

“Booking of Homestay”

**A Project Report Submitted to
Rajiv Gandhi Proudyogiki Vishwavidyalaya**



**Towards Partial Fulfillment for the Award of
Bachelor of Technology in Computer Science**

Submitted by:

Arjav Sethi(0827CS201043)
Atharv Gour(0827CS201046)
Bhushan Kokate(0827CS201061)
Devesh Ujonia (0827CS201069)

Guided by:

Faculty Name - Prof. Ronak Jain
Dept Name - Computer Science And
Engineering
AITR, Indore



Acropolis Institute of Technology & Research, Indore
July-Dec 2022

EXAMINER APPROVAL

Submitted by **Arjav Sethi ,Atharv Gour , Bhushan Kokate , Devesh Ujonia** has been examined and is hereby approved towards partial fulfillment for the award of ***Bachelor of Technology degree in Computer Science*** discipline, for which it has been submitted. It understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein, but approve the project only for the purpose for which it has been submitted.

Ronak Jain

Date:

Date:

GUIDE RECOMMENDATION

This is to certify that the work embodied in this project entitled "***Booking of***

Homestay" submitted by is a satisfactory account of the bonafide work done under **Arjav Sethi (0827CS201043)**, **Atharv Gour (0827CS201046)**

Bhushan Kokate(0827CS201061), Devesh Ujonia (0827CS201069) supervision of **Prof. Ronak Jain**, is recommended towards partial fulfillment for the award of the Bachelor of Engineering (Information Technology) degree by Rajiv Gandhi Proudyogiki Vishwavidhyalaya, Bhopal.

(Project Guide)

(Project Coordinator)

STUDENTS UNDERTAKING

This is to certify that project entitled "***Booking of Homestay***" has developed by us under the supervision of ***Prof. Ronak Jain***. The whole responsibility of work done in this project is ours. The sole intension of this work is only for practical learning and research.

We further declare that to the best of our knowledge, this report does not contain any part of any work which has been submitted for the award of any degree either in this University or in any other University / Deemed University without proper citation and if the same work found then we are liable for explanation to this.

Arjav Sethi(0827CS201043)
Atharv Gour(0827CS201046)
Bhushan Kokate(0827CS201061)
Devesh Ujonia (0827CS201069)

Acknowledgement

We thank the almighty Lord for giving me the strength and courage to sail out through the tough and reach on shore safely.

There are number of people without whom this projects work would not have been feasible. Their high academic standards and personal integrity provided me with continuous guidance and support.

We owe a debt of sincere gratitude, deep sense of reverence and respect to our guide and mentor **Prof. Ronak Jain**, Professor, AITR, Indore for his motivation, sagacious guidance, constant encouragement, vigilant supervision and valuable critical appreciation throughout this project work, which helped us to successfully complete the project on time.

We express profound gratitude and heartfelt thanks to **Dr Kamal Kumar Sethi**, HOD CSE, AITR Indore for his support, suggestion and inspiration for carrying out this project. I am very much thankful to other faculty and staff members of CSE Dept, AITR Indore for providing me all support, help and advice during the project. We would be failing in our duty if do not acknowledge the support and guidance received from **Dr S C Sharma**, Director, AITR, Indore whenever needed. We take opportunity to convey my regards to the management of Acropolis Institute, Indore for extending academic and administrative support and providing me all necessary facilities for project to achieve our objectives.

We are grateful to **our parent** and **family members** who have always loved and supported us unconditionally. To all of them, we want to say “Thank you”, for being the best family that one could ever have and without whom none of this would have been possible.

**Arjav Sethi (0827CS201043), Atharv Gour (0827CS201046),
Bhushan Kokate(0827CS201061), Devesh Ujonia (0827CS201069)**

Executive Summary

This project is submitted to Rajiv Gandhi Proudyogiki Vishwavidhyalaya, Bhopal(MP), India for partial fulfillment of Bachelor of Engineering in Information Technology branch under the sagacious guidance and vigilant supervision of **Prof. Ronak Jain.**

The project is based on React js and Firebase, which is a sub field of Javascript, concerned with algorithms inspired by the structure and function of the brain called artificial neural networks. In the project, Firebase is used , which is an open-source software library created by Google for serverless applications. It is used for detecting, identifying and tracking database calls through the client in real time. The project uses a firebase firestore and firebase authentication . The purpose of this project is to implement 'Home Stay Booking ' in real-time.

Key words : Sustainable homestay tourism, Tourist satisfaction, Homestay ecosystem, Community based tourism.

*“Where the vision is one year,
cultivate flowers;

Where the vision is ten years,
cultivate trees;

Where the vision is eternity,
cultivate people.”*

- Oriental Saying

List of Figures

Figure 1-1 : Counting people at wedding function	3
Figure 1-2: Counting of eggs and soda bottle	4
Figure 1-3 : Counting people at railway stations and airport	4
Figure 3-1 : Block Diagram	16
Figure 3-2 : R-CNN: Regions with CNN Features	18
Figure 3-3 : Fast R-CNN Architecture	18
Figure 3-4 : YOLO Architecture	18
Figure 3-5 : Faster CNN Architecture	19
Figure 3-6 : Bounding-Box	20
Figure 3-7 Data Flow Diagram Level 0	20
Figure 3-8 Data Flow Diagram Level 1	20
Figure 4-1 : Deep Learning	24
Figure 4-2 : Neural Networks	25
Figure 4-3 : TensorFlow Architecture	26
Figure 4-4 : TensorFlow Working	27
Figure 4-5 : Data Structure in JSON Format	29
Figure 4-6 : Objects in training set	29
Figure 4-7 : Instances per Category	30
Figure 4-8 : Comparison Graphs	30
Figure 4-9 : Screenshot 1	32
Figure 4-10 : Screenshot 2	32
Figure 4-11 : Screenshot 3	32

Figure 4-12 : Test Case 1 output	34
Figure 4-13 : Test Case 2 Output 1	35
Figure 4-14 : Test Case 2 Output 2	35

List of Tables

Table 1 : Types of Datasets	19
Table 2 : Database Structure	21
Table 3 : Types of Models	27
Table 4 : Test Case 1	33
Table 5: Test Case 2	34

List of Abbreviations

Abbr1: R + F -> React.js + Firebase

Abbr2: Auth -Authentication

Abbr3: db -> Database

Abbr4: JSON- Java Script Object Notation

Abbr5:Arch -> Architecture

Abbr6: GPU- Graphical Processing Unit

Abbr7: VPM -> Virtual Private Machine

Table of Contents

INTRODUCTION	
CHAPTER 1 .	1
Overview	
1.1	1
Background and Motivation	
1.2	2
Problem Statement and Objectives	
1.3	2
Scope of the Project	
1.4	3
Team Organization	
1.5	4
Report Structure	
1.6	5
 REVIEW OF	
CHAPTER 2 . LITERATURE.....	6
Preliminary Investigation	
2.1	7
2.1.1 Current System	
.....	7
Limitations of Current System	
2.2	7
2.3 Requirement Identification and Analysis for Project	8
2.3.1 Conclusion	
.....	12
 PROPOSED	
CHAPTER 3 . SYSTEM.....	13
3.1 The Proposal	13
3.2 Benefits of the Proposed System.....	13
3.3 Block Diagram	14
3.4 Feasibility Study	14
Technical	
3.4.1	14
Economical.....	
3.4.2	15

	Operational
3.4.3 15
3.5 Design Representation.....	16
3.5.1 E-R Diagrams	18
	Database Structure
3.5.2	19
3.6 Deployment Requirements	19
	Hardware
3.6.1	19
	Software.....
3.6.2	20

IMPLEMENTATION

CHAPTER 4 .	22
4.1 Technique Used	22
Cloud Functions	
4.1.1 Firebase Phone Number Authentication :	22
4.1.2	23
4.2 Tools Used	24
Github	
4.2.1	24
4.2.2 Git	25
BootStrap	
4.2.3	25
4.3 Language Used	26
4.4 Screenshots	29
4.5 Testing	31
Strategy	
4.5.1 Used.....	31
Test Case and Analysis	
4.5.2	31
CONCLUSION.....	3
CHAPTER 5 .	4
....	
Conclusion	
5.1	34
Limitations of the Work	
5.2	34
Suggestion and Recommendations for Future Work	
5.3	36
.....	3
BIBLIOGRAPHY.....	7
PROJECT	
PLAN.....	
... 38	
GUIDE INTERACTION	
SHEET.....	39
SOURCE	
CODE.....	
.... 40	

Chapter 1 . Introduction

Introduction

India today has become a much sought after destination for tourists from other countries. The Incredible India campaign of the Government of India has created a 'Brand India' so to say, portraying the country as an exotic getaway, while showcasing its magnificent attractions. Indians too, with increasing income levels, double income families and wanting to experience something new have started traveling more often. These travelers face a number of choices about where to go, once that is finalized, then how to travel and, equally important, where to stay. The hospitality industry in India offers accommodation ranging from humble tourist hostels and local hotels, to luxurious rooms in star category hotels, which are at par with the best in the world. Amongst all these offerings to the discerning guest stands out the concept of Homestays.

1.1 Overview

The project is a web application used for Booking and Registration of safe, clean and well maintained homestays for tourists.

The system is created in such a way that people can easily browse through all the available homestays near them and book them easily.

The record of every booking , payment , check in and check out time is created and maintained into a database.

1.2 Background and Motivation

Homestays take place in numerous parts of India, but predominantly in South and East India. The guests are expected to make one regular meal with each family and to help clean the house after their stay. The hosts are also obligated to show the guest around the city and teach them about local customs and traditions. In return, the guest provides food, companionship and moral support to the family while strengthening the bonds between them. As they get to know each other, these two groups provide a vital social net for their guests.

1.3 Problem Statement and Objectives

Finding the bare minimal prerequisites for establishing a homestay ecosystem for the tourism business which must be consistent with environmentally and socially responsible tourist practises

Thus, the system implemented has the following objective:

Planning and development of tourism should not take place in isolation , it is about working together. This involves formal partnerships as well as strengthening and utilizing local democratic structures . A long-term view encouraged, with resources committed accordingly where possible, actions should be self-sustaining. Finance must take account of how initiatives, once started, can be maintained into the future. This means influencing the volume and nature of tourism demand, the choices made by tourists such as products selected and mode of travel , their activities and behaviour . It should be increasingly accepted that a quality tourism destination or product is one that addresses the full range of sustainability issues rather than simply concentrating on visitor satisfaction.

1.4 Scope of the Project

Home Stay refers to reserving accommodation at someone's home outside of his or her neighbourhood, allowing the traveler to experience a new lifestyle, unique customs, or even language. However, the concept of homestay varies depending on the circumstances of the countries involved, for instance, the concept of homestays in western countries intended to provide an ideal setting for overseas students to become acquainted with the target culture and language while remaining in the comfort and safety of a family while in eastern countries homestays generally resembles leisure activities, adventure and exploring indigenous custom like New Zealand has Farmstay, Cottage homestay , Singapore has Urban homestay.

1.5 Team Organization

Arjav Sethi :

Along with doing preliminary investigation and understanding the limitations of current system, I studied about the topic and its scope and surveyed various research papers related to the object detection and the technology that is to be used.

I also worked on the implementation of React framework and the working of storing and fetching data from firebase .

Worked on creating database for storing results in database.

Devesh Ujonia :

I investigated and found the right technology and studied in deep about it. For the implementation of the project , I collected the home stay data all over India. Implementation logic for the project objective and coding of internal functionalities is also done by me.

Also, worked on back end design for storing results in database for maintaining logs.

Bhushan Kokate :

I worked on creating website UI , comparing from existing UI in the market and creating the best Interface for our Web Application .

I worked on creating webpages and writing react components.

Atharv Gour :

I worked on finding the right Schemas for database for creating and finding homestay Graphics. I also created booking system flow and displaying it on both Guest and Home Stay owner profile.

Documentation is also a part of the work done by me in this project.

1.6 Report Structure

The project ***Booking of home stay*** is primarily concerned with the **Guest satisfaction** and whole project report is categorized into five chapters.

Chapter 1: Introduction- introduces the background of the problem followed by rationale for the project undertaken. The chapter describes the objectives, scope and applications of the project. Further, the chapter gives the details of team members and their contribution in development of project which is then subsequently ended with report outline.

Chapter 2: Review of Literature- explores the work done in the area of Project undertaken and discusses the limitations of existing system and highlights the issues and challenges of the project area. The chapter finally ends up with the requirement identification for present project work based on findings drawn from reviewed literature and end user interactions.

Chapter 3: Proposed System - starts with the project proposal based on requirement identified, followed by benefits of the project. The chapter also illustrate software engineering paradigm used along with different design representation. The chapter also includes block diagram and details of major modules of the project. Chapter also gives insights of different type of feasibility study carried out for the project undertaken. Later it gives details of the different deployment requirements for the developed project.

Chapter 4: Implementation - includes the details of different Technology/ Techniques/ Tools/ Programming Languages used in developing the Project. The chapter also includes the different user interface designed in project along with their functionality. Further it discuss the experiment results along with testing of the project. The chapter ends with evaluation of project on different parameters like accuracy and efficiency.

Chapter 5: Conclusion - Concludes with objective wise analysis of results and limitation of present work which is then followed by suggestions and recommendations for further improvement.

Chapter 2 . Review of Literature

Review of Literature

Travelling has always been to seek new experiences. The new form of technologies and urbanisation has changed the lifestyle of people tremendously. A large chunk of population is moving to metropolitans and urban areas for better job opportunities and also good living standards provided. The urban lifestyle provides very little opportunity to relax in serene environments. This urges the people to take holidays and move to quiet and serene areas. The discretionary income, discretionary time, status and prestige, reduced family sizes are some of the factors which has added to the growth of tourism. New forms of tourism like cultural tourism, eco tourism, nature based tourism, agri tourism, village/ rural tourism, volunteer tourism suggest the growing demand of tourism where it brings a tourist close to natural environment and host community.

Home Stay refers to a visit to somebody's home in a foreign country which allows visitors to rent a room from a local family in order to learn local culture, lifestyle, or language. It is a living arrangement offered by a host or host family that involves staying in their furnished house. The guest of a home stay would be staying in home-like accommodation with shared living spaces facilities, and amenities. Utilities and meals are usually included and the length of stay could be daily, weekly, monthly, or unlimited unless specified otherwise by the host.

2.1 Preliminary Investigation

2.1.1 Current System

The Current System for fulfilling the need is to have a single dedicated person who manually does all the work of counting the students and vehicles and keeping away the animals, that is done by this project by automation.

The presence of a CCTV camera at the entrance of the college campus which has no real-time significance and having just a camera cannot solve the problem of counting the objects in real-time.

2.2 Limitations of Current System

The limitations of these are as follows :

At the economic front, it is not feasible for guest to go and find the best home stay for them. Neither they don't have much time to explore all home stays to find the best home stay possible

A lot of time is wasted in doing the work.

2.3 Requirement Identification and Analysis for Project

The Requirement for this project is to create a system through which Guest can browse all the home stays available and Home Stay owners would be able to register their homestay with images and add costs for each room.

The System should be scalable enough and should be able to handle the users all over the world.

A scalable system is one that can handle rapid changes to workloads and user demands. Scalability is the measure of how well that system responds to changes by adding or removing resources to meet demands. The architecture is the hardware, software, technology and best practices used to build the networks, applications, processes, and services that make up your entire system.

Your system, which includes the architecture, services, products, and everything that defines your brand, is considered scalable when:

- It can add resources and scale up to seamlessly handle increased customer demand and larger workloads.
- It can easily and seamlessly remove resources when demand and workloads decrease.

The idea is to build a system that can adjust capacity to meet constantly changing demand. The system needs to be highly accessible, and it needs to be available to all of your customers whenever and wherever they need it.

For example, a well-designed, scalable website will function just as well whether one or thousands of users concurrently access it. There should not be any perceptible decrease in functionality as more users log on.

What is a scalability pattern?

Have you ever played with LEGO® bricks? Maybe you tried to build a structure without following the instructions only to have it collapse? But when you followed the meticulously illustrated instructions, you ended up with a solid structure that would collapse only if you deliberately pulled the bricks apart. The building techniques shown in the instructions have been tested and proven to be solutions to common structural problems encountered by many builders.

Architectural patterns in computing development are similar to the LEGO® building techniques found in the instructions. They are a set of development and programming techniques that have proven to solve common problems in computer system development. These patterns have good design structures, have well-defined properties, and have successfully solved problems in the past.

But this does not mean that every scalability pattern will work for you. Your challenge is to select appropriate patterns and tailor them to solve problems that are unique to your system. Scalability patterns save you time because a lot of the work has been done for you.

For handling scalability, we are using Firebase and its cloud function to scale the projects in few clicks.

 Longer Processing Times <small>PREVIEW</small>	 Larger Upgraded Instances
<small>6x execution time from 9 min to 60 min (HTTP Only)</small>	256 MB 512 MB 1024 MB 2048 MB
Longer Data processing pipelines	4096 MB, 2 vCPU 8GB, 2 vCPU 16GB, 4 vCPU <small>NEW</small>
Longer Machine Learning pipelines	

Home stays are mostly present in remote areas, so the project must contain the best user experience, the other reasons to have the best user experience are -

- UX tries to fulfil the user's needs and builds a better customer satisfaction-conversion-retention journey.
- UX aims to provide positive experiences to the user that keeps them loyal to the product or brand.
- UX defines customer journeys on your product and establishes a two-way relationship between the maker and the user.
- UX reduces costs for development/bug fixing/marketing and so on.
- UX provides improved return on investment (ROI)
- Sometimes the product doesn't need to be innovative. It simply takes the usual idea and represents it differently. The user-focused design makes the product stand out.
- UX helps provide intuitive experience, coherence & continuity and platform-specific designs.

Also in remote area the network might be slow, so the project must be created in such a way that the project is operable in low internet correction system.

For Payments, the project must have a secure payment mechanism through which payments would be accepted and transferred to stay owner.

The Best payment system which can be integrated with this project can be razor pay and cc avenue.

- Razor pay :-A payment gateway creates a secure pathway between a customer and the business to facilitate payments securely. It involves the authentication of both parties from the banks involved. You can accept payments from customers on your website and mobile apps using the Razor pay Payment Gateway as a business owner.

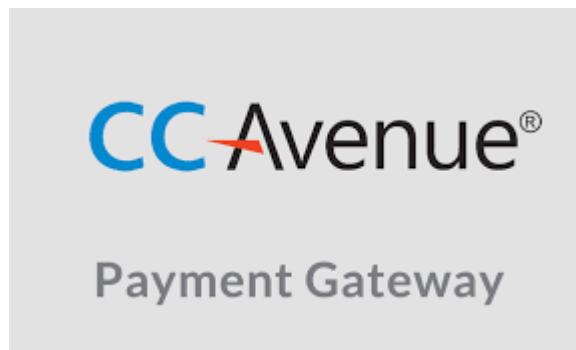


Card, Wallets, UPI & Netbanking



- CC Avenue :-

CC Avenue provides **complete, simple and secure online payment gateway services**, with a real-time Credit Card, Debit Card, Net Banking, Digital and Mobile Wallet, Cash Card and Mobile Payment transaction validation process.



For CC Avenue we will also have to manage a separate payment gateway server which will further increase the complexity of the project.

Thus, Razor pay would be the best payment gateway.

Authentication system can be achieved in 2 ways :-

- Email and password
- Phone Number

The Phone Number verification is more feasible for our project because the project's target audience is more comfortable sharing OTP which comes through SMS instead of opening email and sharing OTP.



A proper statistical representation of booking and revenue on each month is required so that home stay owner can manage their expenses and profits easily through our system.



2.3.1 Conclusion

This chapter reviews the literature surveys that have been done during the research work. The related work that has been proposed by many researchers has been discussed. The research papers related to homestay bookings from 1985 to 2022 have been shown which discussed different methods and algorithm to creating booking ecosystem.

Chapter 3 . Proposed System

Proposed System

3.1 The Proposal

The proposal is to deploy a system on the web which will help the guest to book any homestay of their wish within few clicks and the owner will receive the notification and can approve or decline the request.

It can also store all the information into database and predict the future bookings through machine learning.

3.2 Benefits of the Proposed System

The current system had a lot of challenges that are overcome by this system :

Economic : The proposed system is economic as there will not commission for booking homestay by the website .

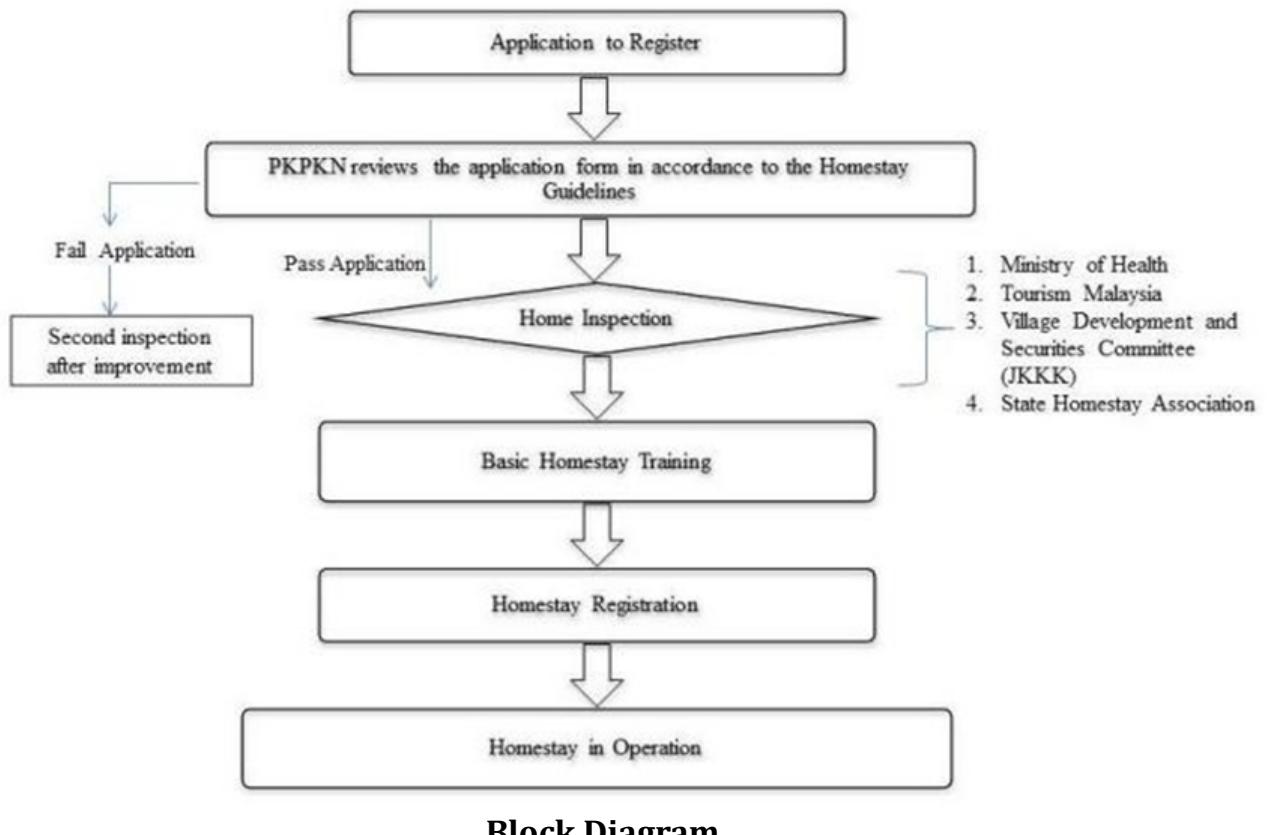
Feedback : The system provides a feedback solution through which guest can filter out the best homestay for them

Man Power : It does not require any person or their efforts to handle a database of all booking details .

24 x 7 Availability : The Website is running all time so that user can book homestay at any time.

Statistical analysis : A good dashboard solution is provided of owner through which they can check their monthly revenue.

3.3 Block Diagram



Block Diagram

3.4 Feasibility Study

A feasibility study is an analysis of how successfully a system can be implemented, accounting for factors that affect it such as economic, technical and operational factors to determine its potential positive and negative outcomes before investing a considerable amount of time and money into it.

3.4.1 Technical

The website is created using latest technologies like React.js through which we can create single page applications which is good for UX and also the site is Search engine friendly.

All the data which is being entered in a form are to be stored in Firestone database and displayed to user with proper roles and permissions.

All the transactions should be done automatically without requiring any manual effort for saving it.

3.4.2 Economical

For the website to be accessed globally we will need a domain name, SSL certificate, Virtual Private machine for hosting and deploying our web applications.

In the long run, we might also need database engineer and cloud specialists.

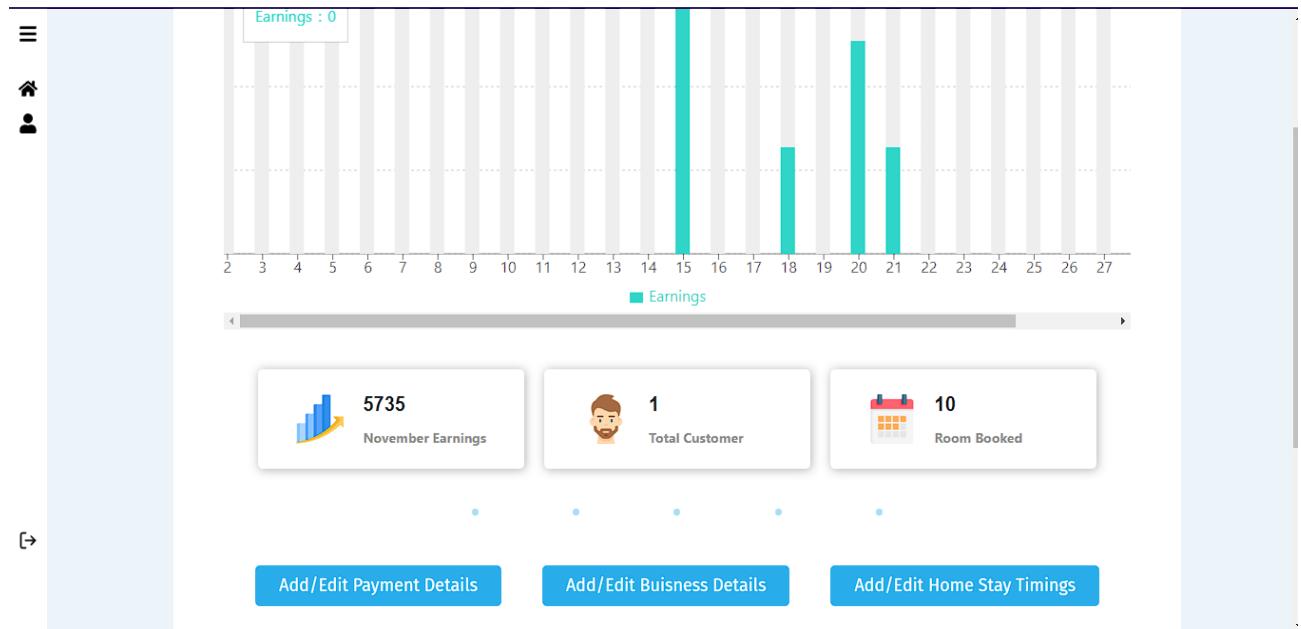
3.4.3 Operational

The main motto of our system is to reduce the complexity of booking of homestays and create transparency for both guest and owner.

The system is able to do that accurately and efficiently, making the system operationally feasible.

3.5 Design Representation

Dashboard for home stay owner:-



Check in time webpage :-

The form allows users to schedule their check-in. It includes a date picker, a note about unavailable dates, a total amount to be paid, a time selector, and a booking button.

Schedule Your Check In
Month : -----

*The dates in red are not available for booking

Total Amount To be Payed in Rupees : ₹ 700

Time :

Book Slot & Proceed to pay

Login Web Page :-

Home Home Stay Nearby Login

Login/Register

Phone Number

OTP

Home Page :-

Home Home Stay Nearby Login

Our Best Features

Our Goal is to create a homestay ecosystem for the tourism business which must be consistent with environment and society. We are working on a platform that will help the tourism business to grow and help the local community to earn a living.

 Easy way to Book

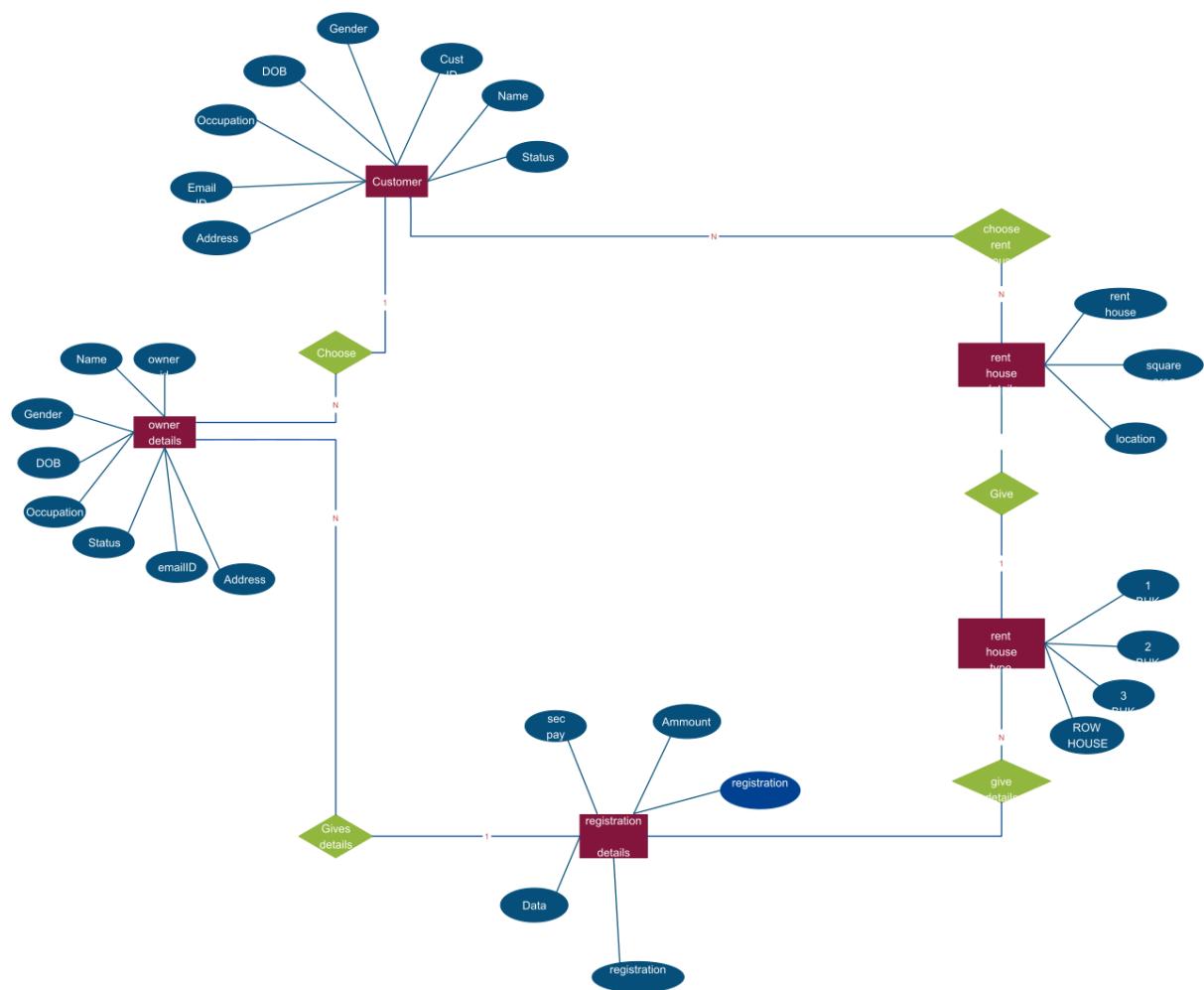
 Best Service

 Good discount

 Happy Customer



3.5.1 Entity Relation Diagrams



3.5.2 Database Structure

in The database is created and stored in Firebase's firestore. The data is stored in BSON format

There are 3 collections in the database which are:-

The screenshot shows the Firebase Firestore interface. On the left, there's a sidebar with three items: 'bookings', 'salons', and 'users'. The 'users' item is selected and expanded, showing its sub-document list. One specific document is selected, indicated by a grey background: '2fXBPo9WOFHYIg6PdBmb'. To the right of this document, there's a detailed view. At the top, there's a button labeled '+ Add field'. Below it, under the heading 'cart', is a list of fields and their values:

- createdAt: September 12, 2022 at 11:50:09 AM UTC+5:30
- email: "arjavsethi07@gmail.com"
- name: "Bhushan"
- phoneNumber: "+911234567890"
- salonOwned: "UMr2SKCRjZvxz6JjfQfG"
- type: "salonOwner"
- uid: "UueDQcGAWdgdY5EYh770dXFZOT92"

3.6 Deployment Requirements

There are various requirements (hardware, software and services) to successfully deploy the system. These are mentioned below :

3.6.1 Hardware

32-bit, x86 Processing system

Windows 7 or later operating system

High processing computer system without GPU or with GPU(high performance)

3.6.2 Software

VS Code

Node.js and its supported libraries

Firebase

package.json file :-

```
{
  "name": "client",
  "version": "0.1.0",
  "private": true,
  "dependencies": {
    "@material-ui/icons": "^4.11.3",
    "@mui/icons-material": "^5.10.3",
    "@popperjs/core": "^2.11.5",
    "@testing-library/jest-dom": "^5.16.4",
    "@testing-library/react": "^13.2.0",
    "@testing-library/user-event": "^14.2.0",
    "axios": "^0.27.2",
    "babel": "^6.23.0",
    "bootstrap": "^5.1.3",
    "firebase": "^9.8.1",
    "framer-motion": "^6.3.11",
    "lodash": "^4.17.21",
    "react": "^18.1.0",
    "react-bootstrap": "^2.4.0",
    "react-dom": "^18.1.0",
    "react-error-boundary": "^3.1.4",
    "react-icons": "^4.4.0",
    "react-popper": "^2.3.0",
    "react-responsive": "^9.0.0-beta.8",
    "react-router-dom": "^6.3.0",
    "react-scripts": "5.0.1",
    "react-select": "^5.3.2",
    "react-slick": "^0.29.0",
    "recharts": "^2.1.10",
    "sass": "^1.52.1",
    "slick-carousel": "^1.8.1",
    "swiper": "^8.1.6",
    "web-vitals": "^2.1.4"
  }
}
```

```
},  
  
"scripts": {  
  "start": "react-scripts start",  
  "build": "react-scripts build",  
  "test": "react-scripts test",  
  "eject": "react-scripts eject"  
},  
"eslintConfig": {  
  "extends": [  
    "react-app",  
    "react-app/jest"  
  ]  
},  
"browserslist": {  
  "production": [  
    ">0.2%",  
    "not dead",  
    "not op_mini all"  
  ],  
  "development": [  
    "last 1 chrome version",  
    "last 1 firefox version",  
    "last 1 safari version"  
  ]  
},  
"devDependencies": {  
  "@babel/core": "^7.18.0",  
  "@babel/plugin-proposal-class-properties": "^7.17.12",  
  "@babel/plugin-proposal-class-static-block": "7.18.0",  
  "@babel/plugin-syntax-class-properties": "7.12.13",  
  "@babel/plugin-syntax-class-static-block": "7.14.5",  
  "autoprefixer": "10.4.7",  
  "dotenv": "16.0.1",  
  "postcss": "8.4.14",  
  "postcss-dir-pseudo-class": "6.0.4",  
  "postcss-preset-env": "7.6.0",  
  "tailwindcss": "3.1.3"  
}  
}
```


Chapter 4 . Implementation

Implementation

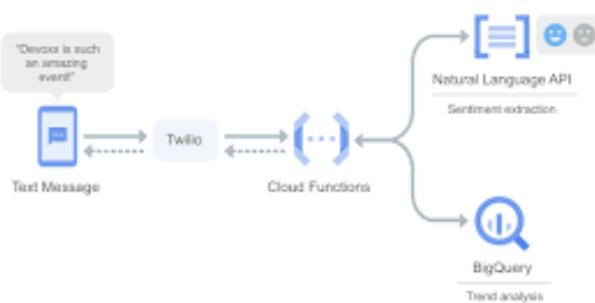
For the problem of counting the number of students and vehicles entering the college campus manually, the system is designed in such a way so as to automate the process by placing a camera at the entrance gate so that students, bikes and cars getting inside the college campus can be identified and counted.

4.1 Technique Used

4.1.1 Cloud Functions :-

Google Cloud Functions is a serverless execution environment for building and connecting cloud services. With Cloud Functions you write simple, single-purpose functions that are attached to events emitted from your cloud infrastructure and services. Your function is triggered when an event being watched is fired. Your code executes in a fully managed environment. There is no need to provision any infrastructure or worry about managing any servers.

You can write Cloud Functions using a number of supported programming languages. You can take your function and run it in any standard runtime environment for one of the supported languages, which makes both portability and local testing a breeze.



4.1.2 Firebase Phone Number Authentication:-

Phone authentication allows users to sign in to Firebase using their phone as the authenticator. An SMS message is sent to the user (using the provided phone number) containing a unique code. Once the code has been authorized, the user is able to sign into Firebase.



You can use Firebase Authentication to sign in a user by sending an SMS message to the user's phone. The user signs in using a one-time code contained in the msg.

4.2 Tools Used

4.2.1 Github

[GitHub](#) is a web-based interface that uses [Git](#), the open source version control software that lets multiple people make separate changes to web pages at the same time. As Carpenter notes, because it allows for real-time collaboration, GitHub encourages teams to work together to build and edit their site content.

GitHub allows multiple developers to work on a single project at the same time, reduces the risk of duplicative or conflicting work, and can help decrease production time. With GitHub, developers can build code, track changes, and innovate solutions to problems that might arise during the site development process simultaneously.



4.2.2 Git

Git is a [DevOps tool](#) used for source code management. It is one of the most prominent version control systems (VCS) today that is widely used to handle small and large projects efficiently. It helps in tracking changes in source code, enabling different people to collaborate on different parts of the same program. Git has multiple commands that can be used in this project such as Git config, Git init, Git add, Git diff, Git commit and Many more.



4.2.3 BootStrap

Bootstrap is a free, open source front-end development framework for the creation of websites and web apps. Designed to enable responsive development of mobile-first websites, Bootstrap provides a collection of syntax for template designs.

As a framework, Bootstrap includes the basics for responsive web development, so developers only need to insert the code into a pre-defined grid system.

Web developers using Bootstrap can build websites much faster without spending time worrying about basic commands and functions.



```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Template</title>
5   <link rel="stylesheet"
6     href="css/bootstrap.min.css">
7 </head>
```


4.3 Language Used

I. HTML:

HTML stands for HyperText Markup Language. It is a standard markup language for web page creation. It allows the creation and structure of sections, paragraphs, and links using HTML elements (the building blocks of a web page) such as tags and attributes. At the elementary level in applications of HTML, queries can be set to utilize the images, which are responsive in nature. With the srcset attribute of img element in HTML and combining it with picture elements, a developer can fully control how the user will render an image.



II. CSS:

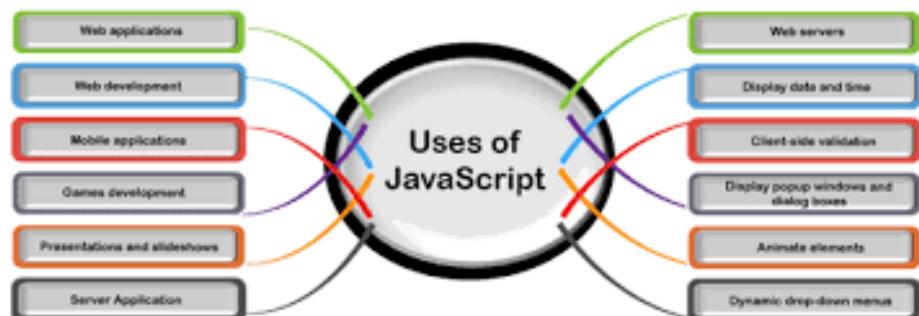
CSS stands for Cascading Style Sheets. It is the language for describing the presentation of Web pages, including colours, layout, and fonts, thus making our web pages presentable to the users. CSS is used along with HTML and JavaScript in most websites to create user interfaces for web applications and user interfaces for many mobile applications. CSS is independent of HTML and can be used with any XML-based markup language. The separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments. This is referred

to as the *separation of structure (or: content) from presentation*.



III. JavaScript

JavaScript (js) is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It is an interpreted, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document. It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the page every time. The traditional website uses js to provide several forms of interactivity and simplicity.



IV. React Js

React makes it painless to create interactive UIs. Design simple views for each state in your application, and React will efficiently update and render just the right components when your data changes. Declarative views make your code more predictable and easier to debug.



4.4 Screenshots

The Following are the screenshots of the result of the project :

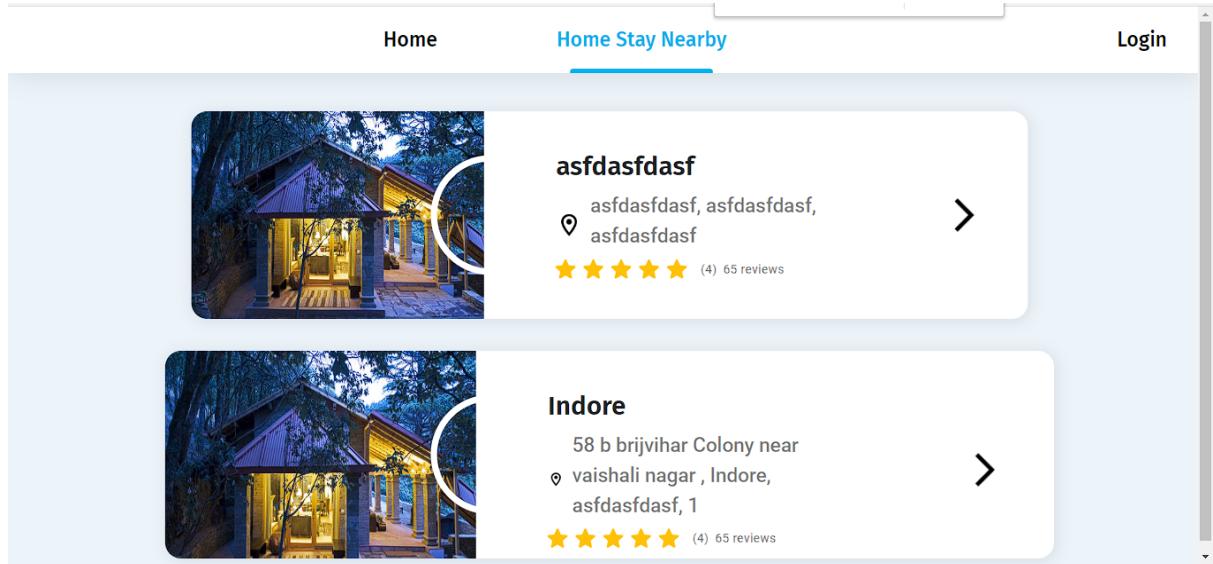


Figure 4-9 : Screenshot 1

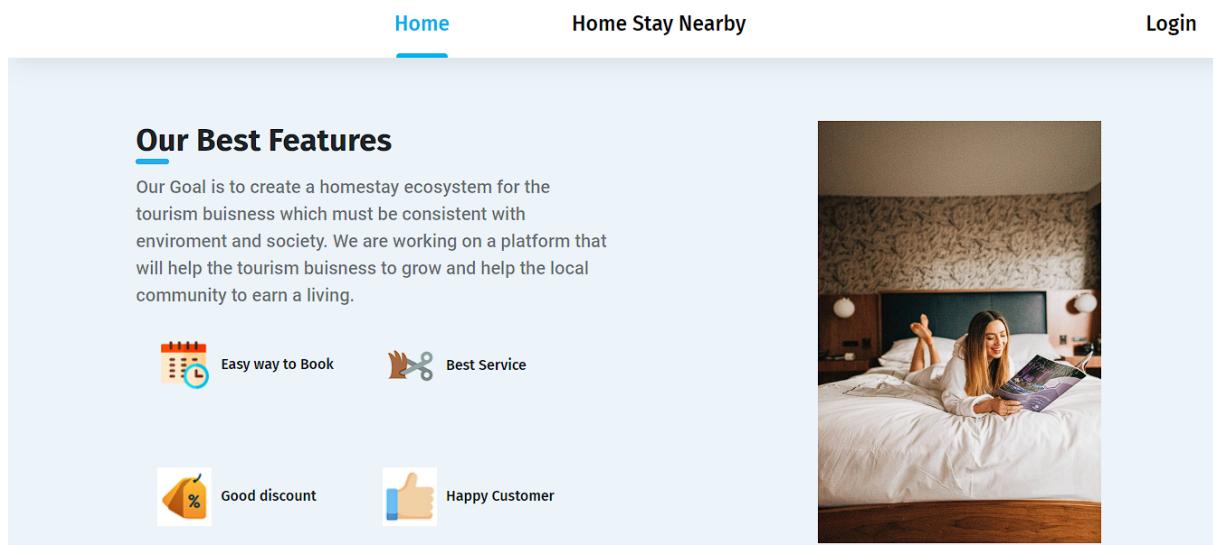


Figure 4-10 : Screenshot 2

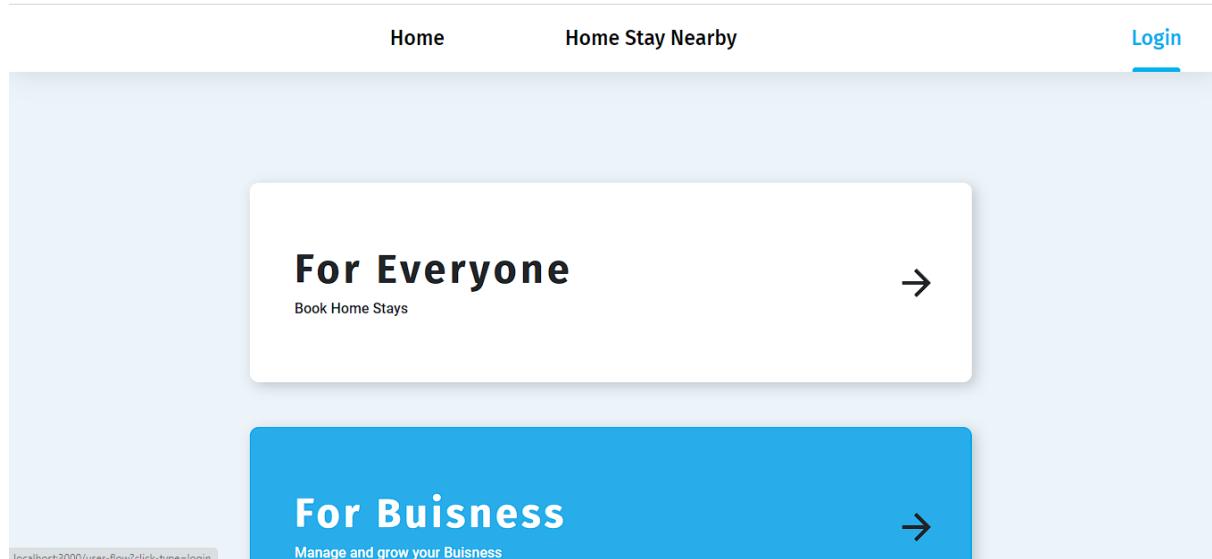


Figure 4-11 : Screenshot 3

4.5 Testing

Testing is the process of evaluation of a system to detect differences between given input and expected output and also to assess the feature of the system. Testing assesses the quality of the product. In this we have used jest for testing work, Jest is a JavaScript testing framework designed to ensure correctness of any JavaScript codebase. It allows you to write tests with an approachable, familiar and feature-rich API that gives you results quickly.

4.5.1 Strategy Used

Tests can be conducted based on two approaches –

- Functionality testing
- Implementation testing

The testing method used here is Black Box Testing. It is carried out to test functionality of the program. It is also called ‘Behavioral’ testing. The tester in this case, has a set of input values and respective desired results. On providing input, if the output matches with the desired results, the program is tested ‘ok’, and problematic otherwise.

4.5.2 Test Case and Analysis

TEST CASE: 1

Test Case ID	TC001
Test Case Summary	It will check whether the system registers the user correctly and with correct format
Test Procedure	Put Your details in the fields.
Expected Result	The user should be created in the database.
Actual Result	TheUser was created .
Status	Pass

Table 4 : Test Case 1

TEST CASE 1 OUTPUT

```
▼ cart
  createdAt: September 12, 2022 at 11:50:09 AM UTC+5:30
  email: "arjavsethi07@gmail.com"
  name: "Bhushan"          (string) ✎ 🗑
  phoneNumber: "+911234567890"
```

The user object was created successfully

Figure 4-12 : Test Case 1 output

TEST CASE: 2

Test Case ID	TC002
Test Case Summary	It will check whether the booking was created or not
Test Procedure	1.Login the user. 2. Check the database after booking.
Expected Result	For each booking, an entry must be there in the database.
Actual Result	Booking entry was created in the database.
Status	Pass

Table 5: Test Case 2

TEST CASE 2 OUTPUT

```
bookedBy: "BJGTwKcpESP7FsUCbmbqur5RMY2"  
▶ bookingData: [{service: {description: "..."}  
bookingDocId: "8FtqP5qwlnQg826xwGKo"  
cartId: "tmdBfziQ2EPPZJ2hpZiY"  
createdAt: November 15, 2022 at 10:33:16 PM UTC+5:30  
paymentStatus: "Not Received"  
price: 745  
salonId: "eICdpTtgx2pOLxnLJu01"  
▼ slot (map) + ⚡  
day: 17  
month: 11  
timeHrs: "13"  
timeMins: "26"
```

Figure 4-13 : Test Case 2 Output 1

Chapter 5 . Conclusion

Conclusion

5.1 Conclusion

The goal of the project is to book a homestay near the user quickly, efficiently, and without hassle, which is accomplished through the usage of ideas such as React js and Firebase. This automated method may now totally replace the tasks done manually.

Developing a homestay program is directly linked to the principles of ecotourism. Homestays work to revive the local economy, empower the community, and preserve its natural and cultural heritage.

5.2 Limitations of the Work

The working of this project would be affected if the homestay locality

is in an area/region where there is no network reachability, as well as those who are not literate enough to grasp how the system works. Many residents in rural communities are unable to speak in English with visiting tourists. Some more limitations are:-

- 1) Managing dynamic growth -
- 2) Climate change - Climate change is a major issue for the long term sustainability of tourism in two senses: climate change will have consequences for tourism, and tourism is a contributor to climate change.
- 3) Poverty alleviation - All countries need to ensure that people employed in tourism are properly remunerated, receive proper

treatment and are given opportunities for advancement.

34

4) Support for conservation - The need to find more financial resources to support conservation is a worldwide issue, although the severity of the problem varies from country to country.

5) Health, safety and security - In recent years, uncertainty about the health and safety of travel and of certain destinations has caused significant fluctuations in tourism flows.

35

5.3 Suggestion and Recommendations for Future Work

The website will be SEO optimized in the future, and when the number of people increases, the site will be able to adapt appropriately by utilizing the appropriate algorithm. The front end should be optimized such that it works in both mobile and desktop views, and it should not crash if the user base or customer base suddenly increases in size.

In future we can also use google maps to help the user for navigation purposes which will in turn make this process more efficient for the user.

Bibliography

- [1] <https://www.sciencedirect.com/science/article/pii/S2666049021000748>
- [2] https://wedocs.unep.org/bitstream/handle/20.500.11822/8741/-Making%20Tourism%20More%20Sustainable_%20A%20Guide%20for%20Policy%20Makers-2005445.pdf?sequence=3&isAllowed=y
- [3] https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_216669.pdf
- [4] <https://goodtourisminstitute.com/library/how-to-develop-community-based-tourism/>
- [5] <https://vikalpsangam.org/article/community-based-homestays-innovation-in-tourism-1/>

Project Plan

Gantt Chart



Guide Interaction Sheet

Date	Discussion	Action Plan
8/15/2022	Discussed about the title of the project	Home Stay Booking System
8/17/2022	Discussion on the technology to be used for Creating Website	React and Firebase
8/19/2022	Discussion of the creation of synopsis of the project	Gathering of information for synopsis creation
9/11/2022	Suggestions on how to do a literature survey and preliminary investigation on the topic	Many research papers were read , understood and their abstract were to be written.
9/20/2022	Discussion on the implementation of the project	Using github and other tools, we decided to code our website
10/08/2022	Discussion on the objective of the project	The Objective of is for homestay booking.
10/16/2022	Suggestion for adding authentication	Took steps for adding and modifying the program for authentication through phone number
10/25/2022	Suggestion for adding payment gateway	To create automatic transactions we decided to add razor pay in the system
11/01/2022	Discussion on project documentation	Decided to write the content and integrate it in the proper format of the report

Source Code

You Can Find Source Code at :-

<https://github.com/arjavsethi/minorProject1>

Follow these steps to Setup your project locally:-

- 1) Make Sure You have installed Node.js on your machine**
<https://nodejs.org/en/>
- 2) Also make sure your npm is working properly .**
- 3) In root directory run npm install**
- 4) Now Go to the firebase console and create new project .**
- 5) Make sure to turn on Phone Authentication and firestore**
- 6) Copy and Paste your credentials in projects config.js file**
- 7) Then Go back to vs code and run “npm run start”**
- 8) Your project should be running at http://localhost:3000/**