A Mini Project Report

on

"Pune Metro Rail Booking System"

Group Id: 04

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Abstract

This project contains Introduction to the Pune Metro Rail Database Management System. It is the computerized system of reserving the seats of train seats in advanced. It is can be used for short as well as long route. Online reservation has made the process for the reservation of seats very much easier than ever before. This project contains entity relationship model diagram based on railway reservation system and introduction to relation model. There is also design of the database of the railway reservation system based on relation model. Example of some SQL queries to retrieves data from rail management database.

Acknowledgement

Firstly, we would like to thank our teacher and guide professor Dr.Emmanuel who gave us his valuable suggestions and ideas when we were in need of them. He encouraged us to work on this project. We would also like to thank our Subject Coordinator professor Mr. R. B. Murumkar for giving us the opportunity to work on this project.

We are also grateful to our college for giving us the opportunity to work with them and providing us with the necessary resources for the project. We would also like to thank all of them who helped us to complete this project. We are immensely grateful to all involved in this project as without their inspiration and valuable suggestions it would not have been possible to develop the project within the prescribed time.

CHAPTER 1

INTRODUCTION

1.1 Purpose

- The main purpose of maintaining database for Railway Reservation System is to reduce the manual errors involved in the booking and cancelling of tickets
- Make it convenient for the customers and providers to maintain the data about their customers and also about the seats available for them.
- Due to automation many loopholes that exist in the manual maintenance of the records can be removed. The speed of obtaining and processing the data will be fast.

1.2 Scope

- To design and develop a database maintaining the records of different trains, train status & passengers.
- The main purpose of maintaining database for Pune Metro Management System is to reduce the manual error involved in the booking and cancelling of tickets.
- The speed of obtaining and processing the data will be faster.
- To increase the accuracy, efficiency & reduce operation time.
- To design Improved & Optimized booking system.
- No Need to do paperwork & due to automation many issues and errors that exist in the manual maintenance of the records can be removed.

1.3 Definition, Acronym, and Abbreviations

Implement a Web Based Relational Database Management System for Pune Metro Rail Booking system using React, an open source JavaScript library for building user interfaces, Node.js along with MySQL in the back end.
DBMS: Database management system
RDBMS: Relational Database management system.
DB: Database
SQL: Structured Query Language
JS: JavaScript

1.4 References

- https://www.punemetrorail.org
- https://en.wikipedia.org/wiki/Pune_Metro
- https://www.pmc.gov.in/en/pune-metro-rail-project

1.5 Developers' Responsibilities: An Overview

- Researching, designing, implementing and managing software programs.
- Testing and evaluating new features.
- Identifying areas for modification in existing programs and subsequently developing these modifications.
- Maintaining and upgrading existing systems.
- Working closely with other developers, UX designers, business and systems analysts.
- Determining operational practicality.
- Developing quality assurance procedures.
- Deploying software tools, processes and metrics.

CHAPTER 2

General Description

2.1 Product Function Perspective

We have created a website of Pune Metro Rail Bookings. This site will provide users with various functions of ticket bookings, train information, and other pages which will serve information about Pune metro.

2.2 User Characteristics.

Any person can visit this website. He/she can book any ticket or get some information about Pune metro which will be helpful for him. Basically, it's a website for all the public

2.3 General Constraints

If we see the performance constraints, as we are using the Node.js, and MySQL, the performance will be on top. For web-dev, we are using React-JS which has a very user-friendly interface.

2.4 Assumptions and Dependencies

We can host this website so that everyone can access it, and as it is responsive, users can access it on laptop or on any devices. Also, it will be platform independent.

CHAPTER 3

Specific Requirements

3.1 Inputs and Outputs

The Pune Metro Rail Booking Management System site will be user friendly. Passenger Can book ticket by entering From and To Station. Once the passenger enters the stations the available trains will be displayed, and the passenger can book the ticket. When the passenger will click the book button he/she will have to fill the required details and the ticked will be issued. Also the website will serve as a medium between the authorities and the passengers for communication. If the passenger wants to cancel their ticket they can do so by the cancel ticket page.

3.2 Functional Requirements

In our Pune Metro Rail Booking Management System the functional requirements are the ticket booking system, cancel ticket system, contact us system, etc. If any user enters the stations then the system will first check if stations are present and the tickets are available then only the user can book the ticket.

3.3 Functional Interface Requirements

The website interface is very user friendly. Passenger can book/cancel ticket based on their requirements. As soon as the passenger enters the data it will first be validated and if valid inserted into the database. Then the ticket will be issued. Through the contact page if the user has any query he/she can resolve it.

3.4 Performance Constraints

In this site, we have used ReactJS, Node.js and MySQL. MySQL has Data Security, On-Demand Scalability, High Performance, Round-the-clock Uptime, Complete Workflow Control, etc. Due to these immense advantages of MySQL, and Node.js (Node.js is an open-source, cross-platform, back-end, JavaScript runtime environment) along with ReactJS(React is an open-source, front end, JavaScript library for building user interfaces or UI components).

3.5 Design Constraints

We have considered the railway line from PCMC to Swargate currently. The number of trains we have considered are 8 trains(4 Up and 4 Down). The halt of each train at each station currently set to 25 seconds.

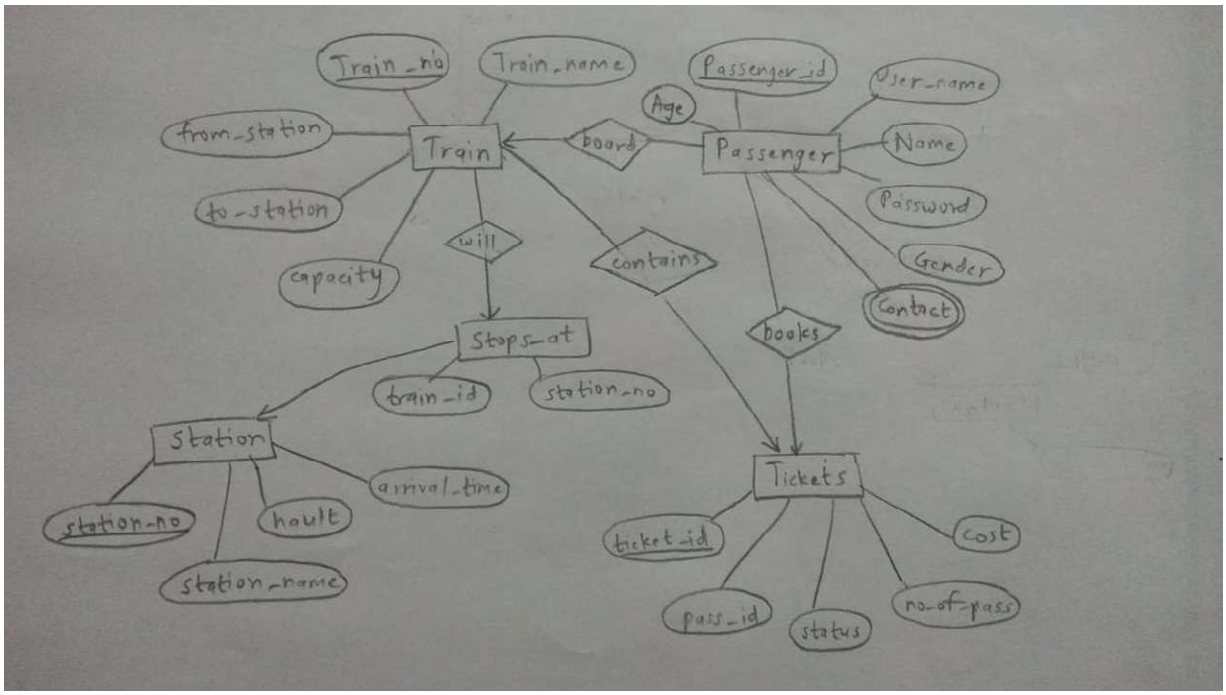
3.6 Acceptance criteria

The Data entered by the user should be valid and the required train should be present, only on this criterion will the ticked be booked.

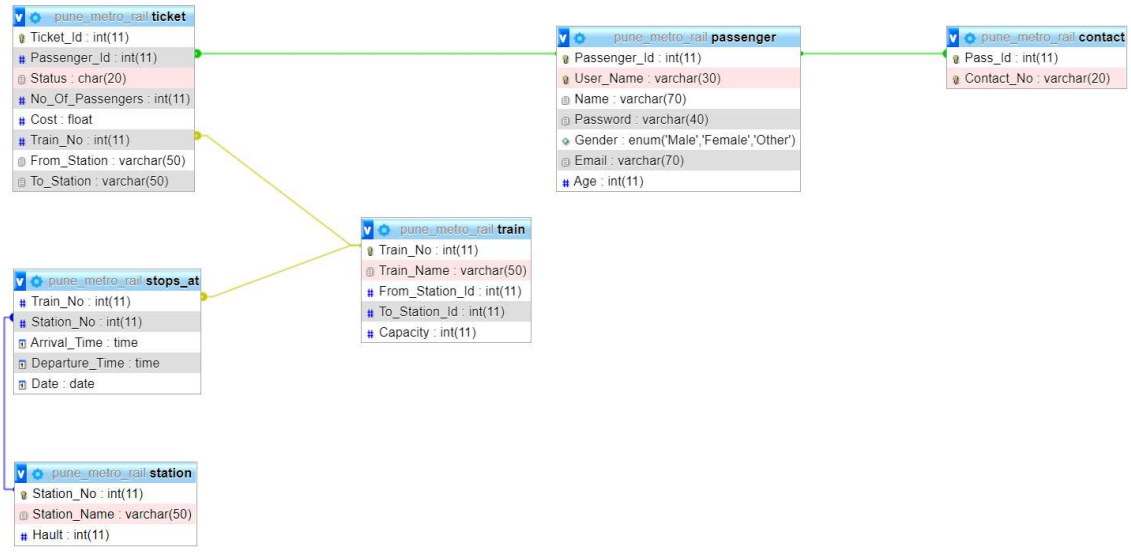
CHAPTER 4

System Design

4.1 ER Model



4.2 Schema Description



4.3 Tables Description

Passenger Table:

Field	Type	Null	Key	Default	Extra
Passenger_Id	int(11)	NO	PRI	*NULL*	auto_increment
User_Name	varchar(30)	NO	PRI	*NULL*	
Name	varchar(70)	NO		*NULL*	
Password	varchar(40)	NO		*NULL*	
Gender	enum('Male','Female','Other')	NO		*NULL*	
Email	varchar(70)	NO		*NULL*	
Age	int(11)	NO		*NULL*	

Contact Table:

Field	Type	Null	Key	Default	Extra
Pass_Id	int(11)	NO	PRI	*NULL*	
Contact_No	varchar(20)	NO	PRI	*NULL*	

Station Table:

Field	Type	Null	Key	Default	Extra
Station_No	int(11)	NO	PRI	*NULL*	auto_increment
Station_Name	varchar(50)	NO		*NULL*	
Hault	int(11)	NO		*NULL*	

Stops_At Table:

Field	Type	Null	Key	Default	Extra
Train_No	int(11)	NO	MUL	*NULL*	
Station_No	int(11)	NO	MUL	*NULL*	
Arrival_Time	time	NO		*NULL*	
Departure_Time	time	NO		*NULL*	
Date	date	NO		*NULL*	

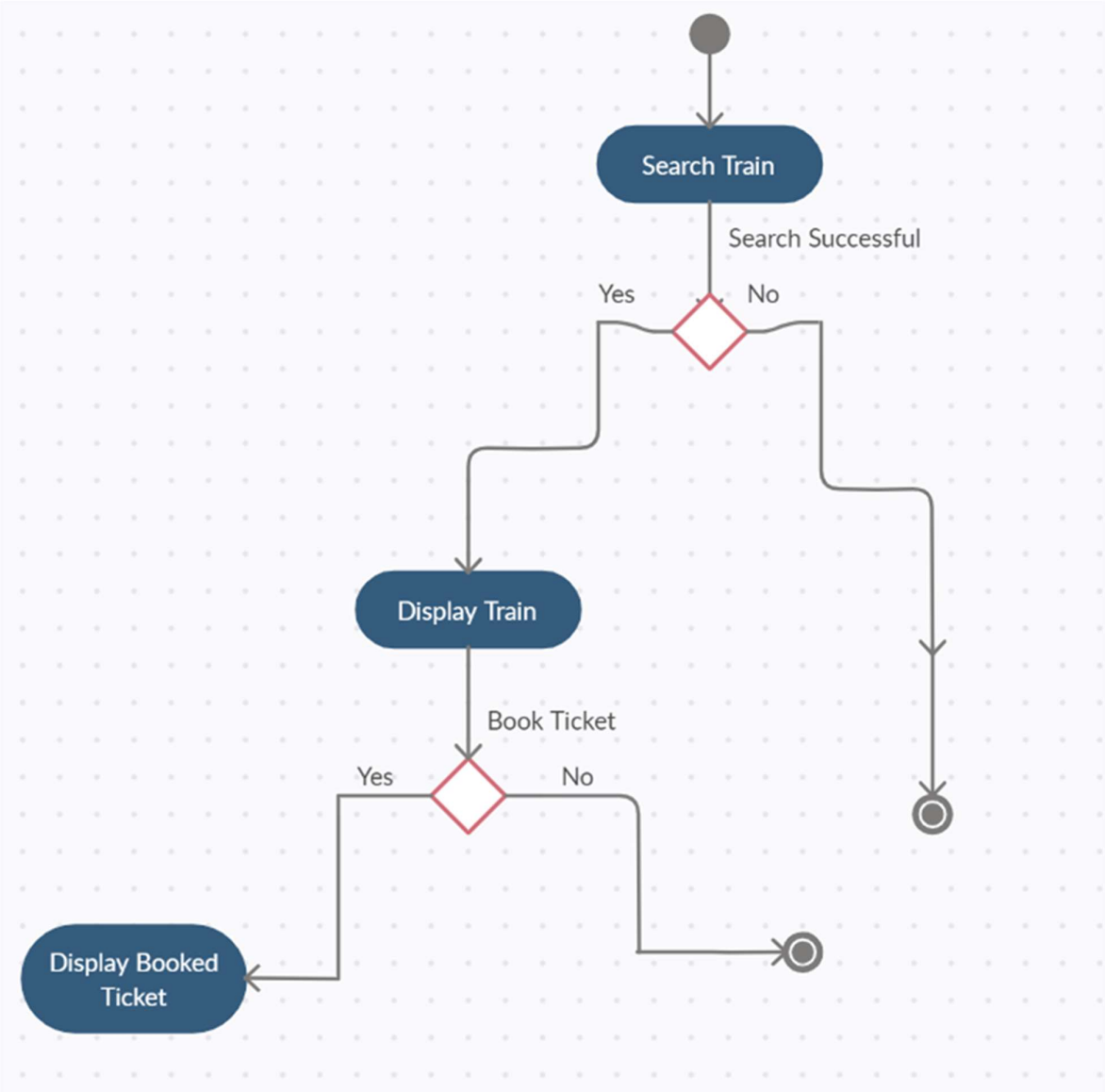
Ticket Table:

Field	Type	Null	Key	Default	Extra
Ticket_Id	int(11)	NO	PRI	*NULL*	auto_increment
Passenger_Id	int(11)	NO	MUL	*NULL*	
Status	char(20)	NO		*NULL*	
No_Of_Passengers	int(11)	NO		*NULL*	
Cost	float	NO		*NULL*	
Train_No	int(11)	NO	MUL	*NULL*	
From_Station	varchar(50)	NO		*NULL*	
To_Station	varchar(50)	NO		*NULL*	

Train Table:

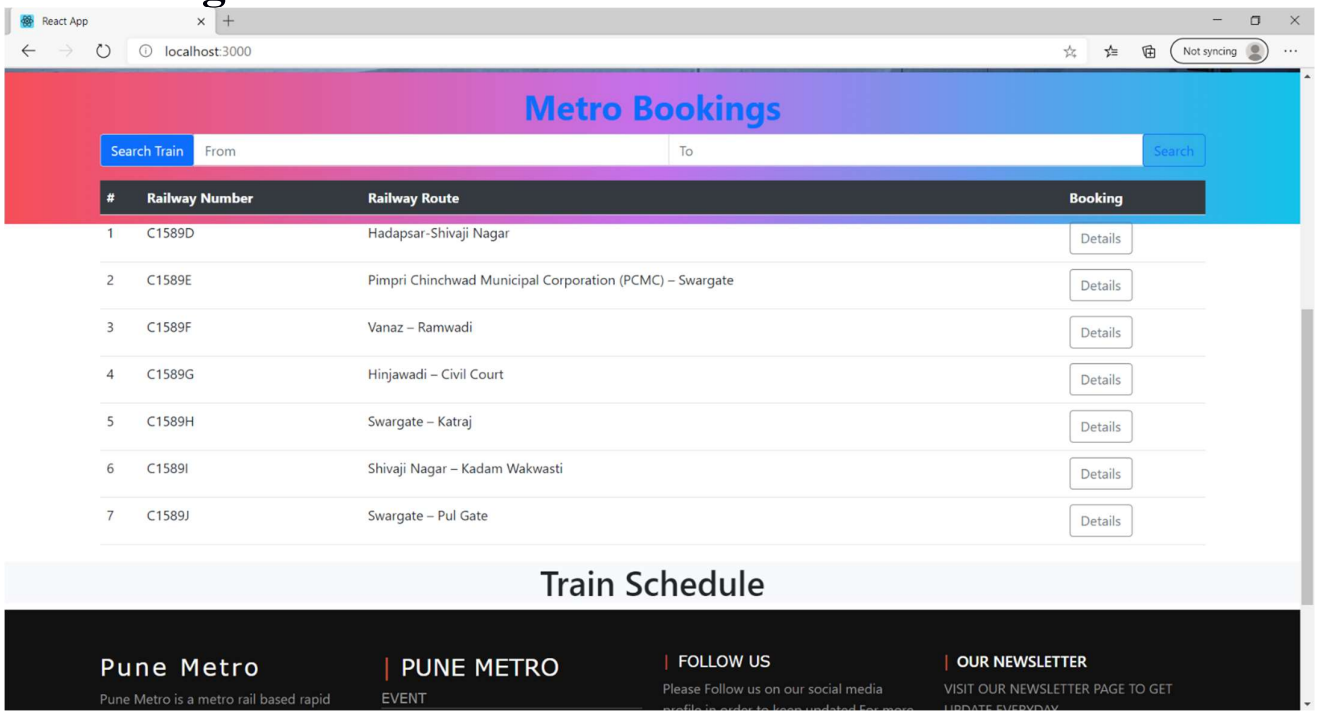
Field	Type	Null	Key	Default	Extra
Train_No	int(11)	NO	PRI	*NULL*	
Train_Name	varchar(50)	NO		*NULL*	
From_Station_Id	int(11)	NO		*NULL*	
To_Station_Id	int(11)	NO		*NULL*	
Capacity	int(11)	NO		*NULL*	

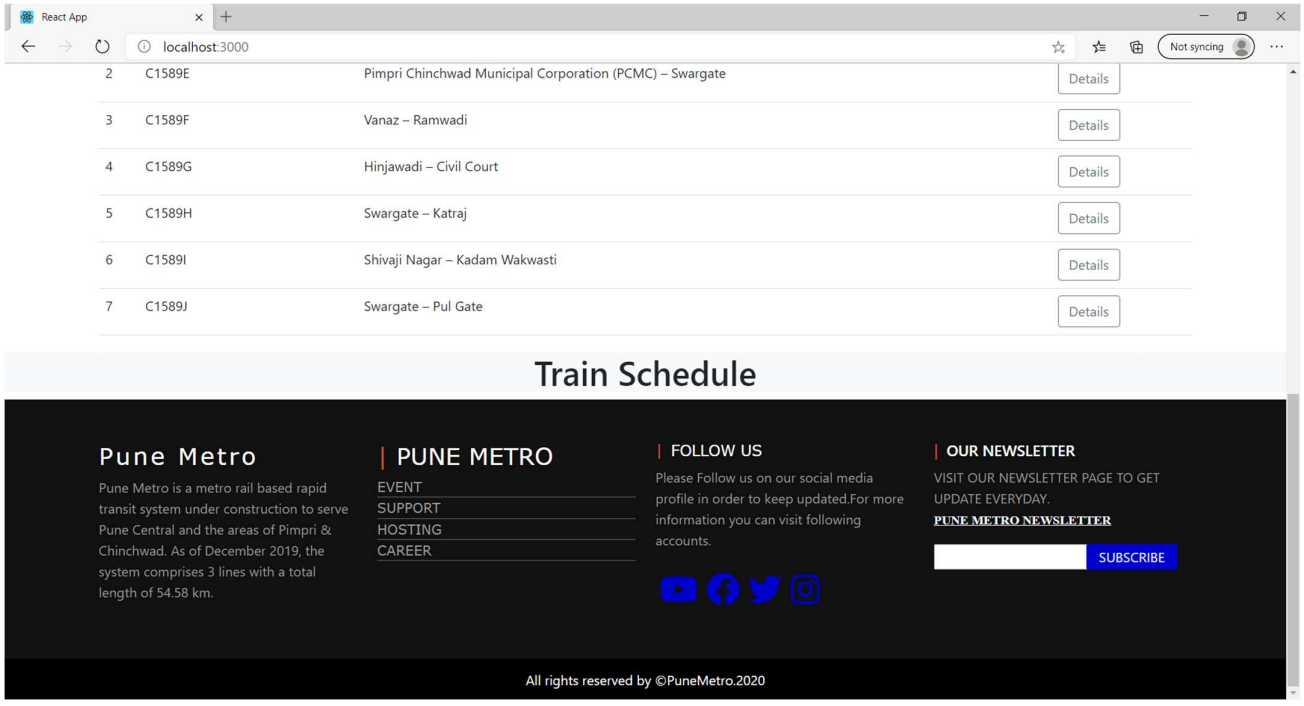
4.4 System Flow chart / Activity diagram



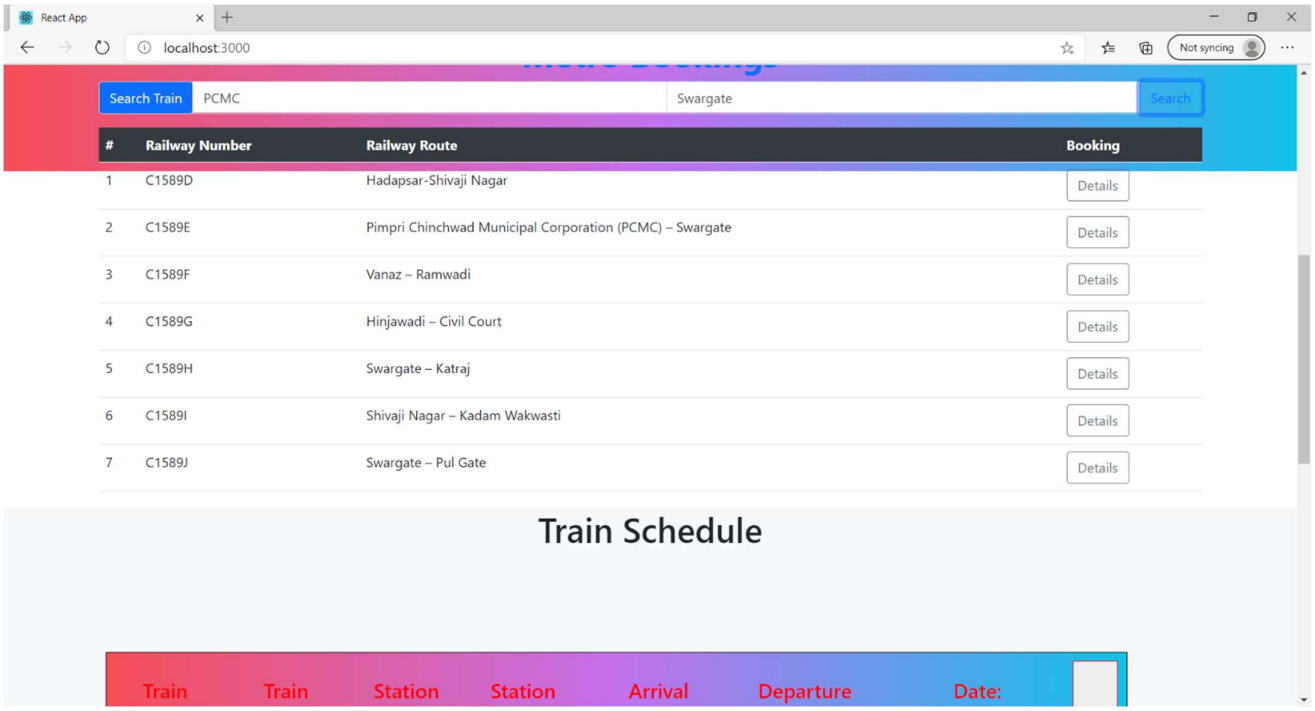
4.5 User Interface Design

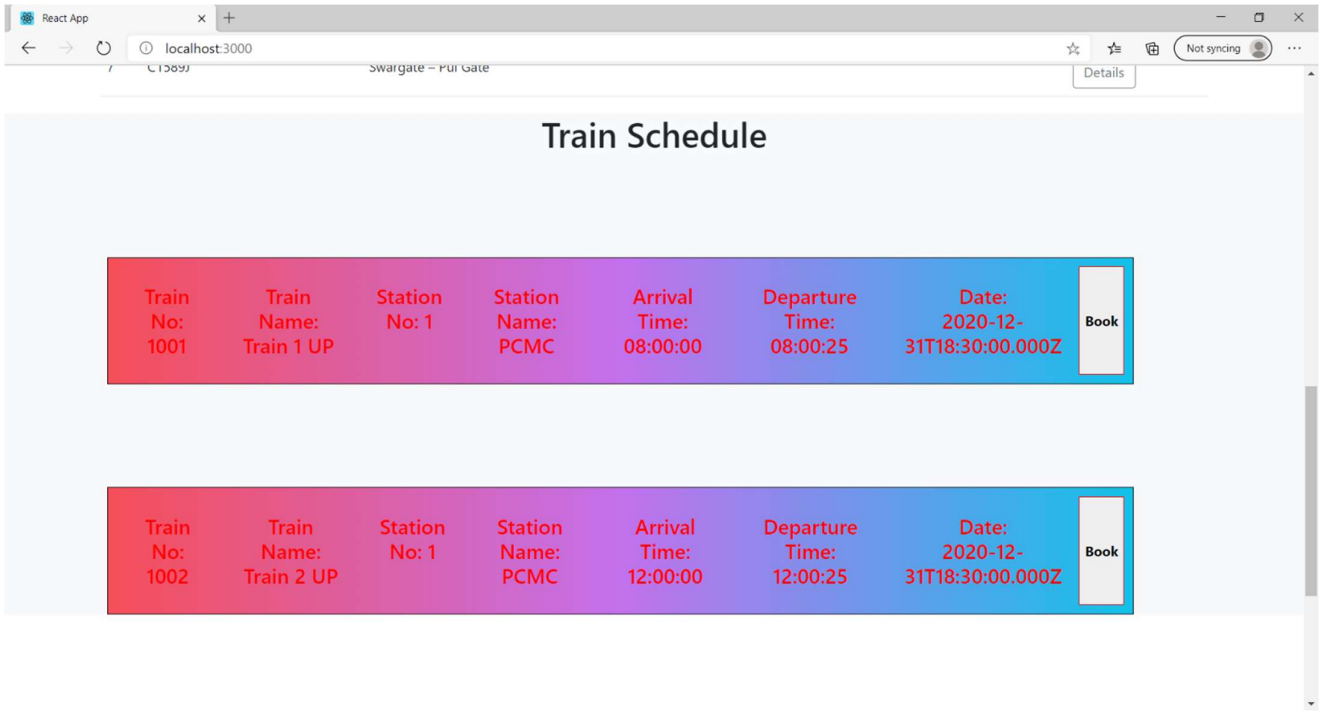
Home Page:



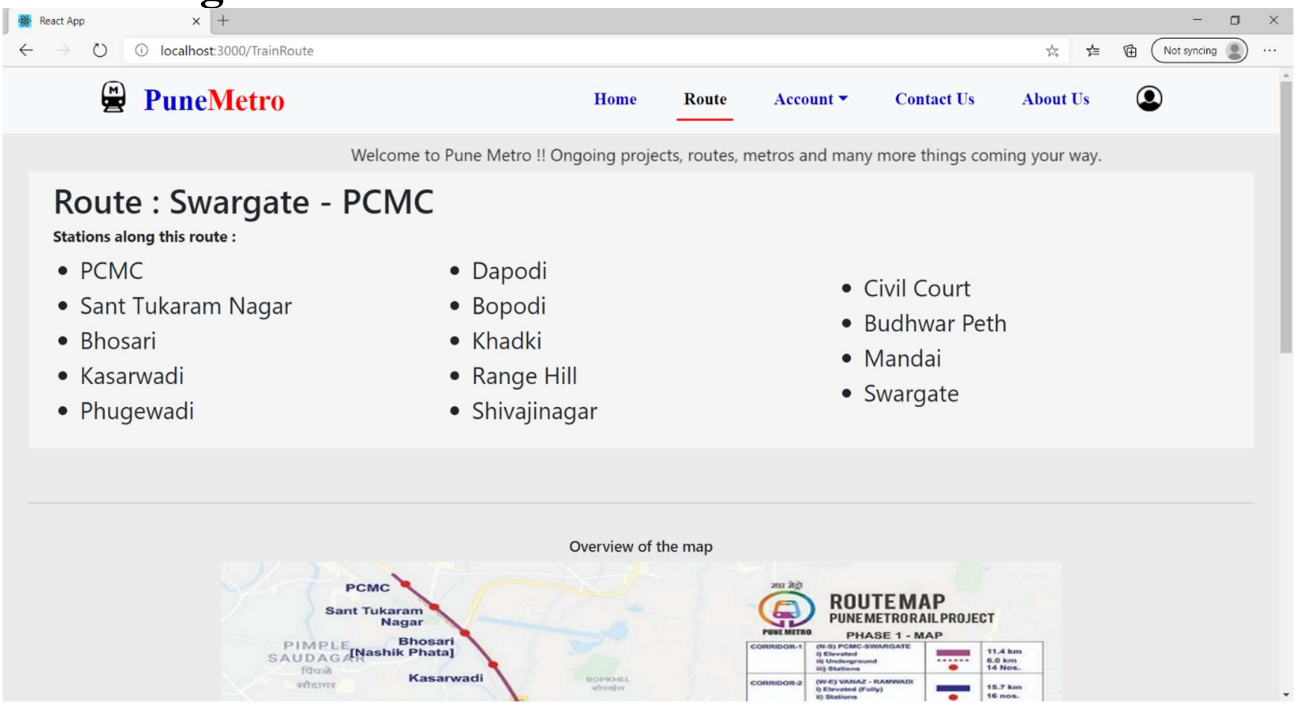


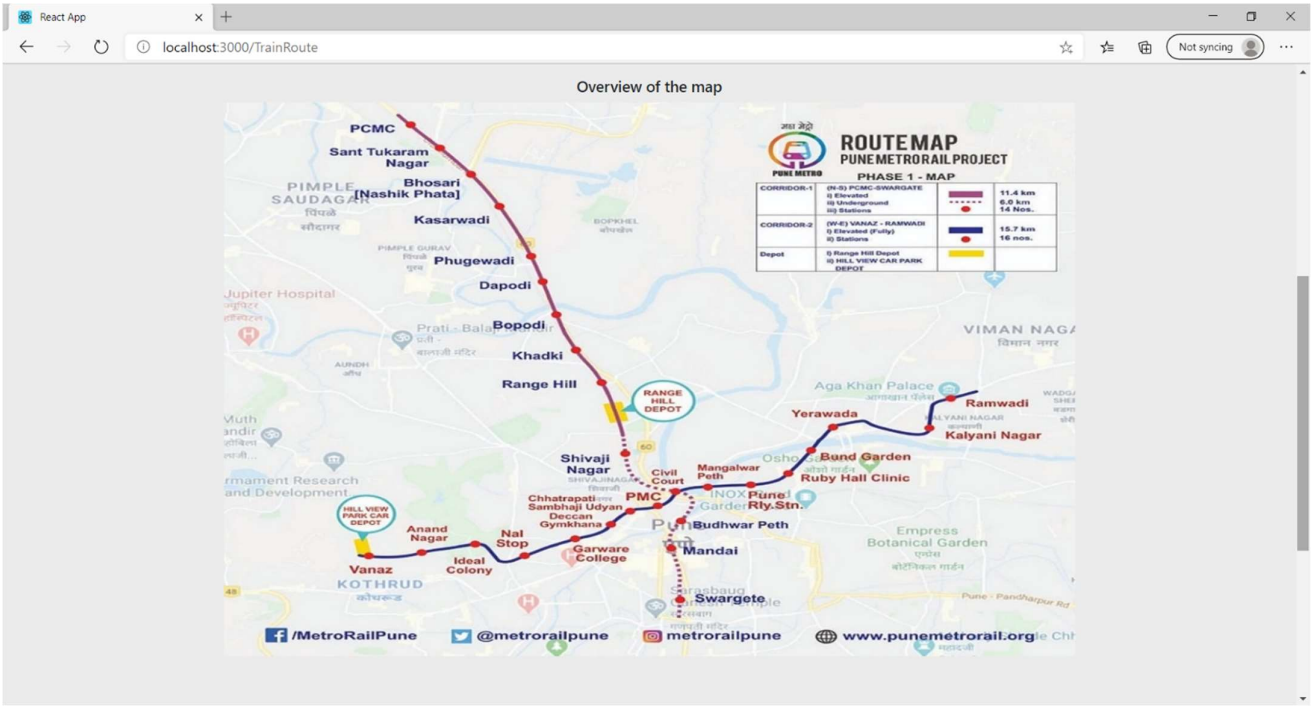
Search Train:



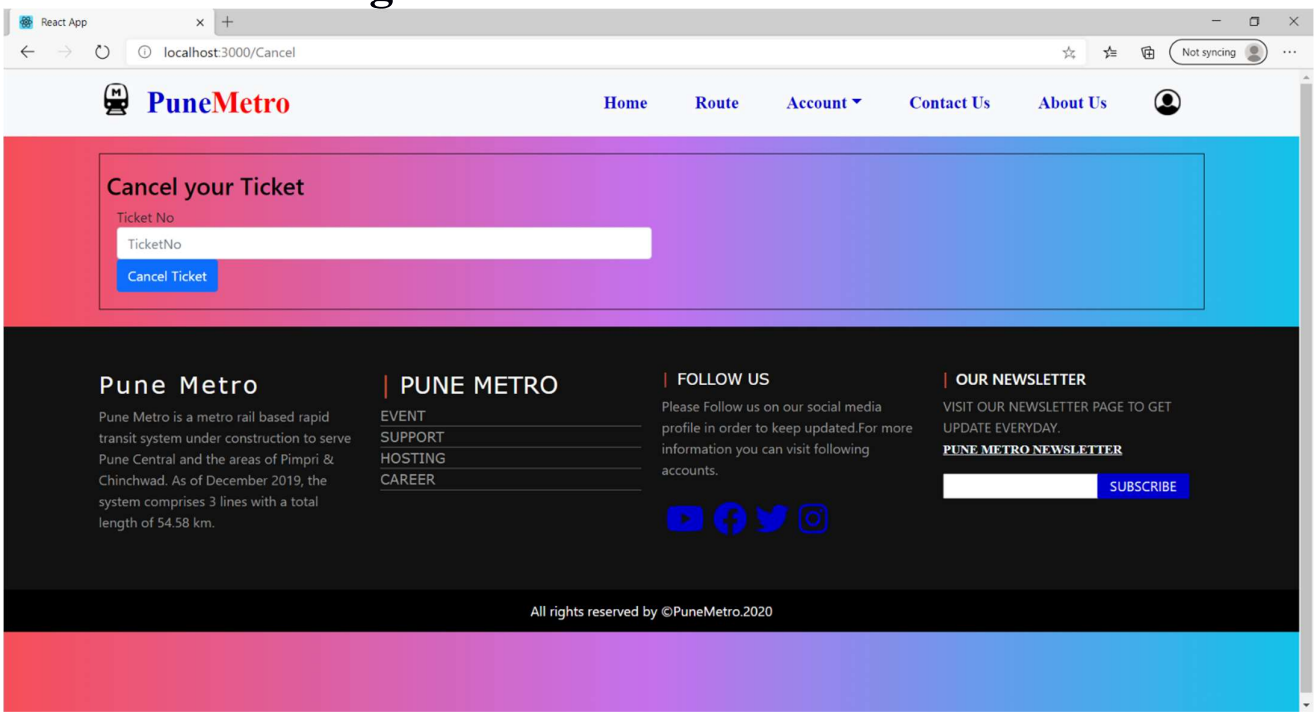

React App
localhost:3000
Not syncing
Details
Train Schedule
Train No: 1001
Train Name: Train 1 UP
Station No: 1
Station Name: PCMC
Arrival Time: 08:00:00
Departure Time: 08:00:25
Date: 2020-12-31T18:30:00.000Z
Book
Train No: 1002
Train Name: Train 2 UP
Station No: 1
Station Name: PCMC
Arrival Time: 12:00:00
Departure Time: 12:00:25
Date: 2020-12-31T18:30:00.000Z
Book

Route Page:

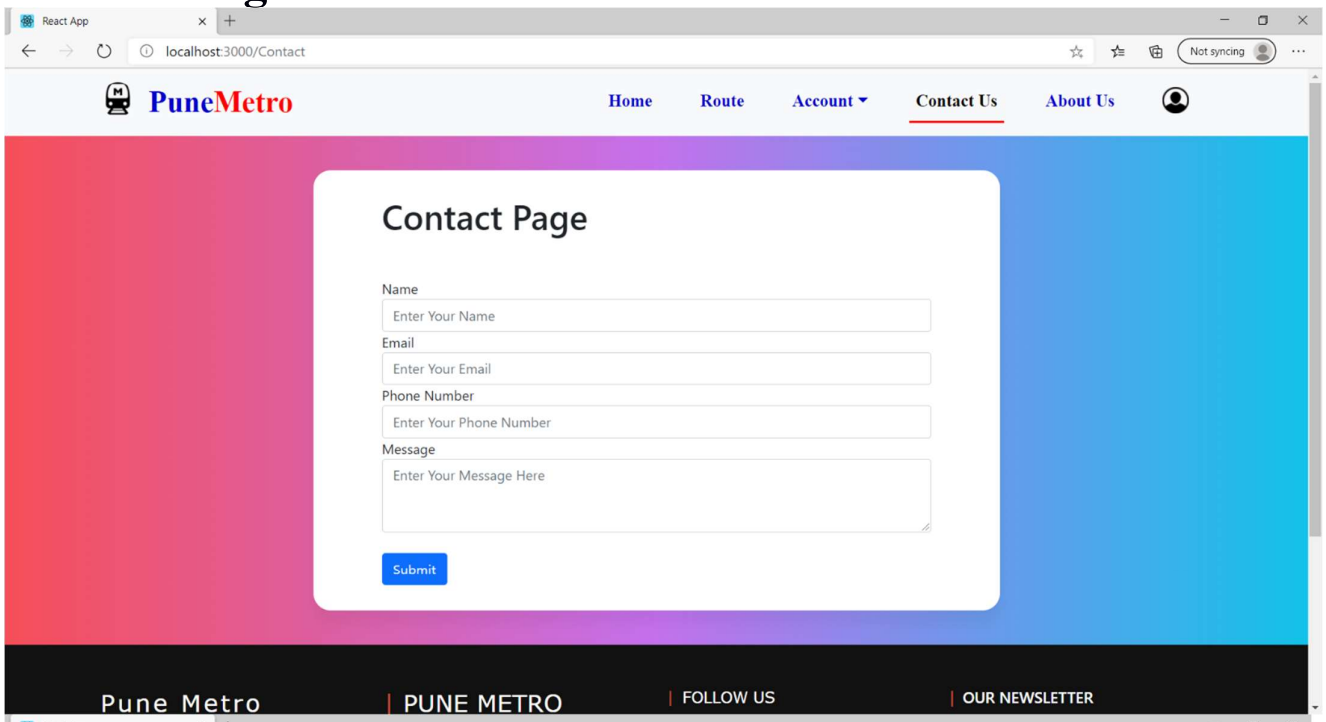

React App
localhost:3000/TrainRoute
Not syncing
PuneMetro
Home
Route
Account
Contact Us
About Us
Welcome to Pune Metro !! Ongoing projects, routes, metros and many more things coming your way.
Route : Swargate - PCMC
Stations along this route :
PCMC
Sant Tukaram Nagar
Bhosari
Kasarwadi
Phugewadi
Dapodi
Bopodi
Khadki
Range Hill
Shivajinagar
Civil Court
Budhwar Peth
Mandai
Swargate
Overview of the map
PCMC
Sant Tukaram Nagar
Bhosari [Nashik Phata]
Kasarwadi
ROUTE MAP
PUNE METRO RAIL PROJECT
PHASE 1 - MAP

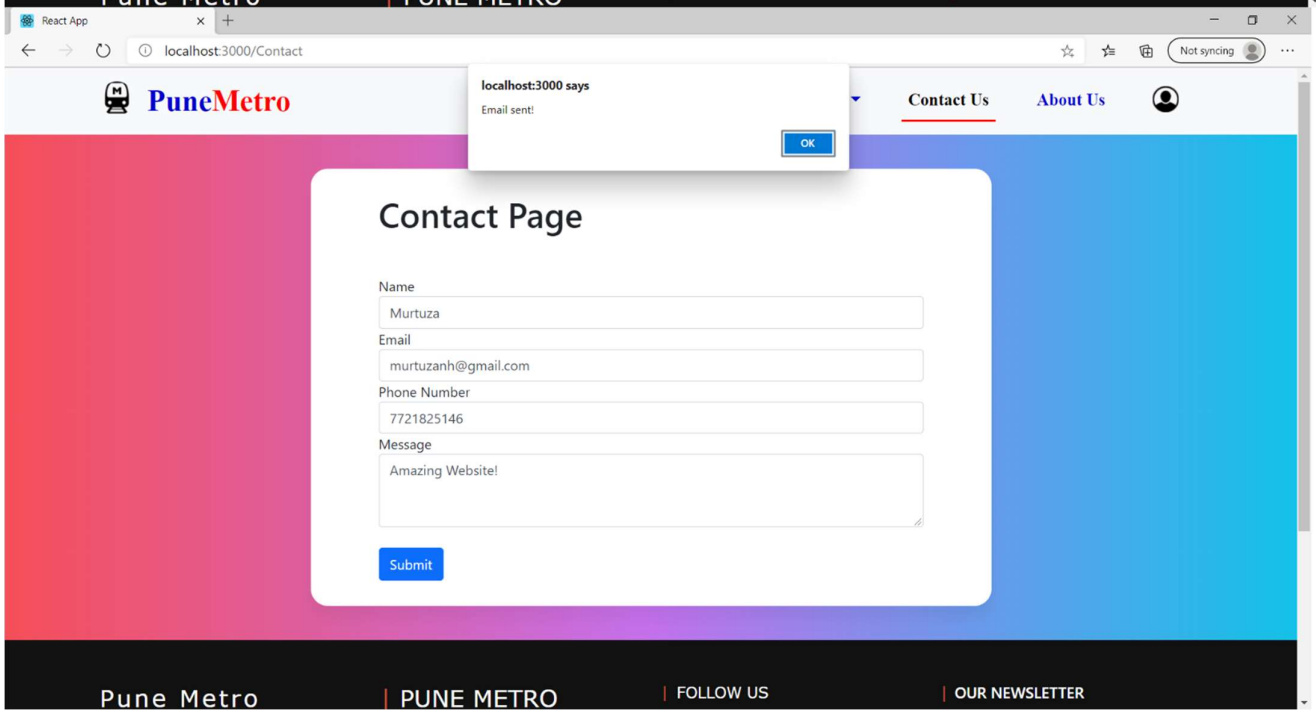


Cancel Ticket Page:

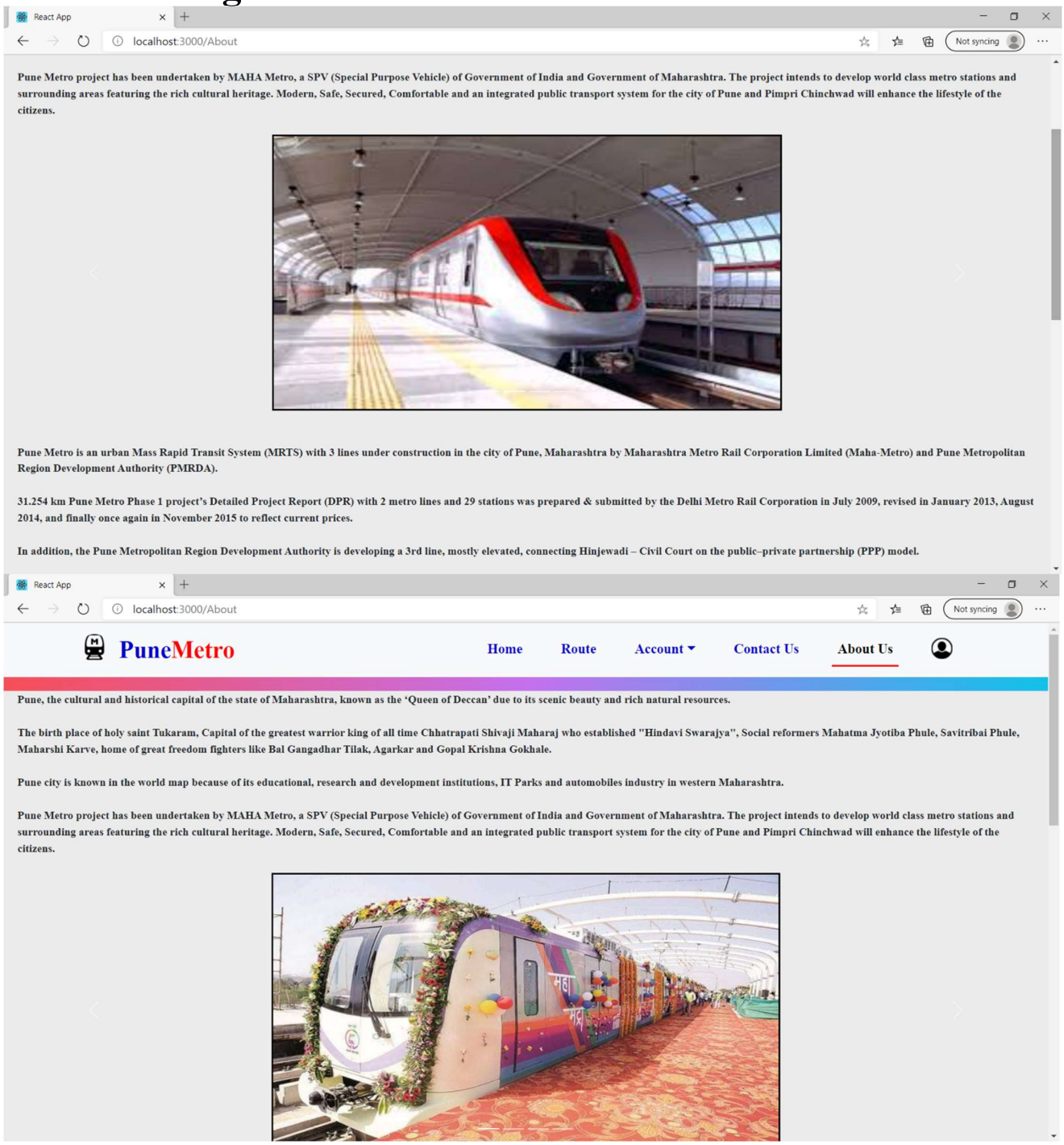


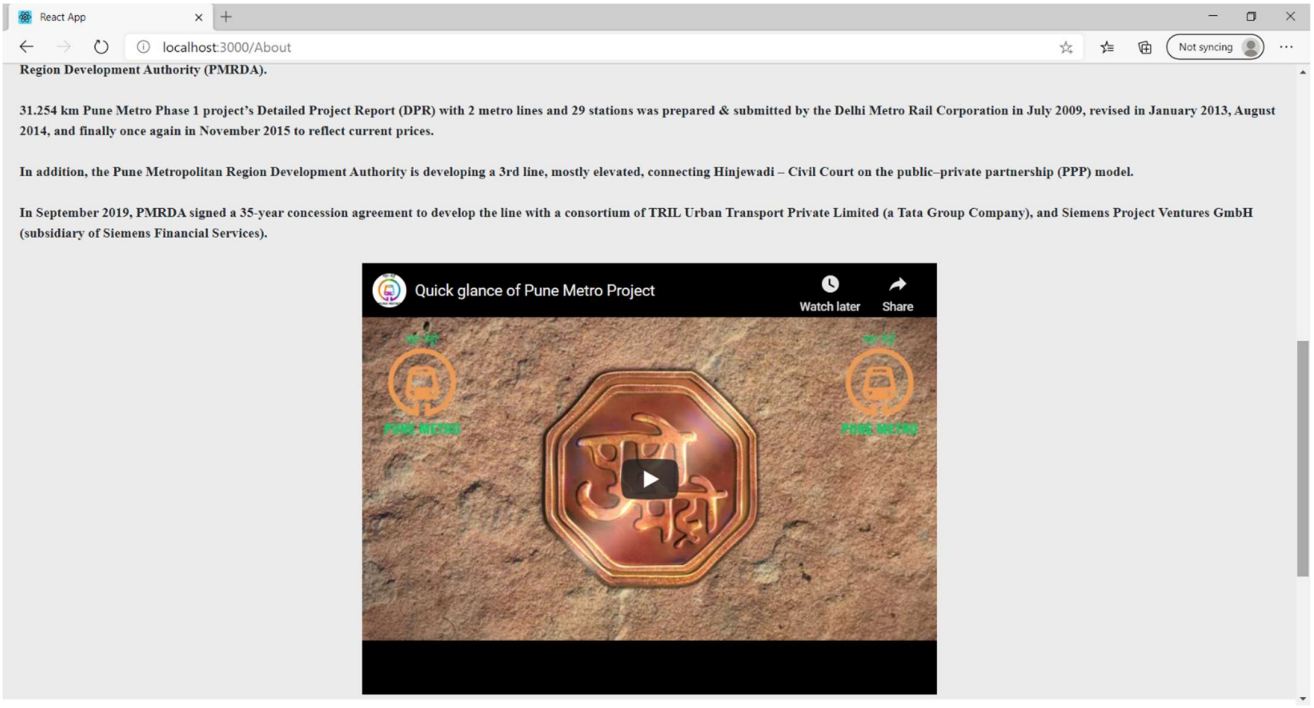
Contact Page:



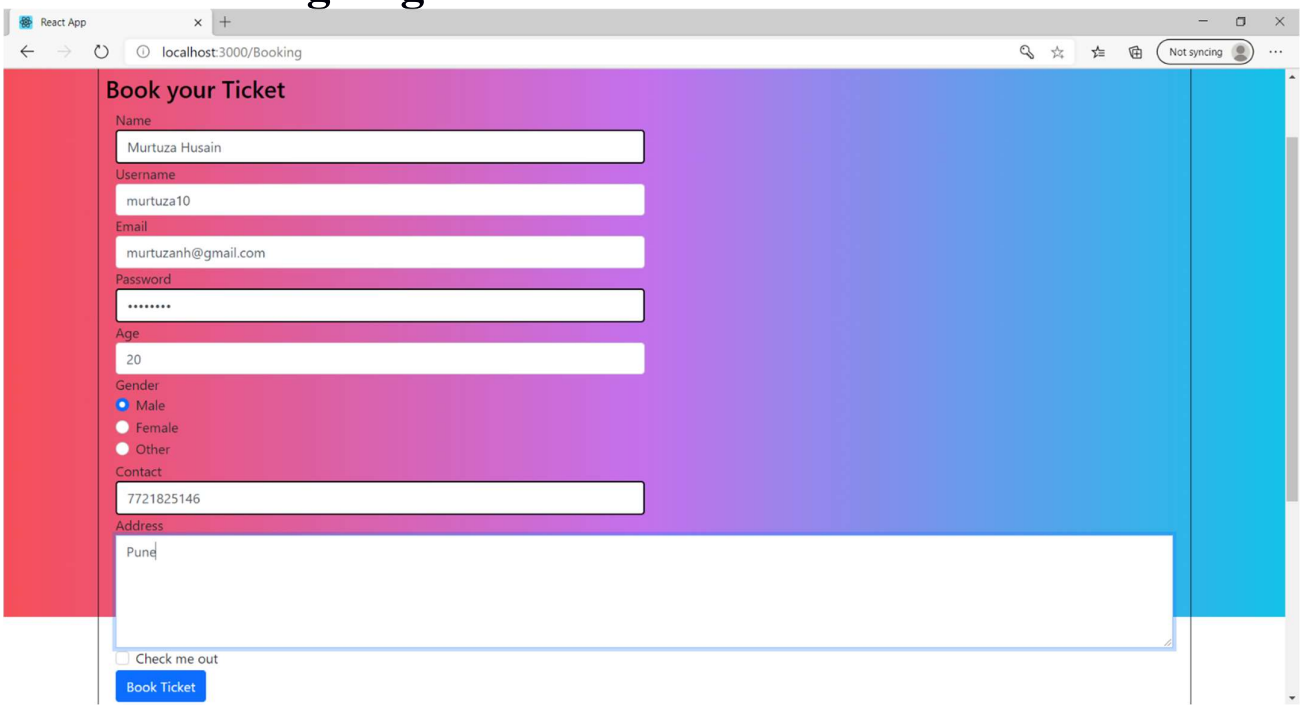


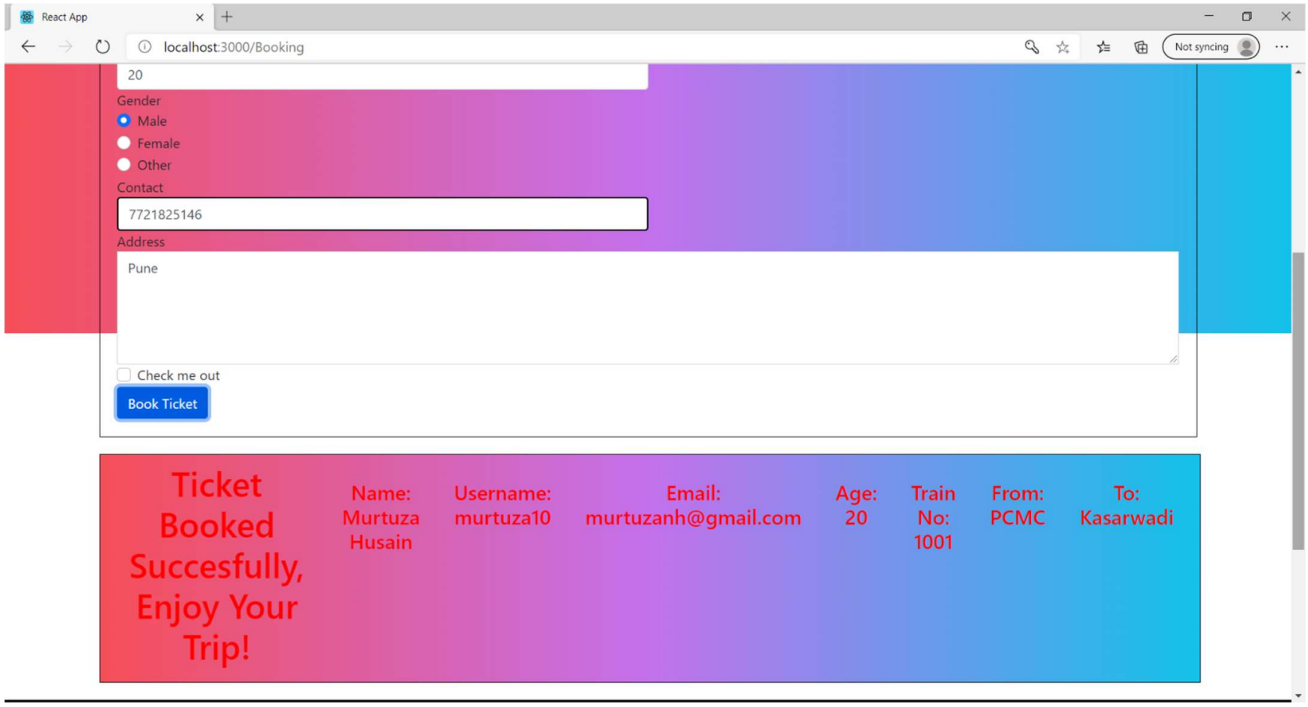
About Us Page:



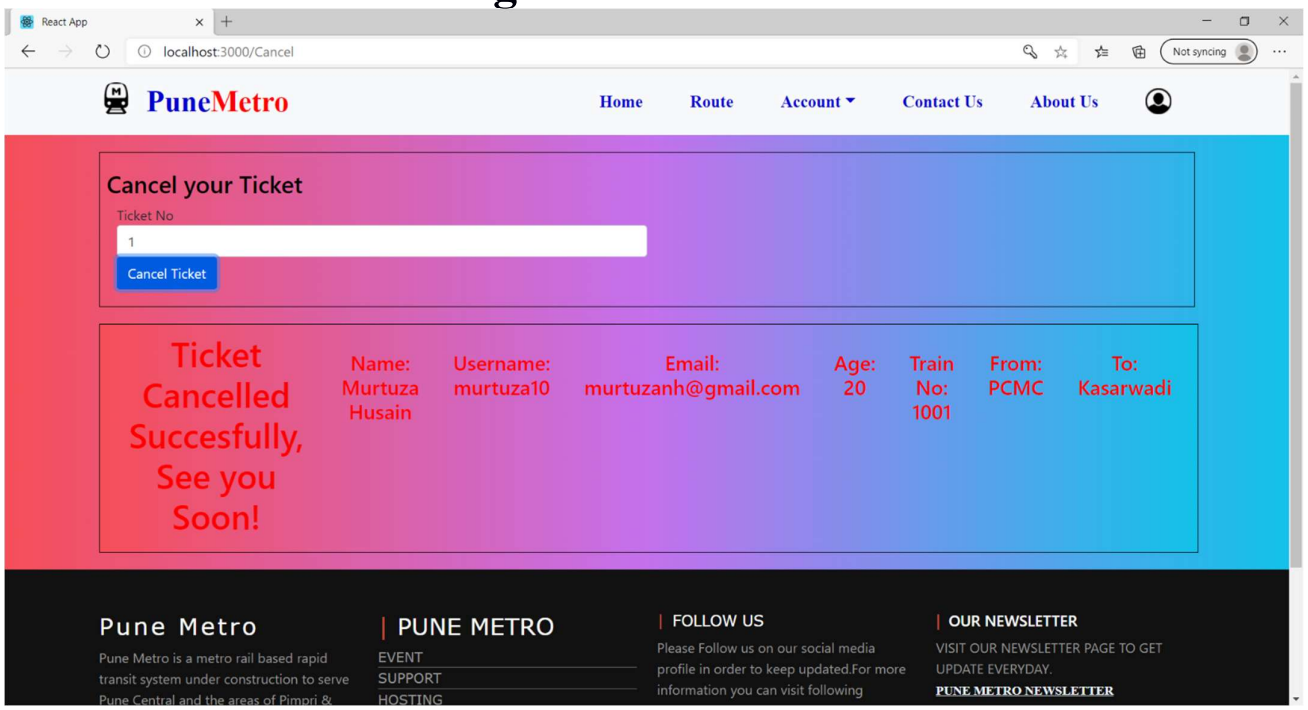


Ticket Booking Page:

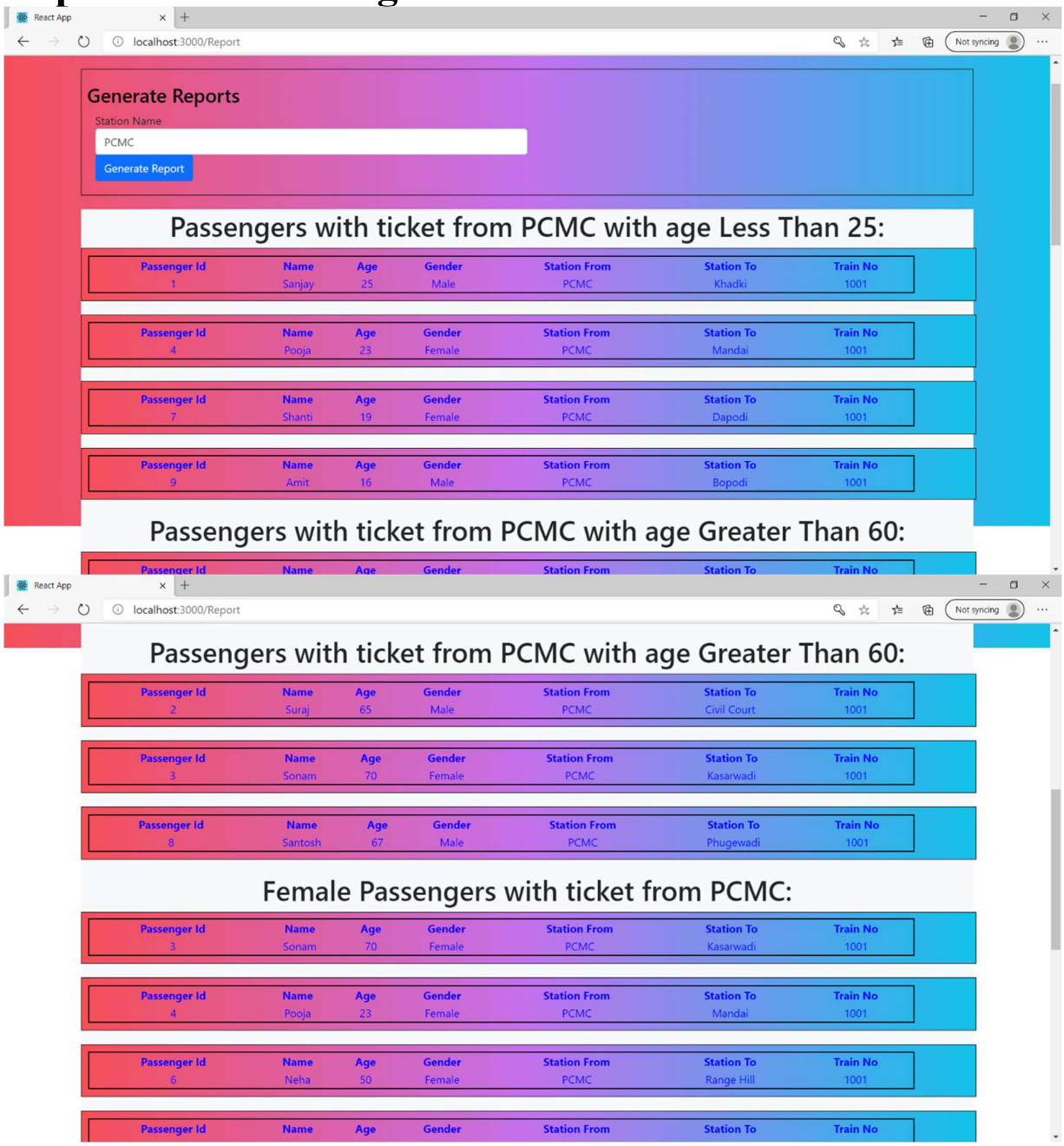


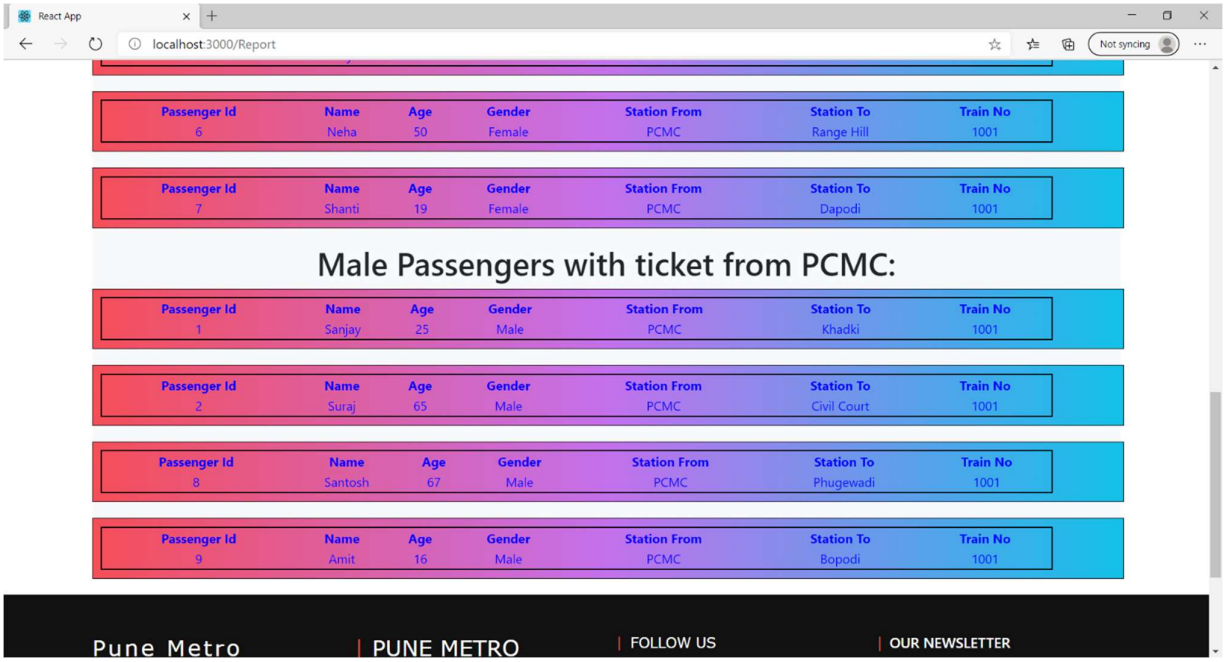


Ticket Cancellation Page:



Report Generate Page:





4.6 Error Messages / Alerts Design

When the Passenger Enters his data to book a ticket the fields are validated to prevent incorrect data from being stored in the Database. In the Contact Page when the email is sent the user is alerted and the page is reset to its original state.

CHAPTER 5
System Implementation

5.1 Hardware and Software Platform description

- Hardware: PC
- Software: MySQL, ReactJS, NodeJS

5.2 Tools used

- VS Code
- PHPMYADMIN
- XAMPP Control Panel

5.3 Future work / Extension

Currently in our Pune Metro Rail Management System we have implemented train booking for only one line, but in the future as the number of railway lines will increase, we can also extend our system. Also, to increase security we can implement a login/sign-out system in our project.

5.4 Conclusion

In our project PuneMetro booking system we have stored all the information about metros schedule and all users booking tickets and even status of the metros, capacity etc. This database is helpful for the application which facilitate passengers to book the train tickets and check the details of metro timing and number

- It is an easy web application which user can use more conveniently.
- People are able to book online tickets of PuneMetro through our Application.
- We have successfully Implemented ReactJS and MySQL along with NodeJS.
- Scope of the application is restricted up to Pune City only but we will include other Metro Cities soon.
- Project UI is more reactive and more user Friendly with proper information display on the interface fetched from the MySQL Database.

This application will definitely help passengers to book their tickets online

Instead of the on time Rush on platform.

CHAPTER 6

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