VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, Belagavi-590018

AngularJS and NodeJs Mini Project Report on

"RAILWAY RESERVATION AND ENQUIRY WEBSITE"

Submitted in Partial fulfillment of the Requirements for the V Semester of the Degree of

Bachelor of Engineering in

Information Science &

Engineering By

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Under the Guidance of,

Mr. Partha Chattopadhyay, Assistant Professor, Dept. of ISE

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

CMR INSTITUTE OF TECHNOLOGY

Affiliated to VTU, Approved by AICTE, Accredited by NBA and NAAC with "A++" Grade ITPL MAIN ROAD, BROOKFIELD, BENGALURU-560037, KARNATAKA, INDIA

2023-24

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CERTIFICATE

This is to certify that the AngularJS and NodeJS Project work entitled **"Railway Reservation and Enquiry Website"** has been carried out by **Kanishk Rai, 1CR21IS072, Sruthi Prathapa, 1CR21IS116 And Prerana Anand, 1CR21IS120** bonafide students of CMR Institute of Technology, Bengaluru in partial fulfillment for the award of the Degree of **Bachelor of Engineering in Information Science and Engineering** of the Visvesvaraya Technological University, Belagavi during the year **2023-2024**. It is certified that all corrections/suggestions indicated for the Internal Assessment have been incorporated in the report deposited in the departmental library. This Project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the said Degree.

Signature of Guide **Mr. Partha Chattopadhyay** **Assistant Professor Dept. of ISE, CMRIT**	**Signature of HOD Dr Jagadishwari V** **Professor & HoD Dept. of ISE, CMRIT**

External Viva

Name of the Examiners Signature with date

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DECLARATION

We, the students of V semester from Department of Information Science and Engineering, CMR Institute of Technology, Bangalore declare that the project work entitled "**Railway Reservation and Enquiry Website"** has been successfully completed under the guidance of Mr. Partha Chattopadhyay, Assistant Professor, Dept. of Information Science and Engineering, CMR Institute of technology, Bengaluru. This project work is submitted in partial fulfillment of the requirements for the award of the Degree of Bachelor of Engineering in Information Science and Engineering during the academic year 2023-2024. The matter embodied in the project report has not been submitted previously by anybody for the award of any degree or diploma to any university.

Place:

Bangalore Date:

11/03/2024

Team members:

KANISHK RAI (1CR21IS072)	
SRUTHI PRATHAPA (1CR21IS116)	
PRERANA ANAND (1CR21IS120)	

ABSTRACT

The Railway Reservation and Enquiry Website has been developed on AngularJS, NodeJS and MySQL. This project is an application which handles online ticket booking for train tickets. The backend has been developed using MySQL. The main objective behind this application is to provide all the details regarding the railway stations and ticket booking/reservation. The customer can see all the details of the stations, the details of its category and can enter their details, which includes their current station and destination station. It also includes the cost of buying each ticket. The customer can also view their order history. The customer can either be a user or a passenger. User is one who books the tickets, the passenger is one who boards the train.

ACKNOWLEDGEMENT

We take this opportunity to express our sincere gratitude and respect to **CMR Institute of Technology, Bengaluru** for providing us with a platform to pursue our studies and carry out the Angular JavaScript Laboratory Project.

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CHAPTER 1

INTRODUCTION

The Railway Reservation and Enquiry Website is a medium through which users can view and buy tickets. By leveraging technologies such as Angular, React, HTML, CSS, Node.js and MySQL, this website offers a seamless and intuitive interface for users to browse, view and buy tickets for their journeys.

The demand for efficient and user-friendly online ticket reservation system has grown exponentially. The website we've built meets this demand by providing a feature platform that allows users to book tickets from anywhere with an internet connection, and for anyone.

Here's an explanation of the components typically found in a Ticket Reservation system:

1. **User Interface (UI)**: This component represents the graphical user interface (GUI) that users get access to, and depending on the need, the Login/Registration Page is loaded. It includes components such as the ticket availability page and the ticket booking page which is built with technologies like Angular, React, HTML, and CSS.
2. **Backend Server (Node.js)**: This component represents the backend server responsible for handling user requests, managing user details, and interacting with the database. It is typically built using Node.js, which allows for efficient handling of asynchronous operations.
3. **Users**: This represents the various types of users interacting with the system, including customers, passengers, and support staff. They interact with the system through the UI to perform actions like entering data for passengers that are boarding the train, booking tickets, and updating account information.

1.1 Objectives

The specific objectives of our project include:

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i. Enhancing accessibility for users by allowing them to book tickets for another relative/friend who is the actual passenger of the train.

ii. Ensuring the confidentiality of user data.

iii. Allowing users to book tickets from any station to another, without inaccessibility.

iv. Improve the overall experience for users.

1.2 Scope of the project

The system will include the following key features and functionalities:

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i. User registration and login for customers to create accounts and access the ticket reservation platform.
ii. Viewing available number of seats in different trains, including descriptions, and prices.
iii. Shifting to the Registration page if the user is a new user.
iv. Proceeding to the ticket booking page once the user has entered their current station, as well as destination station.
v. Proceeding to the successful booking page once the ticket has been assigned to the user.

The project will focus on creating a seamless and intuitive user experience, with a visually appealing and responsive design. Security measures will be implemented to protect customer data and payment information. Additionally, the system will be scalable to accommodate future growth and expansion.

CHAPTER 2

SYSTEM REQUIREMENTS

The system requirements can vary based on the scale and complexity of the project. Here's a general outline of the hardware and software requirements you might consider while incorporating a Ticket Reservation System:

1. **Hardware Requirements:**
   - **Web Server**: A server capable of hosting the application, handling HTTP requests, and serving web pages.
   - **Database Server**: A server capable of hosting the database management system (DBMS) to store product information, user data, and order details.
   - **Load Balancer (Optional)**: For distributing incoming web traffic across multiple servers to improve performance and reliability.
   - **Storage**: Sufficient storage space for storing images, product descriptions, and other media files.
   - **Backup System**: A mechanism for regular backups to prevent data loss.

2. **Software Requirements:**
   - **Operating System**: Choose an operating system that supports your chosen technologies. Linux distributions (e.g., Ubuntu, CentOS) are commonly used for web servers, while Windows Server is also an option.
   - **Database**: MySQL for database.
   - **Programming Languages**: React for the frontend, Node.js for the backend, and HTML/CSS for styling.
   - **Frameworks**: Express.js for building the backend of the application.
   - **Security**: Use SSL/TLS certificates for secure data transmission, and implement security best practices to protect against common vulnerabilities (e.g., SQL injection, cross-site scripting).

3. **Development and Deployment Tools:**
    - **IDE**: Use an Integrated Development Environment (IDE) such as Visual Studio Code.
    - **Version Control**: Git for version control and collaboration.

CHAPTER 3

IMPLEMENTATION

- Setup ReactJS: Install ReactJS and organize your project folders.
- Design UI: Create layouts and design using HTML, CSS, and ReactJS directives.
- Services: Implement services to interact with backend APIs for fetching data and managing user actions.
- State Management: Use ReactJS's data binding to manage the application state and keep the UI updated.
- Backend Integration: Connect your app to backend APIs for functionalities like authentication, product listing, and cart management.
- User Authentication: Set up user login, registration, and ticket reservation.
- Ticket Booking: Select date, day, current station, destination station.
- Performance Optimization: Optimize your app for speed and efficiency, including script minification, image optimization, and caching.
- Testing and Deployment: Test thoroughly and deploy your app for public access.

CHAPTER 4

INTERPRETATION OF RESULT

The interpretation of a Ticket Reservation and Enquiry website using AngularJS boils down to the user experience, functionality, performance, and accessibility. It's about how easy and enjoyable it is for users to navigate, use essential features like search and checkout, and how quickly and reliably the website loads and handles traffic. Ultimately, it's about whether the website helps achieve business objectives like increasing sales and customer satisfaction. Regularly gathering user feedback, ensuring scalability and maintainability, and staying competitive are essential for continuous improvement and success.

OUTPUT :-

1. HOME/LOGIN PAGE:

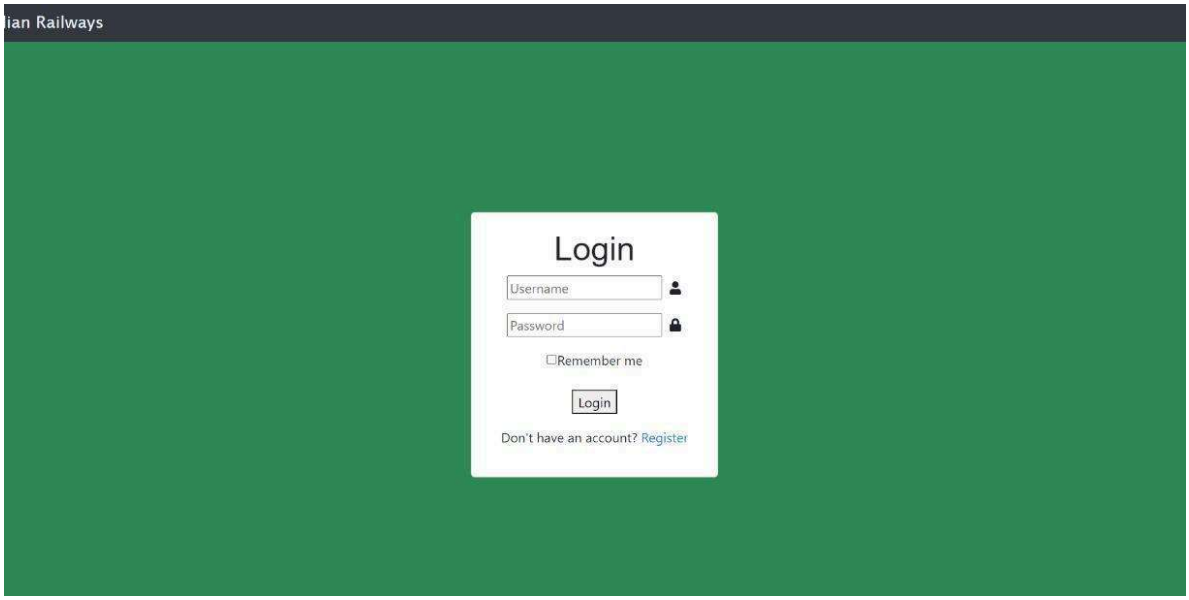

Figure 1.1

2. REGISTRATION PAGE :

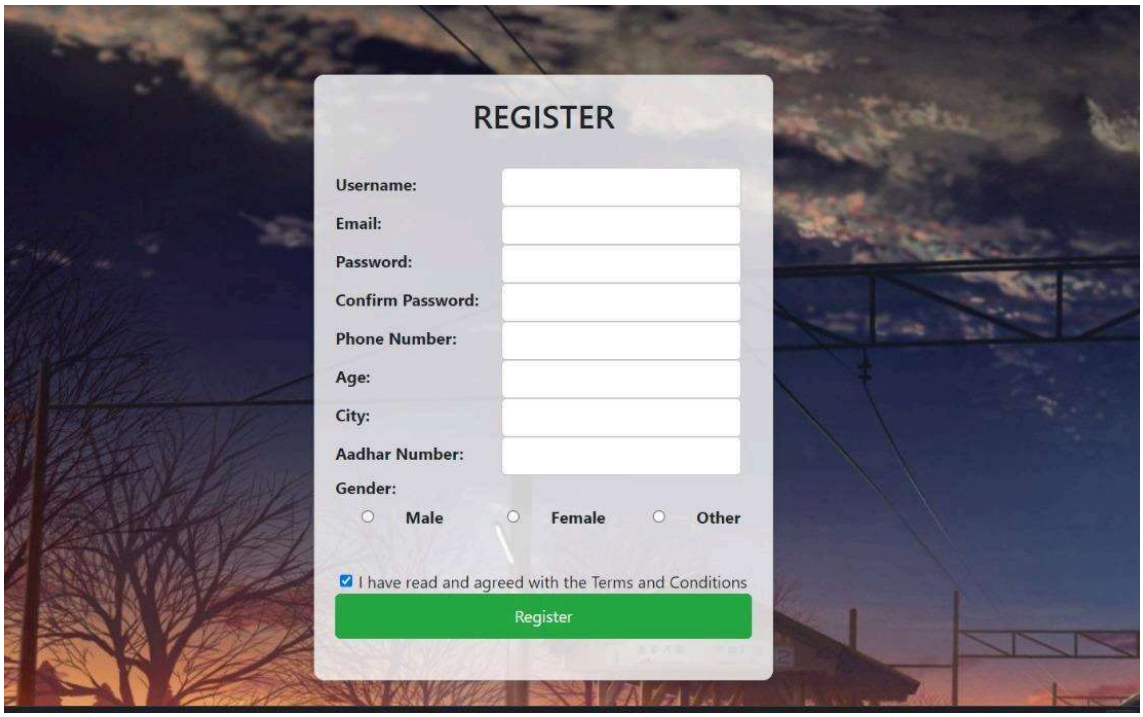

Figure 2.1

3. TICKET BOOKING PAGE:

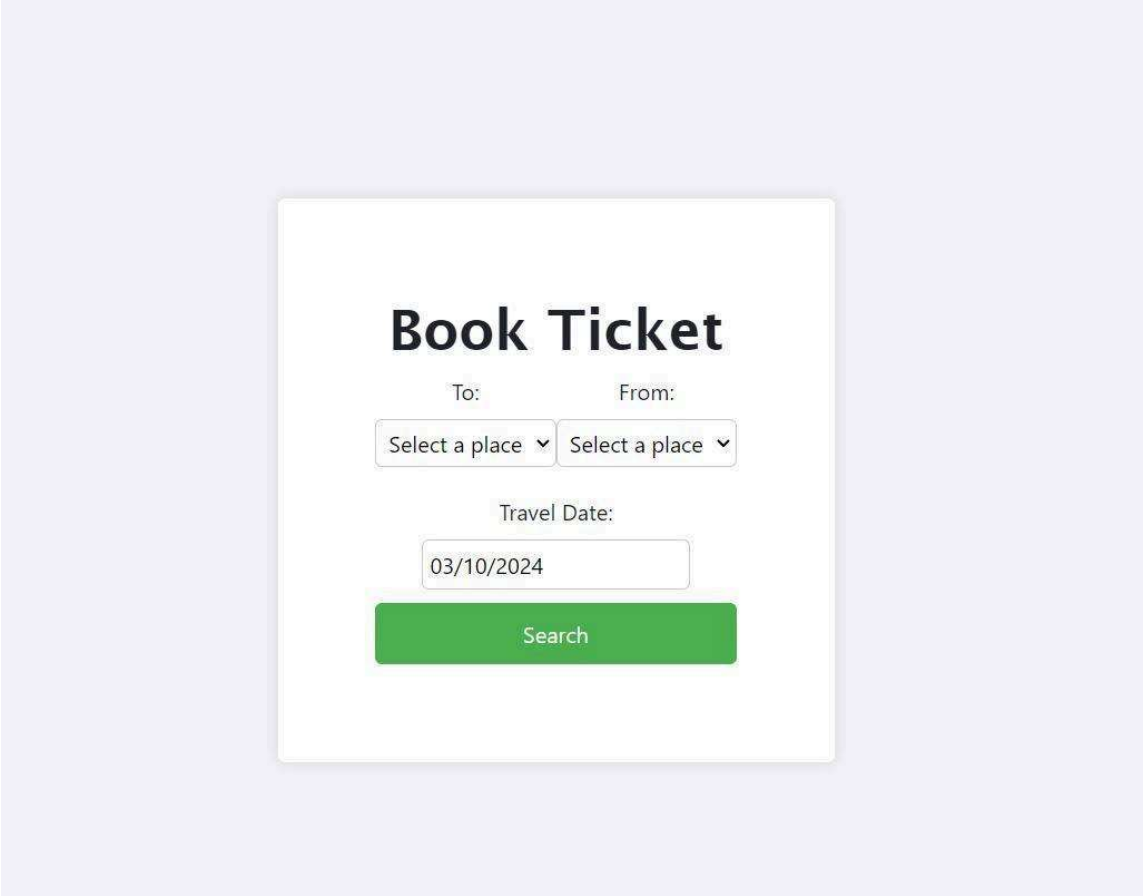

Figure 3.1

4. AVAILABLE TRAINS PAGE:

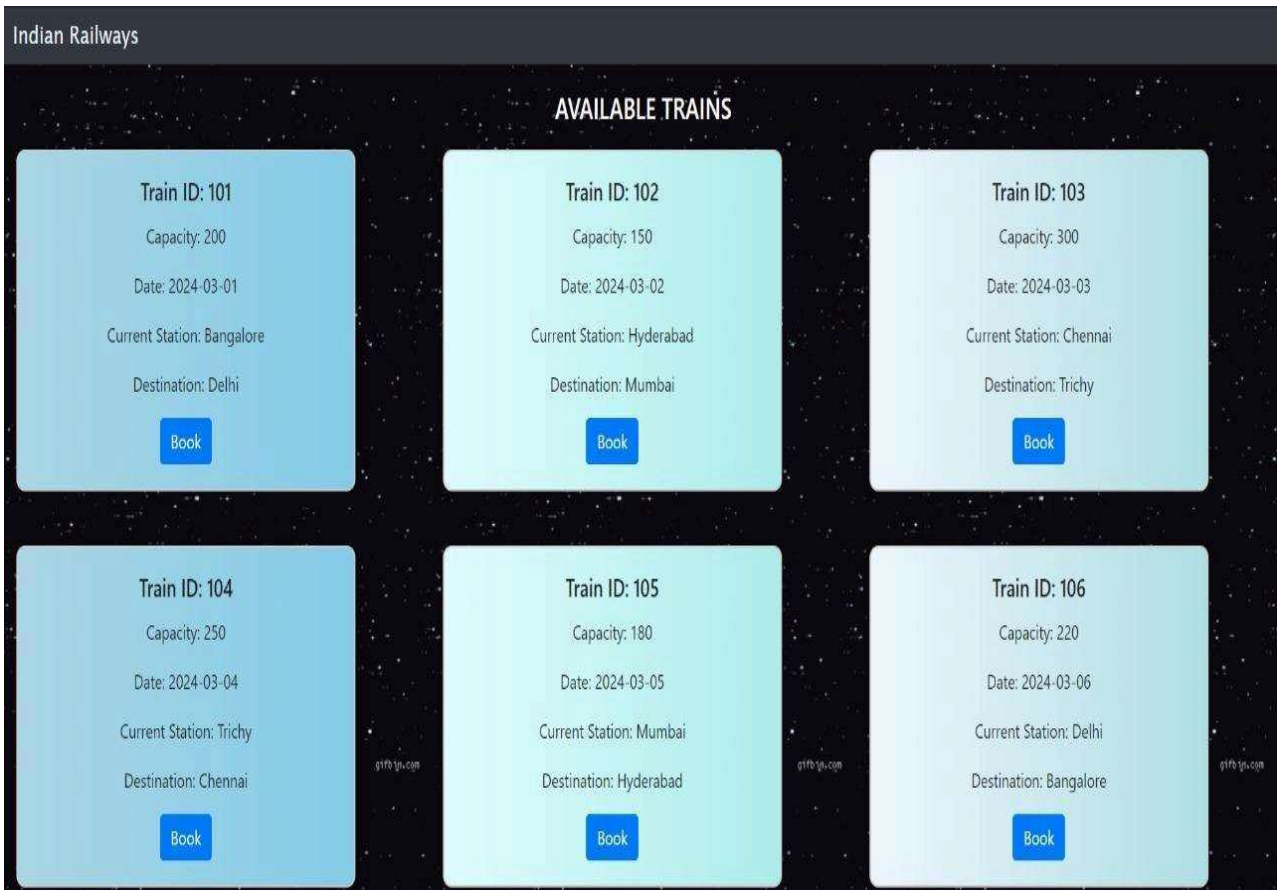

Figure 4.1

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

Conclusion

The Railway Ticket Reservation and Enquiry Website(Railway Management System), built with Angular, has demonstrated robust performance and scalability, providing a seamless booking experience for users. The importance of Angular's modular architecture for efficient feature integration and maintenance, enables quick adaptation to market demands.

Furthermore, Angular's strong community support and frequent updates ensure the application remains at the forefront of innovation. Continued investment in Angular's best practices, including Angular Universal for SEO optimization and NgRx for state management, will drive sustained success.

Overall, Angular's versatility and ecosystem empower the website to thrive amidst evolving industry trends, securing its position as a leader in the competitive digital marketplace.

Future Scope

Mobile Optimization: With the increasing prevalence of mobile devices, focus on optimizing the application for mobile platforms. Invest in mobile-friendly features, and seamless navigation for mobile users.

Enhanced User Experience: Continuously improve the user interface and experience to streamline the shopping process, reduce friction points, and increase conversion rates. Invest in intuitive navigation, fast loading times, and simplified checkout processes.

Personalization and Customization: Implement advanced personalization techniques to tailor the shopping experience for individual users. Utilize data analytics and machine learning algorithms to recommend products, customize promotions, and optimize pricing.

Expansion of Product Offerings: Diversify to cater to a wider range of customer preferences and needs. Add new stations and trains to attract and retain customers.

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