RAILWAY ENQUIRY SYSTEM

A

Mini Project Report

Submitted in partial fulfilment of the

Requirements for the award of the Degree of

BACHELOR OF ENGINEERING

IN

INFORMATION TECHNOLOGY

By

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Department of Information Technology

DECLARATION BY THE CANDIDATE

We, **BHEESHMA REDDY, NIKITHA MARAMRAJU, SANTOSH KUMAR** bearing hall ticket numbers, **1602-19-737-128, 1602-19-737-145 and1602-19-737-164**, hereby declare that the project report entitled **"RAILWAY ENQUIRY SYSTEM"** is submitted in partial fulfilment of the requirement for the award of the degree of Bachelor of Engineering in Information Technology.

This is a record of bonafide work carried out by us and the results embodied in this project report have not been submitted to any other university or institute for the award of any other degree or diploma.

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BONAFIDE CERTIFICATE

This is to certify that the project entitled **"RAILWAY ENQUIRY SYSTEM"** being submitted by **BHEESHMA REDDY, NIKITHA MARAMRAJU, SANTOSH KUMAR SOMA** bearing **1602-16-737-128, 1602-16-737-145, 1602-16-737-164** in partial fulfilment of the requirements for the award of the degree of Bachelor of Engineering in Information Technology is a record of bonafide work carried out by him/her under my guidance.

R. Dharma Reddy
Assistant professor
Internal guide

Dr. Ram Mohan Rao
HoD
Dept Of IT

ACKNOWLEDGEMENTS

The satisfaction that accompanies that the successful completion of the project would not have been possible without the kind support and help of many individuals. We would like to extend our sincere thanks to all of them.

We would like to take the opportunity to express our humble gratitude to R. Dharma Reddy Sir under whom we executed this project. We are grateful to his guidance, inspiration and constructive suggestions that helped us in the preparation of this project. His constant guidance and willingness to share his vast knowledge made us understand this project and its manifestations in great depths and helped us to complete the assigned tasks. We would like to thank all faculty members and staff of the Department of Information Technology for their generous help in various ways for the completion of this project.

Finally, yet importantly, we would like to express our heartfelt thanks to our HOD Dr. K. Ram Mohan Rao Sir and classmates for their help and wishes for the successful completion of this project.

ABSTRACT

Service quality is the most important factor for the passenger’s satisfaction. India has biggest railway network across the country and in the whole world. The purpose of this project is to enhance the service quality of Railway Enquiry System and to attain the passenger's satisfaction.

In this project we provide users with the details of a train and various functions related to it. The Railway Enquiry System facilitates the passengers to enquire about the trains available on the basis of Train name and Train number, enquire about the status of the booked ticket, locating the live station of the train and the railway stations available in a particular geographical region.

The aim of this project is to design and develop a web application for the users incorporated with these features.

This project uses various available Railway APIs provided by RapidAPI.

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2. INRODUCTION

Service quality is the most important factor for the passenger's satisfaction. India has biggest railway network across the country and in the whole world. The purpose of this project is to enhance the service quality of Railway Enquiry System and to attain the passenger's satisfaction. In this project we provide users with the details of a train and various functions related to it. The Railway Enquiry System facilitates the passengers to enquire about the trains available on the basis of train number and train name, enquire about the status of the booked ticket, locating the live station of the train and the railway stations available in a particular geographical region. The aim of this project is to design and develop a web application for the users incorporated with these features. This project uses various available Railway APIs provided by RapidAPI.

2.1. Objective

To design an online website for tourists travelling through railways, through which the users are provided with the details of a train and various functions related to it. It facilitates the passengers to

- Find the Train with train number
- Live station
- Find train by name
- Find Station
- Check the PNR status

2.2. General Constraints

All computer software needs certain hardware components and also other software resources to be present, in order for computers to be used efficiently. These pre-requisites are known as System Requirements. System Requirements are of two types – Software Requirements and Hardware Requirements.

2.2.1. Hardware Constraints

Hardware Requirements refer to the common set of requirements defined by any operating system or software application and are usually the physical computer resources. In this we look into the architecture, processing power, memory, secondary memory, display adapter and peripherals.

In order to use Railway Enquiry System, one should have the following hardware requirements:

- Any device like smart phones with OS or the desktops/laptops having a browser to access the website

2.2.2. Software Constraints

Software Requirements deal with defining the software resource requirements and prerequisites that need to be installed on a computer to provide optimal functioning of an application. These preconditions are generally not included in the software package and need to be installed separately.

In order to use Railway Enquiry System, one should have the following software requirements:

- Server side: Rest API
- Client side: Any network enabled device which is able to connect to the server and can run the browser will be able to open the website

2.3. Characteristics

- **User Friendly: -** The proposed website is user friendly because the retrieval and storing of data is fast and data is maintained efficiently. Moreover, the user interface which is provided in the proposed website, which provides user to deal with the system very easily.

- **Computer operator control**: Computer operator control will be there so no chance of errors. Moreover, storing and retrieving of information is easy. So, work can be done speedily and in time.

3. RELATED WORK

3.1. EXISTING SYSTEM

The official government railway website such as IRCTC has features such as

- Catering & Hospitality
- Internet Ticketing
- Travel &Tourism
- Packaged Drinking Water (Rail Neer)

Railway since time immemorial has been the kaleidoscope of tourist in the country. Considering the vast expanse of the country, Railways in India have been moving carrying domestic as well international visitors.

IRCTC, established in 1999, has been mandated by the Government of India to professionalize and upgrade rail-based tourism in the country. Over the last twenty years, IRCTC has been a catalyst in the overall promotion and development of rail tourist across the country.

IRCTC is probably the only organization offering packages ranging from Rs. 900 per day to USD 900 per day.

3.2. LIMITATIONS OF THE EXISTING SYSTEM

The official IRCTC website often shows server error or downtime messages. Its maintenance has been falling down drastically over the past few decades

3.3. PROPOSED MODEL

The model which we are designing has the best service quality. The purpose of this project is to enhance the service quality of Railway Enquiry System and to attain the passenger's satisfaction. In this project we provide users with the details of a train and various functions related to it. The Railway Enquiry System facilitates the passengers to enquire about the trains available on the basis of train number and train name, enquire about the status of the booked ticket, locating the live station of the train and the railway stations available in a particular geographical region. The aim of this project is to design and develop a web application for the users incorporated with these features

4. PROPOSED WORK

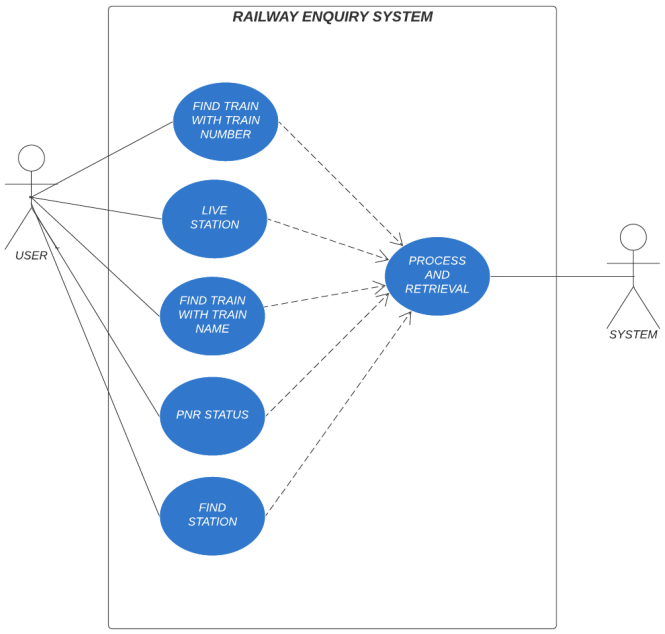
4.1. ACTORS

An actor is a user or external system with which a system being modelled interacts. User and the system are actors in the proposed system.

4.2. USE CASES

A use case is a methodology used in system analysis to identify, clarify and organize system requirements. The use case is made up of a set of possible sequences of interactions between systems and users in a particular environment and related to a particular goal. The method creates a document that describes all the steps taken by a user to complete an activity.

USE CASE DIAGRAM



4.2.1. USER USE CASES

4.2.1.1. FIND TRAIN WITH TRAIN NUMBER

Firstly, the user is required to enter the train number in the search box. The user is given the option to get to know the train details such as

1) Train name
2) From (Place)
3) Destination (Place)
4) Arrival time and departure time
5) Availability of train on particular days of a week.

4.2.1.2. FIND TRAIN BY NAME

Firstly, the user is required to enter the train name in the search box. The user is given the option to get to know the train details such as

1) Train name
2) From (Place)
3) Destination (Place)
4) Arrival time and departure time
5) Availability of train on particular days of a week

4.2.1.3. LIVE STATION

Using this feature the user can get the details of the running train. The user is required to enter the train ID and date of journey.

The following status of the train gets displayed –

1) Train ID
2) Train Number
3) From (Place)
4) Destination (Place)
5) Departure status

6) Termination status
7) Date and time of departure
8) Alert message
9) Train is Late by (in minutes)

4.2.1.4. PNR STATUS

The user is required to enter the PNR number first. The details such as –

1) Train number
2) Train name
3) From (Place)
4) Destination (To)
5) Boarding date
6) Class
7) Chart status
8) Last Updated

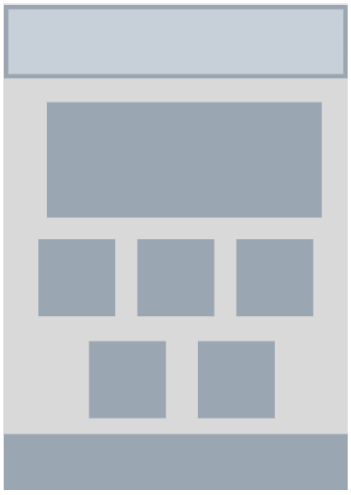
4.2.1.5. FIND STATION

The user is required to enter the required station details. There will be a list of Trains displayed running through that station.

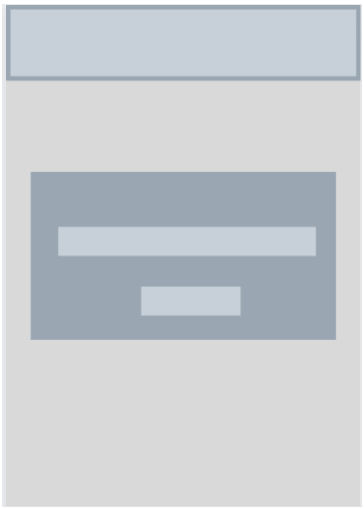
4.3. UI PROTOTYPES

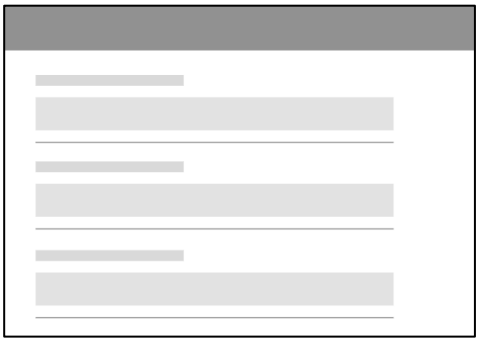
A prototype is a simulation or sample version of a final product, which teams use for testing before launch. The goal of a prototype is to test and validate ideas before sharing them with stakeholders and eventually passing the final designs to engineering teams for development. Prototypes are essential for identifying and solving user pain points with participants during usability testing.

4.3.1. HOME PAGE

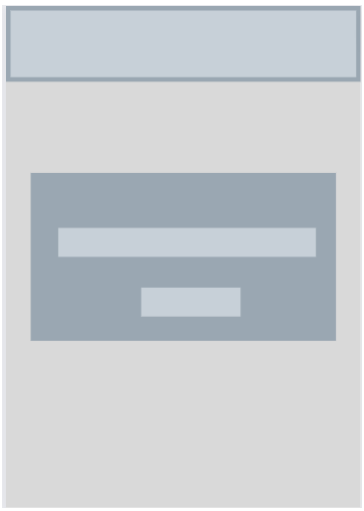


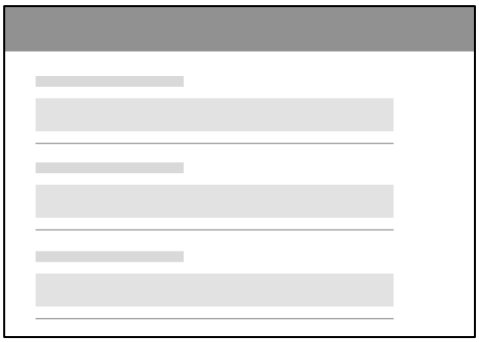
4.3.2. FIND TRAIN BY NUMBER



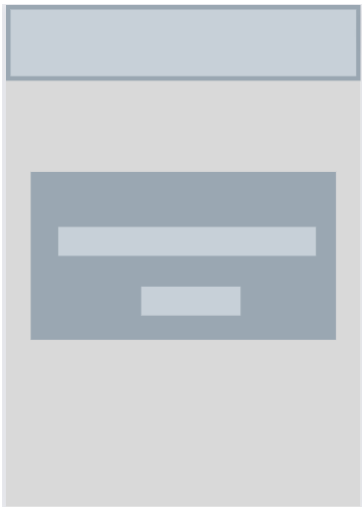


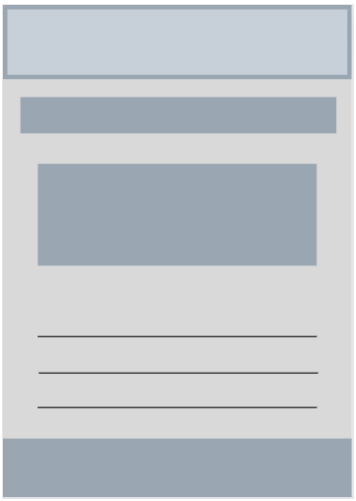
4.3.3. FIND TRAIN BY NAME



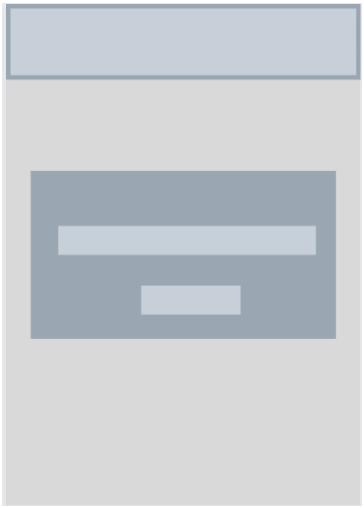


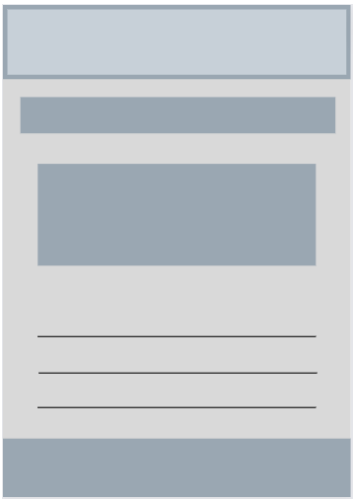
4.3.4. PNR STATUS



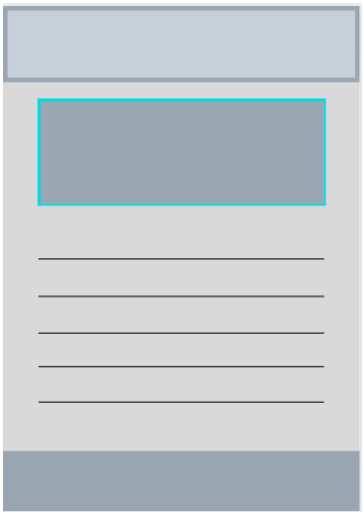


4.3.5. FIND STATION





4.3.6. LIVE STATION



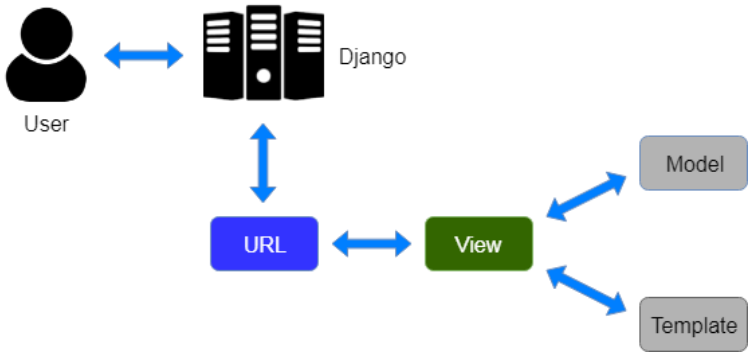
4.4. ARCHITTECTURE AND TECHNOLOGY USED

4.4.1. ARCHITECTURE

4.4.1.1. DJANGO ARCHITECTURE

Django is based on the MVT Architecture: Model, View and Template. It is a software design pattern for developing a web application. It has the following three parts:

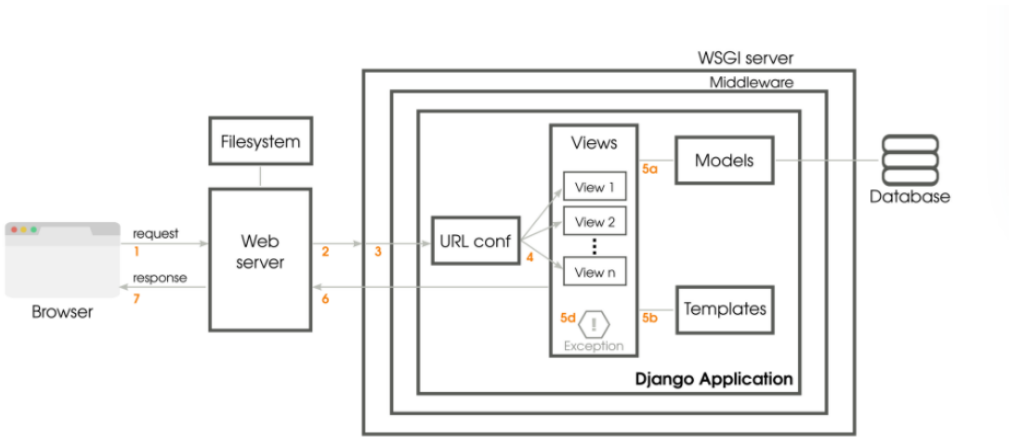
- Model: It acts as the data access layer which handles the data and the database. It is responsible for maintaining data. It is the logical data structure behind the entire application and is represented by a database (MySQL, Postgres, etc.).
- View: It is the user interface. It interacts with the model and renders a template. It is used to display our template using HTML, CSS and JavaScript files.
- Template: It acts as the presentation layer which handles the UI completely. It consists of the static parts of the desired HTML output as well as some special syntax describing how dynamic content will be inserted.



4.4.1.2. OVERALL ARCHITECTURE

In Django, every view is associated with a URL. So, when the user clicks anything, Django first checks whether the URL exists or not. Then, it displays the View associated with that URL. Each view has association with a Model and a Template. Whatever is

present in the template, is displayed using the view, and any data is pulled from the database using the Model.



4.4.2. TECHNOLOGY USED

4.4.2.1. FRONTEND

Front-end web development is the development of the graphical user interface of a website, through the use of HTML, CSS, and JavaScript, so that users can view and interact with that website.

4.4.2.2. HTML

The HyperText Markup Language, or HTML is the standard markup language for documents designed to be displayed in a web browser. It uses different tags in the language to format web pages.

4.4.2.3. CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. It adds style – fonts, colors, spacing, etc. – to Web documents.

4.4.2.4. JAVASCRIPT

JavaScript often abbreviated JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. It is a lightweight, interpreted or just-in-time compiled programming language with first-class functions.

4.4.2.5. BOOTSTRAP

Bootstrap is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first websites. It is an opensource toolkit used for quickly designing custom, responsive and powerful websites.

4.4.3. BACKEND

4.4.3.1. DJANGO

Django is a high-level Python web framework that encourages rapid development and clean, pragmatic design. It takes care of much of the hassle of web development, so you can comfortably code your app. Some other advantages of Django are: it's heavy security, high scalability and increasing versatility.

It uses Python as its major backend language and provides the SQLite database by default.

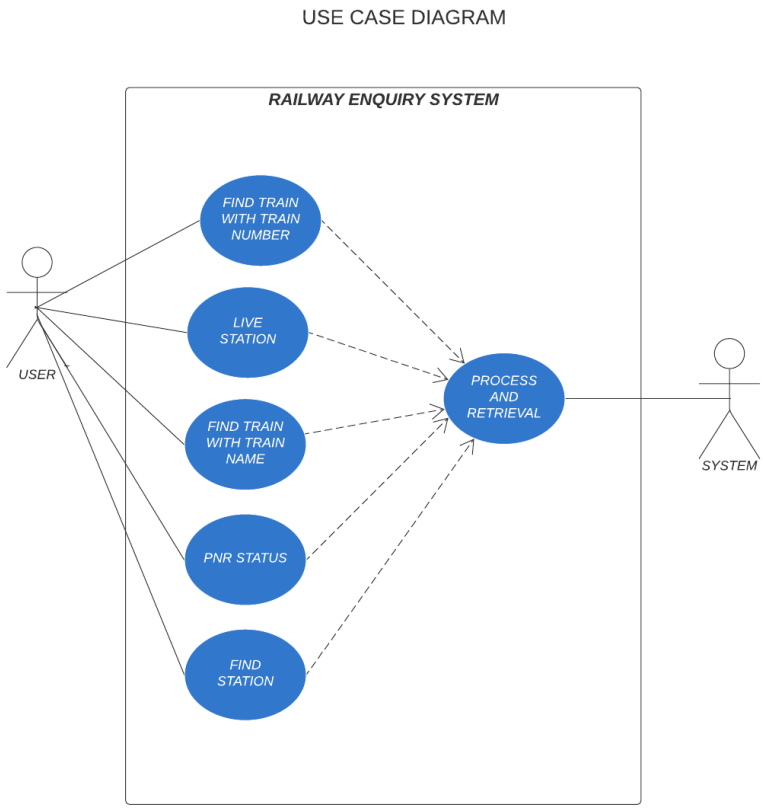
4.4.3.2. PYTHON

Python is an interpreted high-level general-purpose programming language. Its design philosophy emphasizes code readability with its use of significant indentation. Its language constructs as well as its object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.

4.5. DESIGN

4.5.1. USE CASE DIAGRAM

A Use Case diagram is a graphical depiction of a user's possible interaction with a system. A use case diagram shows various use cases and different types of users the system has. The use cases are represented by ellipses and the actors by stick figures.



4.6. IMPLEMENTATION

4.6.1. FIND TRAIN WITH TRAIN NUMBER

Firstly, the user is required to enter the train number in the search box. The user is given the option to get to know the train details such as

1) Train name
2) From (Place)
3) Destination (Place)
4) Arrival time and departure time
5) Availability of train on particular days of a week.

4.6.2. FIND TRAIN BY NAME

Firstly, the user is required to enter the train name in the search box. The user is given the option to get to know the train details such as

1) Train name
2) From (Place)
3) Destination (Place)
4) Arrival time and departure time
5) Availability of train on particular days of a week

4.6.3. LIVE STATION

Using this feature the user can get the details of the running train. The user is required to enter the train ID and date of journey.

The following status of the train gets displayed –

1) Train ID
2) Train Number
3) From (Place)
4) Destination (Place)
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6) Termination status
7) Date and time of departure
8) Alert message
9) Train is Late by (in minutes)

4.6.4. PNR STATUS

The user is required to enter the PNR number first. The details such as –

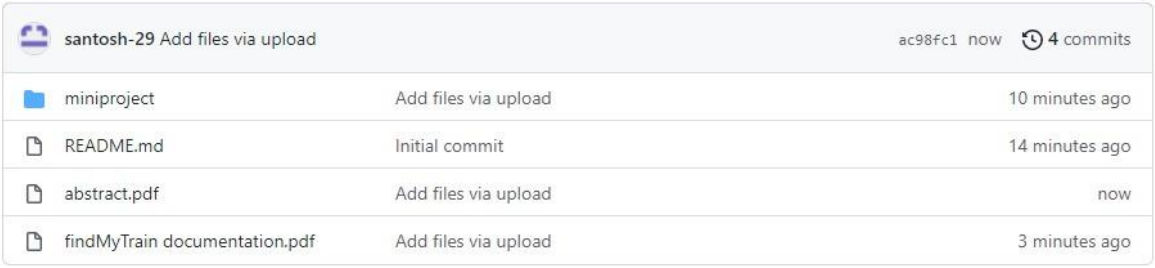
1) Train number
2) Train name
3) From (Place)
4) Destination (To)
5) Boarding date
6) Class
7) Chart status
8) Last Updated

4.6.5. FIND STATION

The user is required to enter the required station details. There will be a list of Trains displayed running through that station.

4.7. GITHUB/FOLDER STRUCTURE

Based on the actual code and documentation files, we have segregated into two different folders – documentation and RailwayEnquirySystem.



4.8. TESTING

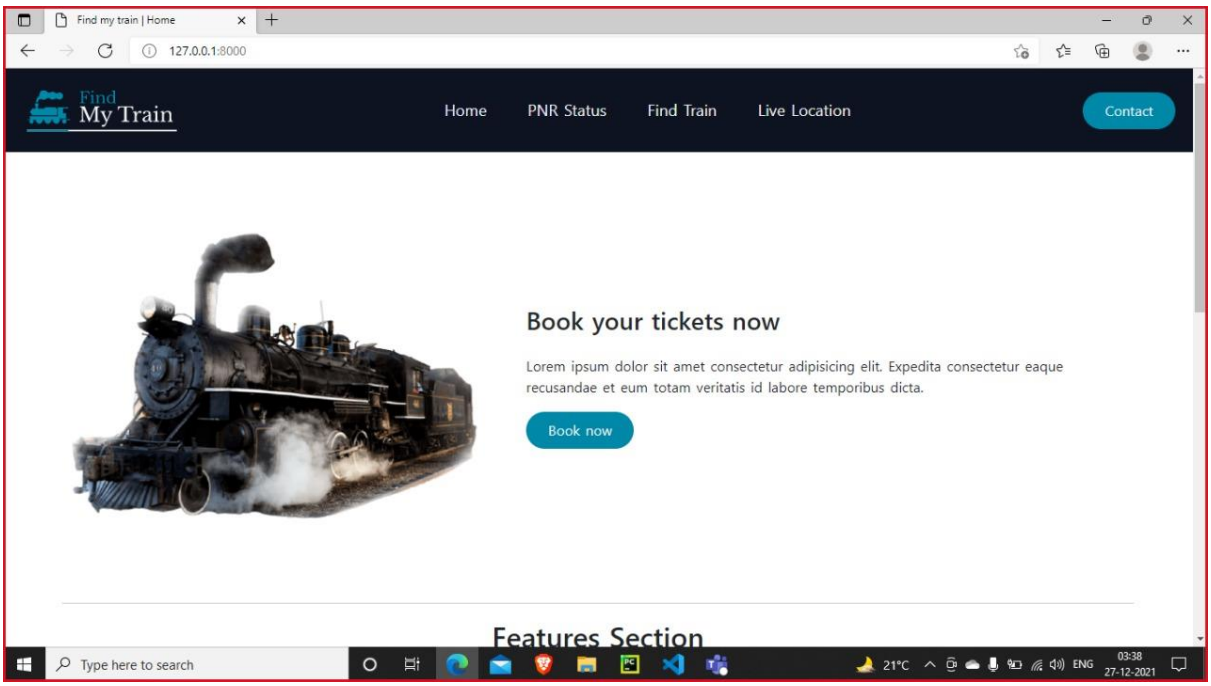
Testing refers to the approach in which a thorough investigation is conducted to provide stakeholders with information about the quality of the product or service under test. It allows us an objective, independent view of the software created.

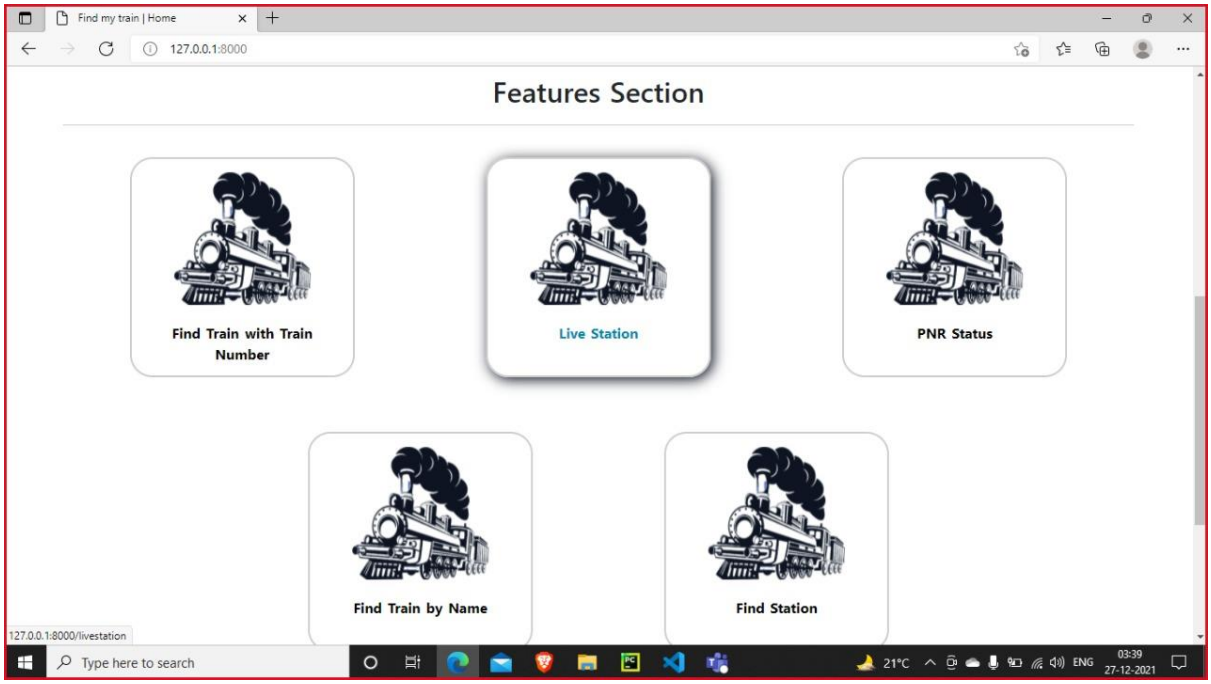
In this project, we have done the basic testing. The testing techniques taken include:

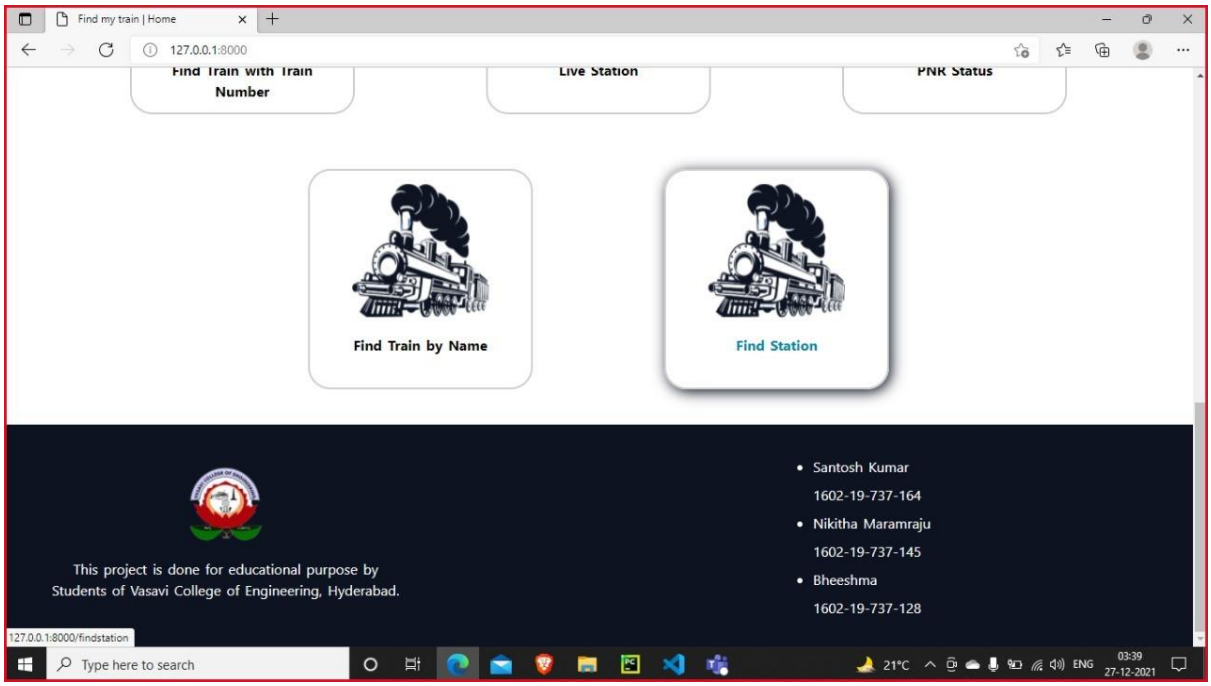
i. Execution of the program with the aim of finding errors
ii. Testing functionality of each use case

5. RESULT

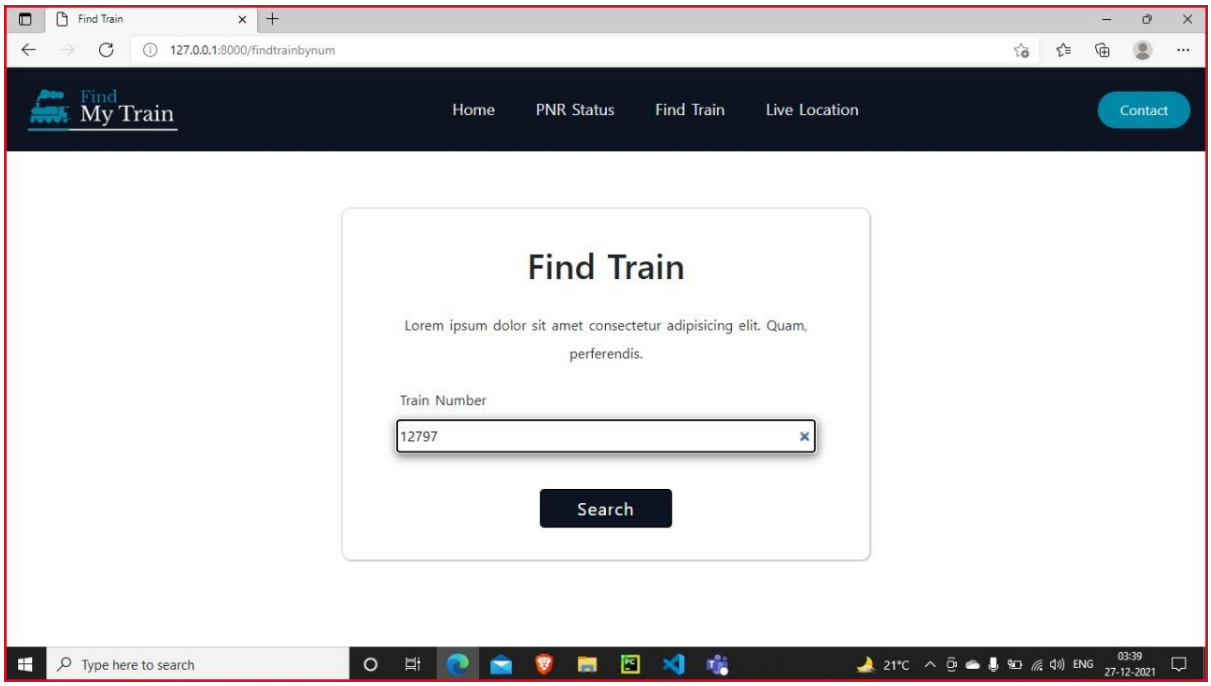
5.1. HOME PAGE

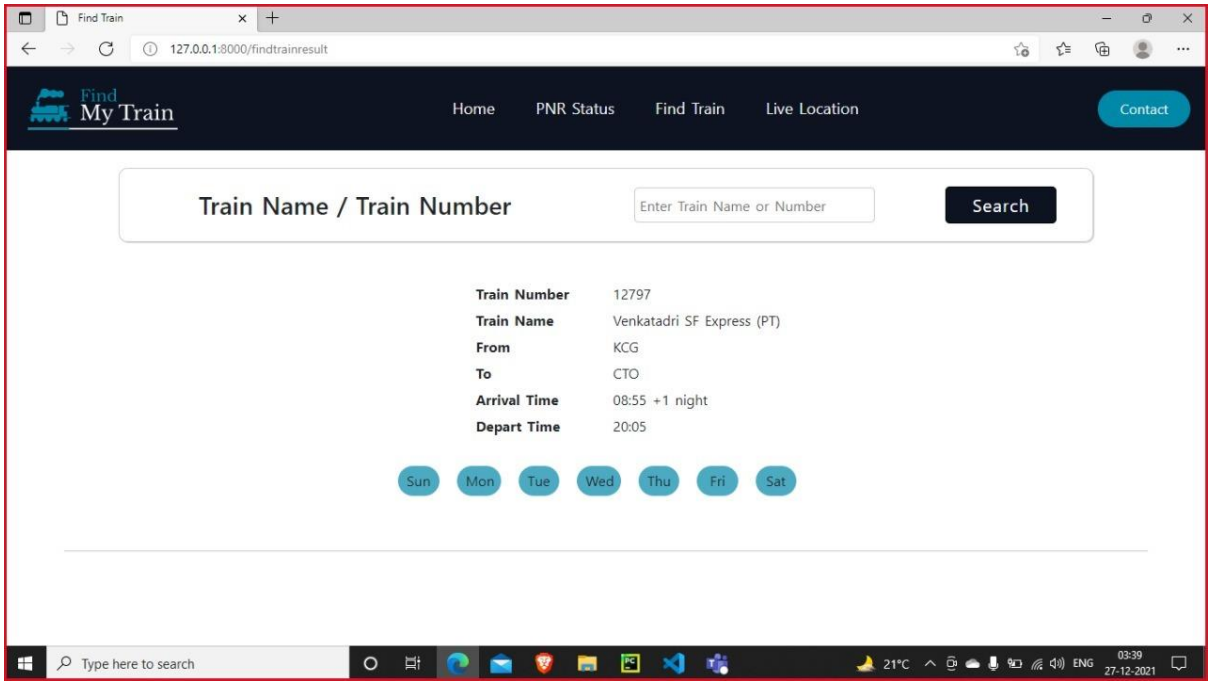




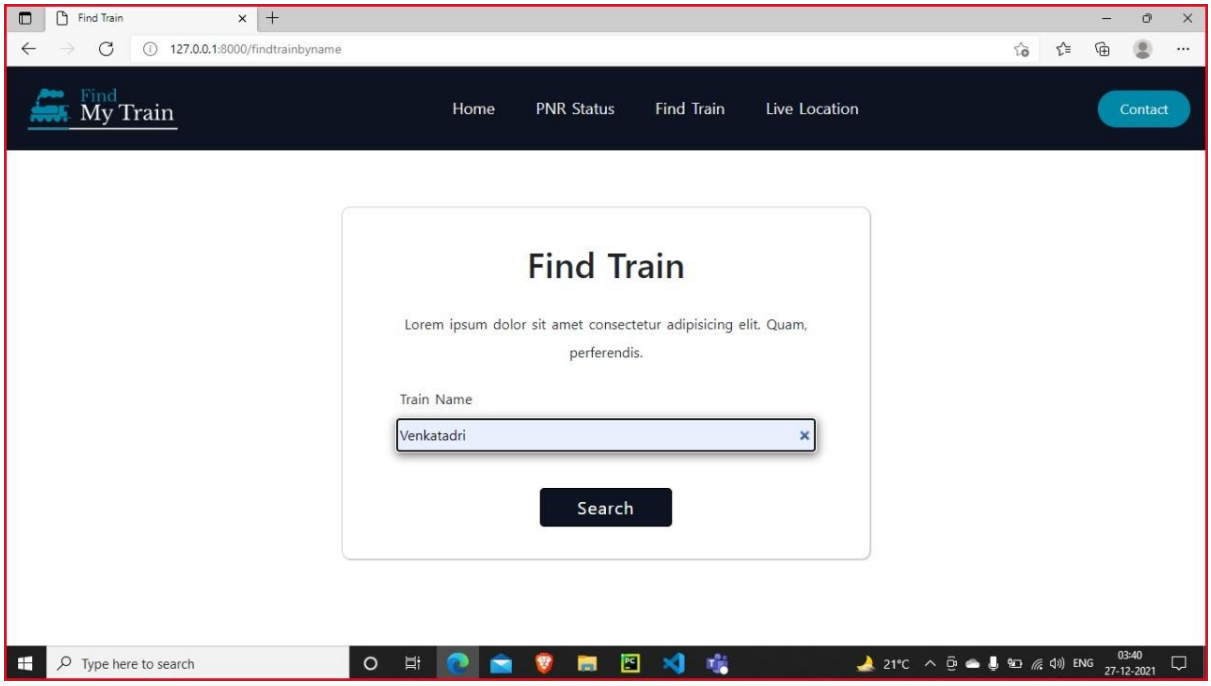


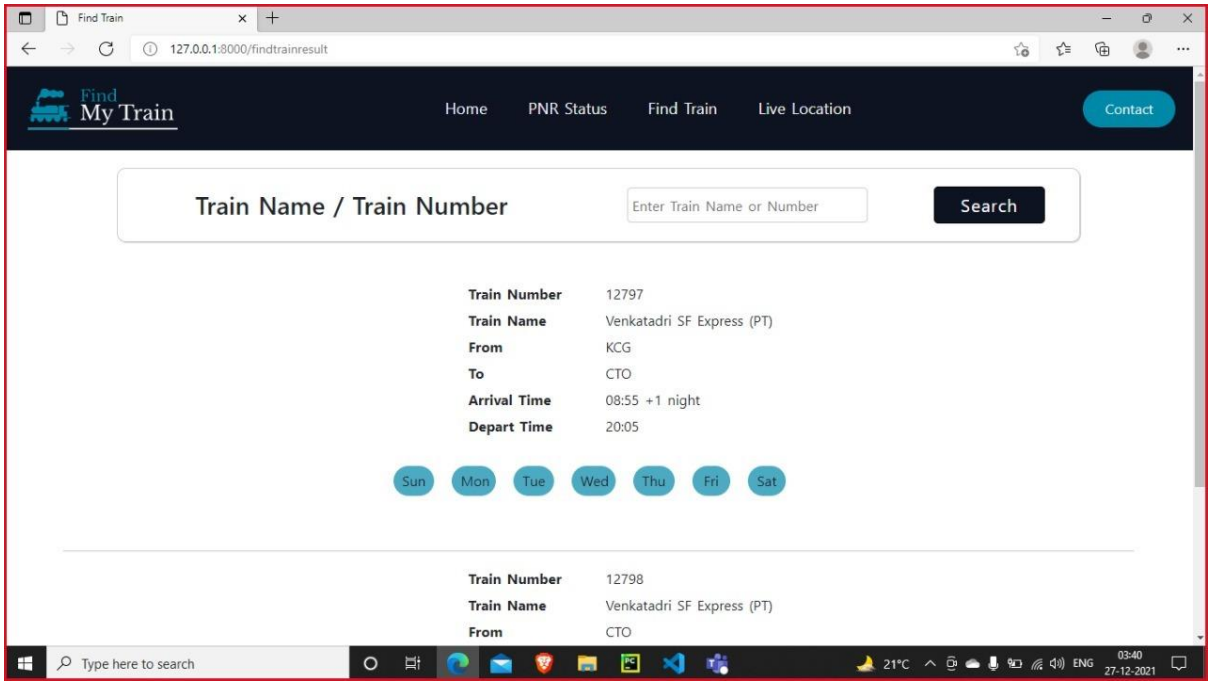
5.2. FIND TRAIN WITH TRAIN NUMBER



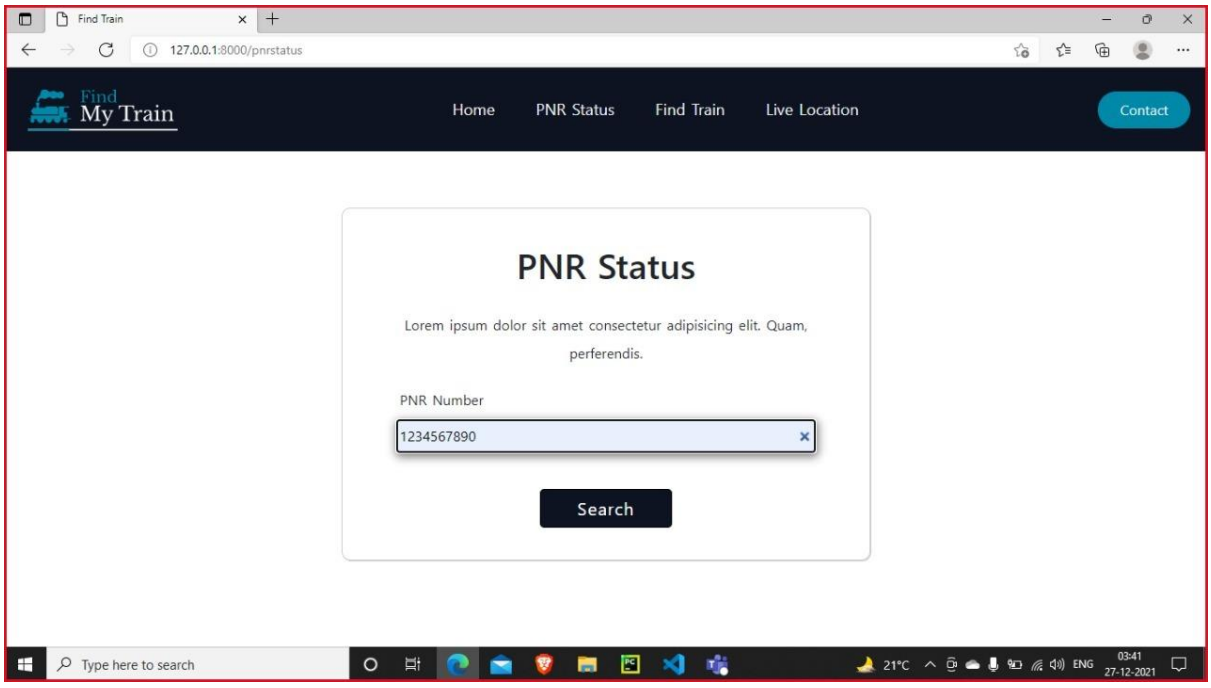


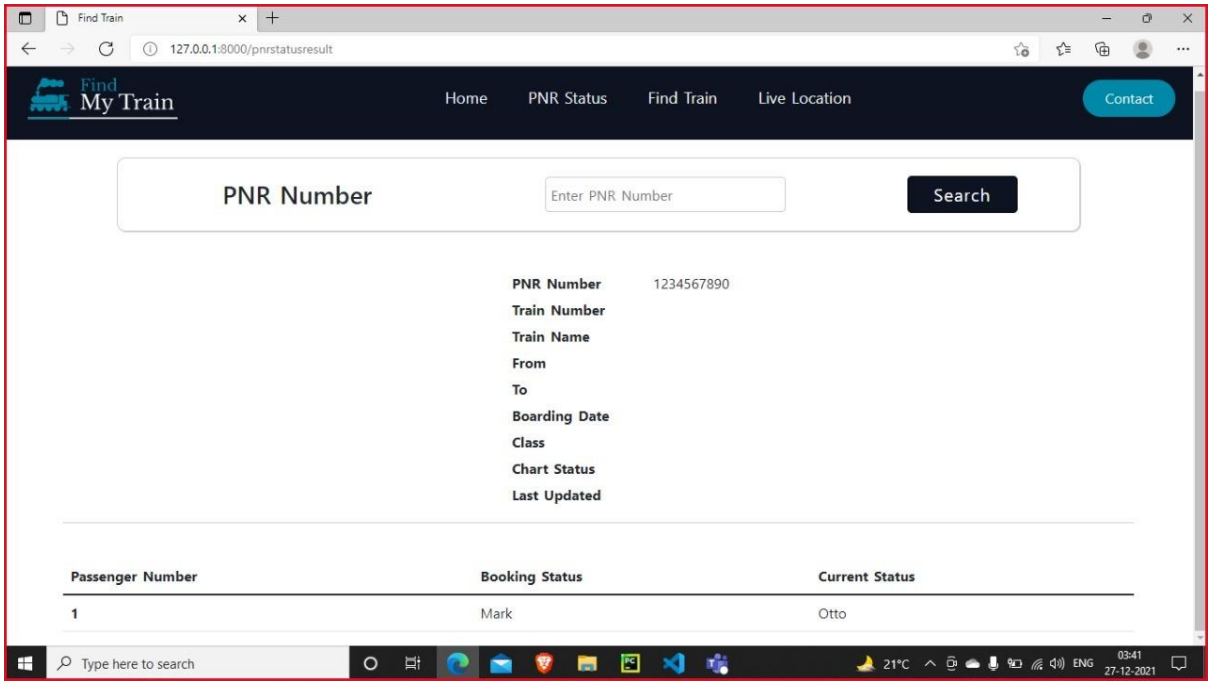
5.3. FIND TRAIN WITH TRAIN NAME



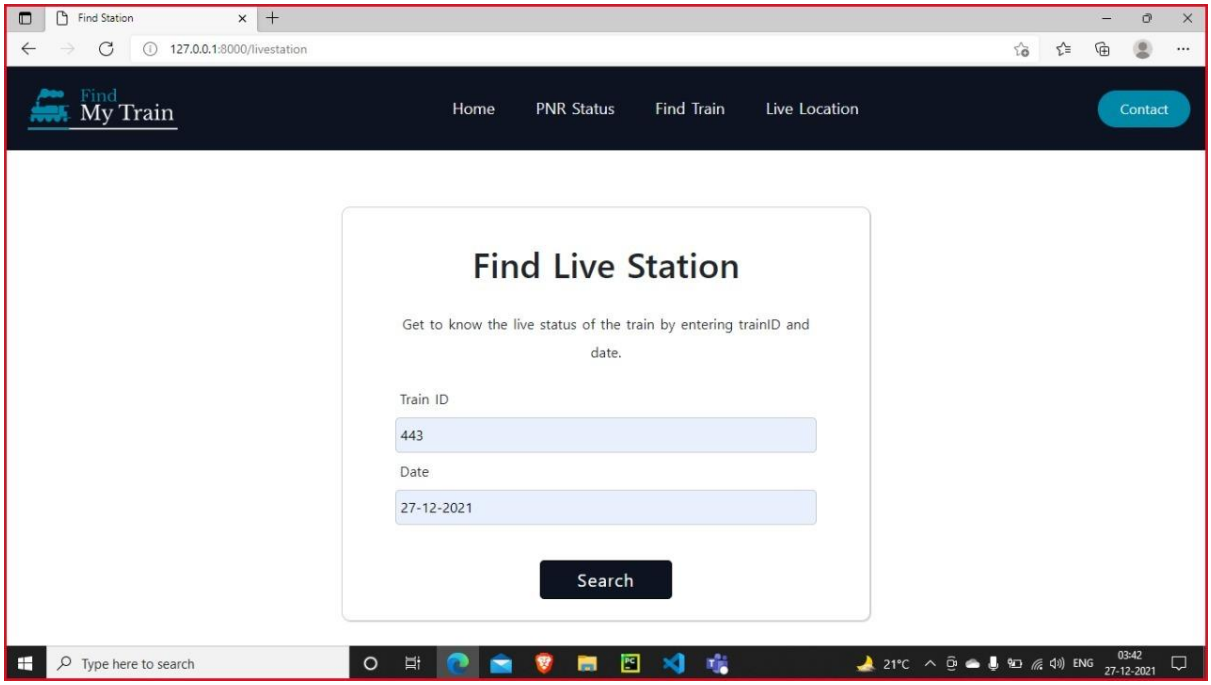


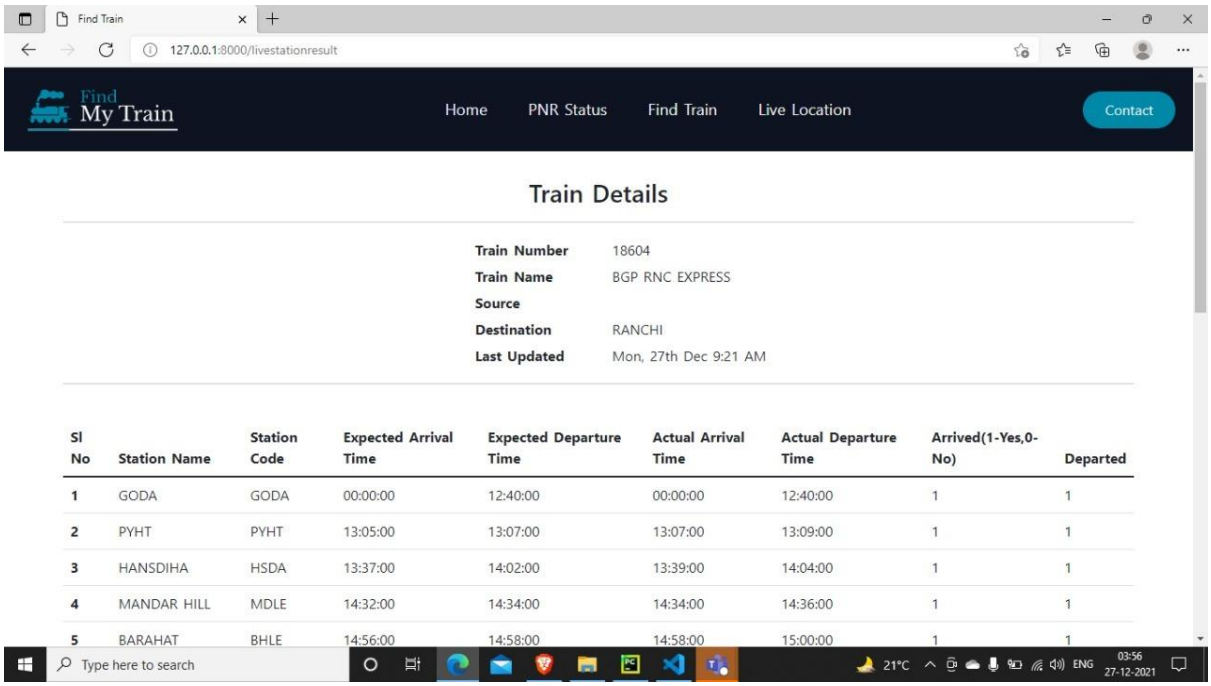
5.4. PNR STATUS



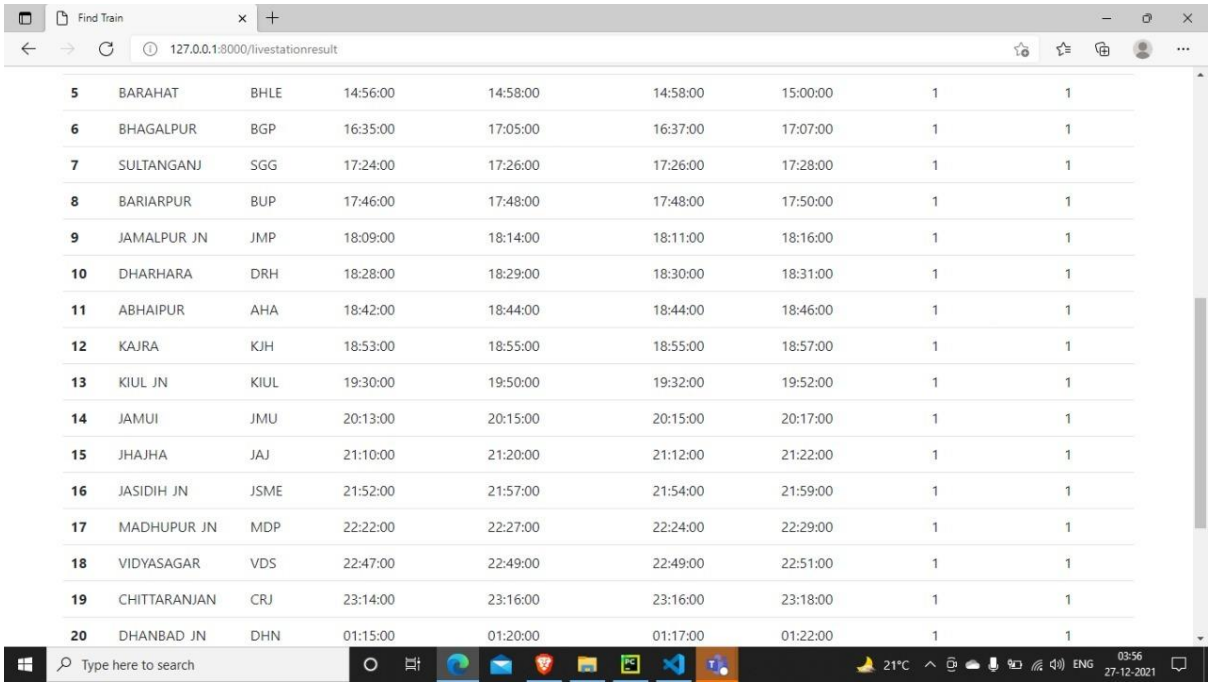


5.5. LIVE STATION

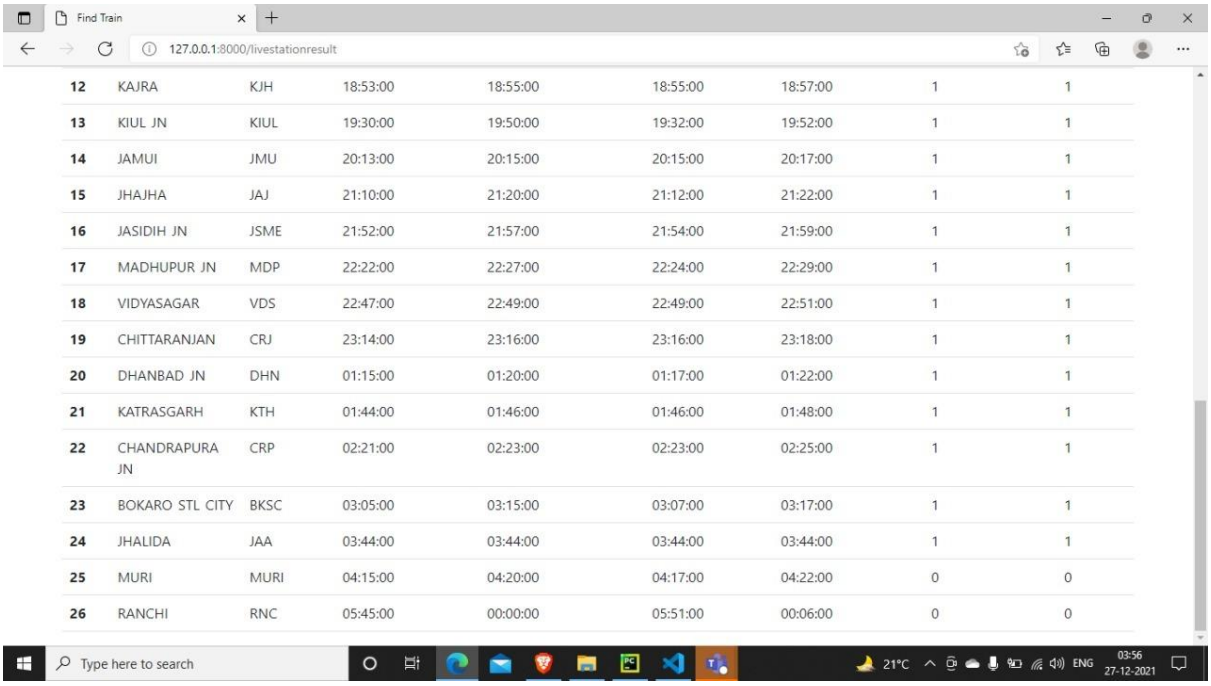




Sl No	Station Name	Station Code	Expected Arrival Time	Expected Departure Time	Actual Arrival Time	Actual Departure Time	Arrived(1-Yes,0-No)	Departed
1	GODA	GODA	00:00:00	12:40:00	00:00:00	12:40:00	1	1
2	PYHT	PYHT	13:05:00	13:07:00	13:07:00	13:09:00	1	1
3	HANSDIHA	HSDA	13:37:00	14:02:00	13:39:00	14:04:00	1	1
4	MANDAR HILL	MDLE	14:32:00	14:34:00	14:34:00	14:36:00	1	1
5	BARAHAT	BHLE	14:56:00	14:58:00	14:58:00	15:00:00	1	1

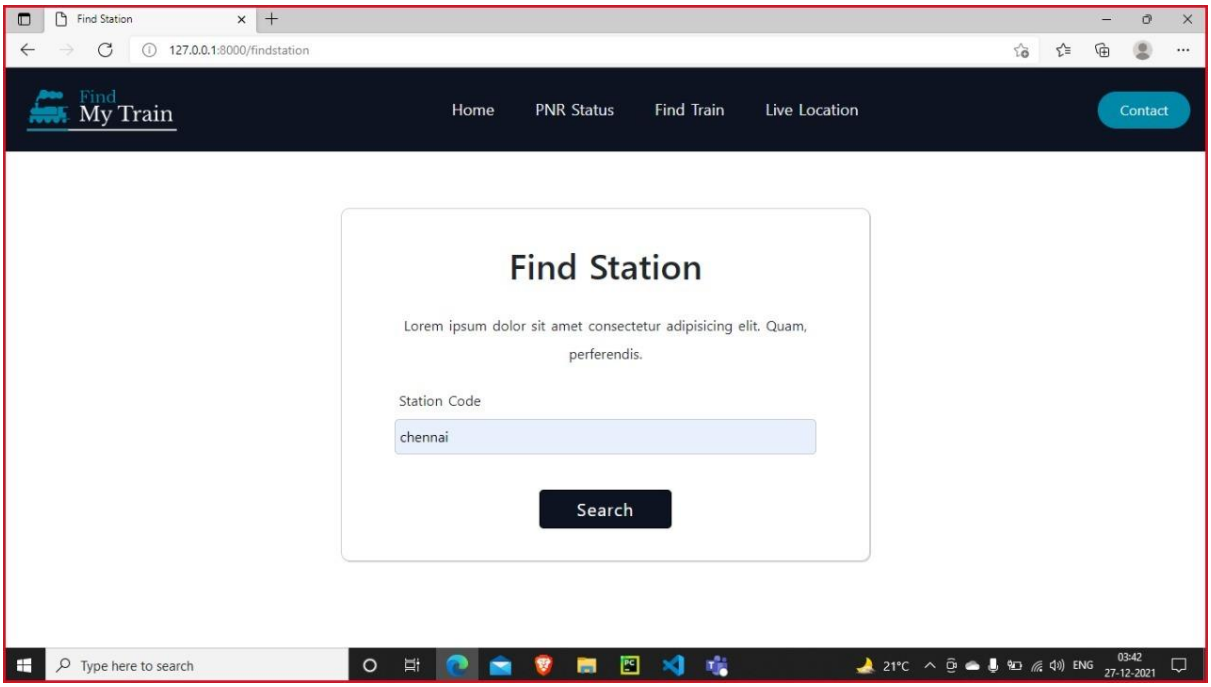


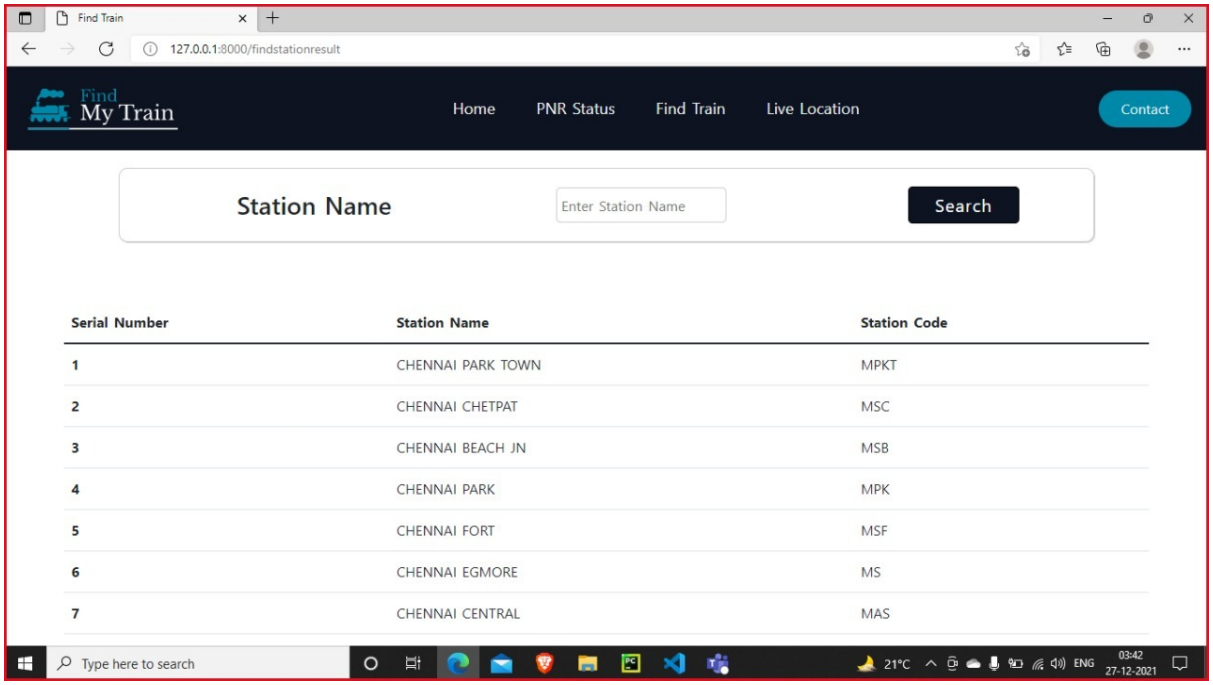
5	BARAHAT	BHLE	14:56:00	14:58:00	14:58:00	15:00:00	1	1
6	BHAGALPUR	BGP	16:35:00	17:05:00	16:37:00	17:07:00	1	1
7	SULTANGANJ	SGG	17:24:00	17:26:00	17:26:00	17:28:00	1	1
8	BARIARPUR	BUP	17:46:00	17:48:00	17:48:00	17:50:00	1	1
9	JAMALPUR JN	JMP	18:09:00	18:14:00	18:11:00	18:16:00	1	1
10	DHARHARA	DRH	18:28:00	18:29:00	18:30:00	18:31:00	1	1
11	ABHAIPUR	AHA	18:42:00	18:44:00	18:44:00	18:46:00	1	1
12	KAJRA	KJH	18:53:00	18:55:00	18:55:00	18:57:00	1	1
13	KIUL JN	KIUL	19:30:00	19:50:00	19:32:00	19:52:00	1	1
14	JAMUI	JMU	20:13:00	20:15:00	20:15:00	20:17:00	1	1
15	JHAJHA	JAJ	21:10:00	21:20:00	21:12:00	21:22:00	1	1
16	JASIDIH JN	JSME	21:52:00	21:57:00	21:54:00	21:59:00	1	1
17	MADHUPUR JN	MDP	22:22:00	22:27:00	22:24:00	22:29:00	1	1
18	VIDYASAGAR	VDS	22:47:00	22:49:00	22:49:00	22:51:00	1	1
19	CHITTARANJAN	CRJ	23:14:00	23:16:00	23:16:00	23:18:00	1	1
20	DHANBAD JN	DHN	01:15:00	01:20:00	01:17:00	01:22:00	1	1



12	KAJRA	KJH	18:53:00	18:55:00	18:55:00	18:57:00	1	1
13	KIUL JN	KIUL	19:30:00	19:50:00	19:32:00	19:52:00	1	1
14	JAMUI	JMU	20:13:00	20:15:00	20:15:00	20:17:00	1	1
15	JHAJHA	JAJ	21:10:00	21:20:00	21:12:00	21:22:00	1	1
16	JASIDIH JN	JSME	21:52:00	21:57:00	21:54:00	21:59:00	1	1
17	MADHUPUR JN	MDP	22:22:00	22:27:00	22:24:00	22:29:00	1	1
18	VIDYASAGAR	VDS	22:47:00	22:49:00	22:49:00	22:51:00	1	1
19	CHITTARANJAN	CRJ	23:14:00	23:16:00	23:16:00	23:18:00	1	1
20	DHANBAD JN	DHN	01:15:00	01:20:00	01:17:00	01:22:00	1	1
21	KATRASGARH	KTH	01:44:00	01:46:00	01:46:00	01:48:00	1	1
22	CHANDRAPURA JN	CRP	02:21:00	02:23:00	02:23:00	02:25:00	1	1
23	BOKARO STL CITY	BKSC	03:05:00	03:15:00	03:07:00	03:17:00	1	1
24	JHALIDA	JAA	03:44:00	03:44:00	03:44:00	03:44:00	1	1
25	MURI	MURI	04:15:00	04:20:00	04:17:00	04:22:00	0	0
26	RANCHI	RNC	05:45:00	00:00:00	05:51:00	00:06:00	0	0

5.6. FIND STATION




Find Train
127.0.0.1:8000/findstationresult
Find My Train
Home
PNR Status
Find Train
Live Location
Contact
Station Name
Enter Station Name
Search
Serial Number
Station Name
Station Code
1
CHENNAI PARK TOWN
MPKT
2
CHENNAI CHETPAT
MSC
3
CHENNAI BEACH JN
MSB
4
CHENNAI PARK
MPK
5
CHENNAI FORT
MSF
6
CHENNAI EGMORE
MS
7
CHENNAI CENTRAL
MAS
Type here to search
21°C
ENG
03:42
27-12-2021

6. DISCUSSION AND FUTURE WORK

In this project, we have addressed the various railway enquiry features such as finding train by number, finding train by name, PNR status, live station, search station

We have developed an online webapp to include all these features mentioned above. This has been done by using Django framework because of its rapid development and scalability.

In future, we would like to incorporate more features like-Train tickets booking, probability of confirmation booking the tickets using ML, uploading railway blogs.

Also, this web application can be created into a mobile application using the Flutter framework and Firebase as the database.

7. REFERENCES

Django Documentation: https://docs.djangoproject.com/en/4.0/

GeeksForGeeks Django Tutorial: https://www.geeksforgeeks.org/django-tutorial/

Stack Overflow (for debugging): https://stackoverflow.com/

Bootstrap Documentation: https://getbootstrap.com/docs/4.1/getting-started/introduction/