Mum-Hai!

A City Tour Service

PROFORMA FOR THE APPROVAL OF PROJECT PROPOSAL

PRN No.: …… Roll No:

PRN No.: …… Roll No:

1. Name of the Student

_____

2. Name of the Student

_____

4. Title of the Project

_____

5. Name of the Guide

_____

6. Teaching experience of the Guide

_____

5. Is this your first submission? Yes ☐ No ☐

Signature of the Student

Date: ……

Signature of the Guide

Date: ……

Signature of the Student

Date: ……..

Signature of the Co-ordinator

Date: ……..

Mum-Hai!: A City Tour Service

A Project Report

Submitted in partial fulfillment of the

Requirements for the award of the Degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

Derek Hoogewerf (Roll No. 5221)

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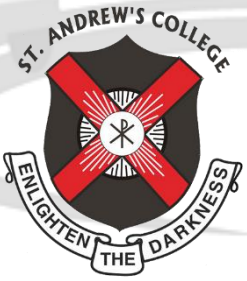
Under the esteemed guidance of

Mrs. A.N.S. Sarvani

(Coordinator B.Sc. I.T.)



DEPARTMENT OF INFORMATION TECHNOLOGY

ST. ANDREW'S COLLEGE OF ARTS, SCIENCE AND COMMERCE

Affiliated to University of Mumbai

MUMBAI, 400 050

MAHARASHTRA

2019-2020

DEPARTMENT OF INFORMATION TECHNOLOGY

ST. ANDREW'S COLLEGE OF ARTS, SCIENCE & COMMERCE

St. Dominic Road, Bandra (W), Mumbai - 400 050.

Certificate

This is to certify that _____

of Class _____ *- Semester* _____ *bearing Roll No.*_____ *and*

Seat No. _____ *has performed the required number of experiments in the*

subject _____ *as prescribed by the University of*

Mumbai for the B.Sc. - I.T. course, for the academic year: _____

Date : _____

Place : _____

Internal Examiner : **Prof.-in-Charge :**

External Examiner : **Co-ordinator :**

Principal :

Abstract

Tourism is massive industry worth several billions. However in the modern context, it often forgoes the aim of creating a memorable personal experience for the traveler. Instead offering more generic and common experience of the several destinations that one may visit.

This project deals with developing a tour guide service that is limited to a specific geographic region (Mumbai) to allow for a greater depth and breadth of experience for the traveler. It provides the end user greater control, allowing them to customize their trip and experience their destination in their own unique way.

This project deals with the creation of a web based application to provide these services to the end user as well as other stake holders such as the tour service providers.

This document discusses the various aspects of this project such as the background, purpose and scope as well as more technical details such as software and hardware requirements, technology used, Database schema and several different types of diagrams in association with the project.

Acknowledgement

I take this opportunity to thank the following people for their kind support and guidance without which successful completion of this project would have been difficult.

I would like to express my greatest gratitude to our Department coordinator Professor A.N.S. Sarvani for her esteemed guidance, constant encouragement, useful critiques, suggestions throughout the project and providing assistance in keeping my progress on schedule.

I would like to thank our principal Dr. Marie Fernandes and the college for providing space and resources in order to build my project.

Finally, I wish to thank my parents for their support and encouragement throughout my project.

…….

Derek Hoogewerf (Roll No. 5221)

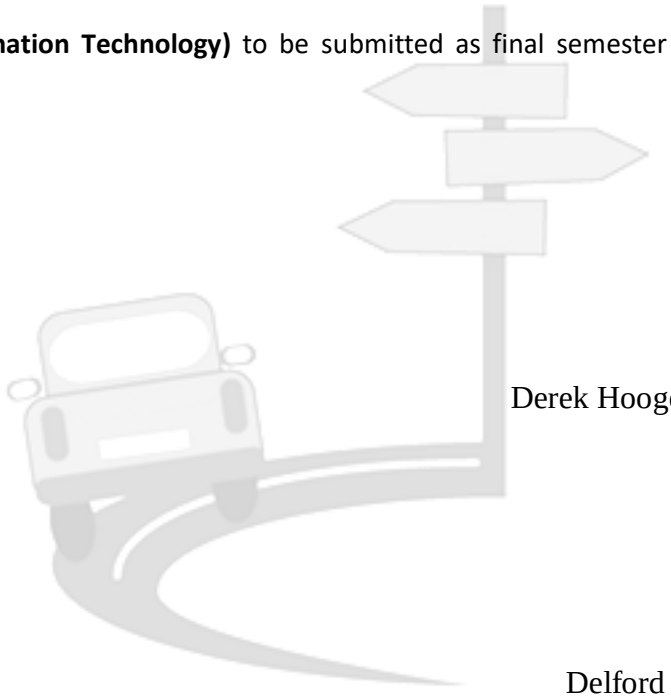
…….

Delford Lobo (Roll No. 5222)

DECLARATION

I hereby declare that the project entitled, "**Mum-Hai!**" done at **our college**, has not been in any case duplicated to submit to any other university for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

This Part 1 submission of the project is done in partial fulfillment of the requirements for the award of degree of **B. Sc.-(Information Technology)** to be submitted as final semester project as part of our curriculum.



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Derek Hoogewerf (Roll No. 5221)

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Delford Lobo (Roll No. 5222)

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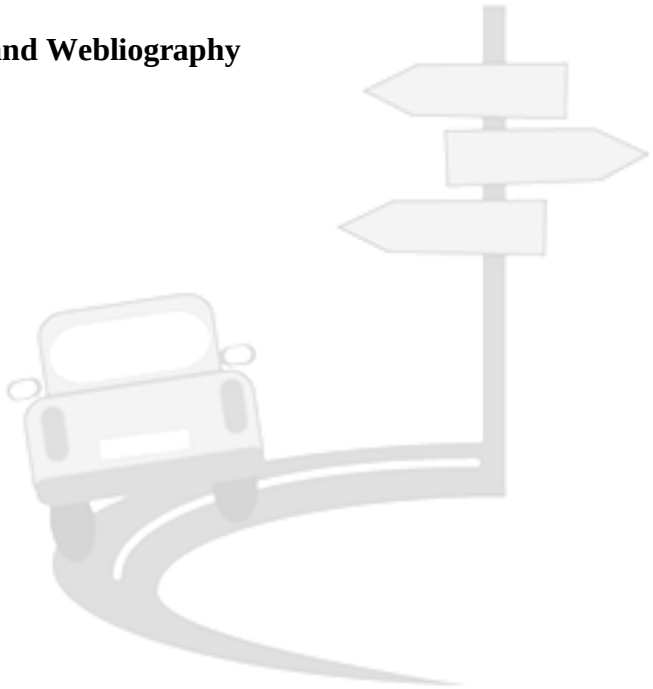

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Chapter 1
Introduction

1.1 Background

Tourism is travel for pleasure or business; also the theory and practice of touring, the business of attracting, accommodating, and entertaining tourists, and the business of operating tours. Tourism may be international or within the traveler's country. The World Tourism Organization defines tourism more generally, in terms which go "beyond the common perception of tourism as being limited to holiday activity only"; as people "traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure and not less than 24 hours, business and other purposes".

Tourism can be domestic or international, and international tourism has both incoming and outgoing implications on a country's balance of payments. Tourism suffered as a result of a strong economic slowdown of the late-2000s recession. In recent times, the general population view travel as a luxury and not a necessity. This project aims at providing both Mumbaikars and tourists alike an opportunity to enjoy the sites of the city with an authentic charm and native feel.

This project was sparked by our passion for travel and tourism, the vision to see an untapped market and the technical skills to build a better platform.

1.2 Objectives

Rank	Country	UNWTO Region [28]	International tourist arrivals (2018) [27]
1	France	Europe	89 million
2	Spain	Europe	83 million
3	United States	North America	80 million
4	China	Asia	63 million
5	Italy	Europe	62 million
6	Turkey	Europe	46 million
7	Mexico	North America	41 million
8	Germany	Europe	39 million
9	Thailand	Asia	38 million
10	United Kingdom	Europe	36 million

Figure 1.2.1: International Tourist Arrivals

As shown by the above figures, India, despite having a rich in history and culturally diverse, is not a frequently visited country in terms of foreign traffic. This can be attributed in part to the haphazard manner in which many of the local tourist agencies operate. Such uncertainty and unpreparedness may deter otherwise willing tourists from viewing India, or Mumbai specifically as a viable tourist destination. By avoiding these pitfalls and achieving the following objectives this project aims to create an application for visitors of the city:

- Make it easy and streamlined for a tourist to plan and organize their activities at a city
- Provide a customizable experience that can be tailored to the user's preference

1.3 Purpose & Scope

1.3.1 Purpose

The major driving factor behind the purpose of this project at its heart is a passion for travelling, exploring and discovering new places. More often than not for those who are passionate about travel, the complexity of planning and organizing a trip proves to be a major hurdle preventing one from visiting places that are a little off the norm and experiencing their true authenticity.

It is often difficult for an ordinary person to co-ordinate the various facets of planning a vacation or a visit on their own across several different platforms and channels. Through this project, they would be better equipped to take control of their itinerary in their own hands at a micro level and choose for themselves how they would like to experience their destination.

By bringing attention at a grassroots level to the various individual sites and attractions of a region, it would also serve to boost the livelihood of local tourist service providers who would likely be contracted to serve as tour guides or drivers for the influx of tourists. Thereby promoting both the cultural and economic aspects of a specific region.

1.3.2 Scope

This project will provide a common platform on which a traveler can customize and exert greater control over the individual components of their trip.

Allow the user to view the different available sites and attractions available in the region based on searching and filtering parameters.

- From these they may pick and choose the sites that appeal the most to them so as to create a package that is suited specifically to each customer.

Offer pre-made tour packages to the user

- For users that are unable to decide from a vast selection of sites, this can show them the most popular options at a glance.

Allow the user to leave ratings and reviews on the tour service providers (guides and drivers) as well as the site they have visited

- This allows for other users to have a more correct expectation when visiting a new site.

Provides common conveniences such as customizing the mode/type of transportation, requesting for a guide fluent in specific languages and providing a currency converter.

- These features would especially prove useful to those travelling from different regions where language, culture or currency can prove to be a barrier.

The scope of the project may also be expanded in the future to include features that offer more convenience and better commercialization such as:

- Discounts and loyalty programs
- Recommendations based on the user's preferences
- Direct connections with social media for ease of sharing and communication etc.
- The geographical region covered by this project may also be expanded to cover other areas

Chapter 2

System Analysis

2.1 Existing system

As outlined in the prior sections, despite its rich and numerous qualities as a tourist destination, India does not see as much incoming international tourists as its peers. Even among the domestic travelers, many find it a hassle to manage and plan the various different facets of their travel and stay. This can be in part, attributed to the fact that many of the providers of essential tourist services such as stay, local transport and guide services usually conduct their business independently of each other, making it difficult to juggle various dates prices and locations without a common platform.

Most large scale tourist organizations offer a wider selection of areas to visit. However, there are a few successful examples based on the same concept of offering only a limited geographic region, but exploring its different facets in depth.

Amsterdam City Tours®

Amsterdam City Tours® is a Dutch incoming tour operator & DMC that provides sightseeing tours and other type of vacation oriented “experiences”.

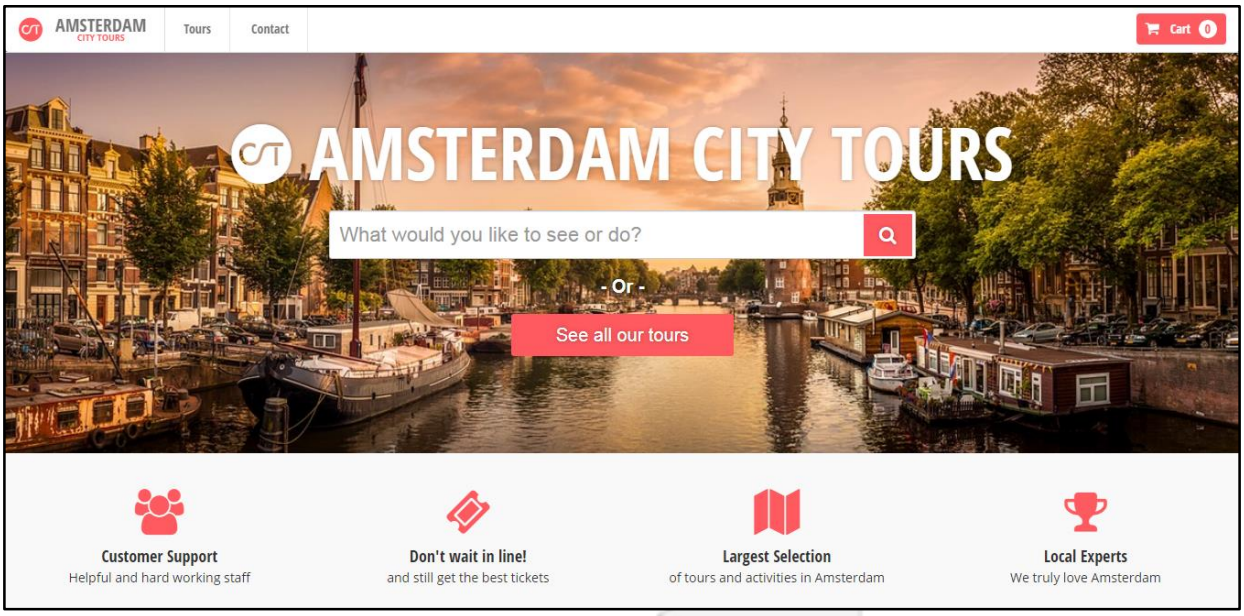


Figure 2.1.1: Amsterdam City Tours® Homepage

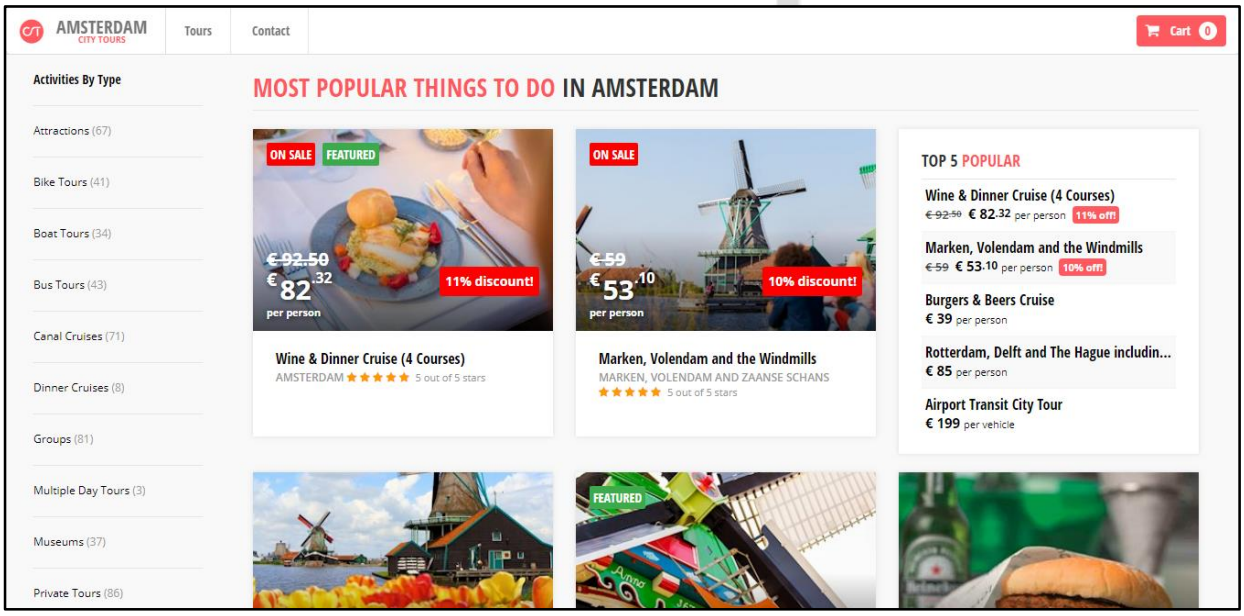


Figure 2.1.2: Amsterdam City Tours® Popular Suggestions

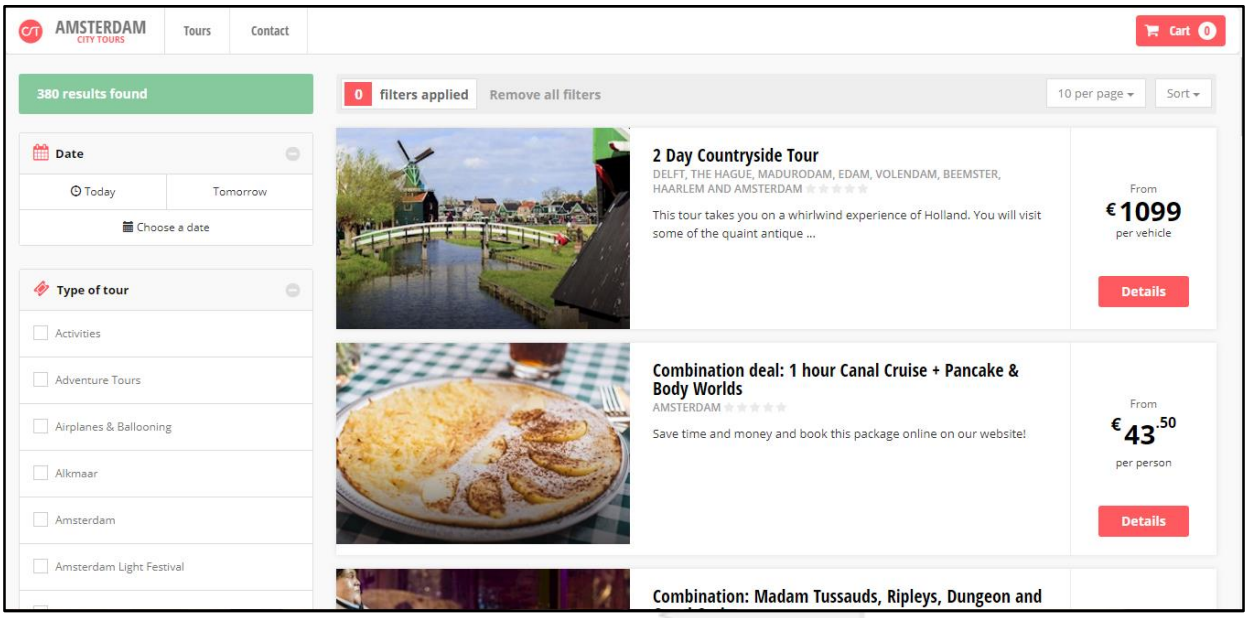


Figure 2.1.3: Amsterdam City Tours® Search & Filter System

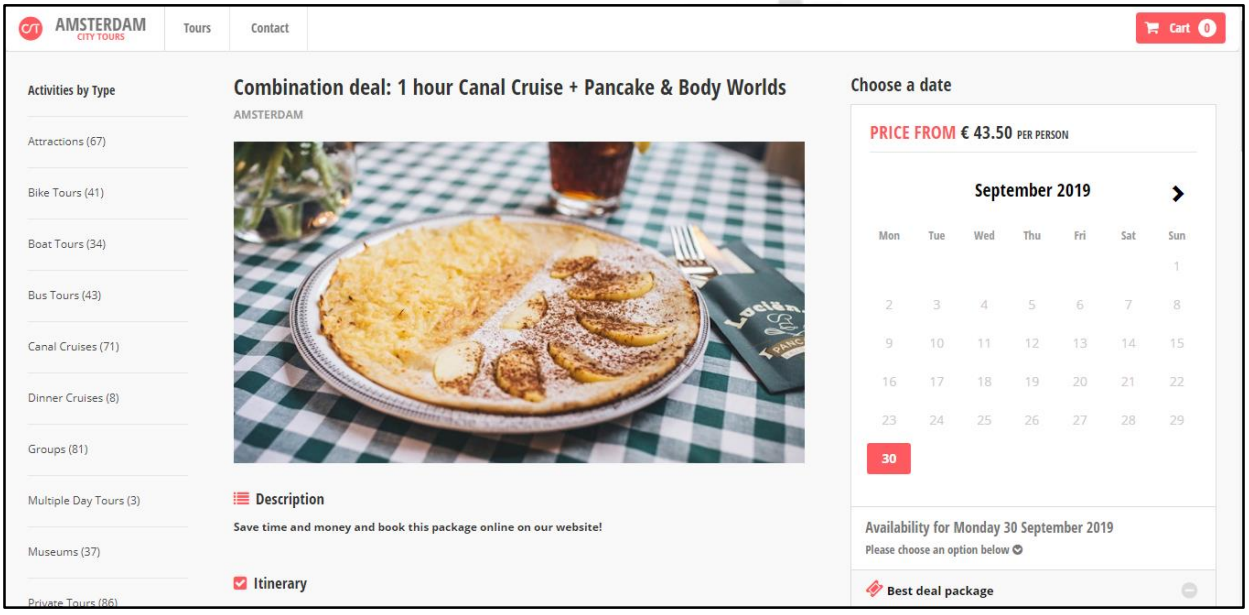


Figure 2.1.4: Amsterdam City Tours® View of an Individual Attraction

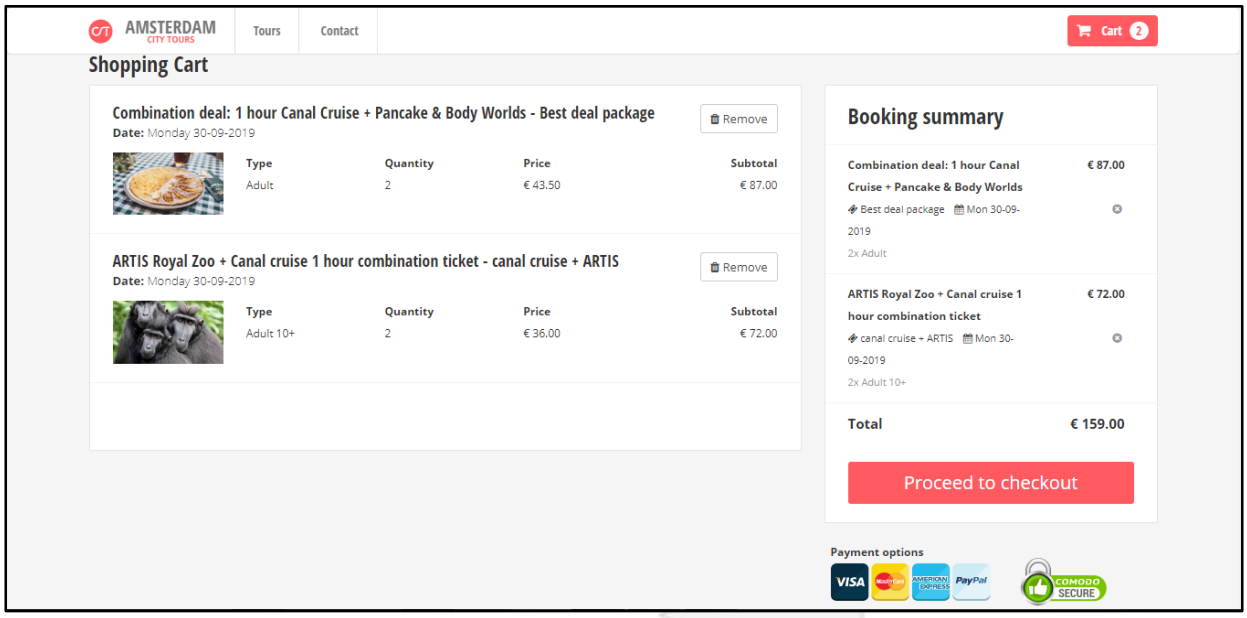


Figure 2.1.5: Amsterdam City Tours® Cart

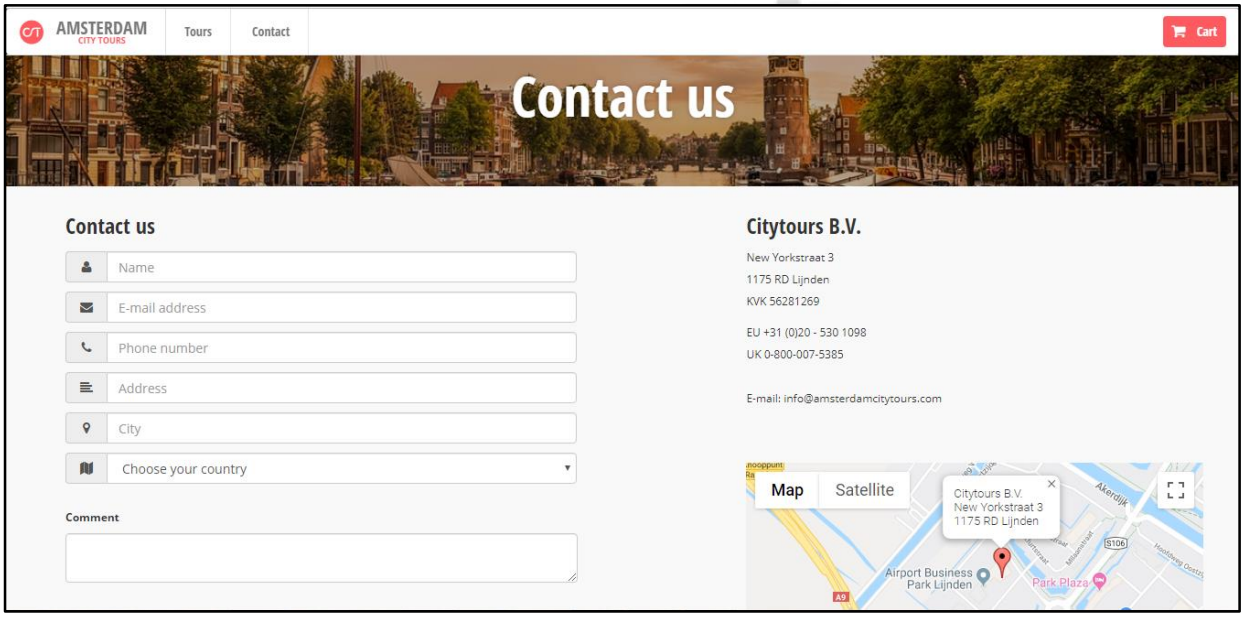


Figure: 2.1.6: Amsterdam City Tours® Contact Page

The London Pass®

The London Pass® is another example of this concept. It provides its users with access to 80+ attractions in the city, including iconic sights and hidden gems. The users are free to pick and choose from these to create their own customizable experience

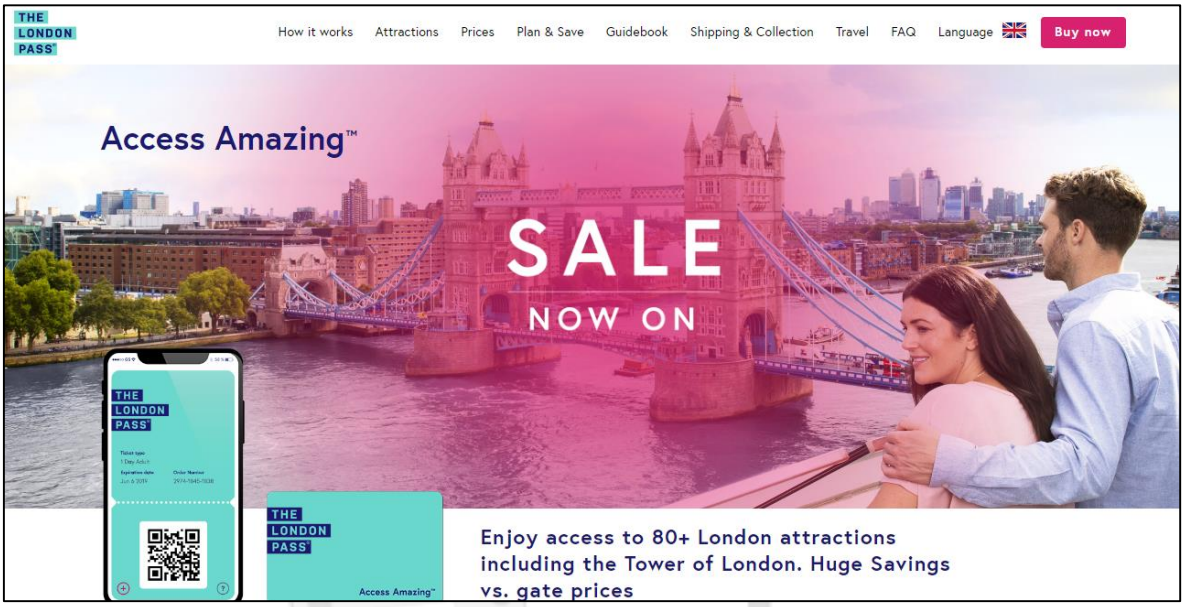


Figure 2.1.7: The London Pass® Homepage

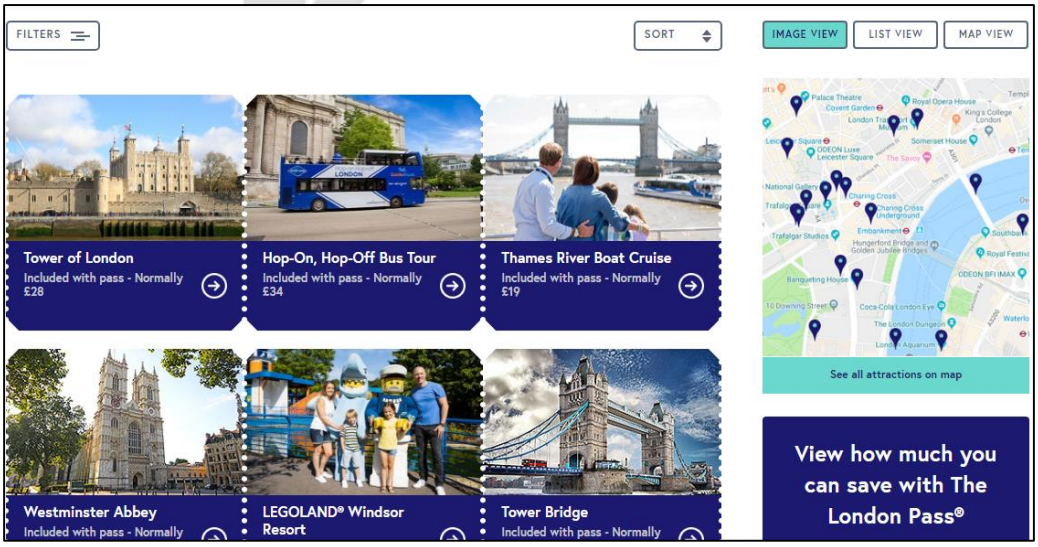


Figure 2.1.8: The London Pass® Filter & Search

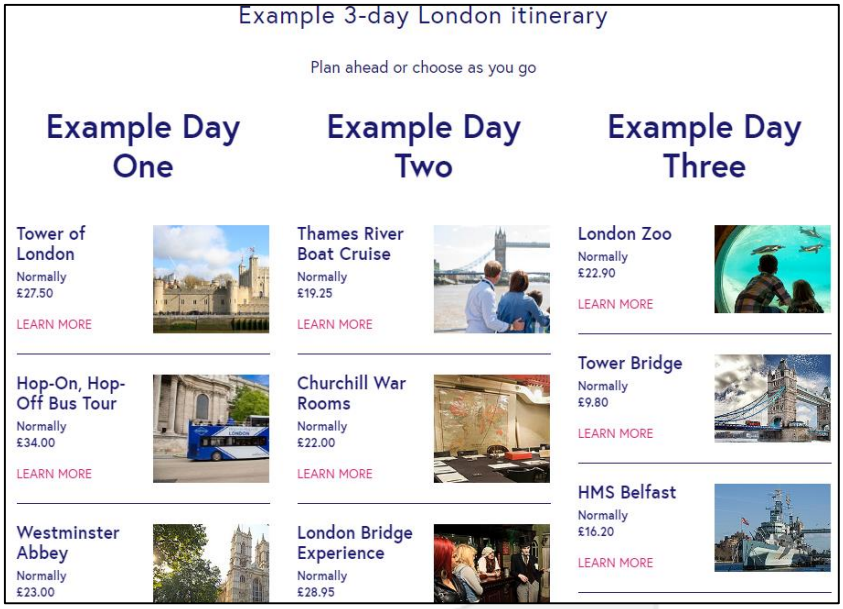


Figure 2.1.9: The London Pass® Pre-made Itinerary

Figure 2.1.10: The London Pass® Contact Page

2.2 Proposed System

The proposed system will attempt to remedy the problems outlined in previous sections. This would prove to be a boon, both to larger chains of hotels and such as well as on an individual level to the tour service providers such as guides and drivers.

- The system would simplify the entire task of planning and managing the entire itinerary of the visitor's trip. It will allow them to plan at a glance their entire trip from a single platform.
- The proposed system provides most of the features in the above cited examples thus bringing a different type of tourism (where the tourist has more freedom and control) to the domestic market.
- The proposed system also contains a few distinct additions to distinguish itself from its peers. In a highly diverse and multilingual city like Mumbai, it may not always be feasible to expect a tourist to be able to manage their own travel or even be able to communicate in the local language.
    - The inclusion of a driver, will remove the burden of planning the travel from the end user.
    - While having a tour guide will help enhance their understanding and enhance the experience of their visit (even more so if the sites chosen are historical or culturally significant in nature).

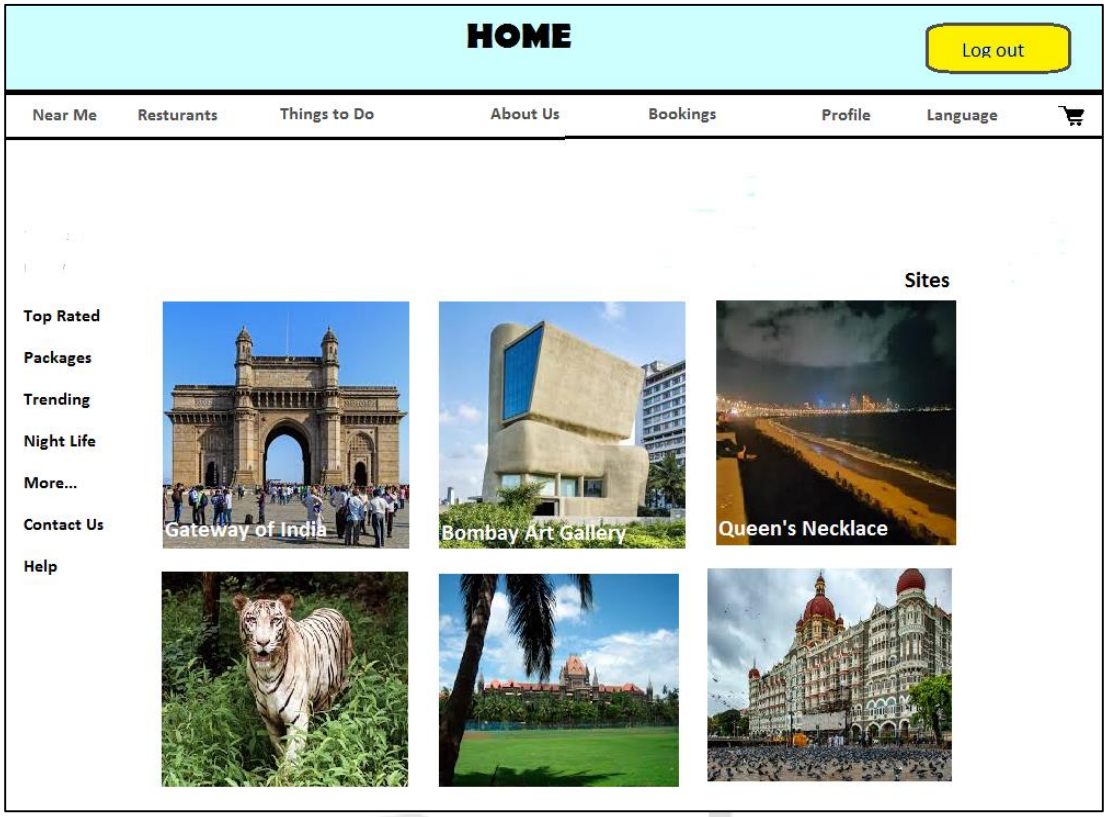


Figure 2.2.1: Proposed System Homepage

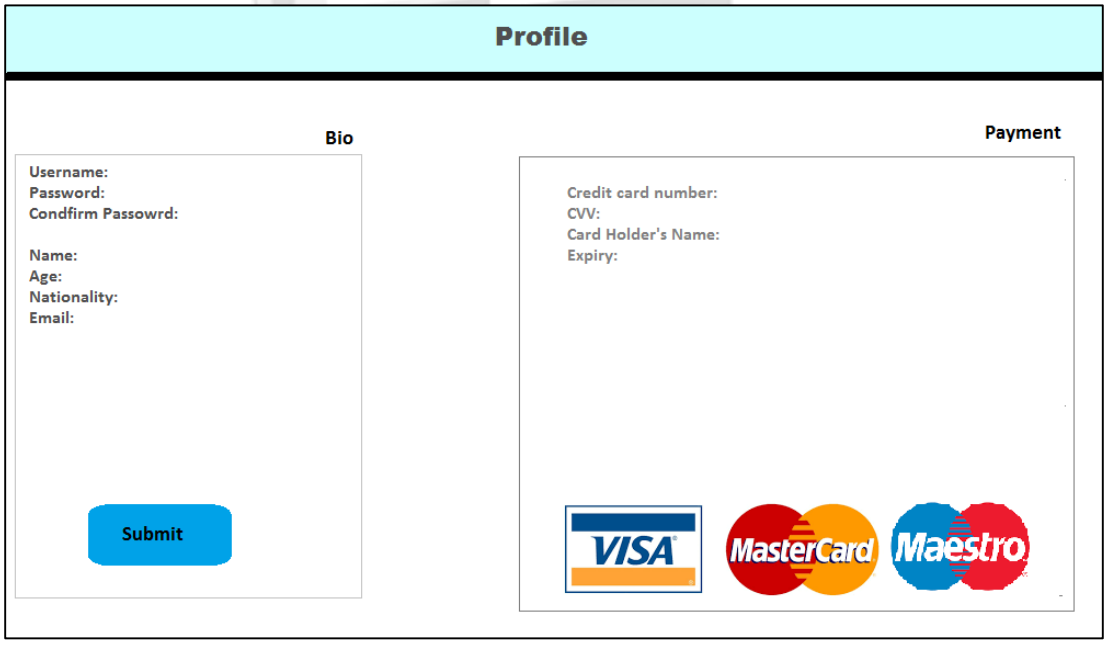


Figure 2.2.2: Proposed System Profile Page/Payment Details

2.3 Requirement Analysis

The method used to collect data for requirement gathering was through surveys.

Questionnaire Link:

https://docs.google.com/forms/d/e/1FAIpQLSc8JUOxpxUbycnsmD9_7me9rfQeZ2HIWJRpeeUJIzbre_3P_Q/viewform?usp=sf_link

Organization Questions:

- Do you currently employ any software in your business?
- If yes
    - What specific features of the software do you use most often/find most useful
    - What are the in areas in which the software is lacking?
    - What sort of improvements can be made in the software?
    - Rank the features of the software in order of importance
- How many days does a tourist visit the city for on average?
- Do the majority of your customers come from domestic or foreign locations?
- Do you earn a proportionately greater share of your revenue from domestic or foreign customers?
- Do customers prefer to be able to select the specifics of their own itineraries or do they prefer to have a pre made itinerary?
- Do you have any sort of tie-ups with tour drivers/guides?

Employee Questions:

- Would you be open to receiving customers through an application/website?
- On a scale of 1-10, how proficient are you with modern technology?
- Would be open to having to cater to one customer for the period of their entire stay?
- Are you able to speak multiple languages?
    - If so, how many?

User Questions:

- Would you be interested in a software that allows you to pick from a range of tourist locations to visit within a city?
- What types of tourist sites would you like to have included? How should these be segregated?
- What types of search and filter options would you find useful?
- What are the different modes of transportation that you would like to avail of?
- Would you prefer to have a specific driver/guide assigned to you for the duration of your stay?
- Would you like to have suggestions prompted to you based on your preferences during a trip? (Such as nearby restaurants, locations, events, local theatre, drama etc.)
- Would you prefer to have pre-built tour packages or would you prefer to customize the packages?
- What languages do you speak?
- How often do you travel in a year?
- What is the average budget around which you plan a trip?
- Are costs or conveniences a greater concern when it comes to vacations?

- Are discounts/promotions/offers a major attraction to you in travel based websites?
- On a scale of 1-10, how important would you say the look and feel of a website is to you?

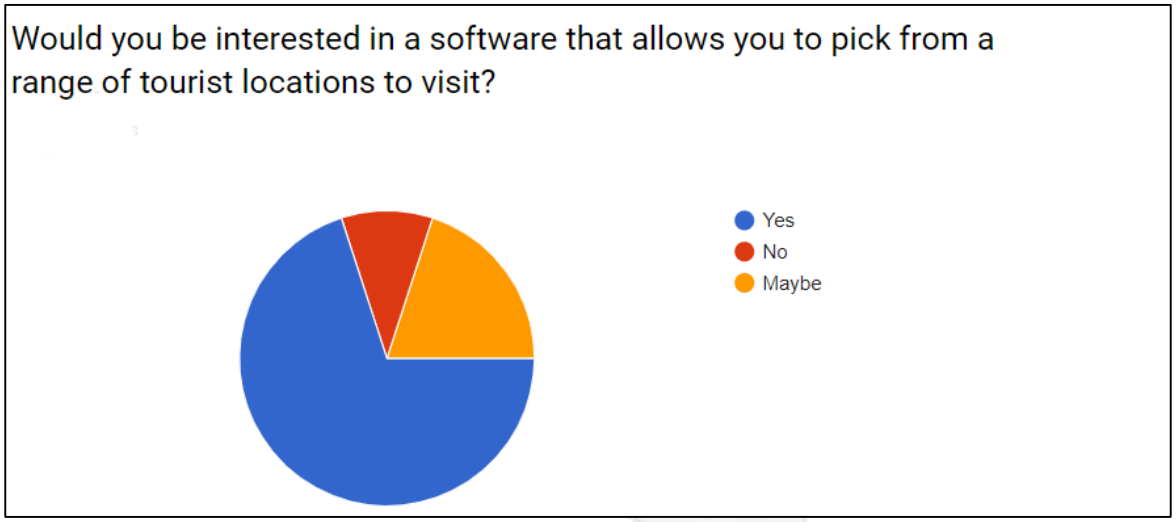


Figure 2.3.1: Requirement Analysis

Figure 2.3.2: Requirement Analysis

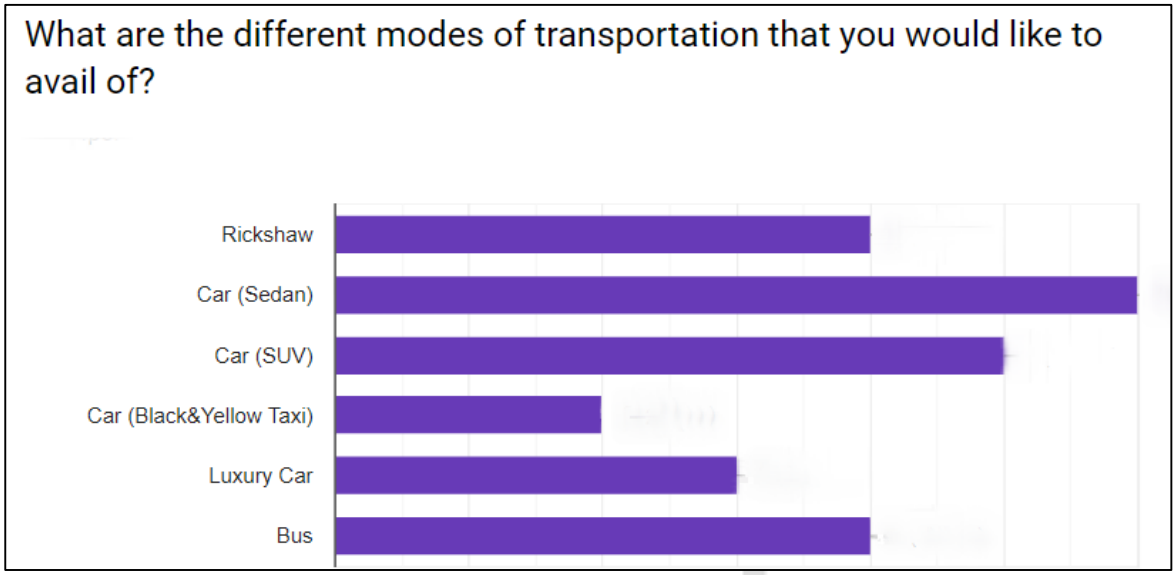


Figure 2.3.3: Requirement Analysis

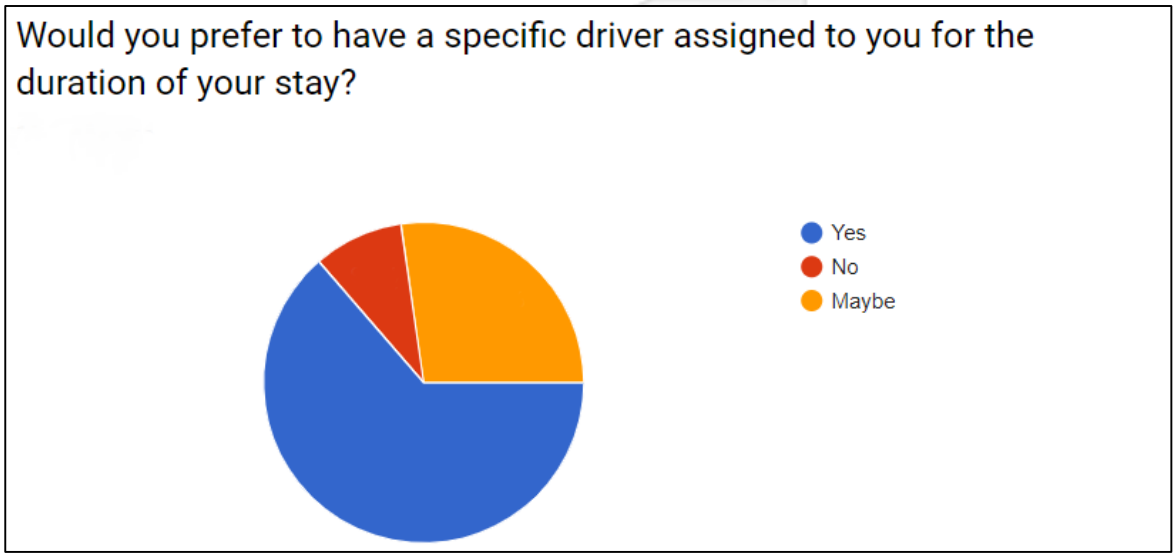


Figure 2.3.4: Requirement Analysis

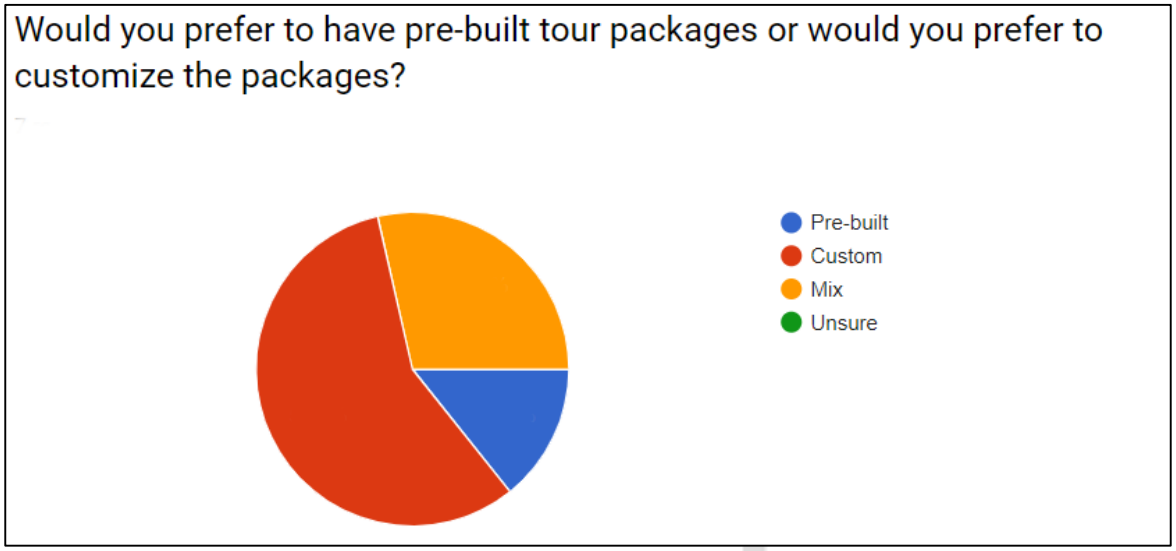


Figure 2.3.5: Requirement Analysis

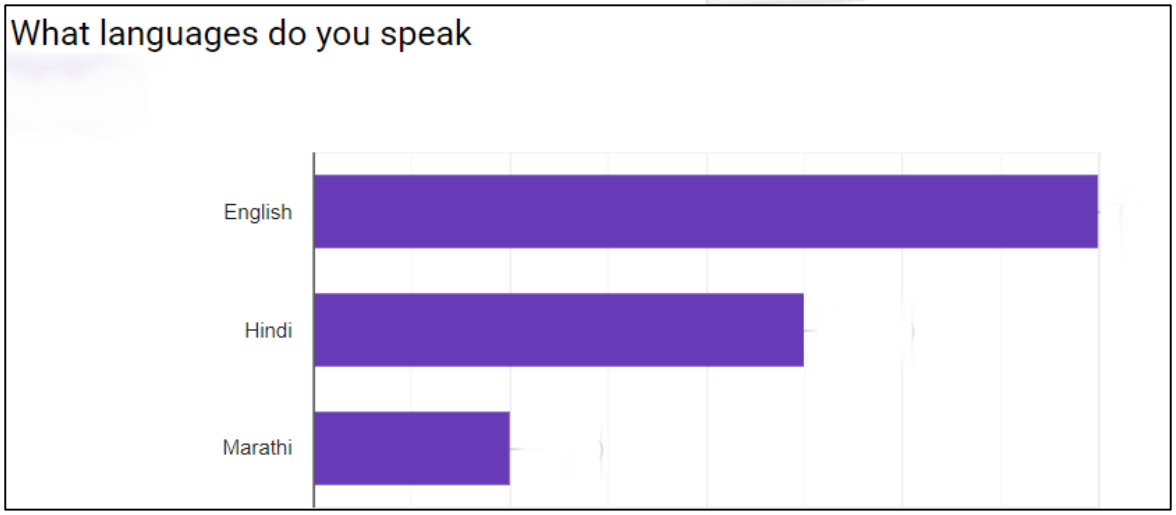


Figure 2.3.6: Requirement Analysis

Questions	Answers
Organization Questions	
Do you currently employ any software in your business?	Yes
What sort of improvements can be made in the software?	Customization

Do the majority of your customers come from domestic or foreign locations?	Domestic
Do you earn a proportionately greater share of your revenue from domestic or foreign customers?	Domestic
Employee Questions	
Would you be open to receiving customers through an application/website?	Yes
On a scale of 1-10, how proficient are you with modern technology?	6
Would be open to having to cater to one customer for the period of their entire stay?	Yes, if it is a short stay
Are you able to speak multiple languages?	Yes, 2-3
User Questions	
Would you be interested in a software that allows you to pick from a range of locations to visit?	Yes
What types of tourist sites would you like to have included?	Historical, Cultural, Natural
What are the modes of transportio that you would like to avail of?	A/C Taxis, SUVs
Would you prefer to have a single driver/guide assigned to you for the duration of your stay?	Depends/Unsure
Would you like to have suggestions prompted to you based on your preferences during a trip?	Yes, but sparingly
Are discounts/promotions/offers a major attraction to you in travel based websites?	Yes
What languages do you speak?	English, Hindi
How often do you travel in a year?	2
On a scale of 1-10, how important would you say the look and feel of a website is to you?	7

Table 2.3.1

2.4 Hardware Requirements

Developer Side

- RAM : 256 MB (Minimum)
- Hard Disk : 1GB (Minimum)
- Processor Speed : 1Ghz or higher
- USB Port
- LAN/Network Cable for Internet Connection
- Network Card
- Monitor with at least 640x480 resolution

User Side

- RAM : 256 MB (Minimum)
- Hard Disk : 1GB (Minimum)
- Processor Speed : 1Ghz or higher
- USB Port
- LAN/Network Cable for Internet Connection
- Network Card
- Monitor with at least 640x480 resolution

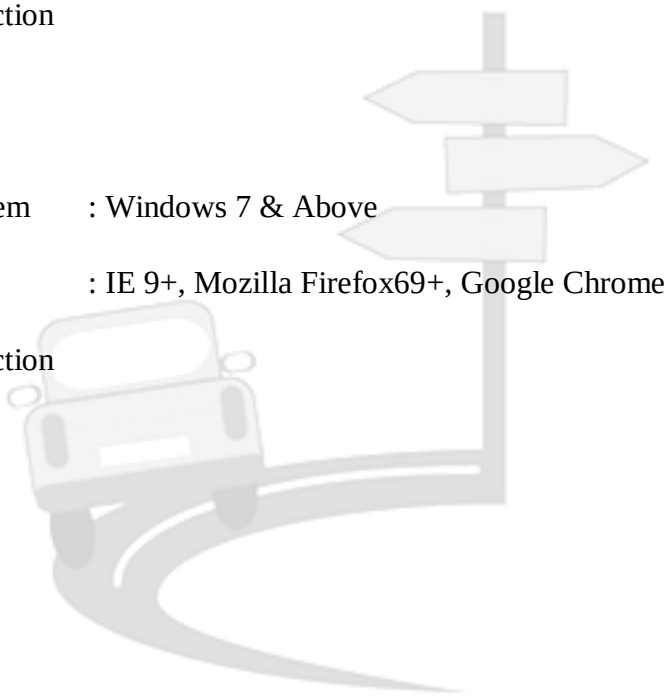
2.5 Software Requirements

Developer Side

- Operating System : Windows 7 & Above
- Browser : IE 9+, Mozilla Firefox69+, Google Chrome 55+, Safari 9.1+
- Documentation : Microsoft Word 2007
- Diagrams/Charts : Star UML, Smart Draw, Lucid Charts
- Internet Connection

User Side

- Operating System : Windows 7 & Above
- Browser : IE 9+, Mozilla Firefox69+, Google Chrome 55+, Safari 9.1+
- Internet Connection



2.6 Justification of Technology

I. Frontend Technology

Hyper Text Markup Language (HTML)

Benefits of HTML:

HTML is supported by all browsers

Almost all the browsers around the globe are support HTML. So there is no need to worry about the website written in HTML for the browser support as the website would easily show up in all the browsers if the program keeps in mind to optimize the website for the different browsers. HTML provides an easy way to optimize the website in HTML according to browsers to the web developers.

HTML is the search engine friendly

HTML is one of the most search engines friendly languages in comparison to all the programming languages available in the market (Search Engine friendly means delivering users quality websites with relevant information when searched for a particular one). It is quite easy to create SEO compliant websites using HTML. HTML websites are easier to read and accessed by web crawlers and hence reduces parsing time and the page load time of the website thus improving its performance.

HTML can integrate easily with other languages

HTML can be easily integrated with multiple languages and does not create any issues. For example in Javascript, Php, node.js, CSS and many more, one can write the code of these languages between the HTML and it mixes with them very easily.

Cascading Style Sheets (CSS)

Benefits of CSS:

CSS saves time

One of the primary advantages of CSS is that it allows developers to separate content from its presentation layer. CSS changes the traditional method of setting style and layout on each individual web page by allowing CSS designers to use a single file to control the style and layout of multiple web pages in the same website. The bigger the website, the more time CSS saves. Also Style Sheets reduces the risks associated with maintenance of large websites.

Pages load faster

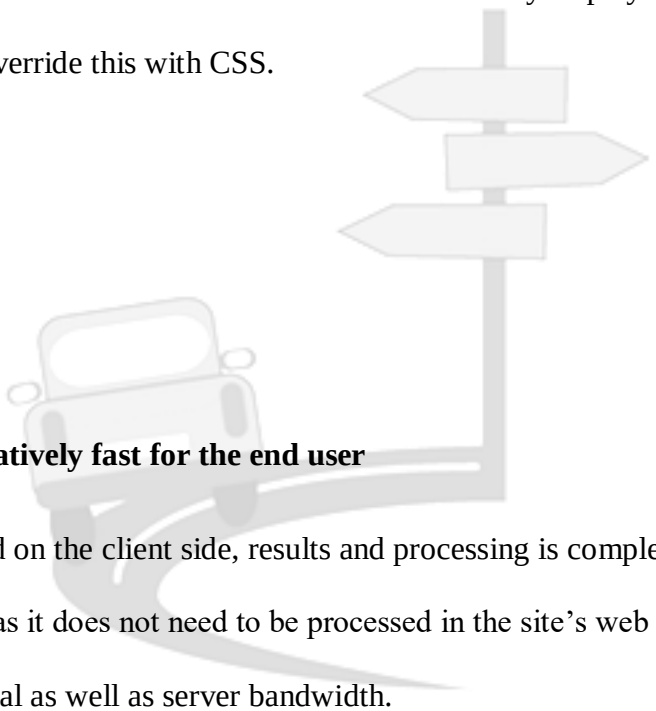
The ability to edit any number of HTML pages at one time by editing a single Style Sheet file will reduces the file size and bandwidth usage. Since Style Sheet is cached in the browser cache after the first request and can be reused for every page on the same website, it doesn`t have to be downloaded with each web page request. That means the Style Sheet classes are not loaded from the server, each time different pages of same website sharing the same CSS file. Moreover, when CSS separates your website`s content from HTML page, the HTML file size is smaller and the pages will load faster.

Search Engine Friendly

Change the appearance of an entire website by editing one style sheet ensures that your web pages have consistent styling throughout your website. So Search engines will no longer have to struggle to read your website content. The advantage of improved Search Engine friendly accessibility of content will allow a large number of users to locate you on the Internet. Also less code and more content will play a major role in Search Engine Optimization (SEO).

Superior styles to HTML

CSS was built for styles. HTML was not. While browsers usually display HTML elements in a certain way, you can override this with CSS.



JavaScript (JS)

Benefits of JS:

JavaScript is comparatively fast for the end user

As the code is executed on the client side, results and processing is completed almost instantly depending on the task as it does not need to be processed in the site's web server and sent back to the user consuming local as well as server bandwidth.

Extended functionality to web pages

Third party add-ons enable JavaScript developers to write snippets of JavaScript which can execute on desired web pages to extend its functionality. If you use a website and require a certain feature to be included, you can write it by yourself and use an add-on to implement it on the web page.

No compilation needed

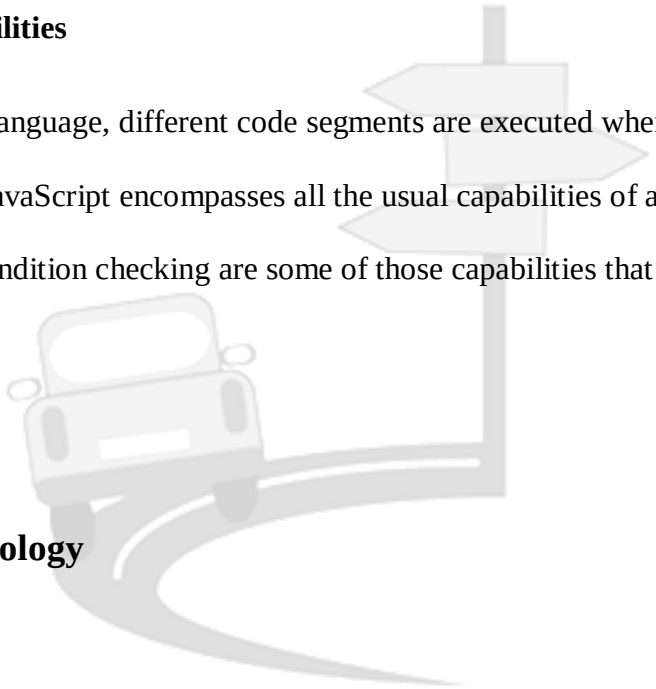
JavaScript does not require compilation process so no compiler is needed. The browser interprets JavaScript as it HTML tags.

Platform independent

Any JavaScript-enabled browser can understand and interpret JavaScript code. Any JavaScript code can be executed on different types of hardware a JavaScript program written for.

Programming Capabilities

Being an event-based language, different code segments are executed whenever a certain event occurs in JavaScript. JavaScript encompasses all the usual capabilities of a procedural language. Branching, looping, condition checking are some of those capabilities that can be executed on a web page.



II. Backend Technology

Python

Benefits of Python:

Presence of Third Party Modules:

The Python Package Index (PyPI) contains numerous third-party modules that make Python capable of interacting with most of the other languages and platforms.

Extensive Support Libraries:

Python provides a large standard library which includes areas like internet protocols, string operations, web services tools and operating system interfaces. Many high use programming tasks have already been scripted into the standard library which reduces length of code to be written significantly.

Open Source and Community Development:

Python language is developed under an OSI-approved open source license, which makes it free to use and distribute, including for commercial purposes.

User-friendly Data Structures:

Python has built-in list and dictionary data structures which can be used to construct fast runtime data structures. Further, Python also provides the option of dynamic high-level data typing which reduces the length of support code that is needed.

Productivity and Speed:

Python has clean object-oriented design, provides enhanced process control capabilities, and possesses strong integration and text processing capabilities and its own unit testing framework, all of which contribute to the increase in its speed and productivity. Python is considered a viable option for building complex multi-protocol network applications.

III. Database Technology

Structured Query Language (SQL)

Interactive language

SQL is a domain language used to communicate with the database and to receive answers to the complex questions in seconds.

Well defined standards

SQL databases use standards that have been established by ISO and ANSI.

No coding needed

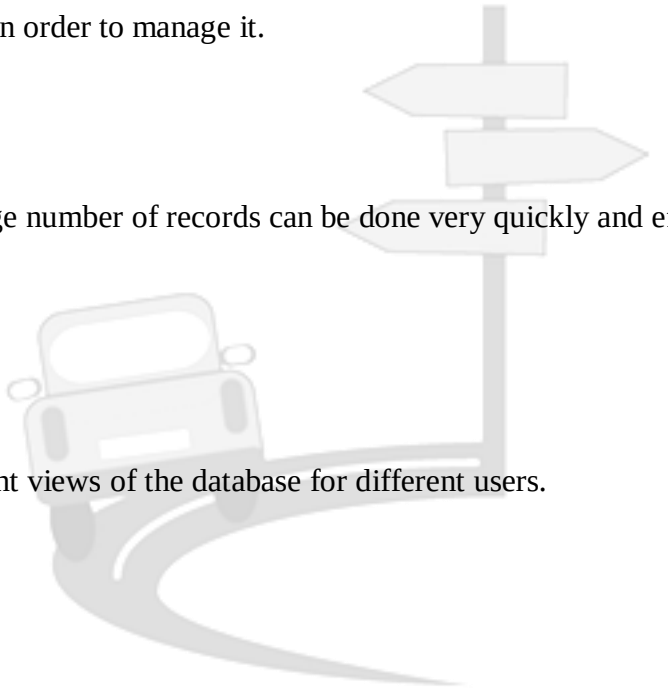
Management of a Database is rather straight forward in SQL. A significant amount of code does not have to be written in order to manage it.

High speed

Retrieval of even a large number of records can be done very quickly and efficiently using the SQL queries.

Multiple data view

SQL allows for different views of the database for different users.



Chapter 3

System Design

3.1 Module Division

There are three major modules in this project each of which contains various sub-modules:

Admin Module

Add/Delete/Ban User

- The admin can manually add a new user, delete an existing one or ban the them

Add/Delete/Ban Employee

- The admin can manually add a new employee, delete an existing one or ban the them

Add/Delete/Edit Site

- The admin can manually add a new site/attraction or delete an existing one. Additionally, they may also edit information about the site in order to be able to update any changes such as increase in cost, change in timings etc.

Edit/Delete Booking Changes

- The admin may allow or disallow changes to the bookings if the user requests for changes after placing the booking or delete the booking if needed.

Delete/Flag a review

- The admin may flag a review as misleading if it contains slanderous/defamatory/obscene/vulgar contents or even delete it if it is deemed as spam.

Approve/Dismiss a Report

- The admin can review a report in order to decide whether it should be approved or dismissed. Spam/Unnecessary Reports may be deleted.

Customer Module

Login/Sign Up

- New users must first sign up to register themselves. Registered users may login into their ID using a username and password given at the time of registration.

Edit Profile Details

- The customer can edit the information on their profile.

Add/Edit Payment Details

- The customer can add payment methods and details to save it to their profile or edit information about existing payment methods

Make a Booking

- This is a large module that contains 3 sub processes
    - Search
        - The customer can use the search and filtering options to find their desired site
    - Place a Booking

        - The customer can place their booking and must enter payment details to finalize it
    - Execute the Booking
        - The customer goes on the trip. This process involves other actors in the system as well (such as different employees)

Submit a Review

- The customer can submit a review about the site as well as the employees. This also includes a rating from 1-5 Stars.

Submit a Report

- The customer can submit a report against the site or the employee under one of the given categories

Employee Module (Driver & Guide)

Login

- The employee can login into their unique ID created by the admin

Edit Profile

- The employee can edit certain information on their profile.

Confirm/Decline Booking

- This is a large module that contains 3 sub processes
    - View the Booking

        - The employee can view the details of the booking only. The personal information of the customer will not be visible.
    - Accept/Decline Booking
        - The employee can choose to accept or decline the booking
    - Execute the Booking
        - The employee (depending on the type of the employee) will have to pick up/drop off the customer from/to a specified location and at a given time. The actual drop off/pick off time will also be noted

Submit a Review

- The employee can submit a review about the customer based on their expected behavour. This also includes a rating from 1-5 Stars.

Submit a Report

- The customer can submit a report against the customer under one of the given categories

3.2 Data dictionary

A Data Dictionary, also known as a Data Definition Matrix, provides detailed information about the business data, such as standard definitions of data elements, their meanings, and allowable values. While a conceptual or logical Entity Relationship Diagram will focus on the high-level business concepts, a Data Dictionary will provide more detail about each attribute of a business concept.

A data dictionary provides a toll to allow one to communicate business stakeholder requirements in a way that is understandable by the technical team. This allows them to more easily design a relational database to meet those requirements. It helps avoid mishaps such as requiring information in a field that a stakeholder cannot be expected to provide or expecting the wrong type of information

Administrator:

Sr. no.	Field name	Data Type	Constraints	Description
1.	a_id	Varchar(10)	Primary key	Unique ID of the Admin User
2.	a_uname	Varchar(20)	Not Null	Username of the Admin User
3.	a_pass	Varchar(20)	Not Null	Password of the Admin User
4.	a_name	Varchar(50)	Not Null	Name of the Admin User
5.	a_email	Varchar(20)	Not Null	Email of the Admin User
6.	a_num	Varchar(20)	Not Null	Phone Number of the Admin User

Table 3.2.1

Customer:

Sr. no.	Field name	Data Type	Constraints	Description
1.	c_id	Varchar(10)	Primary key	Unique ID of the customer
2.	c_uname	Varchar(20)	Not Null	Username of the customer
3.	c_pass	Varchar(20)	Not Null	Password of the customer
4.	c_name	Varchar(50)	Not Nul	Name of the customer
5,	c_email	Varchar(20)	Not Null	Email ID of the customer
6.	c_num	Varchar(20)	Not Null	Phone Number of the customer
7.	c_language	Varchar(20)	Not Null	Preferred Language of the customer

8.	c_nationality	Varchar(20)	Not Null	Nationality of the customer
9.	c_dob	Date	Not Null	Date of Birth of the Customer
10.	c_gender	Char(1)	Not Null	Gender of the customer
11.	c_emg_con_name	Varchar(20)	Not Null	Name of the Emergency Contact
12.	c_emg_con_num	Varchar(20)	Not Null	Phone Number of the Emergency Contact
13.	c_status	Char(1)	Not Null	Status of the customer (Free/Booked/Payment Pending)

Table 3.2.2

Guide:

Sr. no.	Field name	Data Type	Constraints	Description
1.	g_id	Varchar(10)	Primary key	Unique ID of the Guide
2.	g_uname	Varchar(50)	Not Null	Username of the Guide
3.	g_pass	Varchar(20)	Not Null	Password of the Guide
4.	g_name	Varchar(20)	Not Null	Name of the Guide
5.	g_email	Varchar(20)	Not Null	Email ID of the guide
6.	g_num	Varchar(20)	Not Null	Phone Number of the guide
7.	g_lang	Varchar(20)	Not Null	Spoken Language of the Guide
8.	g_status	Char(1)	Not Null	Current Status (Available/Unavailable/Banned)
9.	g_rating	Float	Not Null	Rating of the guide

Table 3.2.3

Driver:

Sr. no.	Field name	Data Type	Constraints	Description
1.	d_id	Varchar(10)	Primary key	Unique ID of the driver
2.	d_uname	Varchar(20)	Not Null	Username of the driver
3.	d_pass	Varchar(20)	Not Null	Password of the driver
4.	d_name	Varchar(50)	Not Null	Name of the driver
5.	d_email	Varchar(20)	Not Null	Email of the driver
6.	d_num	Varchar(20)	Not Null	Phone Number of the driver
7.	d_lang	Varchar(20)	Not Null	Language of the driver
8.	d_status	Varchar(20)	Not Null	Current Status (Available/Unavailable/Banned)
9.	d_rating	Float	Not Null	Rating of the driver
10.	d_lic_no	Varchar(20)	Not Null	License Number of the Driver
11.	v_id	Varchar(20)	Not Null	Vehicle Number

Table 3.2.4

Sites

Sr. no.	Field name	Data Type	Constraints	Description
1.	s_id	Varchar(10)	Primary key	Unique ID of the Site
2.	s_name	Varchar(20)	Not Null	Name of the Site
3.	s_num	Varchar(20)	Not Null	Contact Number of the Site
4.	s_rating	Float	Not Null	Rating of the Site
5.	s_cat	Varchar(20)	Not Null	Type of Site
6.	s_price	Float	Not Null	Cost
7.	s_location	Varchar(20)	Not Null	Location of the Site
8.	s_otime	Time	Not Null	Opening Timing of the Site
9.	s_ctime	Time	Not Null	Closing timing of the Site

Table 3.2.5

Bookings

Sr. no.	Field name	Data Type	Constraints	Description
1.	b_id	Varchar(20)	Primary key	Unique ID of the Bill
2.	c_id	Varchar(20)	Foreign Key	Unique ID of the Customer
3.	d_id	Varchar(20)	Foreign Key	Unique ID of the Driver
4.	g_id	Varchar(20)	Foreign Key	Unique ID of the Guide
5.	s_id	Varchar(20)	Foreign Key	Unique ID of the Site
6.	b_date	Date	Not Null	Date of the Visit
7.	pick_time_sch	Time	Not Null	Scheduled Pick up Time
8.	pick_time_act	Time		Actual Pick up Time
9.	pick_loc	Varchar(20)	Not Null	Pick up Location
10.	drop_time_sch	Time	Not Null	Scheduled Drop off Time
11.	drop_time_act	Time		Actual Drop off Time
12.	drop_loc	Varchar(20)	Not Null	Drop off Location
13.	status	Char(1)	Not Null	Current Status of the booking (Pending/Confirmed/On-Going/Completed)

Table 3.2.6

Reviews

Sr. no.	Field name	Data Type	Constraints	Description
1.	rev_id	Varchar(20)	Primary key	Unique ID of the Review
2.	reviewer_type	Varchar(20)	Not Null	Type of Reviewing entity
3.	reviewer_id	Varchar(20)	Foreign key	ID of the reviewing entity
4.	reviewed_type	Varchar(20)	Not Null	Type of the Reviewed entity
5.	reviewed_id	Varchar(20)	Foreign key	ID of the reviewed entity
6.	rev_rating	Float	Not Null	Rating given to the reviewed entity
7.	rev_content	Varchar(20)	Not Null	Content of the review
8.	rev_valid	Char(1)	Not Null	Flag to check if the review is valid

Table 3.2.7

Report

Sr. no.	Field name	Data Type	Constraints	Description
1.	report_id	Varchar(10)	Primary key	Unique ID of the Report
2.	reporter_type	Varchar(20)	Not Null	Type of Reporting entity
3.	reporter_id	Varchar(20)	Foreign key	ID of the reporting entity
4.	reported_type	Varchar(20)	Not Null	Type of the Reported entity
5.	reported_id	Varchar(20)	Foreign key	ID of the reported entity
6.	rep_type	Float	Not Null	Tyep of report
7.	rep_content	Varchar(20)	Not Null	Location of the Site
8.	rep_valid	Char (1)	Not Null	Opening Timing of the Site

Table 3.2.8

3.3 ER Diagram

- Entity relationship consists of information required for each entity or data objects as well as it shows relationship among the objects also.
- It shows the structure of data in terms of tables.
- It consists of entities, attributes and relationship between entities.
- ER Diagram is a visual representation of data that describes how data is related to each other.
- ER models are mostly developed for designing relational database in terms of concept visualization and in terms of physical database design.

There are following types of relations that exist between the objects:

1. One-to-one relationship

   When one entity is related with another entity.

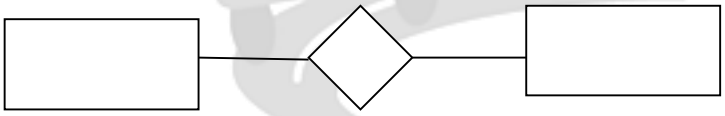


Diagram 3.3.1: One-to-One relationship

2. One-to-many relationship when one entity is related to more than one entity.

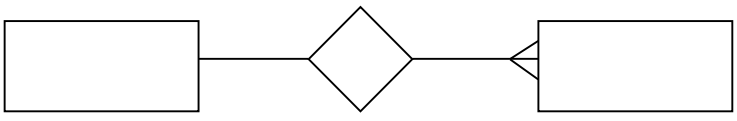


Diagram 3.3.2: One to many relationship

3. Many-to-many relationship when one entity is related to more than one entity as well as other entity also related with first entity using more than one entity.

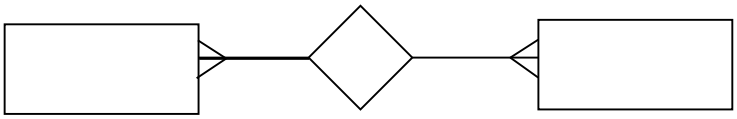


Diagram 3.3.3: Many-to-many relationship

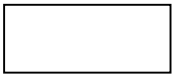
Components	Description
Entity 	An entity is an object or concept about which information has to be stored. Rectangles are used to represent entities. The dependent entity is called as weak entity. It does not have sufficient attributes to form a primary key. Double outlined rectangle represents weak entity.

Table 3.3.1: ER Components

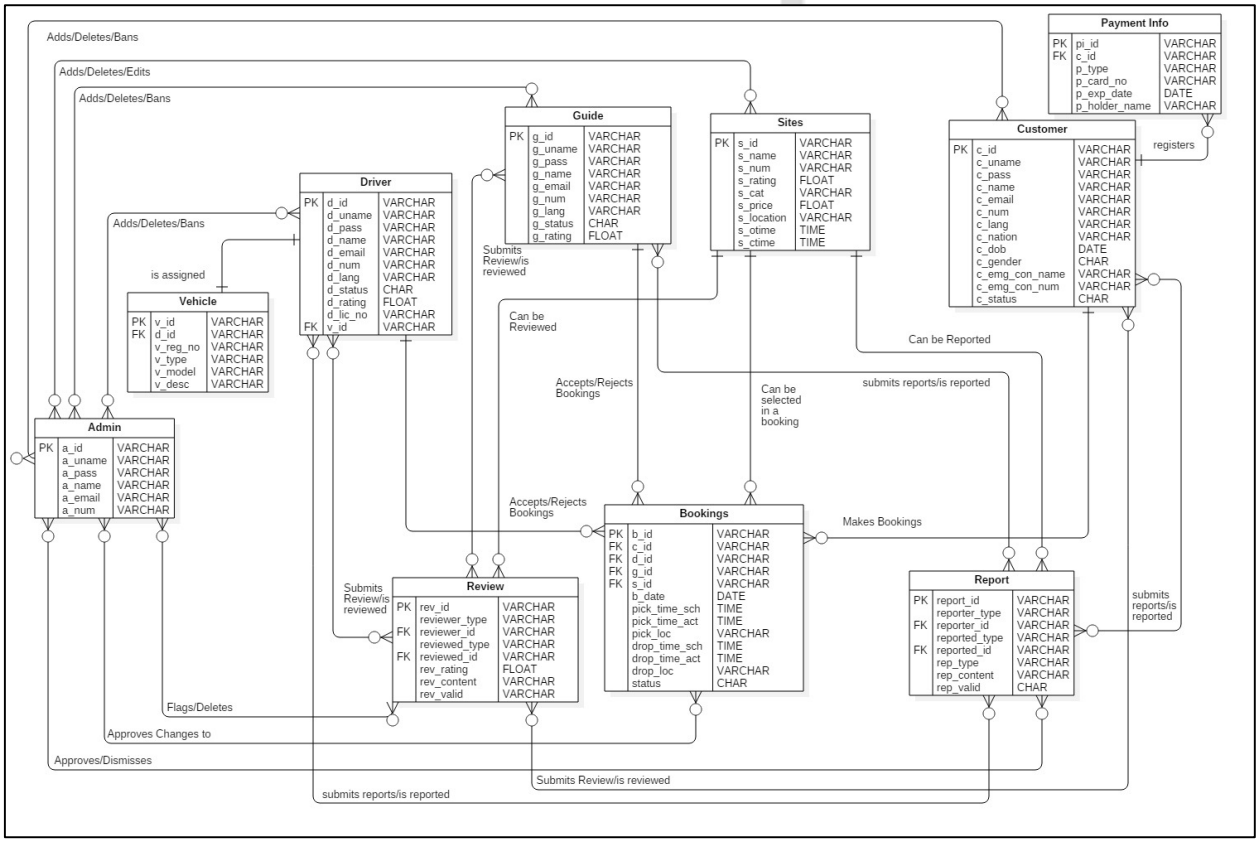


Diagram 3.3.4: ER Diagram

3.4 DFD/UML Diagram

3.4.1 DFD Diagrams

- A data flow diagram (DFD) is a graphical representative of the flow of data through an information system.
- DFD shows how information is input to and output from the system, sources and destinations of that information and where that information is stored.
- To design a DFD, we should know the process followed in the system, the input and output data.
- It shows the process that transform incoming data flows (input) into outgoing data flows (output).
- DFD is also known as bubble chart.
- Types of DFD symbols:

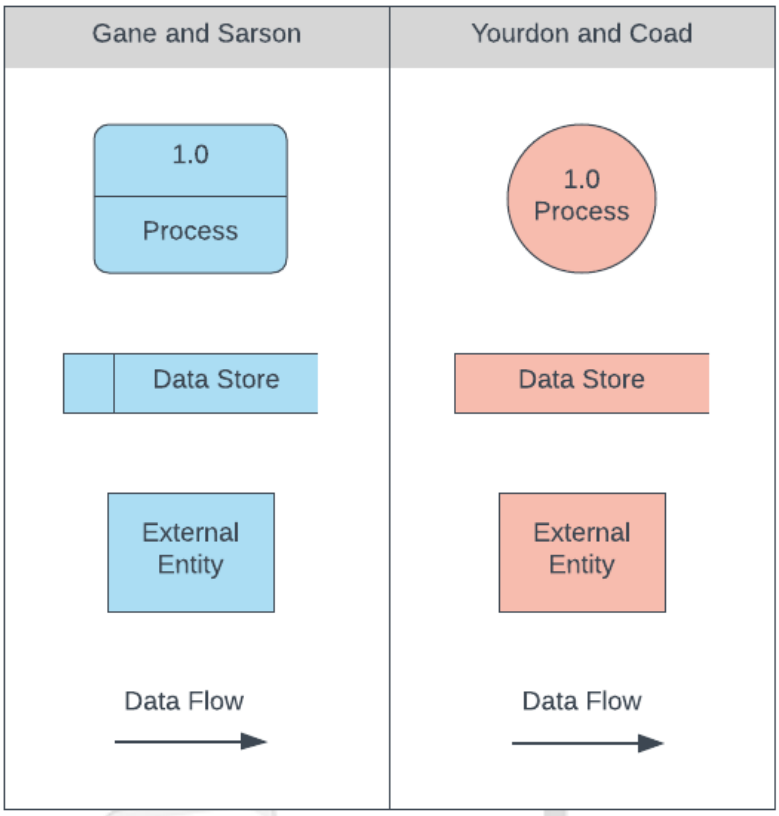


Figure 3.4.1.1: DFD Components in two different formats

Components	**Description**
Entity 	Entities are source and destination of information data. Entities are represented by rectangles with their respective name.
Process 	Activities and action taken on the data are represented by round edged rectangles or circle.
Data Storage 	Data Storage can be represented as a rectangle with one smaller side missing.
Data Flow 	Movement of data is shown by pointed arrows.

	Data movement is shown from the base of arrow as its source towards head of the arrow as destination.

Table 3.4.1.1: DFD Components

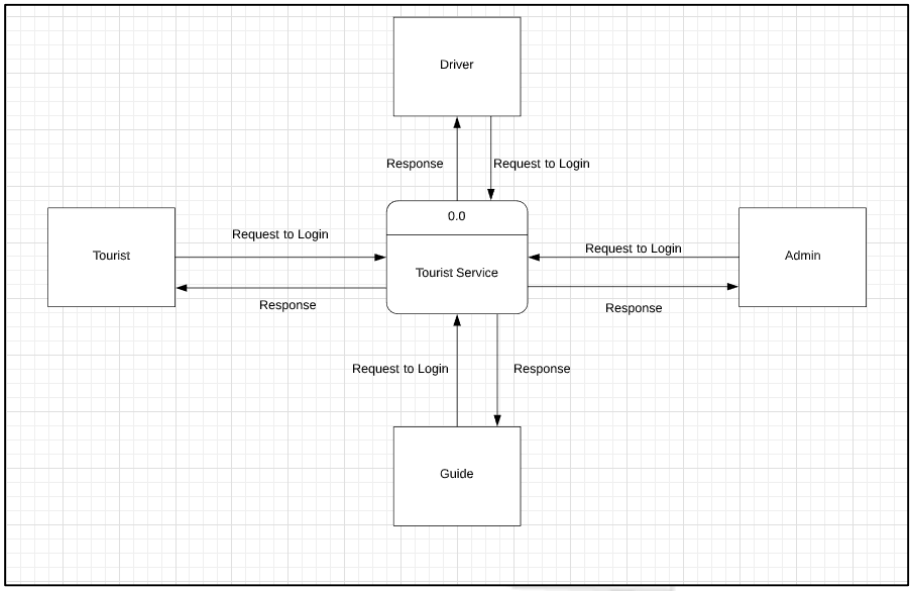


Figure 3.4.1.2: DFD Level 0

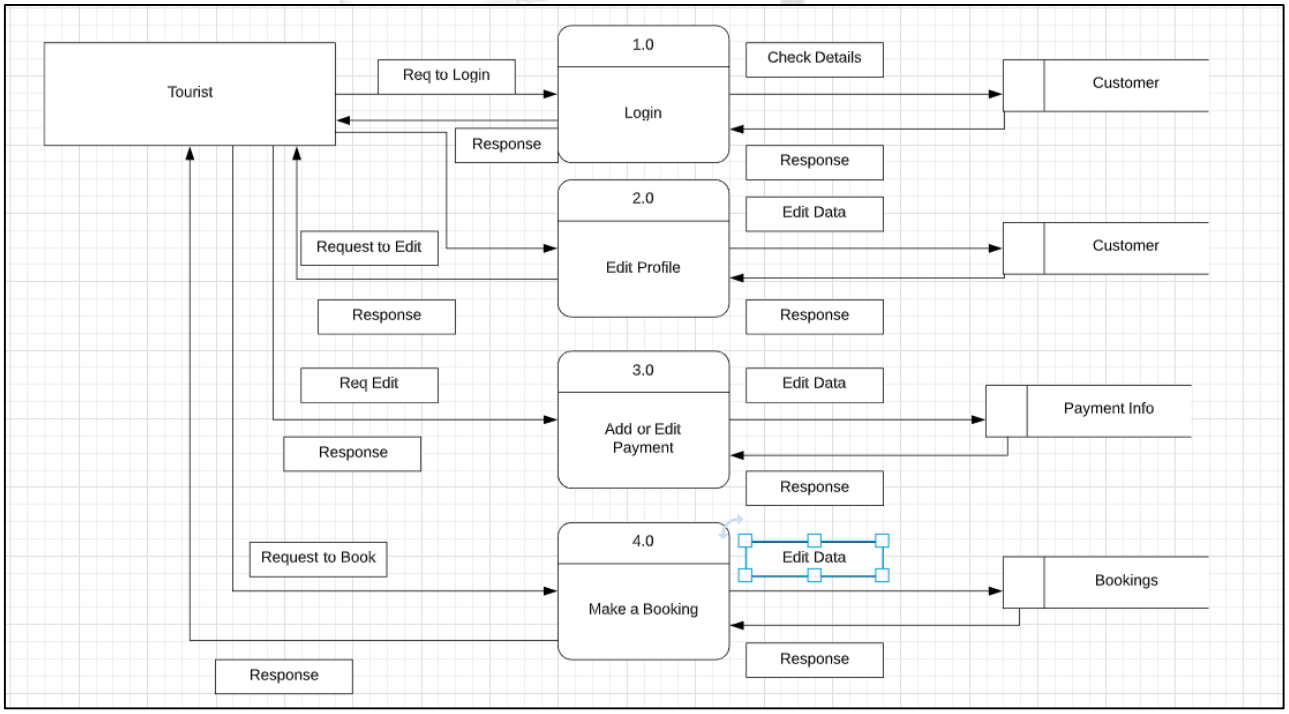


Figure 3.4.1.3: DFD Level 1

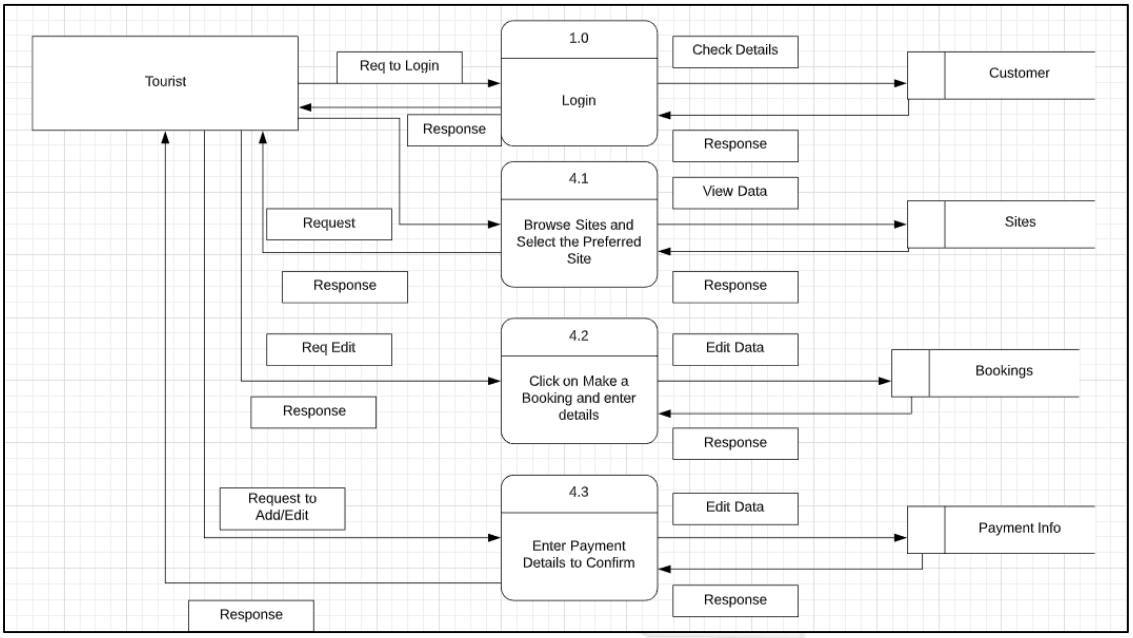


Figure 3.4.1.4: DFD Level 2

3.4.2 Use Case Diagram

- A use case tells a stylized story about how an end user (playing one of a number of possible roles) interacts with the system under a specific set of circumstances.
- The story may be narrative text, an outline of tasks or interaction, a template based descriptions or diagrammatic representation.
- A use case depicts the software or system from the end user's point of view.
- The first step in writing use case is to define the set of "actors" that will be involved in the story. An actor is anything that communicates with the system or product and that is external to the system itself.
- Once actors have been identified, use case can be developed.

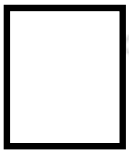
Components	**Description**
System 	System boundaries are represented using a rectangle containers that contain use case. Actors are placed outside system boundaries
Use Case 	Use case are represented using ellipse. The use case are labelled with verbs that represent the system's function
Actors 	Actors are the users of a system and are represented using stick Diagrams
Relationship 	Relationship between an actor and use case is represented by simple line with and arrow.

Table 3.4.2.1: Use case diagrams components

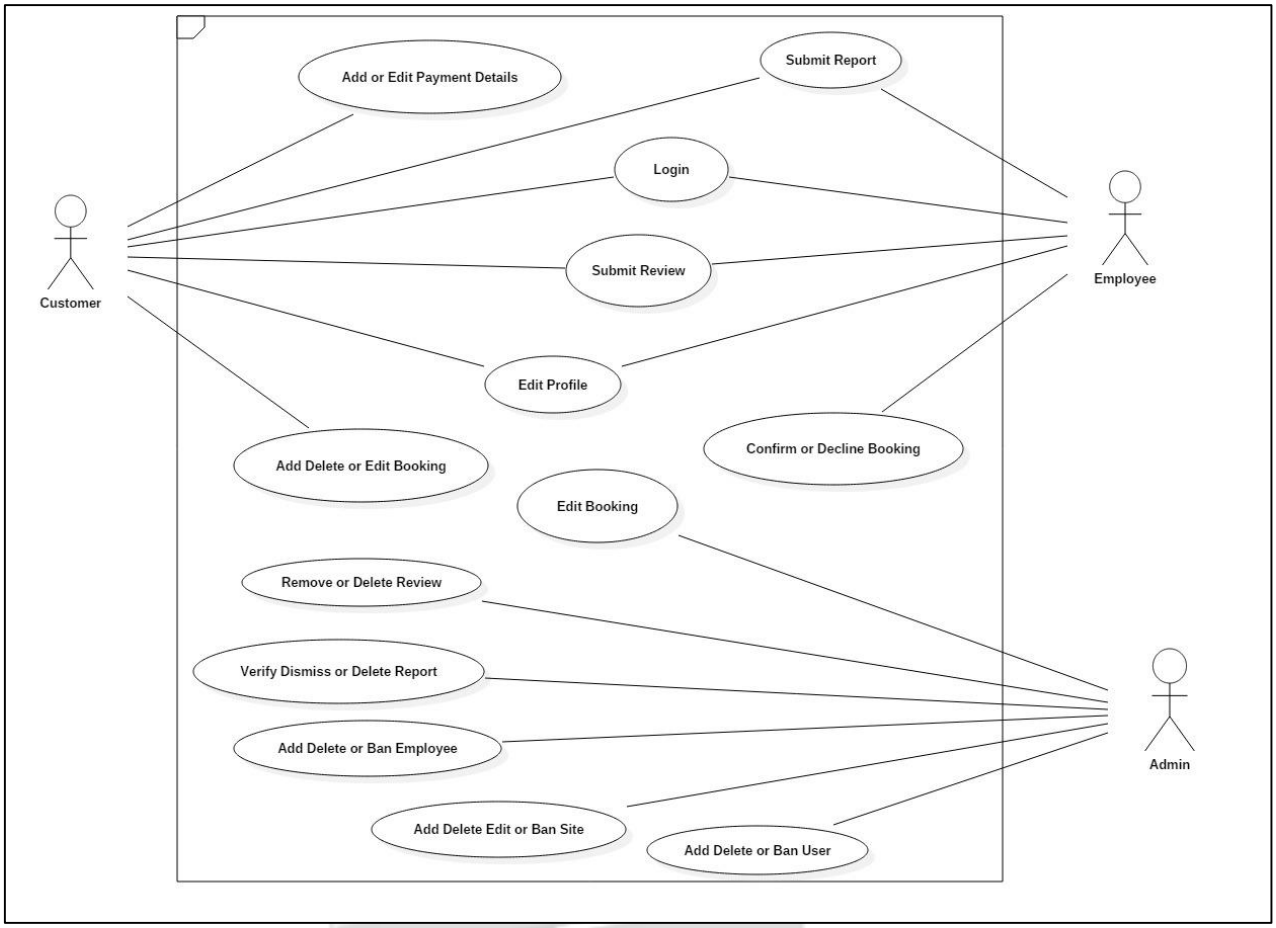


Figure 3.4.2.1 Use Case Diagram

Conclusion

Herewith we submit the four concepts, Project Management Plan, Requirement Specification, Analysis-Design and Database Design of our project and in the next semester we will be submitting the complete functionality along with user manual and other details.

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