

Travel Planner Web Implementation

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ABSTRACT

“Soul Travel” is a travel planning application built for a travel agency which is based in Colombo, Sri Lanka. The agency currently uses a manual process to plan the journey for their customers. The customer has to visit or call the agency to plan or book their journey. The proposed system includes mainly two modules. One module allows customers to manually select their destinations, flights, hotels, and vehicles and come up with their own package while the other module allows customers to book the package with a fixed number of items the agency provides. After that the selected packages will be saved under the user's account and one of the admin users will be able to process the packages that the users have created. In addition to that, the admin users will be able to add destinations, hotels, cars, and flights to the system and manage them accordingly. This system improves the efficiency of the current process while attracting more customers to the agency.

Keywords— Flights, Hotels, Vehicles, Packages, Travel

I. INTRODUCTION

“Soul Travel” is a web-based travel planning application that helps travelers to manage the different travel needs that covers all around the world. It facilitates users to arrange Destinations, Flights, Hotels and Vehicle Bookings without any difficulty. And for the convenience of some users, as a special feature it provides complete dynamic Tour Packages relevant to various countries that can be selected according to the user's preference and budget. Users will be able to manage all of these functions without the assistance of the agency's staff and according to their own custom requirements manually.

Earlier, customers have to spend a lot of time and effort to approach various agencies to find better service for their travel needs. But nowadays most people prefer to do things online. Therefore, the proposed web-based system is developed to overcome those problems and provides approaching skills to plan a particular tour in a perfect manner, so that people can enjoy their tour at their favorable places.

As the technologies used for the development of the “Soul Travel” Travel Planning System, Rest API and

React JS have been used for the client side, Express and Nodejs for the server side and MongoDB as the database. Using the system, admin can add, update and delete all the details like Destination details (Destination name, Country name, Sightseeing places, Description and Images) Hotel details (Hotel name, Hotel image, Hotel amenities), Flight details (Airline name, Departure and Arrival timings, Flight fares), Vehicle Booking details (Vehicle type and images, Booking fares, Availability), Package details (Package name, Accommodations, Package inclusions and description) and many more. Customers can book any of these features as per their preference.

If the customer does not already have an account, they must register before using the system. After successful registration and providing login credentials, the user will be redirected to the homepage and able to use the service in the application. Then the user can plan their tour by picking up a desired destination, available flights, suitable accommodation and providing relevant information for a vehicle booking respectively. If someone is interested in looking for a dynamic tour package that suits their desires and fits their budget, without selecting custom requirements manually, they can choose a complete dynamic tour package according to different countries through the dynamic tour packages portal. In this way, anyone can fulfill their travel needs very conveniently through this application.

II. LITERATURE REVIEW

The first list of hotels in the globe was initially produced in 1994 on a website named TrvelWeb.com. A feature was implemented to allow for direct booking. Jeff Greenwald, a travel writer, published a 16000-word piece. Global Network Navigator was its name. The first commercial web publication is this one. The first travel agency, called "Travelocity," launched in 1996, marking the advent of internet travel. making significant advancements in online reservations. The first website to provide reservations and purchases was "Travelocity."

Physical geography provides the essential background to tourism industry. Geography can affect to this industry in different ways. Sometimes The destination decided according to the geography. Specially the spatial

dispersions, climate, physical and human characteristics. There is a relationship between Tourism and geography. Tourists are in search of experience different realities. Some researchers also define it. [1] [2].

Some people are still selecting their travelling package option to travel to the country and travel inside the country. In the "Outbound tourists' selection criteria for choosing all-inclusive package tours" Article [2], this article is about identifying important selection factors for all-inclusive package tours as perceived by outbound tourists' residents normally in Hong Kong they have done this using 30 selection criteria.

Nowadays peoples who travel around the world make their own travelling planes. When they are planning how to travel in a country, they are using renting a vehicle as an option. In the "Skewed Binary Regression to Study Rental Cars by Tourists in the Canary Islands" Article [2], they analyze 28,253 tourists who visited the Canary Islands in 2017 and used From a Bayesian point of view, asymmetric logistics regression chosen as the best model because it detects relevant development factors not seen by standard logistic regressions. In that analyze the got 21933 tourists are not using renting vehicles and 6302 tourists are using renting vehicle option.

III. METHODOLOGY

A. Technologies

"Soul Travel" travel planning application uses following technologies in order to provide the service.

Nodejs with Express Js

Node is a single threaded asynchronous JavaScript runtime that uses Google's V8 engine for the execution. It has single thread so if there's any long running tasks to do nodejs will sleep until that is being executed. This makes the execution very faster and due to this nature NodeJS can handle thousands of requests concurrently without waiting the tasks to be completed. This has a rich collection of modules that will increase the developers experience and the development time. Due to these advantages most of the companies and developers uses Nodejs as the server for their web applications.

Express is a minimal web framework that the developers can use to build REST API's and web applications with Nodejs, and it makes Nodejs easier to use. It provides its own set of features and methods such as Handling HTTP Requests, File serving, sessions, responding to requests Defines routing for the applications and much more. All of these works on top of Nodejs and this supports MVC pattern.

MongoDB

MongoDB is a NoSQL document-based database. Due to that it has a great support with unstructured data, and it makes the development process easier by preventing to run large migrations. MongoDB also has indexes and its own set of queries to query the data. Documents inside MongoDB are stored as a format called BSON. MongoDB has two main components called collections and document.

Document is a set of key value pairs that stored inside the database and a group of documents are called as collections. Developers can use MongoDB as a Graph database as well. Inside the soul travel application, Nodejs has used inside application to communicate with the database and query the database and to do the CRUD operations.

Other than that, the below flow charts chart 1, chart 2, chart 3, chart 4 and chart 5 depict the back-end processes of the system respectively.

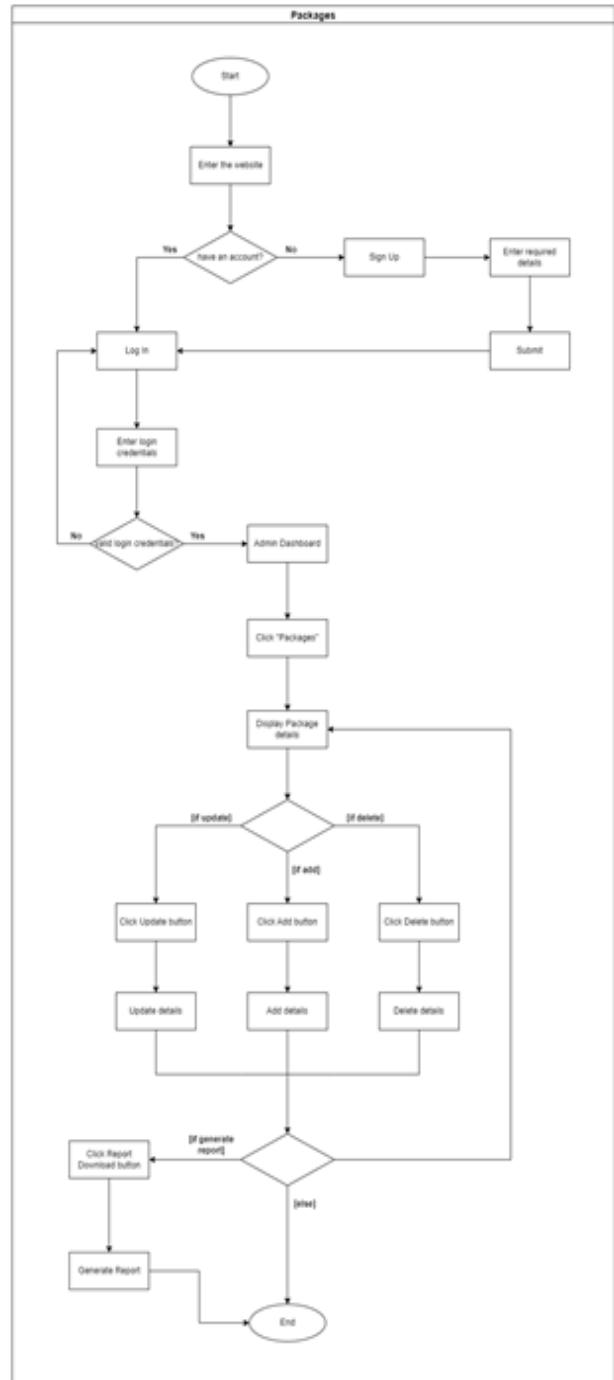


Chart 1: Back-end process of Package Booking Management

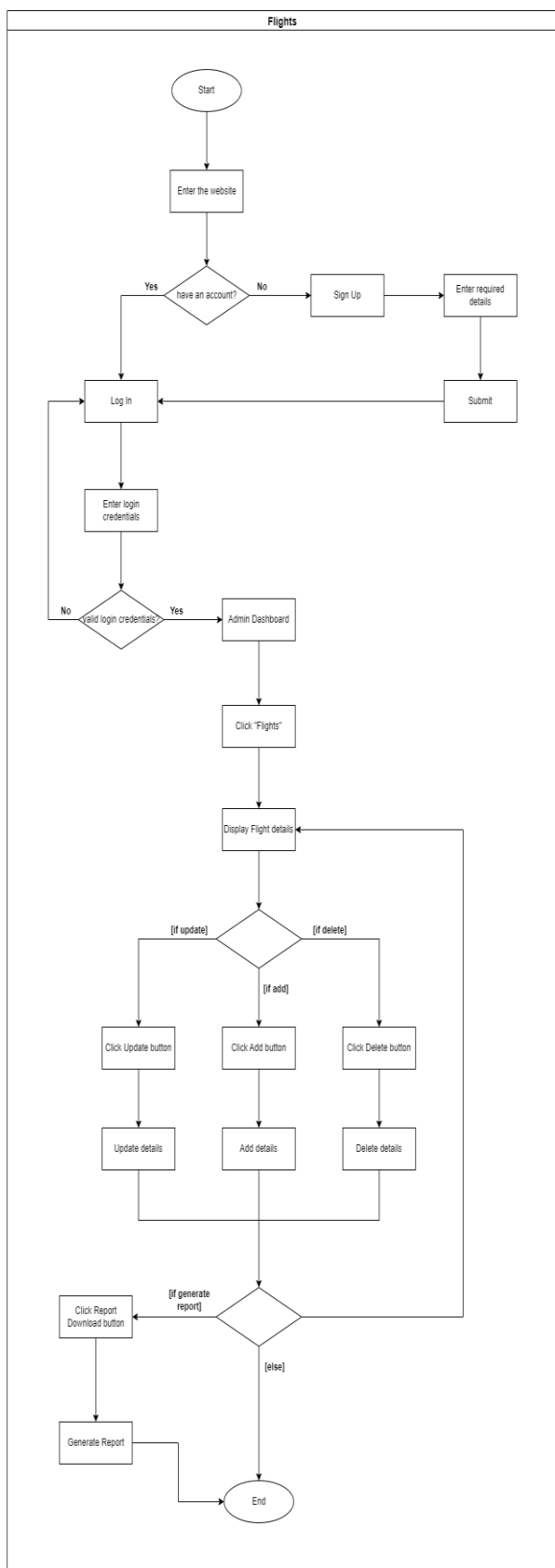


Chart 2: Back-end process of Flight Booking Management

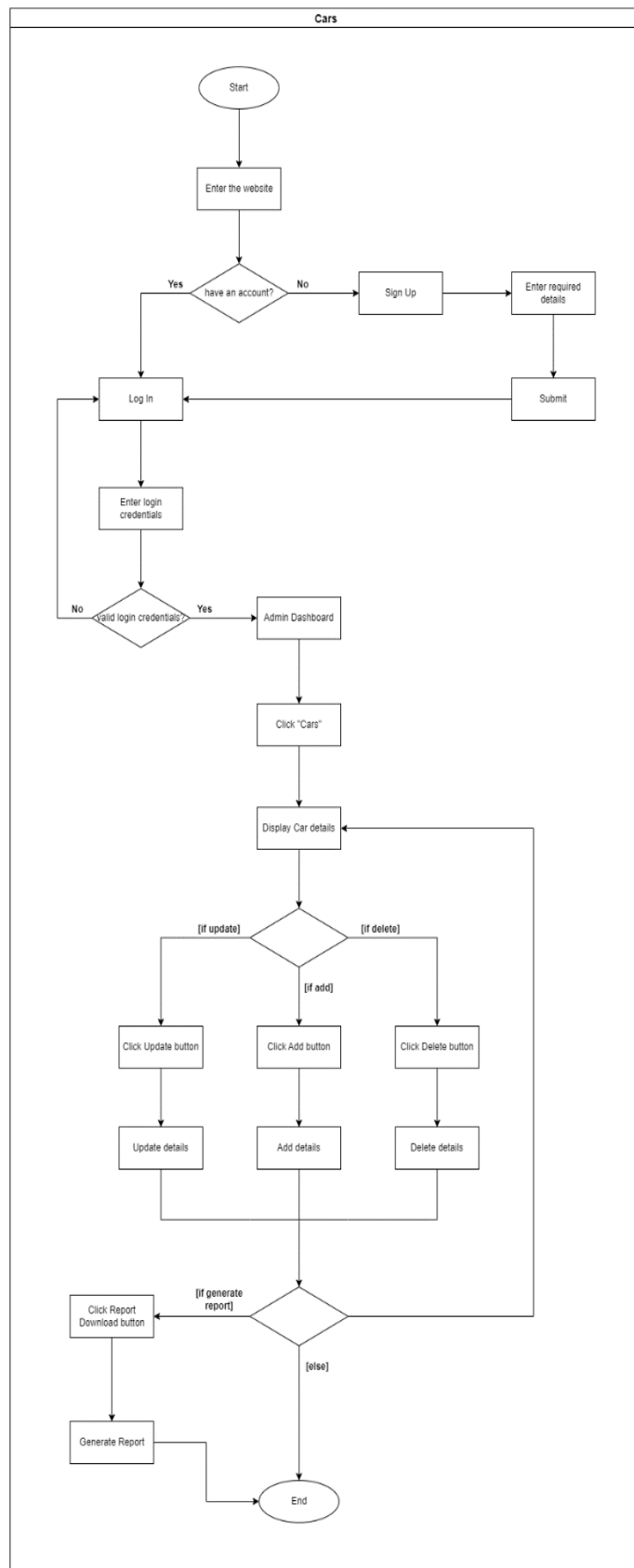


Chart 3: Back-end process of Car Booking Management

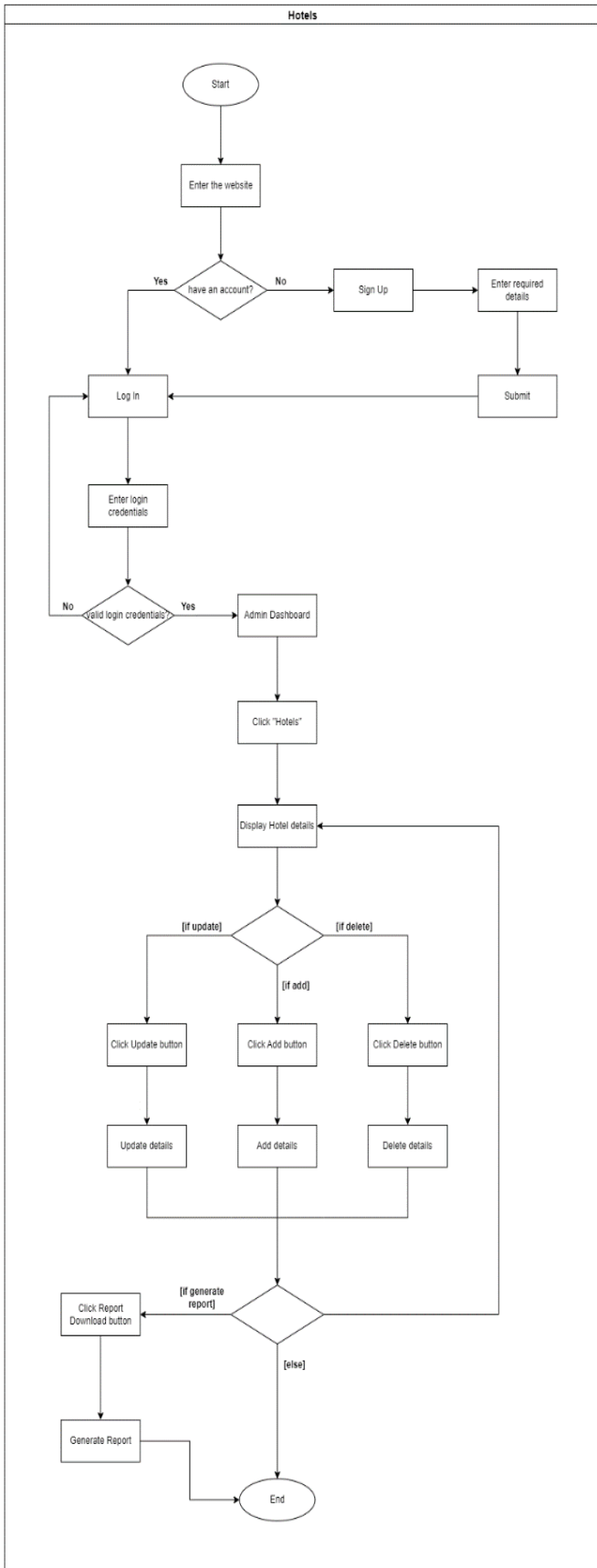


Chart 4: Back-end process of Hotel Booking Management

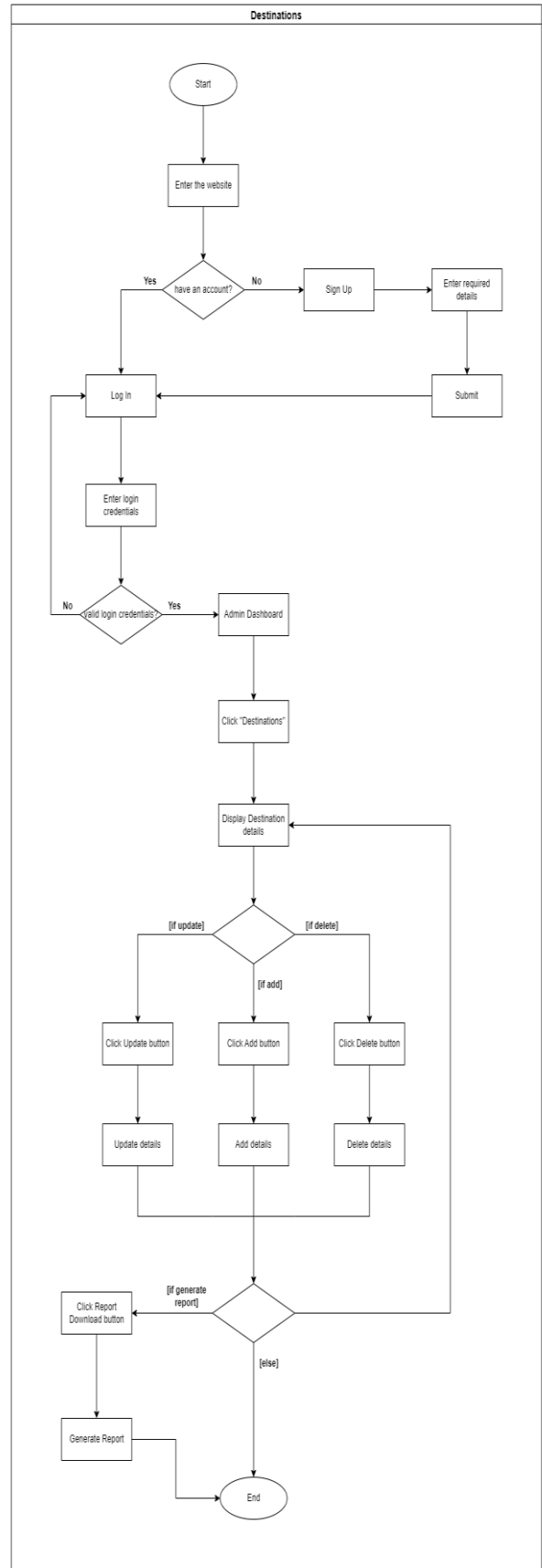


Chart 5: Back-end process of Destination Booking Management

Reactjs

React js is a JavaScript library which will help to build user interfaces. It makes building user interfaces much easier with its own set of methods. Developers can create simple views as components and by combining those components they can create interactive user interfaces. Inside the “Soul Travel” application React has used to build the user interfaces of the application. The react app communicate with the Node server and fetches and renders the data

Super Tokens

Super tokens is an open source authentication provider and currently it has a support with Node Python and Golang. Without creating our authentication provider from scratch, people can use Super tokens and the users will be managed through their servers. Since super tokens is an open-source solution it a has self-hosted service as well which can be hosted in the owner’s end. Inside the “Soul Travel” application frontend and backend communicate with the super tokens servers and manages all of the authentication related processes.

B. Proposed System

In the proposed system following the functions have been implemented. Mainly there are two modules. Inside the first module customer can plan the journey according to the customer's requirements. The scenario would be like the following. At the landing page multiple locations that the agency support have been displayed. After that when the user clicks on one of the destinations, he will be redirected to the details page and the details of

that specific location will be displayed. To view the details of the location user has to login to the system.

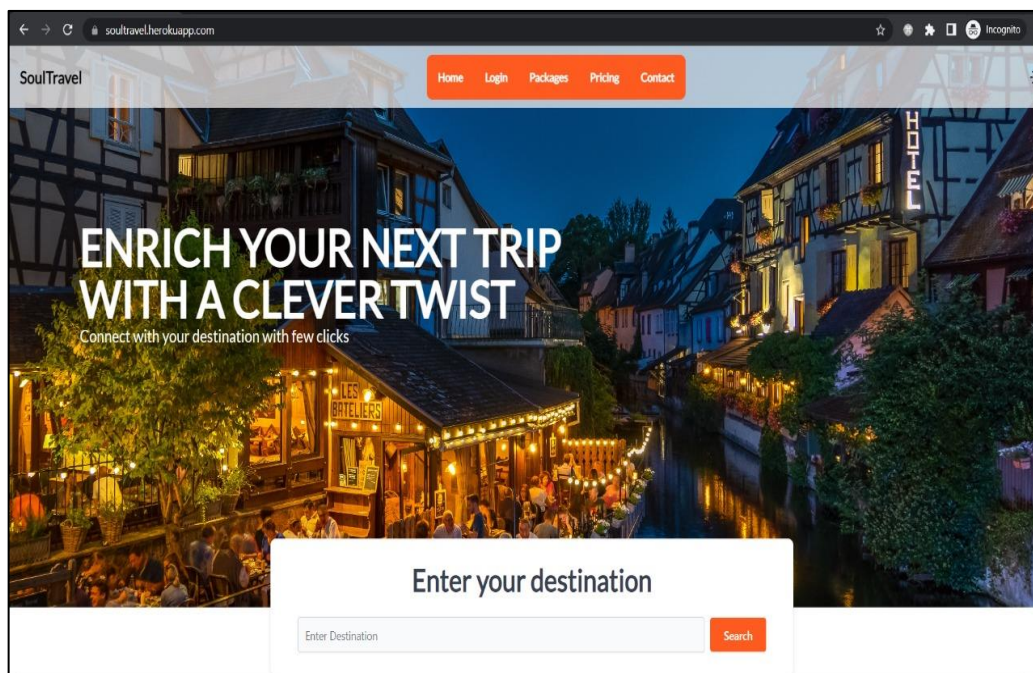


Figure 1: Application homepage

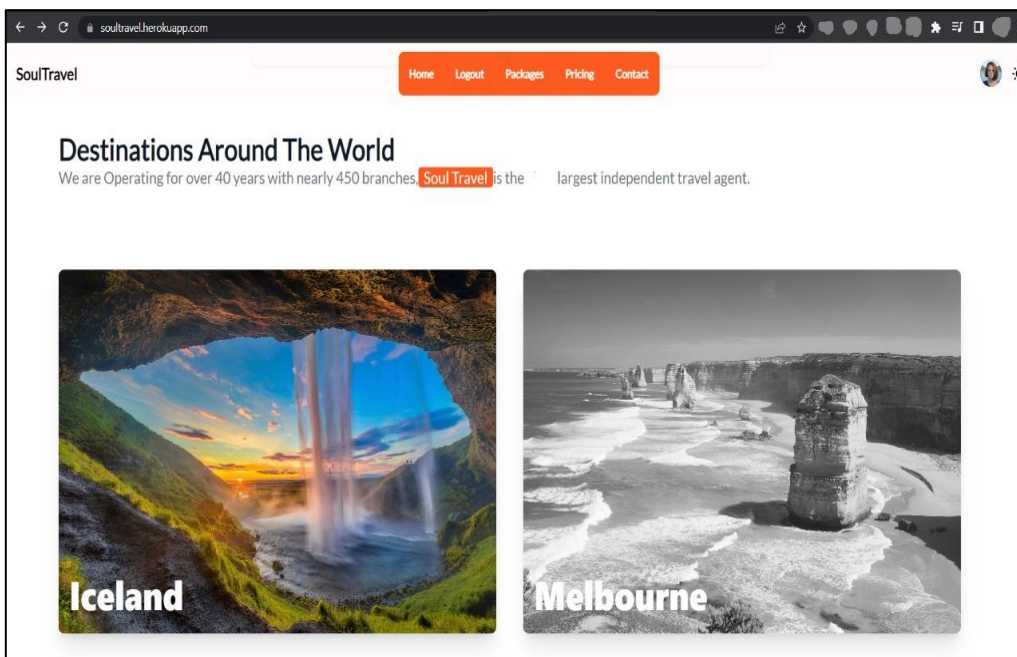


Figure 2: Location list page

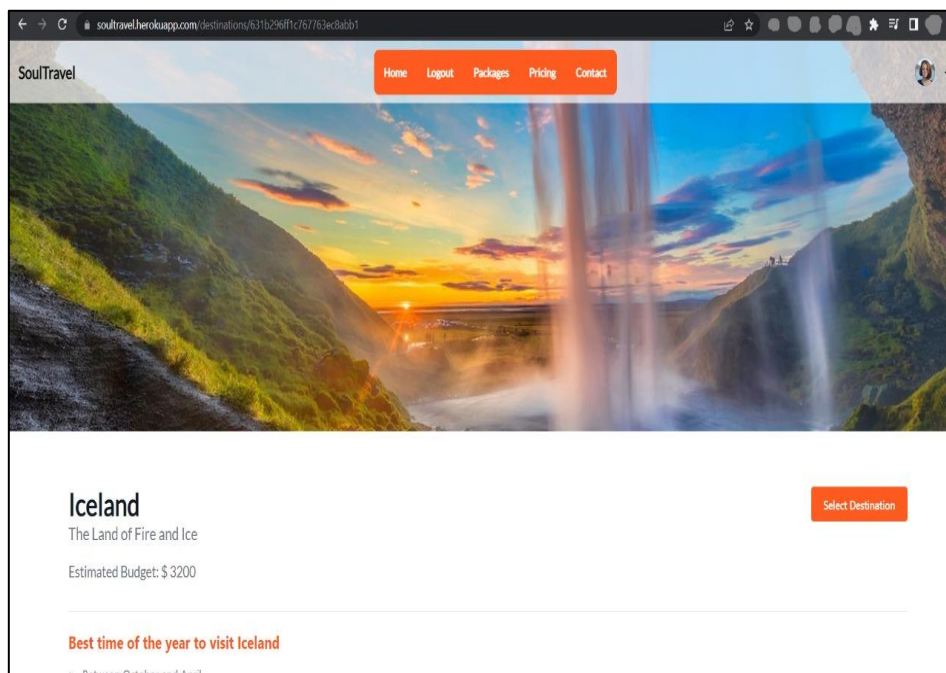


Figure 3: Location details page

After that when the user presses the select button, he will be redirected to the flight details page. Meanwhile new package will be created on the database and the location will be saved to the database with the user's data. On the next page the flights to that specific location will be displayed with the prices for those flights. When user

select one of the flights to the previously selected package record will be updated with that specific flight information and the user will be redirected to the hotels section to select a hotel.

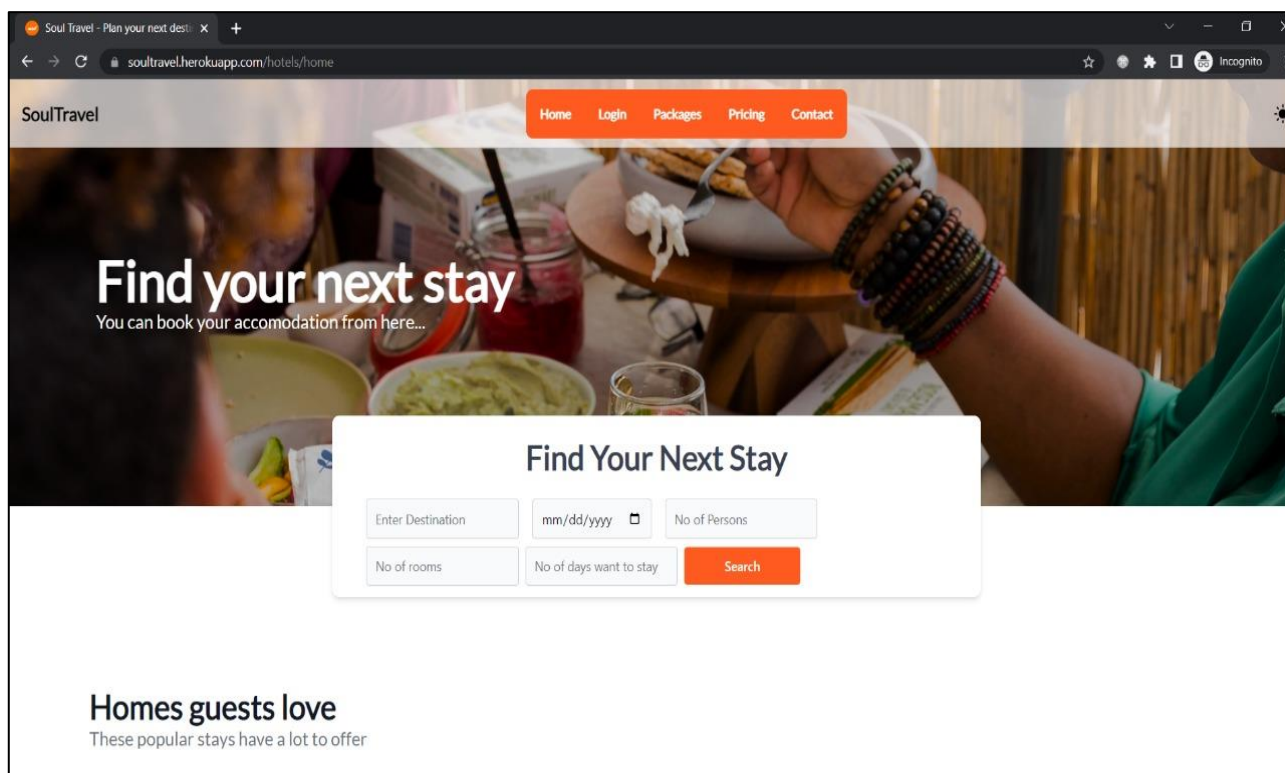


Figure 4: Hotel homepage

In the hotels section the agency displays the hotels that are around that specific area. User can select one of the hotels based on their needs and checking the description of the hotels. When the user selects one of the hotels the previously created package will be updated with that hotel. Finally, to complete the package user has to select a car so that they can use it when they are arrived on that location.

So, the user will be redirected to the car selection screen in figure 5.

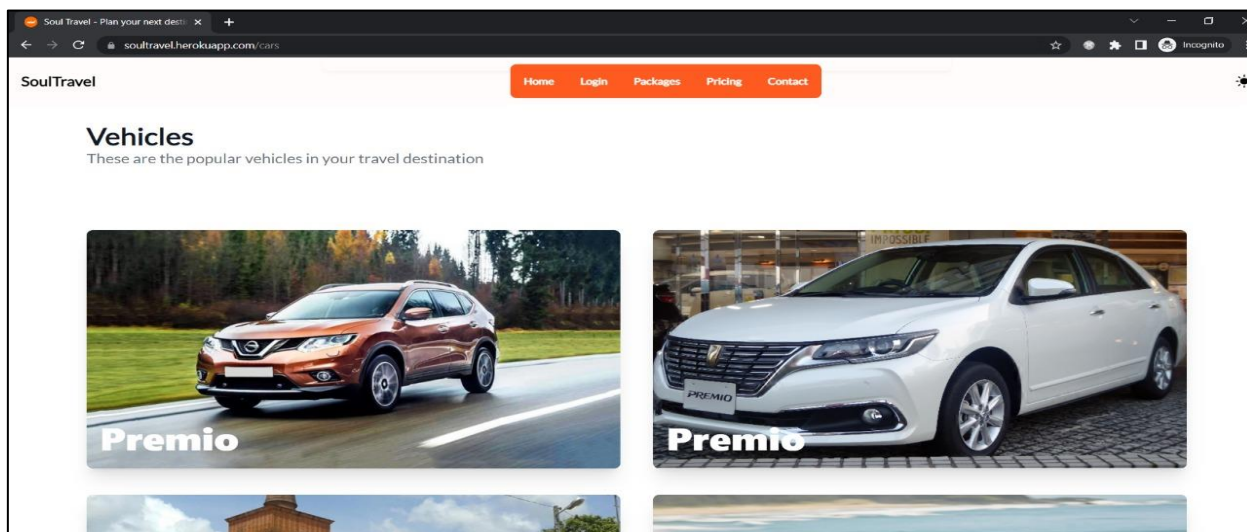


Figure 5: Vehicle homepage

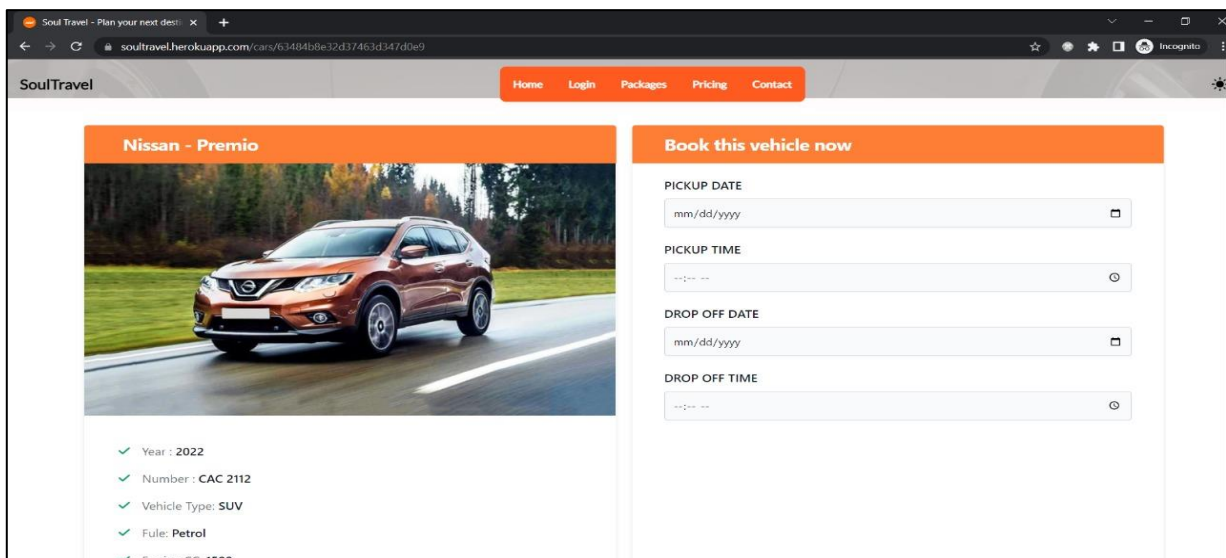


Figure 6: Vehicle details page

On there, they will be able to select a car based on their interests. And once the user presses the select car button then the package will be completed in the database and the popup will be displayed to the user with the information of the package they selected and amount that

they need to pay. Then one of the admins will process that package manually.

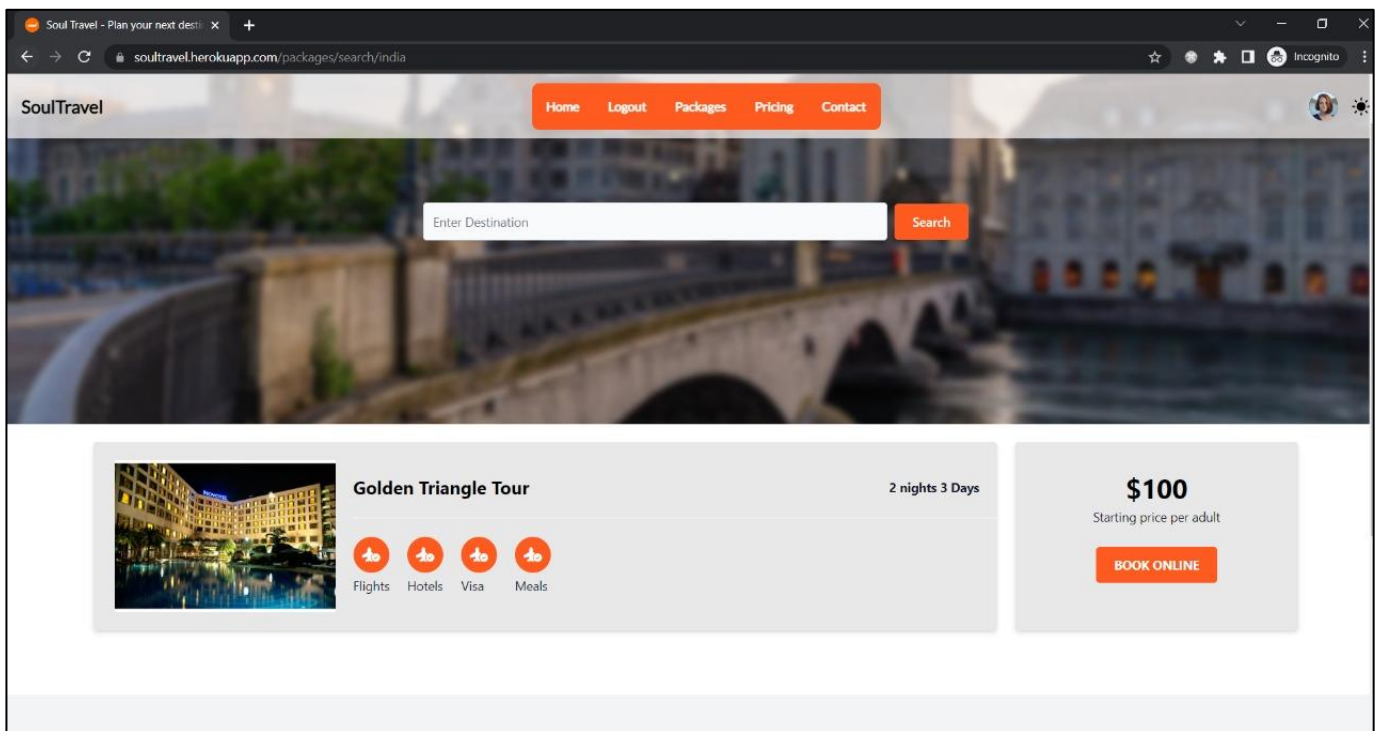


Figure 7: Package list page

As the figure 7 demonstrates, the second scenario the agency provides premade packages for the destinations and they include flights, hotels, cars and the user will be able to select one of the packages and after the user selects one of the packages and one of the admins will process them manually. In addition to that the system contains an admin panel and the admins will be able to create, delete,

update destinations, flights, hotels and cars through that admin panel. The figure 8 and figure 9 demonstrate the components and how the system communicates with each component of the system.

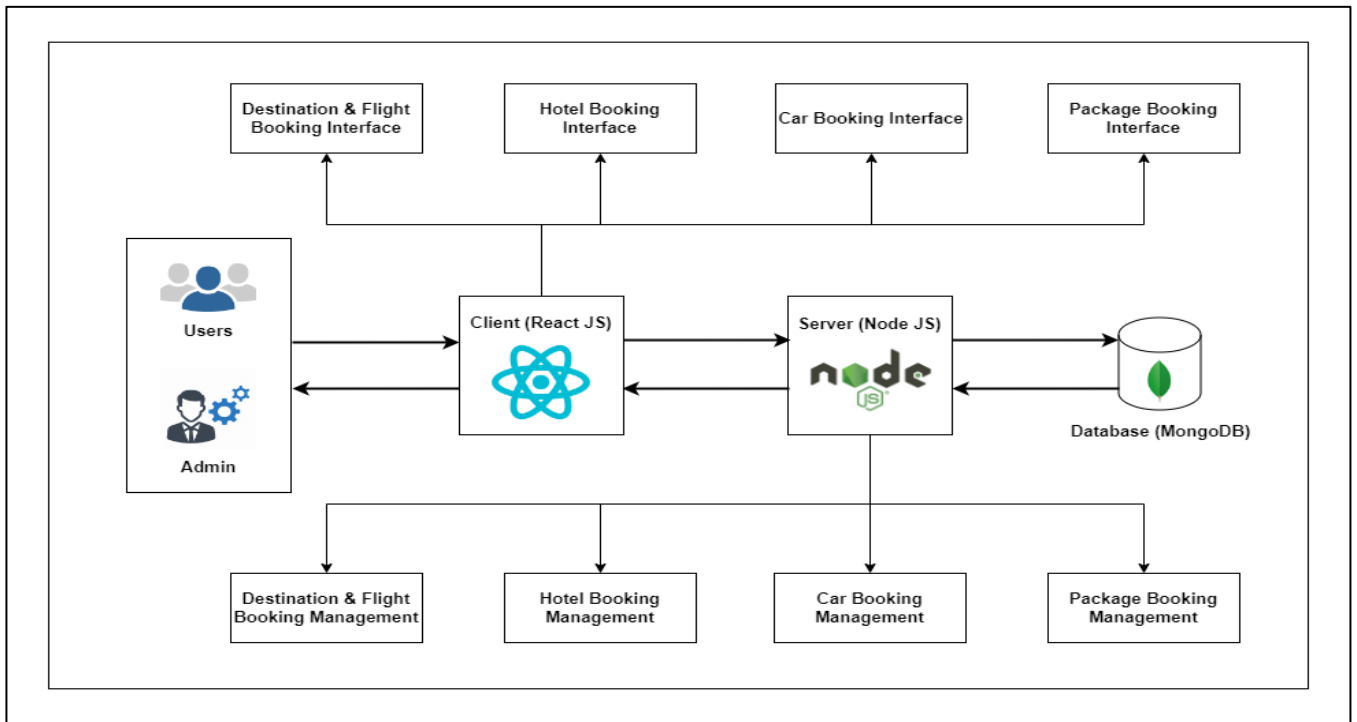


Figure 8: System overview diagram

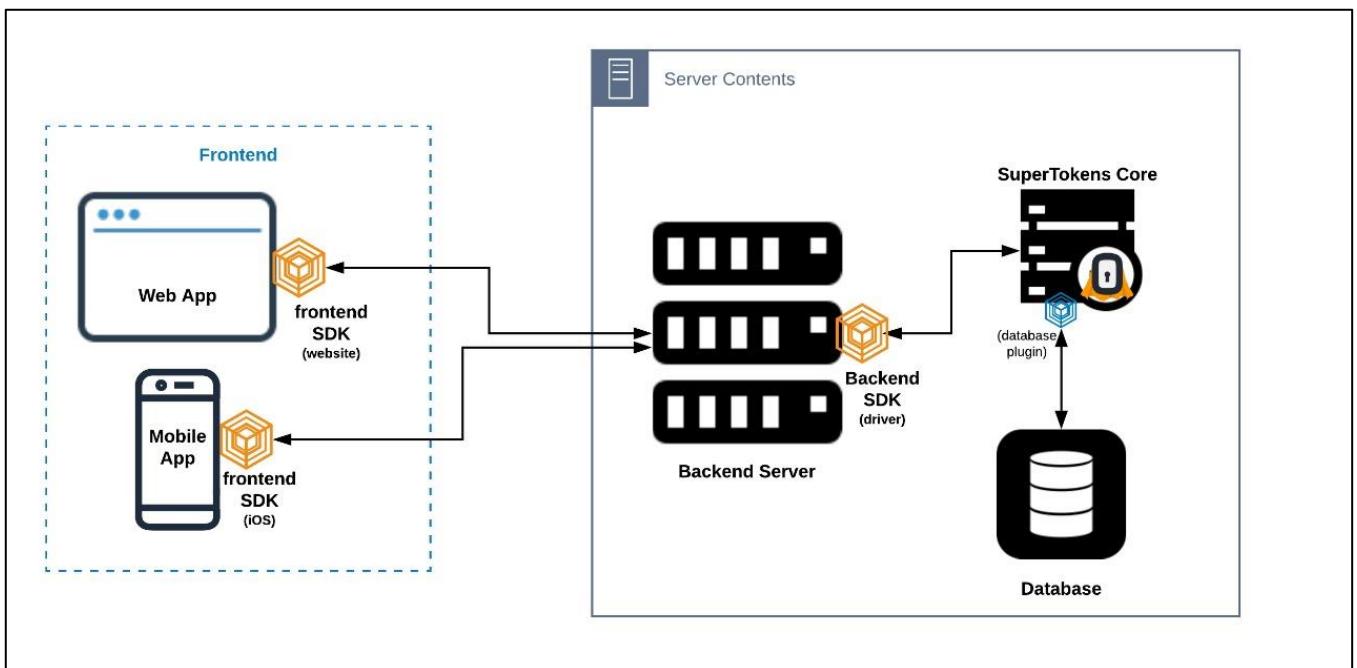


Figure 9: Supertokens authentication overview diagram

IV. DISCUSSION

This Travel system has been developed to come up with a solution for the problems prevailing in the manual system. This system includes complete computerization of all operations and automated

maintenance of all records. Moreover, this system is designed for the need of the company to carry out operation in a smooth and effective manner and manage some main problems in easily manage. The goal of this project is to provide a system for online database maintenance and truncation to manage a travel system.

According to this research the main purpose is managing the different travel needs. Such as booking hotels, choose proper destination, booking a car and choose a specific package. Clarification of the user behaviors, some functional management, user needs, and diversity are considering. React served as the front-end framework and Express served as the back-end framework for the system we designed. The entire data set is kept as a store in the mango DB cloud database. Our system was developed using a few libraries. like Axios, Mongoose, and React-from-validation. This website's user interface is quite intuitive, and the icons are simple to interpret. The UI has been stylized using Bootstrap and outside CSS. Additionally, icons were derived from Google Fonts and Font Awesome. React served as the front-end framework and Express served as the back-end framework for the system we designed. The entire data set is kept as a store in the mango DB cloud database. Our system was developed using a few libraries. like Axios, Mongoose, and React-from-validation. In There are tons of differences type of sites that falls under the travel sites. Mainly some important pinpoints discovered according to currently available websites. According to those findings the implementation can be done to the travel tourism website.

Using behaviors can be varying. Below table show how the behaviors happen.

A. Behaviour of travel tourism wesite

The majority of people use daily travel and tourism websites. It is roughly 46.3% and 36% of people visit once each week. 44.3% of respondents said they did not use online right away, whereas 55.7% did. Additionally, 6% of users visited this website once every month. The following table displays the process. [5].

Variable	n	%
<i>Frequency of website visited (n=415)</i>		
Everyday	192	46.3
Once a week	151	36.4
Once a month	25	6.0
Seldom	47	11.3
<i>Decision making (n=415)</i>		
Immediately	231	55.7
Not immediately	184	44.3

Table 1: Travel website using behaviors

B. Purpose of Trips Taken

Male and female tourists generally showed a considerable difference (Table 2) The following graph shows that men travel more frequently for work and professional reasons than women. [6] The interesting point is that while 0.7% of male passengers went to Penang for religious or pilgrimage-related reasons, no female travelers did so.

Additionally, 10.9% of women and 9.9% of men visit there for educational purposes. Table 2 below shows how male and female behavior differ depending on the goal.

Purpose of visit	Gender	
	Male (N=443)	Female (N=358)
Leisure/recreation/holidays	50.1%	55.0%
Business/professional	14.0%	5.0%
Visit friends/relatives (VFR)	12.9%	12.6%
Education/study/teaching	9.9%	10.9%
Honeymoon	3.8%	3.6%
Health treatment	2.9%	5.0%
Convention/conference/trade show	2.3%	2.2%
Incentive travel	1.4%	1.4%
Government affairs/official mission	1.1%	0.6%
Shopping	0.7%	2.2%
Religion/pilgrimages	0.7%	0.0%
Sporting tournament/event	0.2%	1.1%

$\chi^2 = 26.70, p = .003$

Table 2: Purpose of Trips Taken

People like to visit various type of countries. Some countries have geographical values, historical values and more. According to those features the count of the visting can be **Table 5: Vehicle rental market summery t** different [5].

1.	France	82.6 million visitors
2.	The United States	75.6 million visitors
3.	Spain	75.2 million visitors
4.	China	59.3 million visitors
5.	Italy	52.4 million visitors
6.	United Kingdom	35.8 million visitors
7.	Germany	35.6 million visitors
8.	Mexico	35.0 million visitors
9.	Thailand	32.6 million visitors
10.	Turkey	30 million visitors

Table 3: Count of the visting countries

The other main feature of this system is hotel booking function. The researcher tries to find what are the hotels that people are mostly like and what type of hotel they mostly choose. For include the most suitable hotels for the web research collect below statistics. Those results are showed in the Table 4.

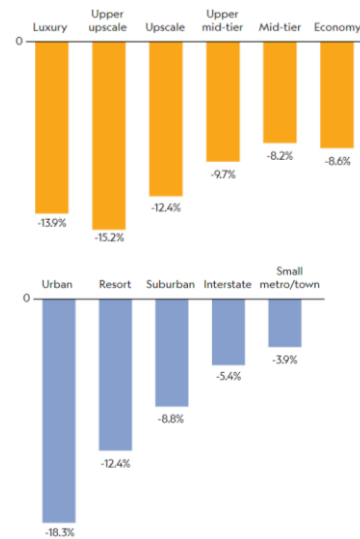


Table 4: Most hotel booking times

In addition to come up with this research the other function is vehicle booking function. Include to this function also researchers collect some statistic. This chart

says that vehicle rendering tends to be day by day. For a web site very, successful method is to include a function like this.

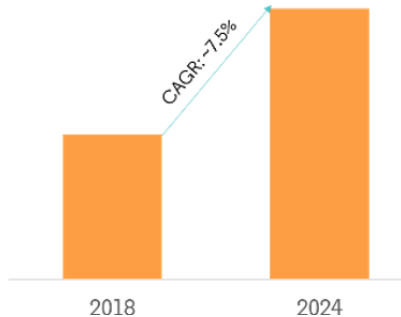


Table 5: Vehicle rental market summary

According to the above Table 5 statistics we can see some behaviors, functions and features are affected to the use the web sites [8].

During the system research, find some important pinpoints. According to those pinpoints examine some needs and behaviors for the new system and analysis better solutions for the users. According to the above statistic tables researchers can overcome with this newly created website. In this website its record all the importations according to the user behavior. The user behaviors are finding the best destination, find the flight, book a hotel, book a vehicle and the booking the package which include the above three function. This system reduced some manual processes. All records in the system are automated, this is very necessary and effective.

V. CONCLUSION

There are a lot of tourist destinations around the world. Not only that nowadays a lot of people are travelling around the world because of the travel industry get very wide. Because of this reason, travel services providing also got a very important role. Travelers traveling around the world for an entire year. Because of those reasons travel planning is a very important part of nowadays and it helps travelers to get an idea about their budget. So, such systems have problems like data storage problems, hard to understanding user flow about the system, and user view is not attractive. The lot of systems that are already available are old and not suitable for modern travelers' requirements. This system mainly provides solutions for previous problems and has a really easy-to-understand user flow, and a very attractive user view with simple colors and real-world images. When developing the system main goal is to reduce the number of steps and give access to manage the planning easily. This system can give solutions for travel booking problems because if any traveler books a travel plan the plans are displayed as booked plans in the system so that vehicles and hotels that are booked in one travel plan can't be

booked in another travel plan in the same time period. Travelers are very important for the economy of a country. This system provides services to travelers and helps countries' economies.

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