CS 349 : Database and Information Systems Lab

Project Submission 1 Report

IRCTC Clone

Team Details

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1 Introduction to IRCTC

The **Indian Railway Catering and Tourism Corporation (IRCTC)** is the online face of the Indian Railways. If you've ever booked a train ticket online in India, chances are you've used IRCTC. Launched in 1999, IRCTC was created to bring convenience and efficiency to railway services through digital platforms.

Over the years, it has grown from a basic ticket booking website to one of the largest e-commerce portals in Asia. Millions of people use IRCTC every day to plan their journeys, book tickets, order food on trains, and even explore travel and tourism packages across India.

IRCTC offers a wide range of services:

- **Online Ticket Booking:** From regular to Tatkal tickets, passengers can book seats on trains from the comfort of their homes.

- **Catering Services:** Passengers can pre-order meals to be delivered directly to their seat during the journey.

- **Mobile Apps:** With the IRCTC Rail Connect app, booking and checking train status has become even easier.

IRCTC has transformed the way Indians travel by train. What once required standing in long queues at railway stations can now be done with a few clicks or taps. It's a great example of how technology can make public services more user-friendly and efficient.

2 Features Implemented So Far

Our railway booking system has two primary user flows: one for general users and one for administrators. Both interfaces have been developed using React for the frontend and Node.js with PostgreSQL for the backend.

2.1 Homepage Navigation

Upon visiting the homepage, users are presented with three primary options:

- **User Sign In**
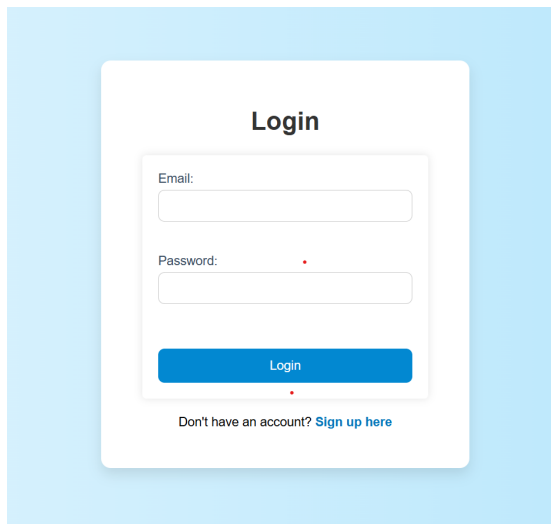
- **User Sign Up**

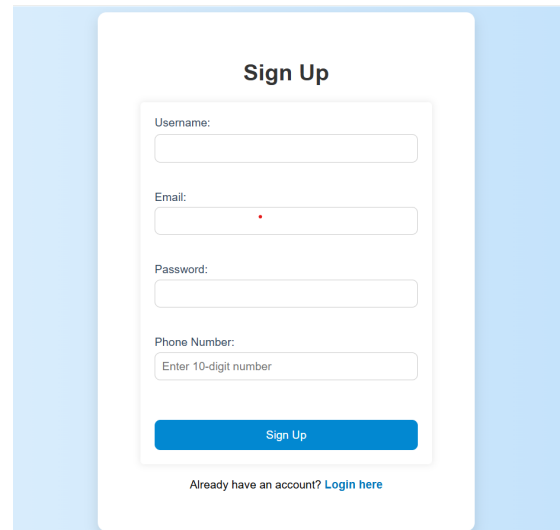- **Admin Sign In**
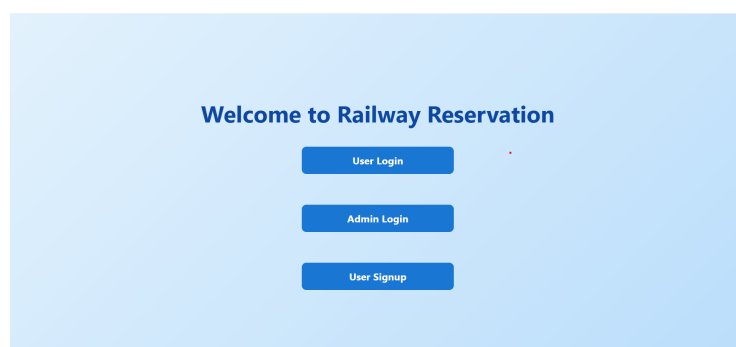
2.2 User Interface

The user interface offers a seamless experience for searching trains, booking tickets, and managing personal reservations.

2.2.1 Signup and login

Users can register with basic details and log in using valid credentials. Session management is handled via secure cookies.

(a) login page for user

(b)Signup page for user

2.2.2 User Dashboard

Once logged in, the dashboard provides the user with a welcome message and links to other key functionalities like browsing trains or viewing past bookings.

2.2.3 Trains

Users can view a list of available trains along with important details such as:

- Train number and name

- Source and destination stations

- We added a basic search features in trains page using search based on departure and arrival stations.

From this list, users can choose a train to book.

2.2.4 Booking Page

On selecting a train, users are taken to the booking page where they can:

- Select the date of travel

- Choose a travel class (Sleeper, 3AC, 2AC, 1AC)

- Add multiple passengers with name, gender, and age

After submission, the booking details are sent to the backend via a POST request. If successful, a PNR number is generated and shown to the user as confirmation and redirects to the user dashboard.

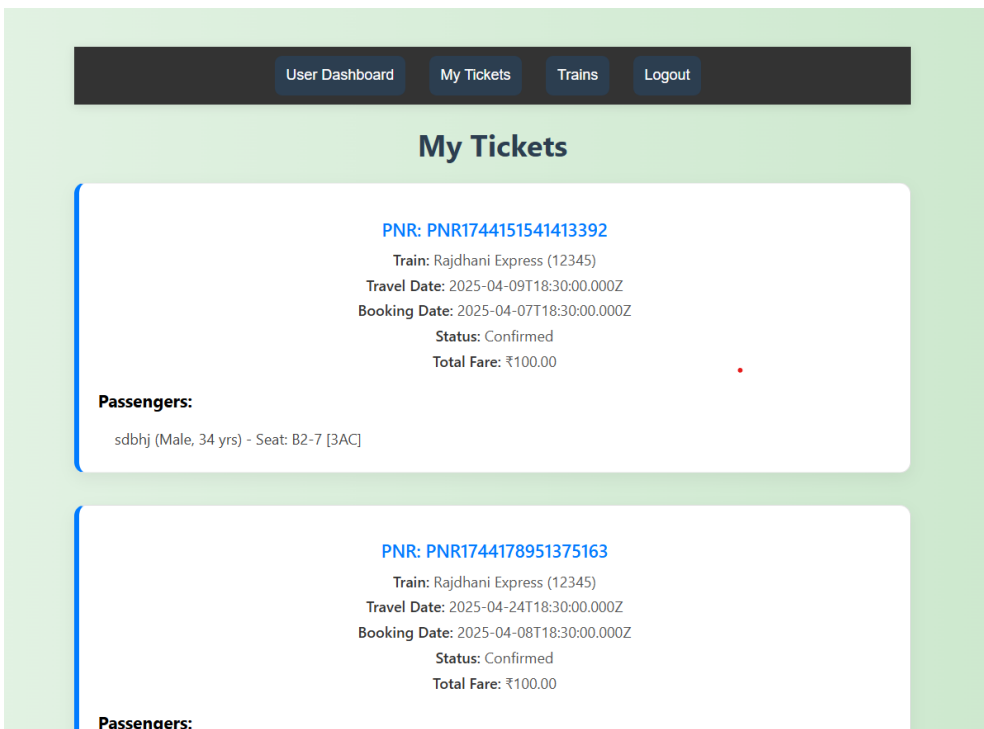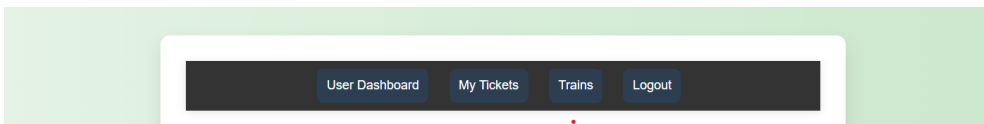### 2.2.5   My Tickets

This page shows all bookings made by the logged-in user. Each booking displays:

- PNR number

- Train name and number

- Travel and booking dates

- Booking status (e.g., Confirmed, Waiting)

- Total fare

- List of passengers with seat and class details

2.2.6   Logout

Users can securely log out, which clears their session and redirects them to the home screen.
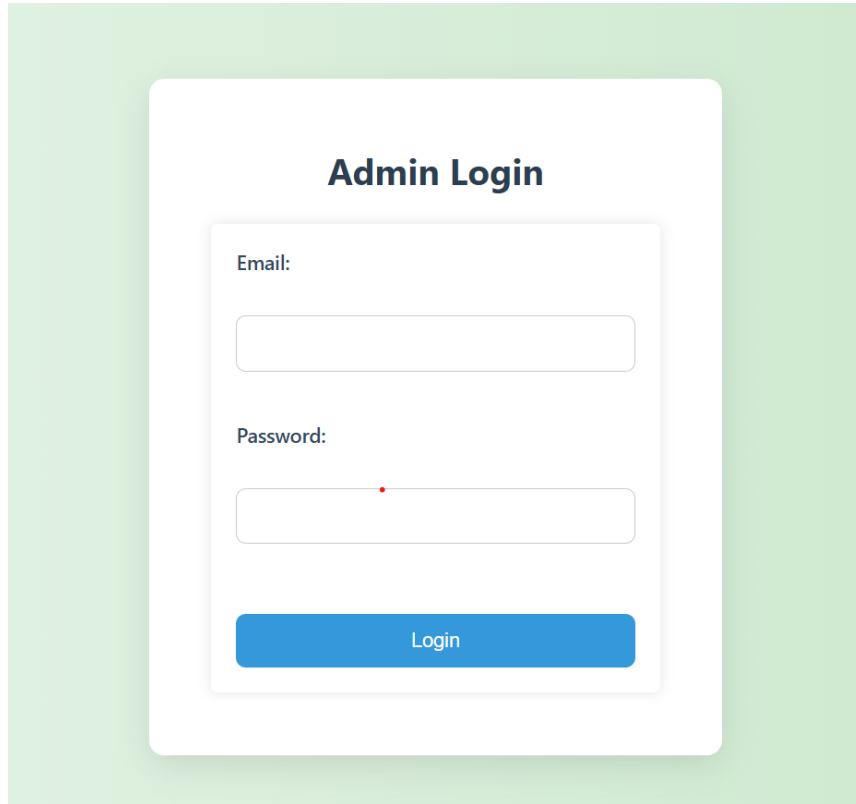

Logout in Navigation bar

2.3   Admin Interface

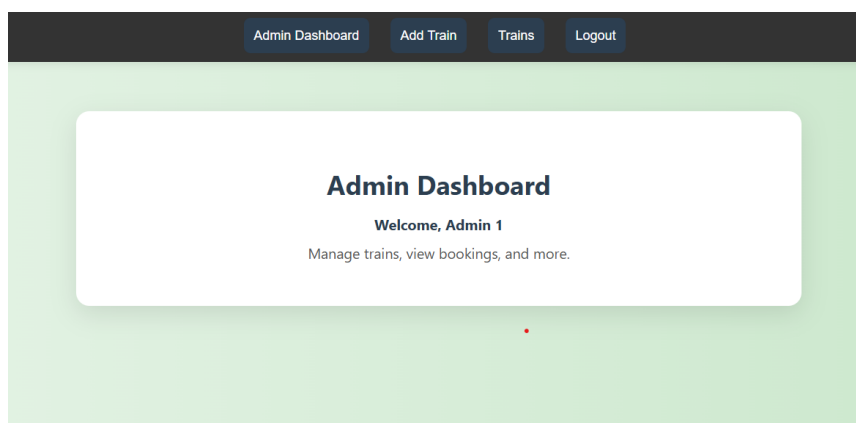Admins have access to a restricted panel to manage train details.

2.3.1 Admin Login

Admins log in with credentials to access the admin dashboard. Unauthorized users are redirected to the homepage.

2.3.2 Admin Dashboard

The dashboard welcomes the admin user and offers access to management features. This includes a message showing their admin ID and an overview of available actions.
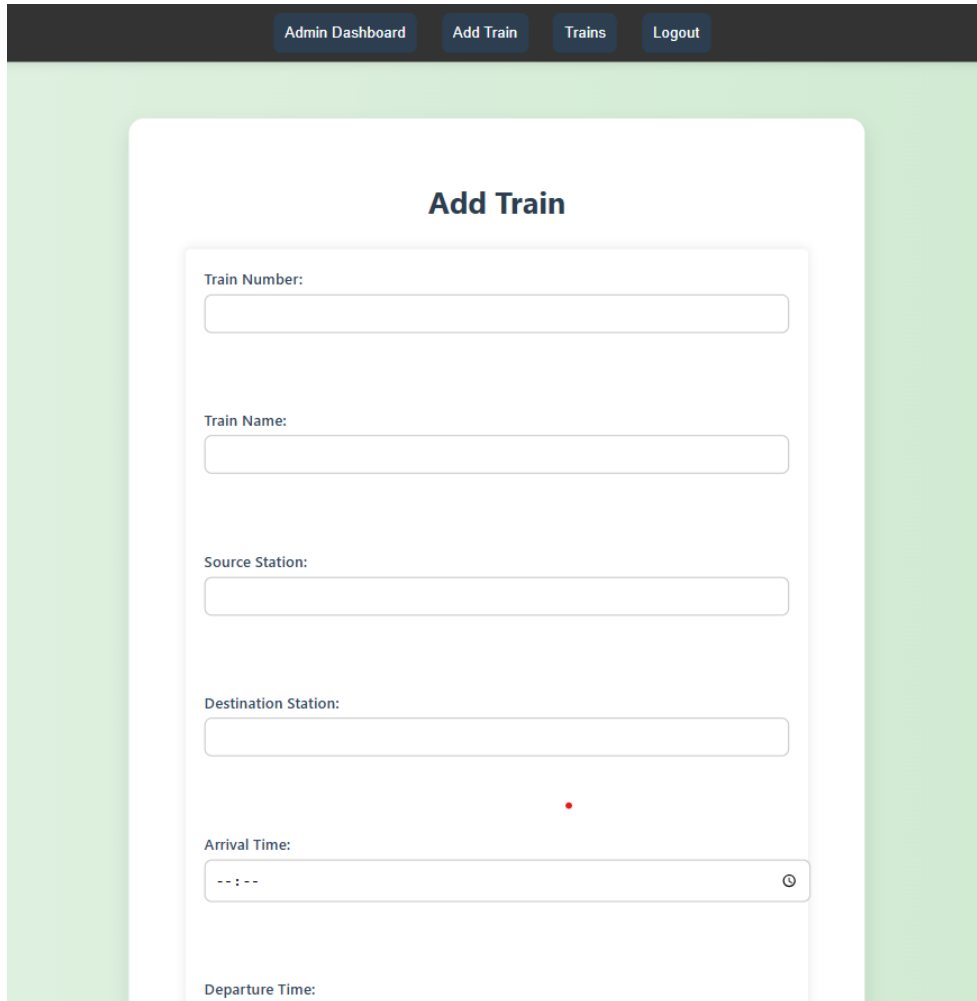
2.3.3 Add Trains

Admins can add new trains to the system using a form that includes:

- Train number and name

- Source and destination stations

- Arrival and departure times

- Operating days (e.g., {Monday, Wednesday, Friday})

- Number of seats available in each class (e.g., SLEEPER : 10 , 3AC : 10,...)

Form data is sent to the backend via an authenticated POST request. Appropriate success and error messages are shown based on the result.

2.3.4 Logout

Admins can log out to securely terminate their session.

Logout in Navigation bar

3 Features Planned for Final Submission

Here are some of the key features we're planning to add before the final version of our project:

- **Payment :** Right now, all bookings are automatically confirmed. Our plan is to add a proper payment form on the booking page. Only after a successful payment will the ticket be confirmed.
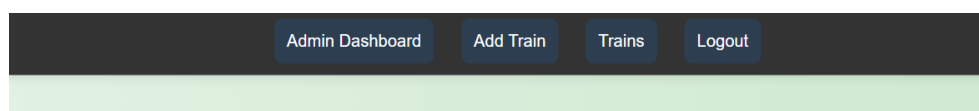
- **Waiting List Option:** If there are no seats left, users will still be able to book tickets on a waiting list. In such cases, payment won't be required upfront. If the seat gets confirmed later, the user will be notified to complete the payment.

- **Smart Travel Dates:** We'll improve the booking system so that it only shows dates when the selected train is actually running. This will make the booking experience smoother and avoid any confusion.

- **Flexible Station Search:** We're working on making the search smarter. Users will be able to search for trains not just from the starting point to the end, but between any two stations along the train's route.
  For example: If a train goes from `A → B → C → D → E`, someone can book from `B to D` directly.

- **Ticket Cancellation and Refunds:** We'll add an option for users to cancel their tickets. Based on how close the travel date is, they'll receive a partial or full refund, as per the policy.

- **Sharing Seats on Non-overlapping Routes:** To make better use of available seats, we'll allow the same seat to be booked by two different people, as long as their routes don't overlap.
  For example: One person can book from `A to C`, and another from `C to E`.

- **Food Ordering at Stations:** Passengers will be able to pre-order food to be delivered at certain stations during the journey using their PNR. This makes the trip more convenient.

- **Live Train Status:** Users will be able to check the current running status of any train using its ID—whether it's on time or delayed.

- **Admin Updates for Delays:** Admins will have tools to update any delay information, so users always have the latest train status.

- **View Seat Availability Chart:** We'll add a visual chart to show available and booked seats in each coach of a train. This will help users make better booking choices and know which classes or seats are still open.

- **FAQ Page:** We'll create a simple FAQ/help page that explains how the app works, how bookings are processed, what PNR means, refund policies, how to check ticket status, and other common questions. This will make it easier for new users to understand the system without needing support.

- **More to Come:** These are our current plans, but we're sure to think of more exciting features as the project develops.