**Railway Reservation & Management System**



[This Photo](https://en.wikipedia.org/wiki/Aptech) by Unknown Author is licensed under [CC BY-SA](https://creativecommons.org/licenses/by-sa/3.0/)

## PROJECT GROUP MEMBERS

|  |  |
| --- | --- |
| **Students I’d** | **Students Name** |
| **Student1403138** | **UMAIR AHMED** |
| **Student1400091** | **M.HAMZA ADNAN** |
| **Student1355427** | **UBAID ASIM** |

**CURRICULUM BATCH CODE**

**Prime 2.0-7062 2207E1**

**FACULTY**

**SIR.SHAHZAIN JAWED**

## ACKNOWLEDGE

We have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. We would like to extend my sincere thanks to all of them.

We are highly indebted Aptech North Nazimabad (NN-II) for them guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

# **Project Synopsis**

Project Tittle: Railway Reservation &amp; Management System

Problem Statement:

Indian Railways is one of the largest rail networks in world. Majority of

people used to travel in train which is convenient and affordable means of

transport. So, keeping this in view, the reservation of railways is a most

important task and it must be faster and efficient as the demand (travelers)

is very high. In order to meet this demand, manual reservation is

cumbersome and it requires an efficient program to implement the online

reservation.

This Application enables us to choose the train even there is no necessary

to fill a form at the railway reservation counter, i.e. we can directly select

from the choices provided for us with train numbers and their origin,

departure time, destination &amp; arrival time at that station and the class to

travel in. Application gives us the final output as train ticket with the

amount to be paid.

Customer Specifications:

Railway Reservation System – Modules

Security module - Security modules include security features like user

management and application-level password management.

 Maintain user master- Each user identified by the user’s name and

user type. Only admin user can create, edit user information.

 Password must be alpha numeric.

 While creating user system assign default password for the user

 Password of user are encrypted for the security purposes.

 Access level and roles and privileges are set for different type of

users.

Master Management modules- Master management module includes

following sub modules.

 Station Master – Every station is uniquely identified by system

generated Station ID. It also includes station code, station name and

railway division name.

 Train Master – Every train uniquely identified by train no, it includes

train name, train name, up/down status, route id., Number of

coaches available for 3 tier AC, First Class, Sleeper Class etc.

 Train Schedule – It includes train journey details from start station to

end station, all in between station, distances between 2 stations,

arrival and departure time.

 Fare Rule – It help to calculate fare by distance, support different

type of fare calculation for different class like AC1, AC3 etc.

 Cancellation Fees Rule - It provide the master data for all ticket

cancellation fees calculation.

 Reservation and Super-Fast Fees – It provide the master data for all

ticket reservation fees calculation and super-fast fees.

 Day Master - It includes information of train schedule which days of

the week train will run.

Transaction Module - Transaction module includes following sub modules.

 Reservation – This module used to make reservation, it asks for input

data like train no, journey date, from station code, end station code.

System has powerful validation rule to check validation like journey

date must be greater than system date, journey date must be within

90 days. Train should run for the selected day. Check for from station

and to station. Seat availability, while saving the record system

generate PRN no, seat no and coach no. Before save the system asks

for final confirmation. System automatically calculates the fare and

save the details.

 Cancellation – For cancellation of ticket it asks for PRN no, after

entering the correct PRN no system checks for validity of the PRN no,

whether it already cancelled, journey date already expired. I it

validate system display all the details of the reservation. System

automatically calculates the cancellation fees from the cancellation

rule master. Before save the record system asks for the confirmation.

 Update Seat no for unconfirmed passenger – It is schedule activity,

system query for all cancelled ticket for particular journey date and

allocates all vacant seats to unconfirmed passenger.

 Daily Cash Transaction – It shows daily transaction, like how much

money received and how much money refund. All data can be

exported to MS Excel for review and save in file system.

Software Requirements:

Operating System:

* Windows 7 (or higher if possible)

Software:

* Visual Studio .NET / ASP
* IIS server
* .NET Framework
* Java Virtual Machine/ J2EE server
* Notepad/Java editor
* j2sdk1.4.1\_02 (or later).
* EJB Dev Kit
* Java enabled web server
* JSP / Servlets Dev. Kit

Hardware:

* A minimum computer system that will help you access all the tools in the

courses are a Pentium 166 or better.

* 128 Megabytes of RAM or better.

# **Project Analysis**

# **1.Introduction:**

# **The Railway Reservation & Management System aims to automate and streamline the process of railway ticket booking, reservation, and overall management of railway services.**

# **The system intends to provide a user-friendly interface for passengers to book tickets, check train schedules, and manage their reservations efficiently.**

# **2.Objectives:**

# **Automate the ticket booking process to reduce manual errors and improve efficiency.**

# **Provide an online platform for users to check train availability, routes, and schedules.**

# **Implement a secure and user-friendly payment system for ticket reservations.**

# **Enable efficient management of railway services, including train scheduling, seat allocation, and staff coordination.**

# **3.Features:**

# **a. User Module:**

# **Registration and login functionality for users.**

# **Train search and availability checking.**

# **Online reservation and cancellation of tickets.**

# **View and print e-tickets.**

# **Profile management.**

# **b. Admin Module:**

# **Manage train schedules and routes.**

# **Monitor and manage seat availability.**

# **User management and access control.**

# **Generate reports on bookings, cancellations, and revenue.**

# **c. Employee/Staff Module:**

# **Ticket verification and validation.**

# **Seat allocation and management.**

# **Update train status (on time, delayed, canceled).**

# **d. Payment Module:**

# **Integration with secure payment gateways.**

# **Support for various payment methods.**

# **Transaction history and receipts.**

# **e. Notification Module:**

# **Email and SMS alerts for booking confirmation, cancellations, and train delays.**

# **Reminders for upcoming journeys.**

# **4.Technology Stack:**

# **Frontend: HTML5, CSS3, JavaScript, ReactJS**

# **Backend: Node.js, Express.js**

# **Database: MySQL, MongoDB**

# **Payment Integration: Stripe, PayPal**

# **Authentication: JWT (JSON Web Tokens)**

# **Hosting: AWS, Heroku**

# **5.Security Measures:**

# **Encryption of sensitive data (e.g., user details, payment information).**

# **Implementation of secure authentication and authorization mechanisms.**

# **Regular security audits and updates to prevent vulnerabilities.**

# **6.Challenges and Solutions:**

# **Handling concurrent bookings and ensuring data consistency.**

# **Implementing a robust and scalable architecture to handle a large number of users.**

# **Addressing potential security threats and vulnerabilities.**

# **7.Future Enhancements:**

# **Integration with other transportation services (buses, flights) for seamless travel planning.**

# **Mobile application development for greater accessibility.**

# **Implementing AI-driven features for predictive analysis of seat availability and pricing.**

# **8.Conclusion:**

# **The Railway Reservation & Management System aims to provide a comprehensive solution for both users and administrators, enhancing the efficiency and reliability of railway services. Regular updates, user feedback, and continuous improvement will be crucial for the success of the system.**

# **Er-diagram**

