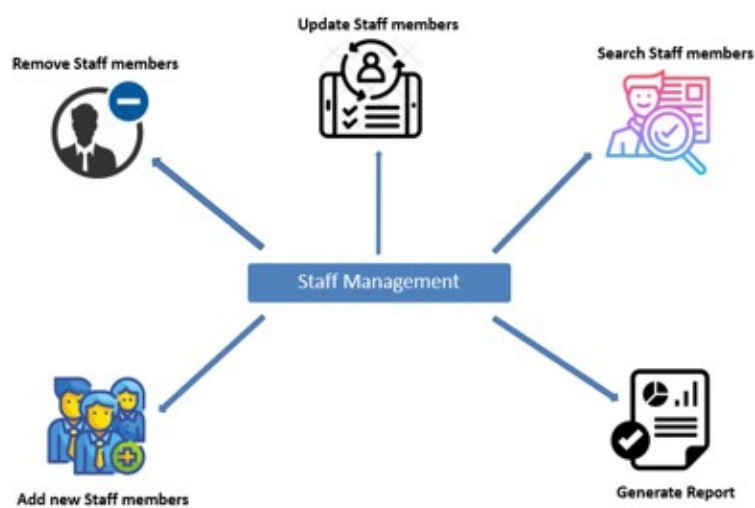
- Delete existing vehicles in the system that are no longer wanted.

# Staff Management

Thiranjaya M P N N  
IT21805196



## Staff Management



## Functional Requirements



- System should be able to add new staff members to the system.
- System should be able to view, search, edit and delete existing employee accounts.
- Employees with different privileges can manage and access information related to clients and vehicles in the system.
- System should be able to generate reports and view reports in real-time, allowing for quick and informed decision-making.



## Non-functional Requirements

- **Security:** The system must ensure that all employee accounts and information are secure and only accessible by authorized individuals.
- **Scalability:** The system must be scalable to accommodate future growth and changes in the company's workforce.
- **Performance:** The system must be able to handle large amounts of data without compromising performance or functionality.
- **Reliability:** The system must be available and reliable at all times to ensure that employees can access information and carryout tasks efficiently



### Create Staff Member (Create):

Allow administrators to add new staff members to the system. Collect information such as name, contact details, role, department. Store the staff member's details in the database.

### View Staff Details (Read):

Provide a list of all staff members or allow filtering based on roles or departments. Display relevant information about each staff member, such as name, department. Implement a search functionality to easily find specific staff members.

### Update Staff Details (Update):

Allow administrators to edit the details of an existing staff member. Provide a form to modify information like name, contact details, department. Update the staff member's details in the database.

### Delete Staff Member (Delete):

Allow administrators to remove a staff member from the system. Implement a confirmation step to prevent accidental deletions. Remove the staff member's details from the database.



Create



Read

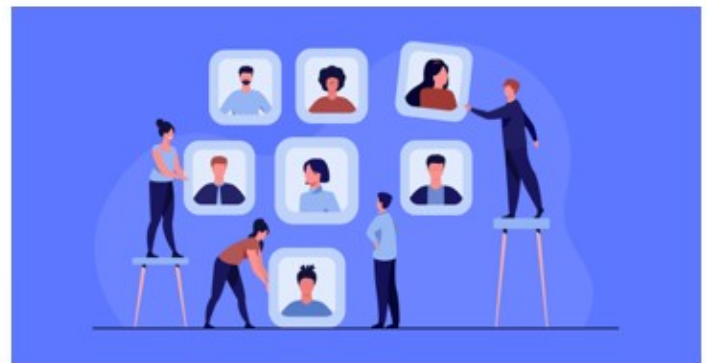


Update



Delete

C R U D



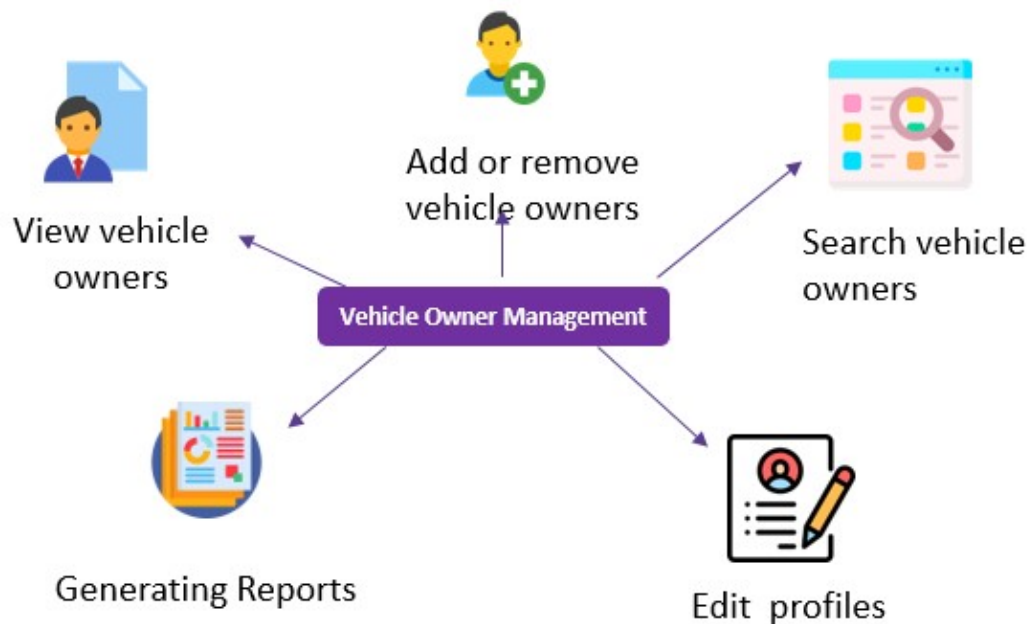
## Vehicle Owner Management

Senanayake S.A.T.D  
IT21815850



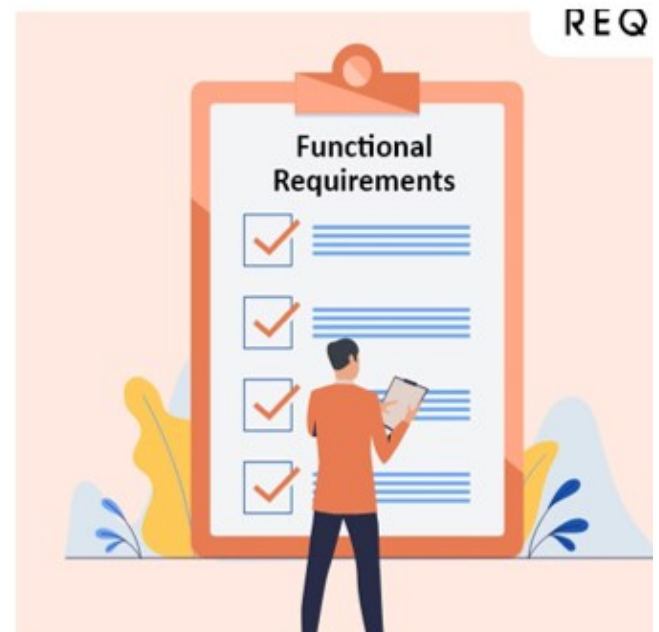


## Vehicle Owner Management



## Functional Requirements

- The system allows administrators can **add** new vehicle owners to the system and vehicle owners can **add** and edit their accounts.
- The system provides Administrators can **view**, **search**, **edit** and **delete** existing vehicle owner accounts.
- The system allows administrators can **generate** reports and **view** reports of the vehicle owners and their vehicles.

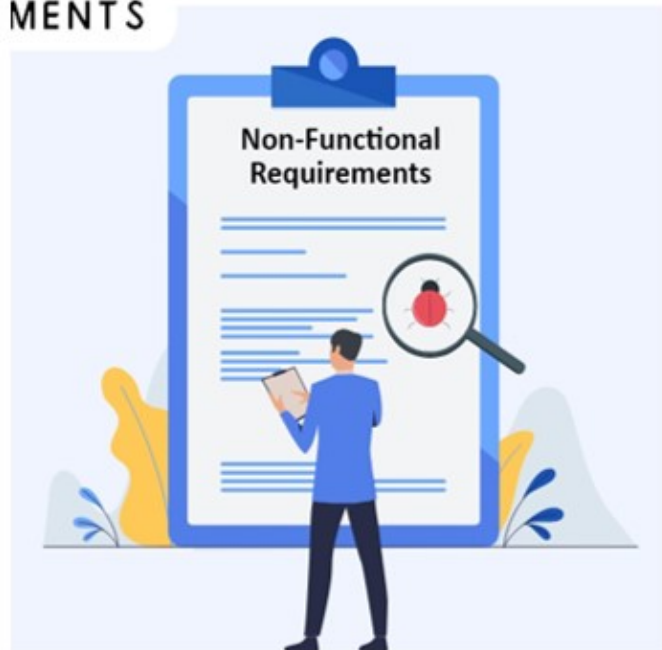


REQ

## Non-Functional Requirements

- **Performance:** The system should be able to handle many vehicle owner accounts and data without any harm in performance.
- **Security:** The system must be secure and ensure confidentiality, integrity, and availability of vehicle owner data.
- **Scalability:** The system should be scalable to in order accommodate more vehicle owners in the future.
- **Reliability:** The system must be reliable ensuring vehicle owners can access information anytime.

## MENTS



## CRUD

### Create (C):

- **Register Vehicle Owner:** Adding a new vehicle owner to the system by capturing their details, which might include their name, contact information, and identification.

### Read (R):

- **View Vehicle Owner Details:** Retrieving and displaying information about a specific vehicle owner, such as their personal details and associated vehicles.
- **List Vehicle Owners:** Displaying a list of all registered vehicle owners, allowing users to browse and search for specific owners.

### Update (U):

- **Update Vehicle Owner Information:** Modifying the details of a registered vehicle owner, such as updating contact details or other relevant personal information.

### Delete (D):

- **Remove Vehicle Owner:** Removing a vehicle owner's record from the system when necessary, such as when they are no longer using the service or upon request.



## Driver Management

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IT21818752





# Requirements

## Functional:

### Driver Onboarding:

Administrators can add new drivers to the system, Capture driver details such as Full name, Date of birth, Contact Information, Address, Driving Experience, Preferred Vehicle Type.

### Driver Listing:

Display a comprehensive list of registered drivers. Show essential driver details: name, contact, license number, and other relevant attributes.

### Driver Removal and Information Modification:

Administrators can Remove or modify driver details to keep the accurate & up-to-date driver pool.

### Search Functionality:

Provide a powerful search feature to locate drivers based on criteria like name, contact, or license number.

### Reporting Functionality:

Generate comprehensive reports for all registered drivers. Enable administrators to generate specific reports for individual drivers.

## Non-Functional:

### Performance:

Implement a efficient search functionality to allow customers to find drivers quickly based on specific criteria and ensure system responsiveness even with a large number of drivers.

### Usability:

Design a user-friendly interface for ease of use to minimize the learning curve for customers.

### Scalability:

Develop the system with scalability in mind to accommodate future enhancements and expansions as needed.

### Reliability:

Implement error handling and data validation to prevent data inconsistencies to minimize downtime.

### Security:

Implement secure access controls to ensure only administrators can add, modify, and remove drivers.

## CRUD

Create :

### Add new drivers.

- Administrators can add new drivers to the system with essential details of drivers and other relevant data.

Read :

### View driver details.

- Access a comprehensive list of all registered drivers and view their details at a glance. Information displayed includes the driver's name, contact, license number, and other relevant attributes.

Update :

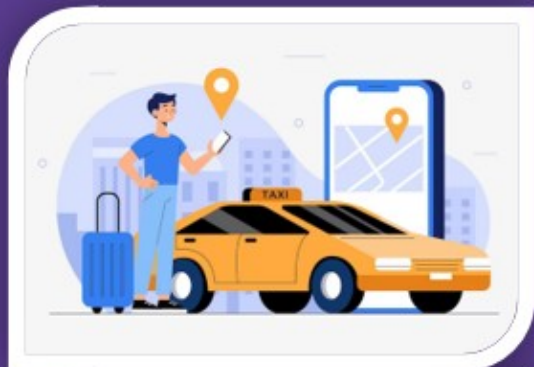
### Modify driver details.

- Update driver information, ensuring that any changes or updates are accurately reflected and maintained.

Delete :

### Remove drivers from the system.

- Remove drivers from the driver pool. This action is accessible only to authorized users to maintain data integrity.



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**THANK YOU**



[www.RapidTravels.com](http://www.RapidTravels.com)

## References



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