Railway Crossing Status Application Documentation

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1. Project Overview

The Railway Crossing Status Application is a web-based platform designed to communicate the status of railway crossings in advance to the public and provide management tools for the railway department. The application allows public users to create accounts, view details of railway crossings, mark crossings as favorites, and access a list of favorite crossings. Government users, on the other hand, can log in to an admin dashboard for railway crossing management, including adding, deleting, searching, and updating the status of crossings.

Technologies Used:

Frontend: JSP

Backend: Java Servlets

Database: MySQL

ORM (Object-Relational Mapping): JDBC

2. Database Configuration

The application relies on a MySQL database to store user and railway crossing information. Follow the steps below to set up the database:

Create a MySQL database named `railway_status`.

Execute the SQL script in `db_setup.sql` to create the necessary tables.

db_setup.sql:

3. User Authentication

The user authentication process involves registration and login functionalities. User passwords are securely hashed and stored in the database.

Registration:

Users can register by providing their name, email, and password.

Login:

Users can log in using their email and password.

Session management is employed to track user authentication status.

4. Public Section

PublicServlet:

Handles public user requests.

Implements authentication and authorization logic.

public.jsp:

Displays details of railway crossings.

Provides search functionality.

Allows users to mark crossings as favorites.

Displays a list of favorite crossings.

5. Government Section

AdminServlet:

Handles admin user requests.

Implements authentication and authorization logic.

Admin Dashboard:

Admin login page.

Admin dashboard overview.

Form to add a new railway crossing.

Displays a list of crossings with the option to delete.

6. Railway Crossing Model

RailwayCrossing.java:

Represents the model for a railway crossing.

Attributes include name, address, landmark, train schedules, person in charge, and status.

7. CRUD Operations

UserDao.java:

Manages user-related database operations.

Provides methods for user registration and login.

RailwayCrossingDao.java:

Manages railway crossing-related database operations.

Provides methods for adding, deleting, searching, and updating crossing status.

8. Update Status

Logic to update the status of a railway crossing.

Default state is open; it can be updated to closed when a train is approaching.

9. Navigation Bar

HTML5 navigation bar for easy access to different sections and features.

10. Exception Handling

Comprehensive exception handling throughout the application.

Custom exception classes for specific error scenarios.

11. Code Optimization

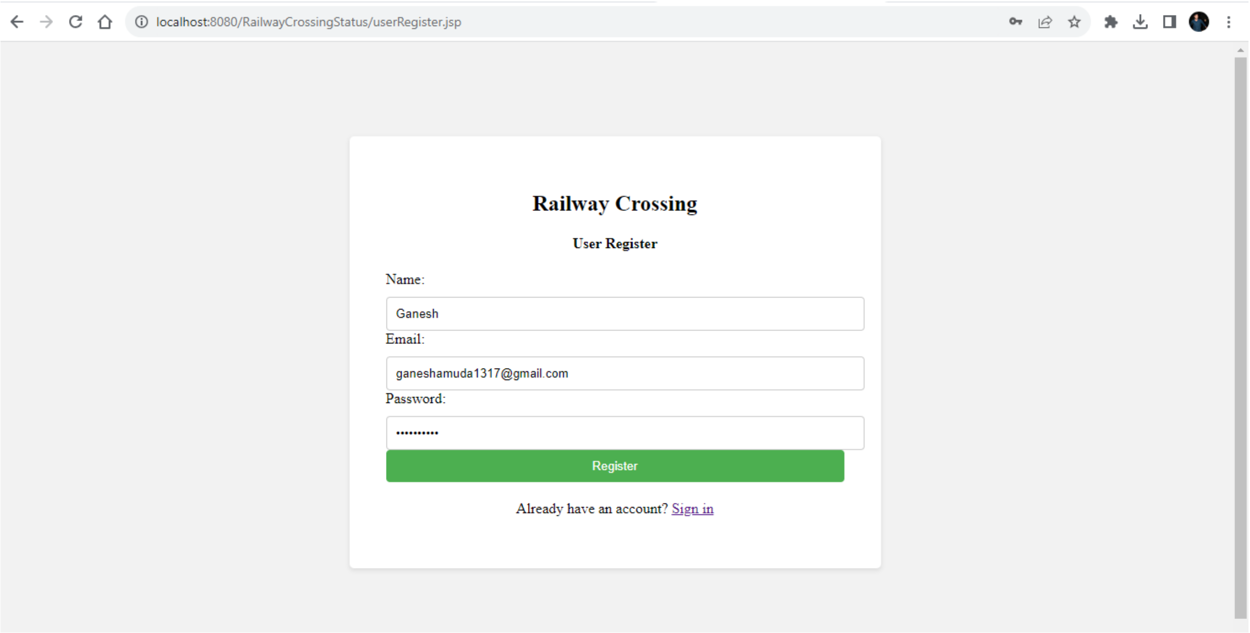
Code structured for readability and maintainability.

Utilizes appropriate design patterns.

Implements efficient algorithms for searching and data manipulation.

OUTPUTS

Task 1: Create an account or Register


localhost:8080/RailwayCrossingStatus/userRegister.jsp

Railway Crossing

User Register

Name:

Ganesh

Email:

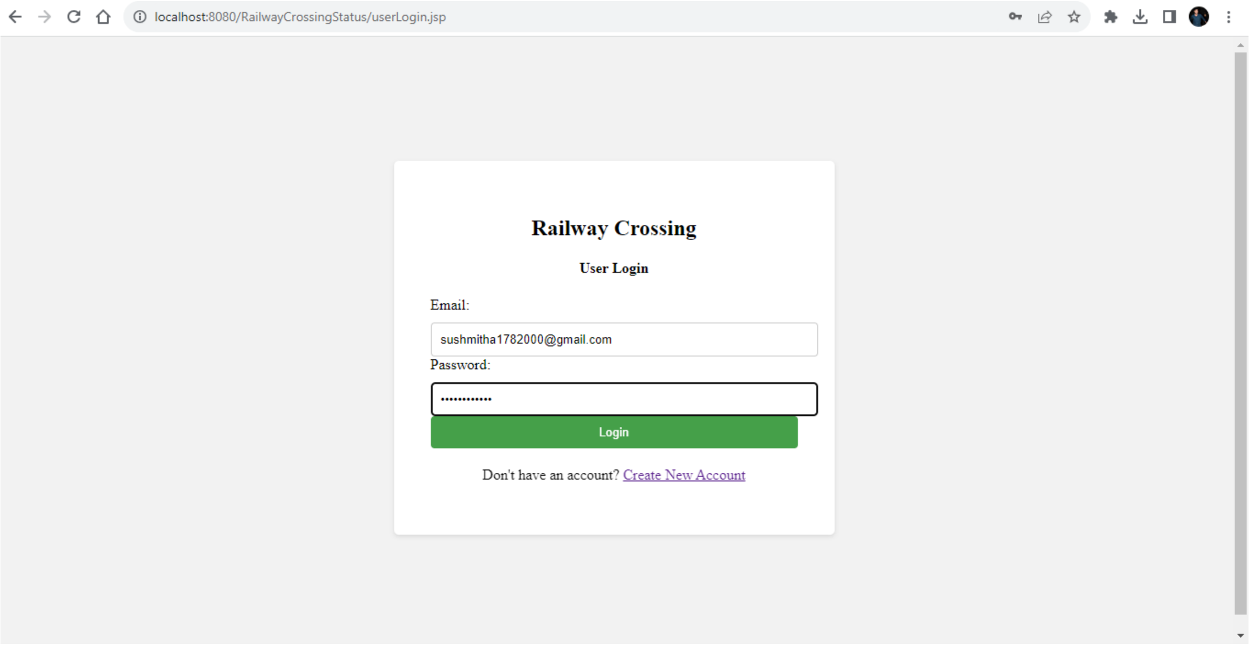
ganeshamuda1317@gmail.com

Password:

••••••••••

Already have an account? Sign in

Task 2: Log in


localhost:8080/RailwayCrossingStatus/userLogin.jsp

Railway Crossing

User Login

Email:

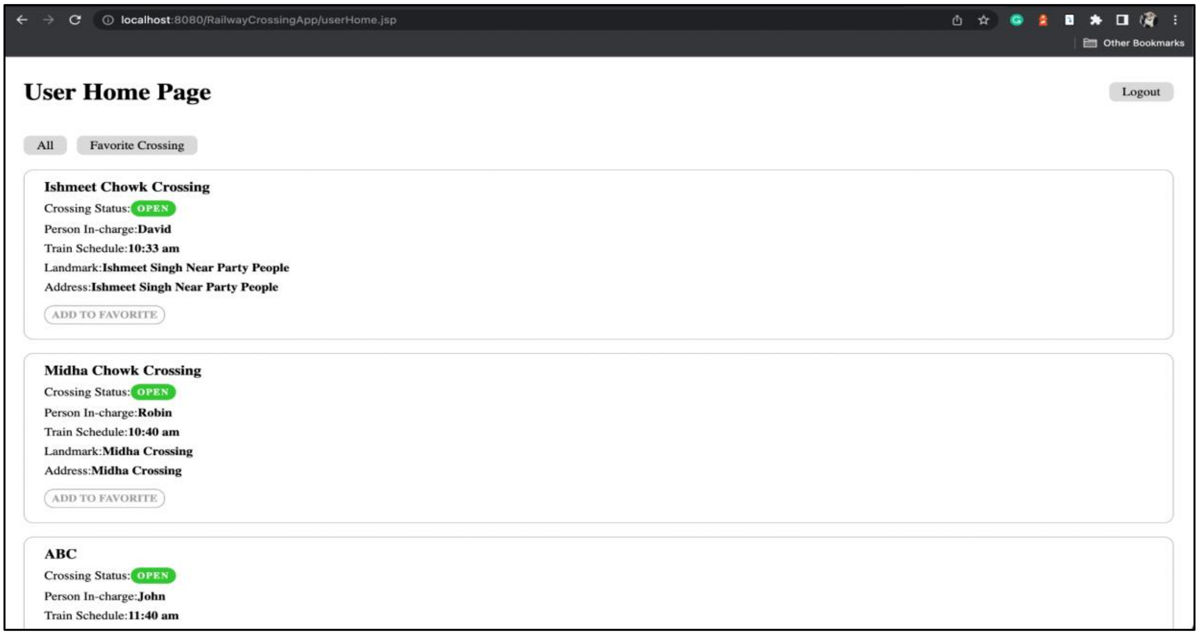
sushmitha1782000@gmail.com

Password:

••••••••••••

Don't have an account? Create New Account

Task 3: Display Railway crossing data



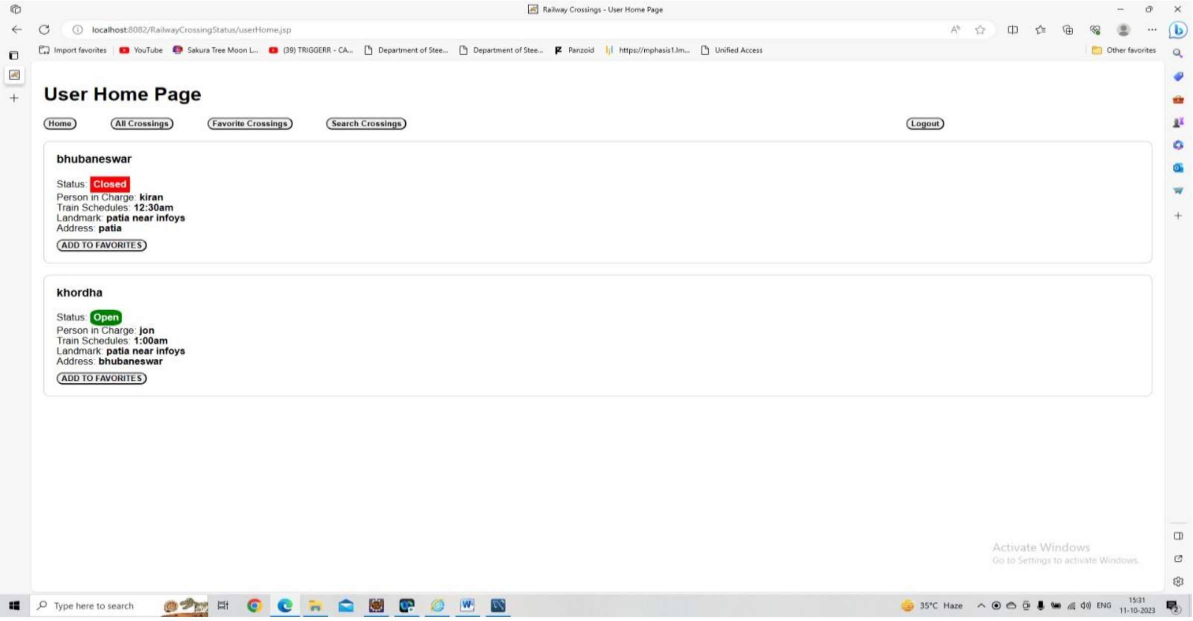
User Home Page

Ishmeet Chowk Crossing
Crossing Status: OPEN
Person In-charge:**David**
Train Schedule:**10:33 am**
Landmark:**Ishmeet Singh Near Party People**
Address:**Ishmeet Singh Near Party People**

Midha Chowk Crossing
Crossing Status: OPEN
Person In-charge:**Robin**
Train Schedule:**10:40 am**
Landmark:**Midha Crossing**
Address:**Midha Crossing**

ABC
Crossing Status: OPEN
Person In-charge:**John**
Train Schedule:**11:40 am**

Task 4: Railway crossing status



User Home Page

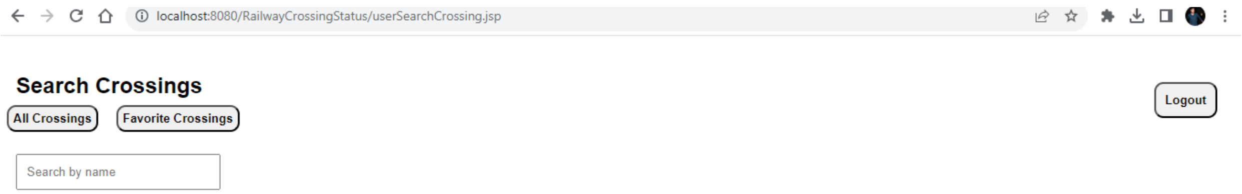
bhubaneswar

Status: Closed
Person in Charge: **kiran**
Train Schedules: **12:30am**
Landmark: **patia near infoys**
Address: **patia**

khordha

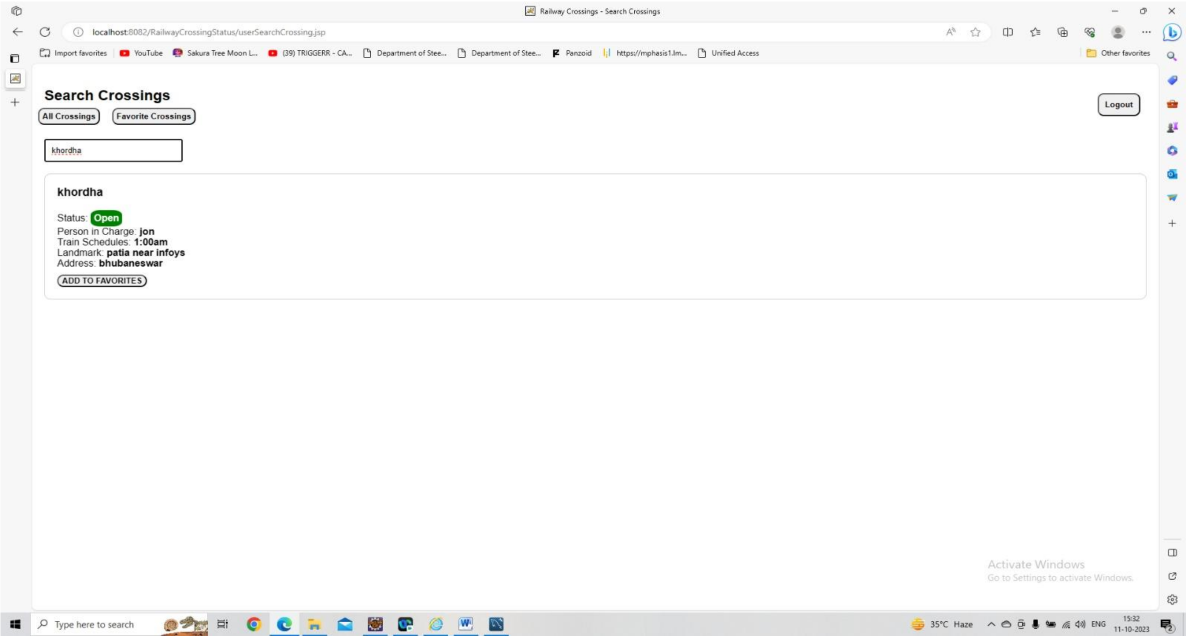
Status: Open
Person in Charge: **jon**
Train Schedules: **1:00am**
Landmark: **patia near infoys**
Address: **bhubaneswar**

Task 5: Search Railway Crossing



Search Crossings

Task 6: Mark railway crossing as Favourite

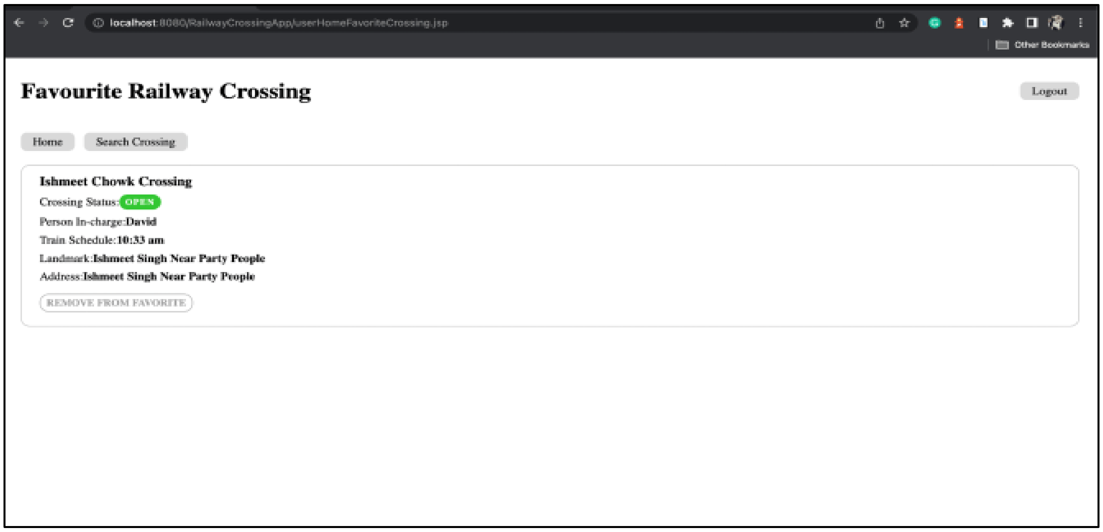


Search Crossings

khordha

Status: **Open**
Person in Charge: **jon**
Train Schedules: **1:00am**
Landmark: **patia near infoys**
Address: **bhubaneswar**

Task 7: Add Crossing


localhost:8080/RailwayCrossingApp/userHomeFavoriteCrossing.jsp
Other Bookmarks

Favourite Railway Crossing

Logout
Home
Search Crossing

Ishmeet Chowk Crossing

Crossing Status:OPEN

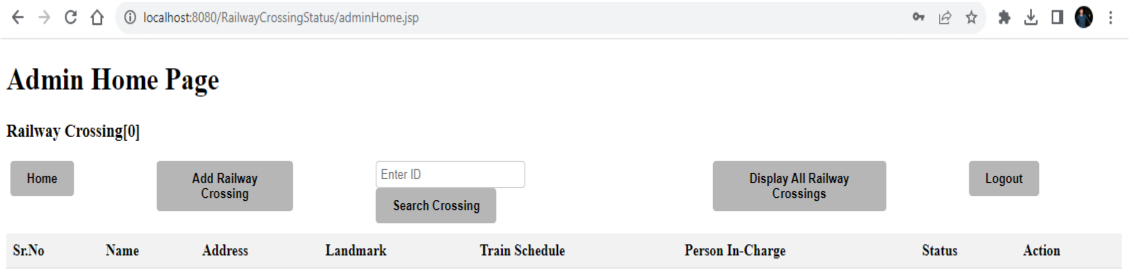
Person In-charge:**David**

Train Schedule:**10:33 am**

Landmark:**Ishmeet Singh Near Party People**

Address:**Ishmeet Singh Near Party People**

Task 8: Admin Home Page


localhost:8080/RailwayCrossingStatus/adminHome.jsp

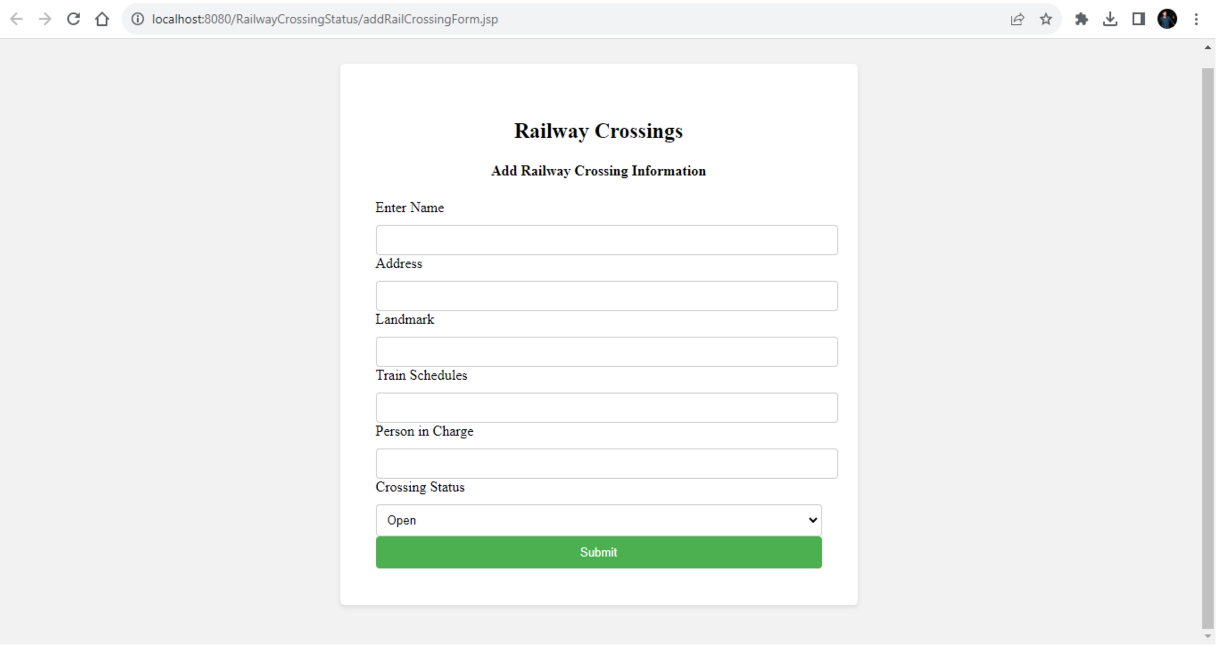
Admin Home Page

Railway Crossing[0]

Home
Add Railway Crossing
Enter ID
Search Crossing
Display All Railway Crossings
Logout

Sr.No	Name	Address	Landmark	Train Schedule	Person In-Charge	Status	Action

Task 9 : Adding Railway Crossing Inforamation


localhost:8080/RailwayCrossingStatus/addRailCrossingForm.jsp

Railway Crossings

Add Railway Crossing Information

Enter Name

Address

Landmark

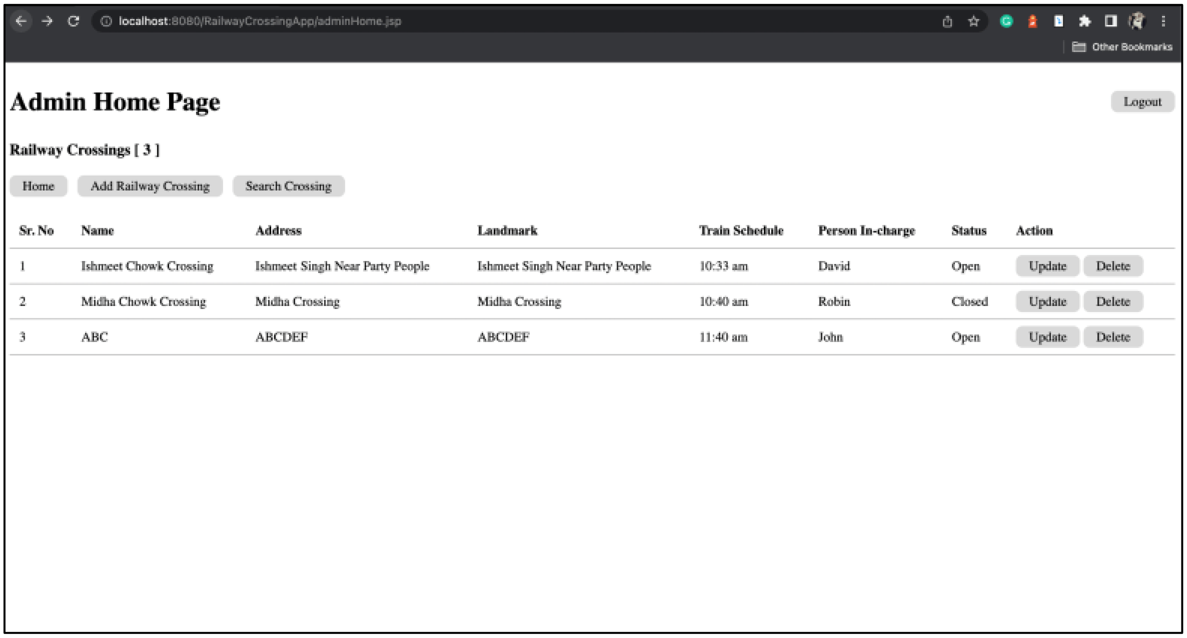
Train Schedules

Person in Charge

Crossing Status

Open

Task 10 : Manage Crossings

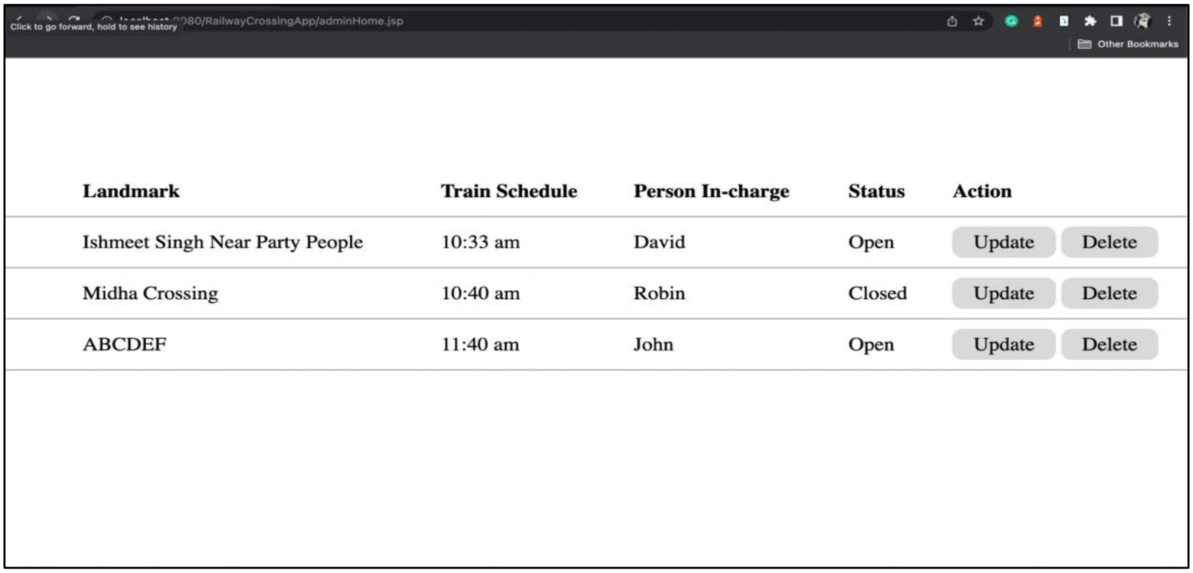


Admin Home Page

Railway Crossings [3]

Sr. No	Name	Address	Landmark	Train Schedule	Person In-charge	Status	Action
1	Ishmeet Chowk Crossing	Ishmeet Singh Near Party People	Ishmeet Singh Near Party People	10:33 am	David	Open	Update Delete
2	Midha Chowk Crossing	Midha Crossing	Midha Crossing	10:40 am	Robin	Closed	Update Delete
3	ABC	ABCDEF	ABCDEF	11:40 am	John	Open	Update Delete

Task 11: Delete a Crossing

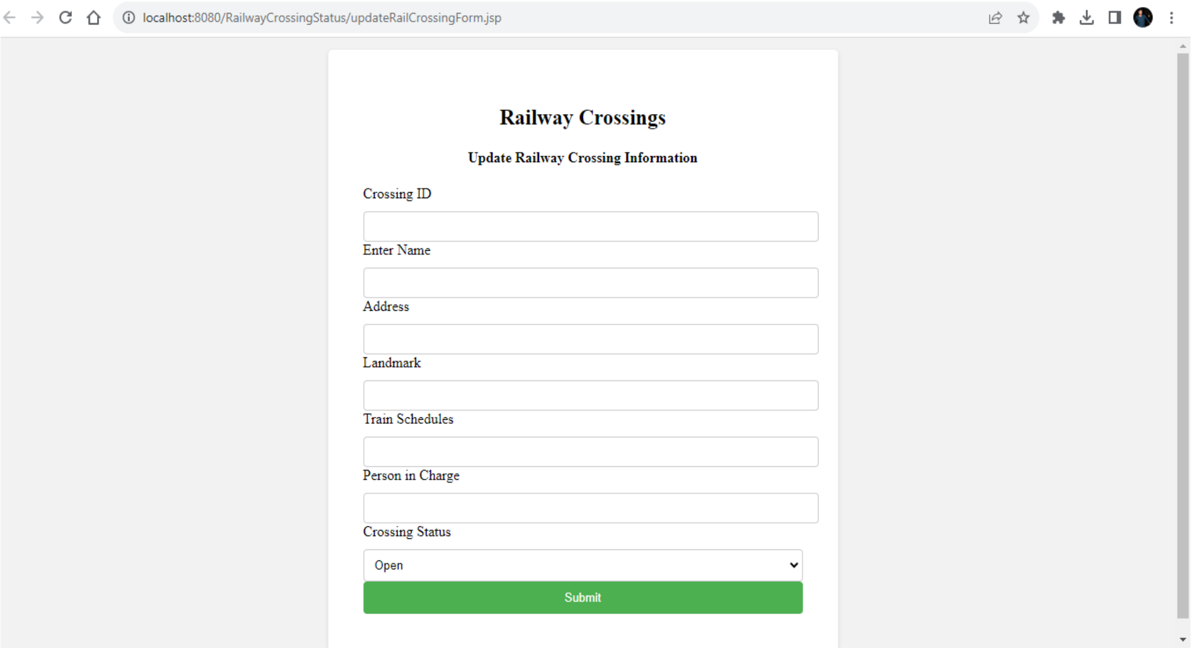


Click to go forward, hold to see history

localhost:8080/RailwayCrossingApp/adminHome.jsp

Landmark	Train Schedule	Person In-charge	Status	Action
Ishmeet Singh Near Party People	10:33 am	David	Open	Update Delete
Midha Crossing	10:40 am	Robin	Closed	Update Delete
ABCDEF	11:40 am	John	Open	Update Delete

Task 12 : Update Crossing details



localhost:8080/RailwayCrossingStatus/updateRailCrossingForm.jsp

Railway Crossings

Update Railway Crossing Information

Crossing ID

Enter Name

Address

Landmark

Train Schedules

Person in Charge

Crossing Status

Open