Railway Management System

A COURSE PROJECT REPORT

18CSC303J - Database Management Systems

Submitted by

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Under the Guidance of

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BONAFIDE CERTIFICATE

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CHAPTER 1

INTRODUCTION

Every Indian can been proudly say that the Indian Railway is the world second largest railway system. If going by figures it covers,6853 station and 63028 kilometers of track distance, carrying a load of 37840 passengers and around 500 tons of freight annually.

With this huge magnitude our railway system faced a problem of a complete and fast reservation system , which has been started as PRS(passenger reservation system) in 1985 and was formed around the objective or providing reserved reservation to the train travelers . Even after a lot of pilots done for this system it fell short of the expectations as it was not automated.

Due to the efforts put in this direction now reserved ticketing for anywhere in India terminals and interactive voice response systems on telephone ,or touch screens Now one can easily plan the journey comfortably as the process is efficient and made through the Indian railways site or at the ample reservation centers all over agencies which provide reservation facility on behalf of India railways and without the booking is done through an E-Ticket issue which have a PNR number of which the station .It not only reservation but cancellation can also be done through this system at the process .This being a big step in terms of improvement in the railway system.

Our railway management project is poised to revolutionize the way we experience train travel. By leveraging cutting-edge technology and streamlined processes, we aim to enhance efficiency, safety, and passenger satisfaction across the railway network. Join us on this journey as we transform the rails into a seamless, interconnected system that caters to the needs of modern travelers.

CHAPTER 2

PROJECT OBJECTIVES AND FEATURES

2.1 Project Objective

The project hence completed is intended to meet the requirements and hopefully perform below the mentioned tasks.

- To act as an interface between the data provider and the database.
- Quick access to the complex and vast amount of data.
- To make the job of routine more dependent on computer thus reducing human errors.
- Allow a more users friendly system, which will save precious time and effort.

2.2 Project Features

The railway management system aids in overseeing booking details, checking the availability of trains based on destinations and sources, tracking speed, analyzing data, handling cargo, tracking staff and passenger information, etc.

- It is suitable for bulky goods.
- It is Highly economical for long distances.
- There is regularity in the operation of train. To transport bulky goods and for traveling long distances rail transport is more convenient and highly economical. For long distance we can see there is regularity in the operation of train.

An online ticketing system allows passengers to book tickets, choose seats, and make payments electronically. It should also support various ticket types (regular, express, first class) and offer discounts where applicable.

CHAPTER 3

SYSTEM DESIGN

3.1 ER Diagram

An Entity-Relationship (ER) diagram is a graphical representation of an information system that shows the relationships between entities in a database. It is used in database design to visualize the structure and relationships of a database, helping to understand how data is organized and how entities interact with each other.

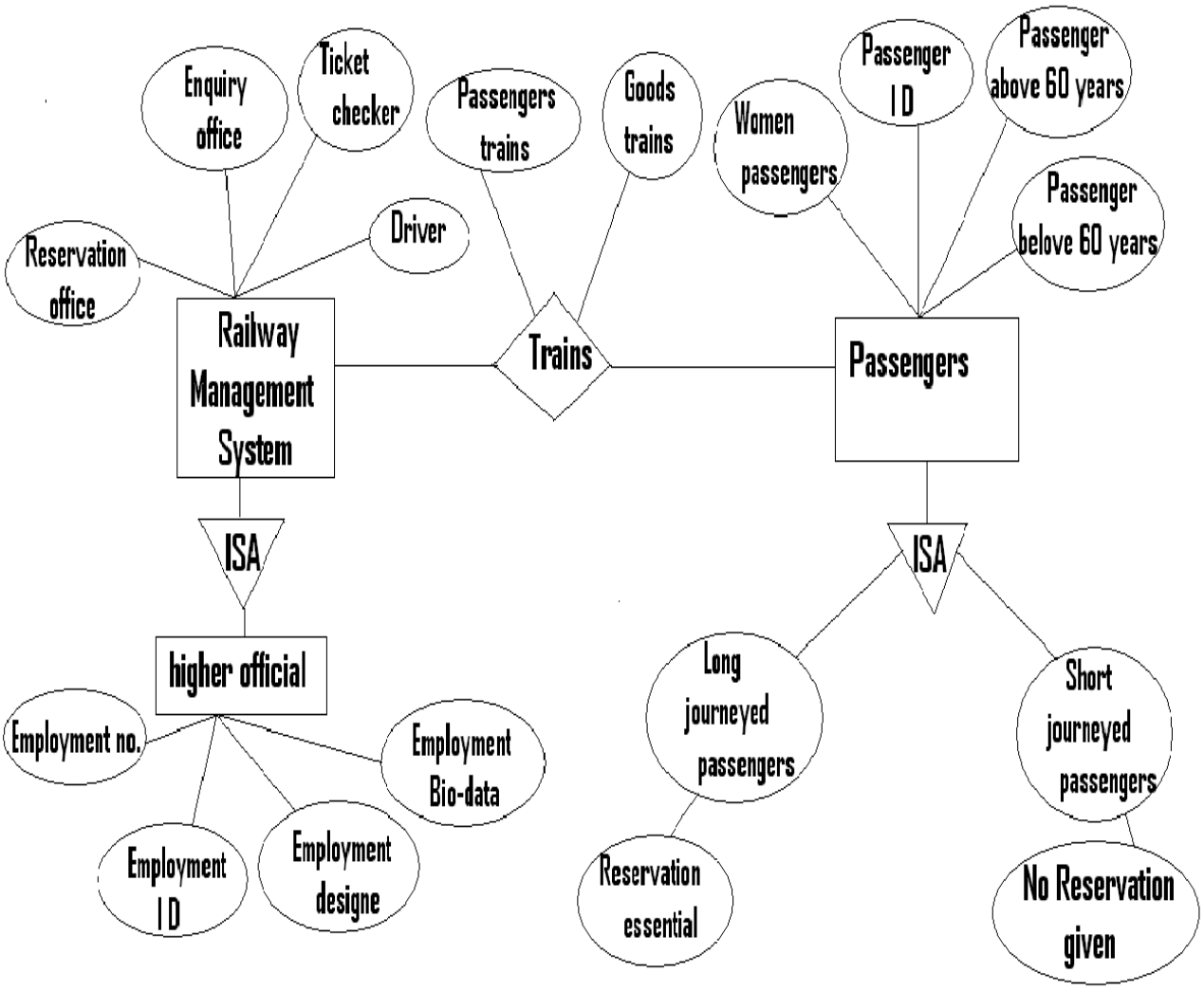
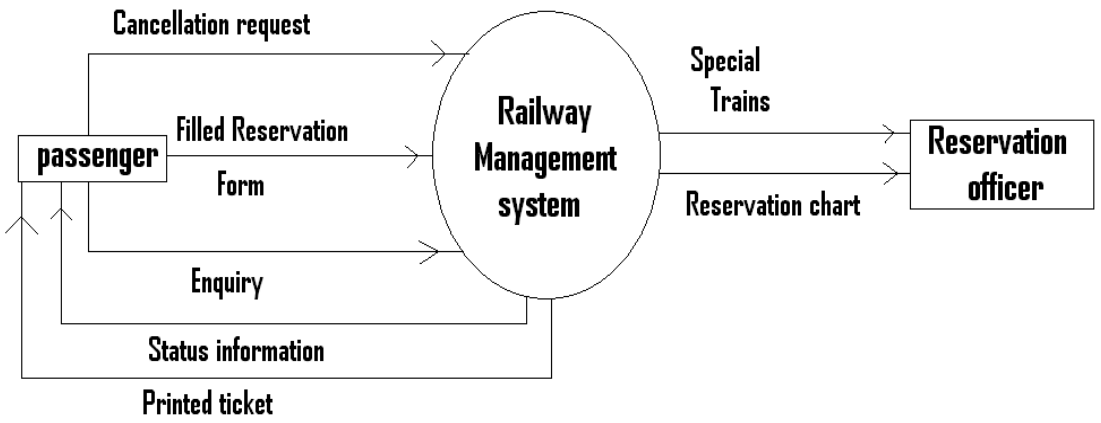


Figure 3.1.1 ER diagram for Courier management system.

3.2 Data Flow Diagram

A Data Flow Diagram (DFD) is a graphical representation of how data flows through a system. It describes the processes that transform data, the data sources and sinks, and the data storage within a system. DFDs can be used to visually understand and map the data processing in a system.



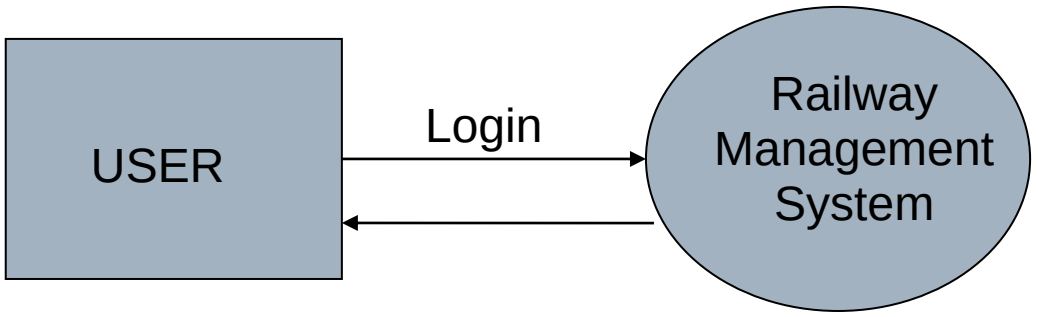


Figure 3.2.1 CONFLICT FLOW DIAGRAM AND DFD

3.3 Use Case Diagram

A Use Case Diagram is a type of UML diagram that visually represents the functionality of a system, its use cases, and the actors involved. Use Case Diagrams help to understand the system's scope and identify the relationships between actors and use cases.

The use case diagram is a high-level view of the system's functionality and does not delve into the details of how each use case is implemented. It serves as a communication tool between stakeholders to understand the system's requirements and functionality in a visual and structured manner.

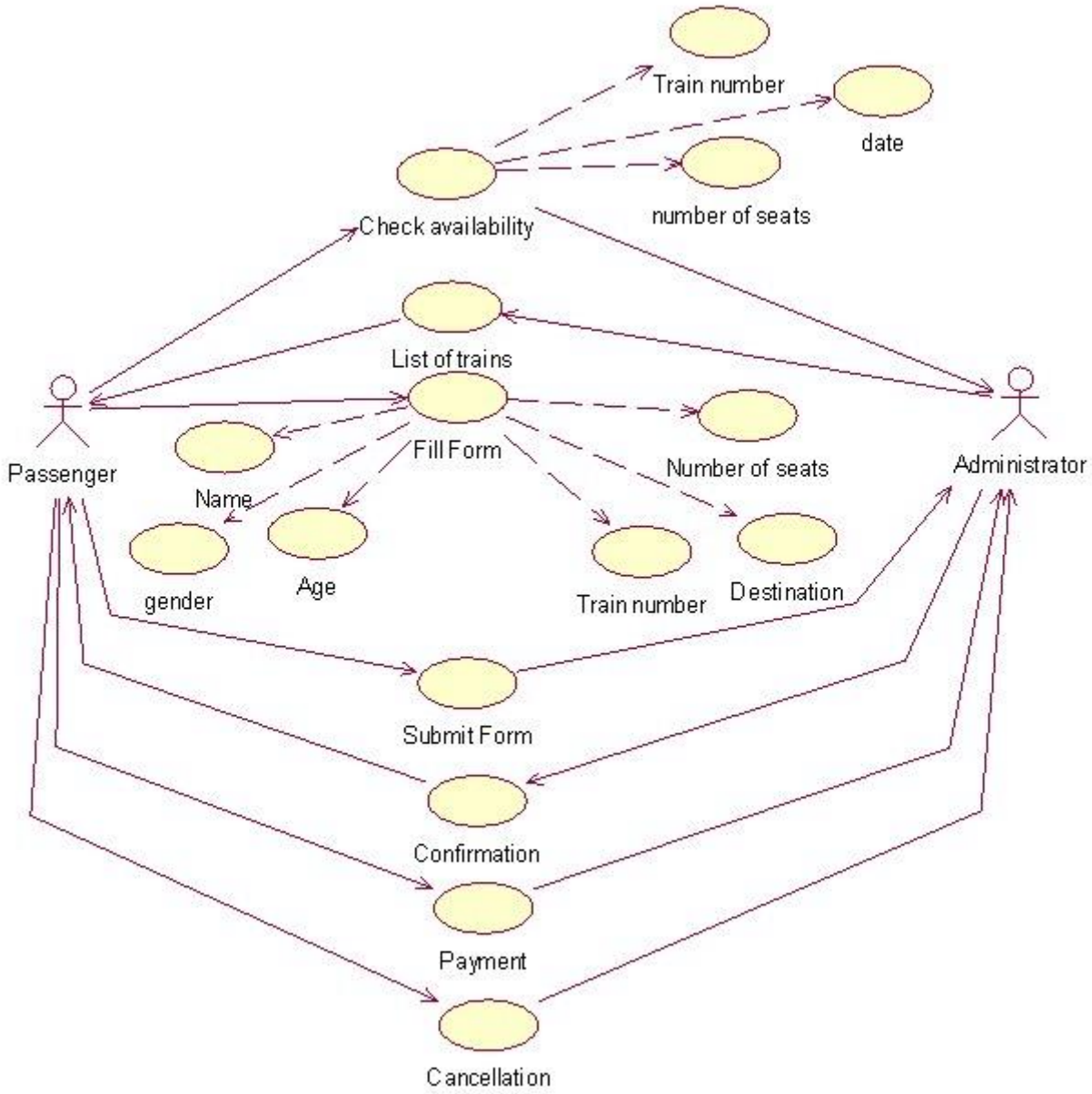


Figure 3.3.1 Use case diagram for Railway management system.

3.4 Schema Diagram : E-R includes some concept that are not minimal but which can be specified through the usage of the three main concepts of the ER Schema. These concepts are:

- Multi value attributes.
  Attributes of an object that can take a set of values represented by an entity and a relationship

- Composed attributes.
  Attributes with an internal structure (i.e, an address can include different fields), represented by using an entity and a relationship

- N-ary relationships.

Represented by a central entity and two reports

- Relationships with attributes.

Relationships involving N entities

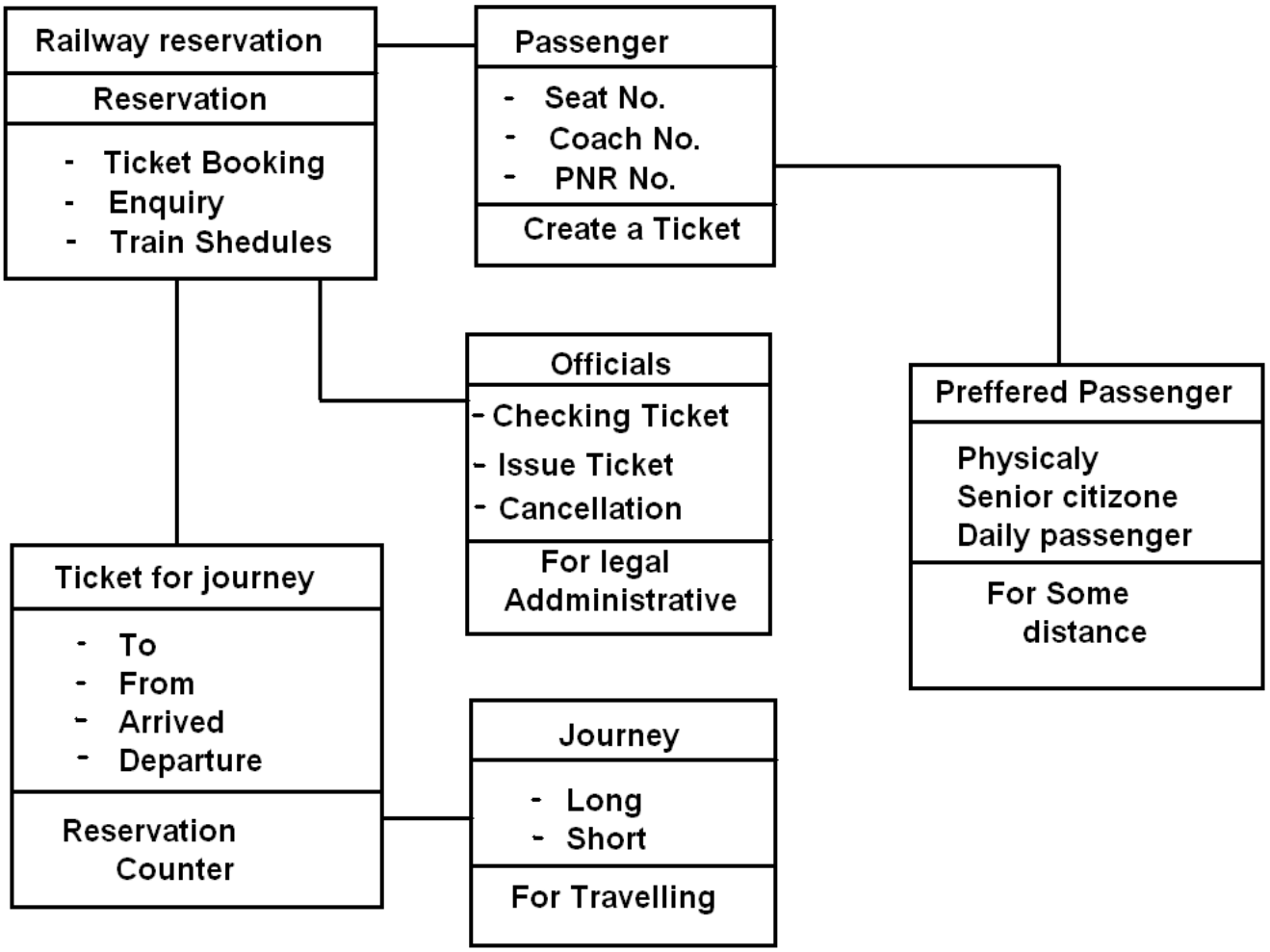
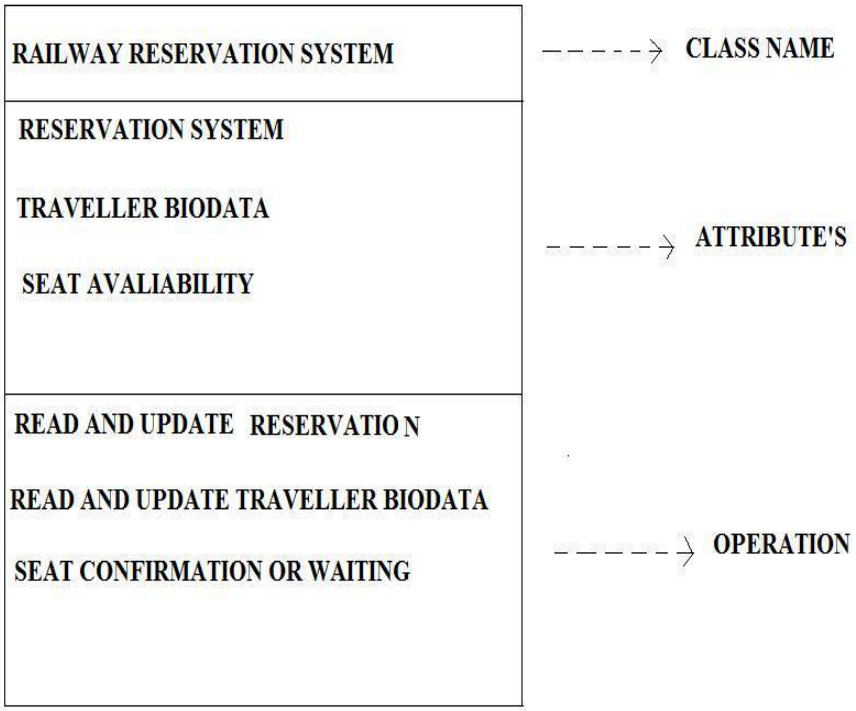


Figure 3.4.1 schema diagram for Railway management system.

3.5 Class Diagram

A class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's: classes, their attributes, operations (or methods), and the relationships among objects. Class diagrams serve as a blueprint for software implementation. They guide developers in writing code by illustrating the classes, their attributes, methods, and the relationships between them. This can help ensure consistency between the design and the actual implementation.



CLASS DIAGRAM

CHAPTER 4

OUTPUT

4.1 Home Page

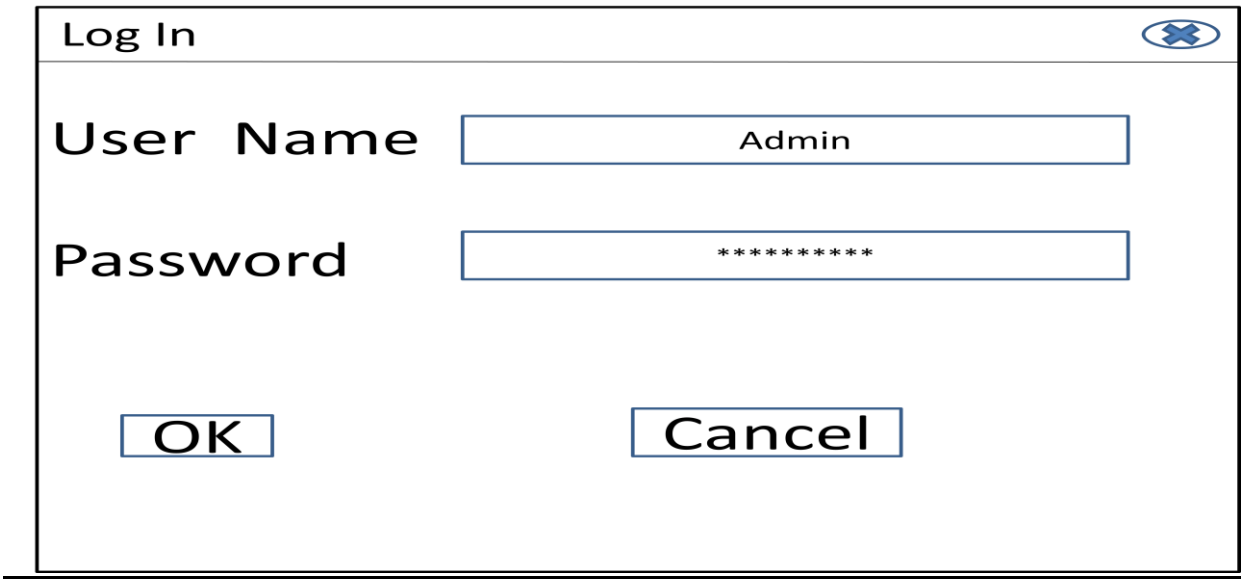


Figure 4.1 Home page

4.2 Choose Password change

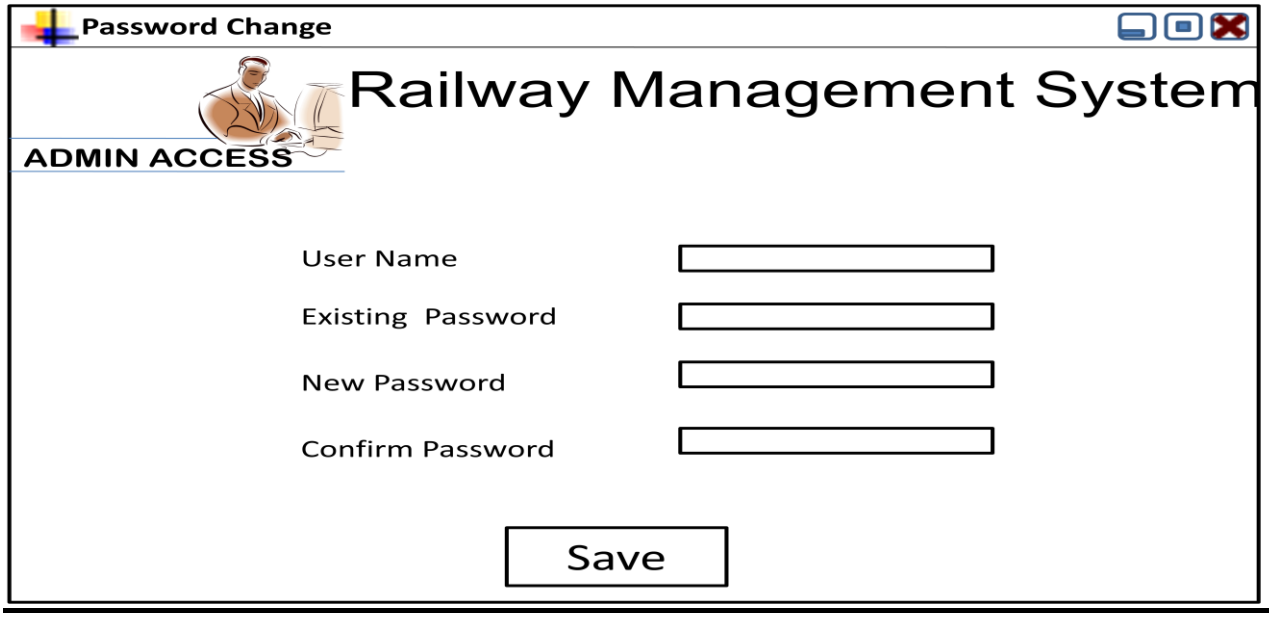


Figure 4.2 Choose Password Change

4.3 Main Administration

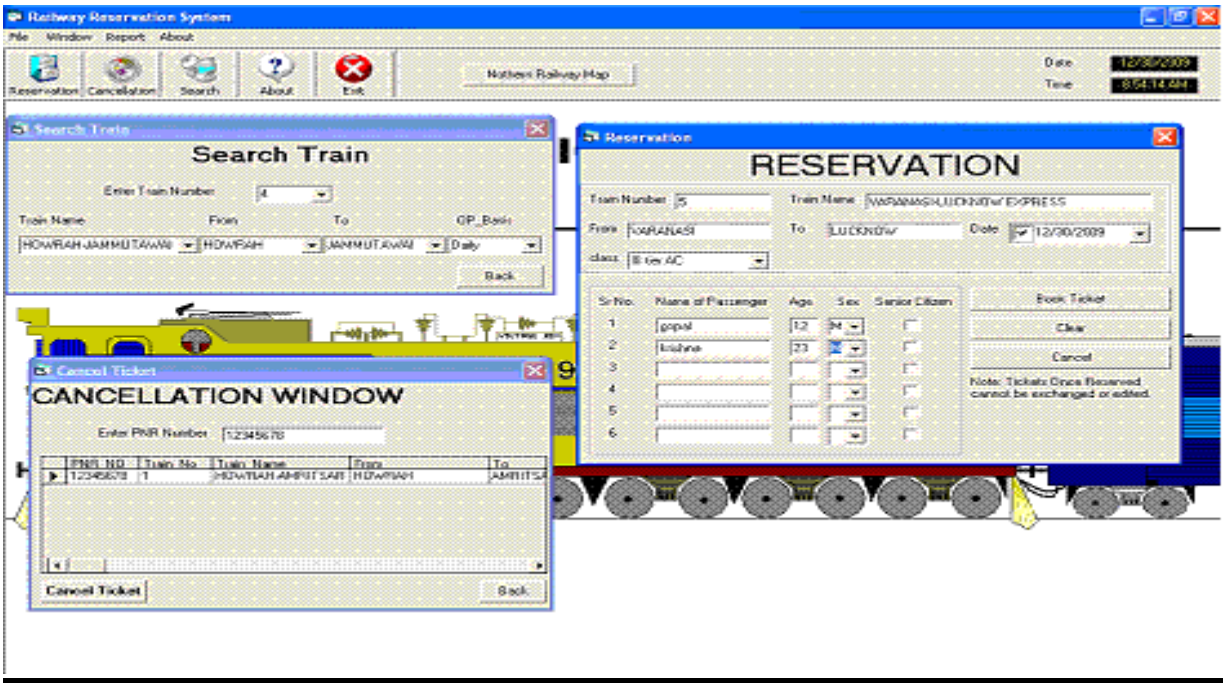


Figure 4.3 Main Administration

4.4 Reservations Table

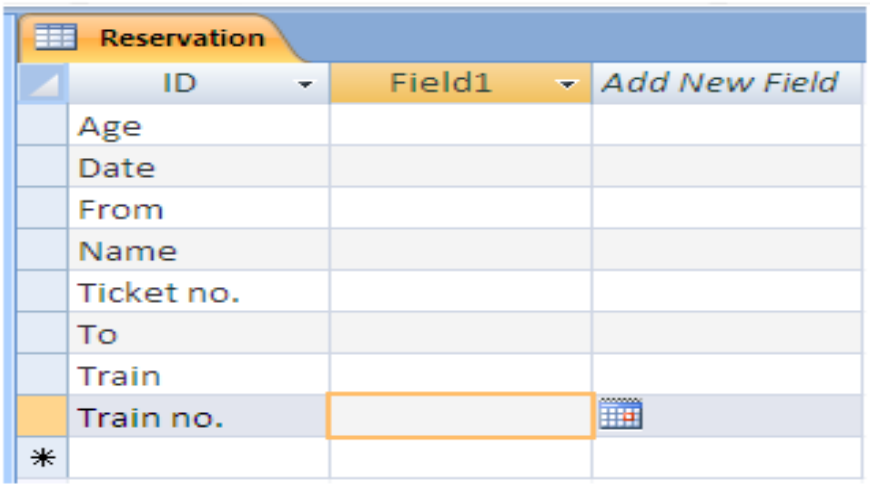


Figure 4.4 Reservation Table

4.5 Book Rail Ticket

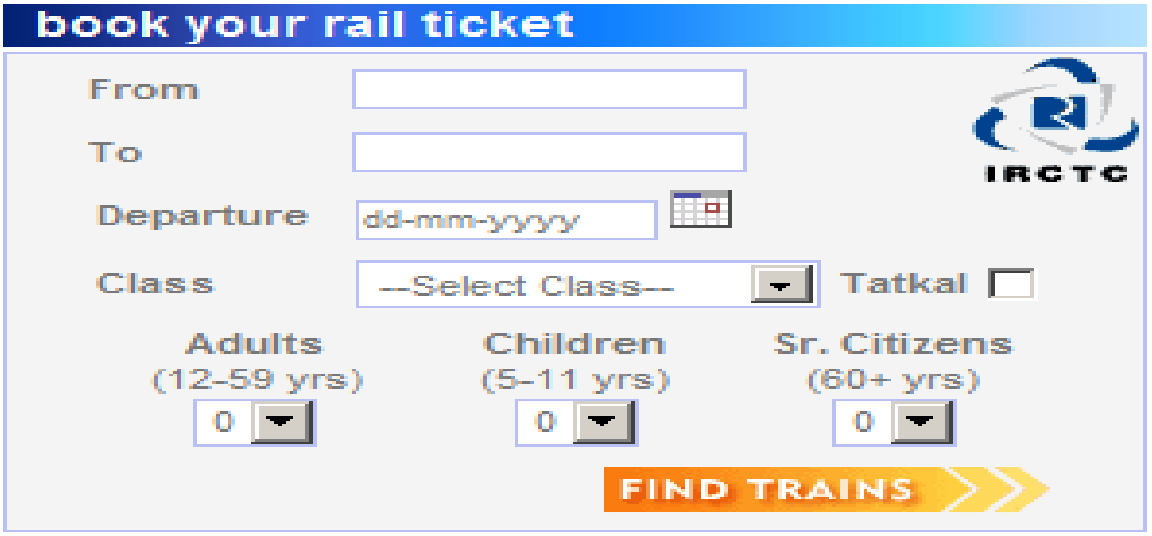
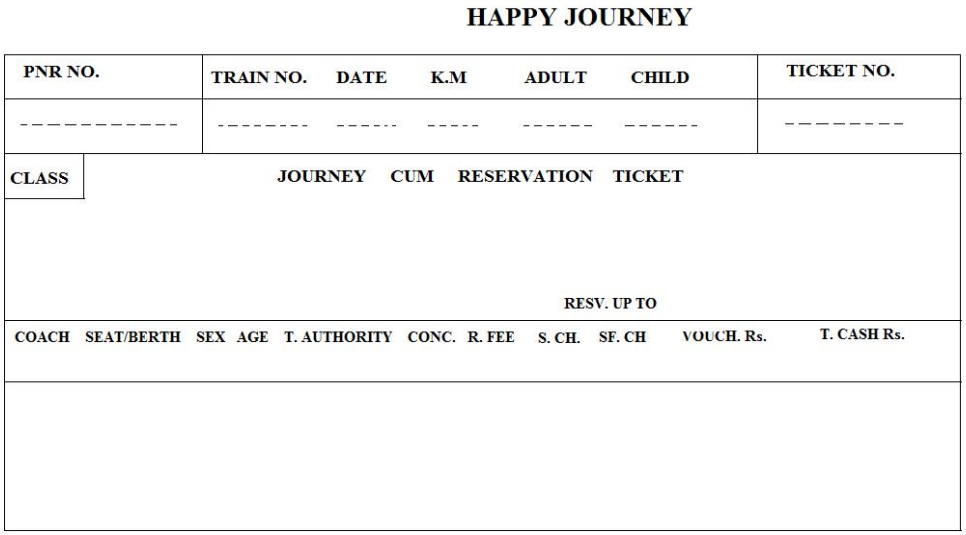


Figure 4.5 Book Rail Ticket

4.6 Purchasing Ticket



HAPPY JOURNEY

PNR NO.	TRAIN NO.	DATE	K.M	ADULT	CHILD	TICKET NO.
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CLASS — JOURNEY CUM RESERVATION TICKET

RESV. UP TO

COACH	SEAT/BERTH	SEX	AGE	T. AUTHORITY	CONC.	R. FEE	S. CH.	SF. CH	VOUCH. Rs.	T. CASH Rs.

Figure 4.6 Purchasing Ticket

4.7 Layout of Railway

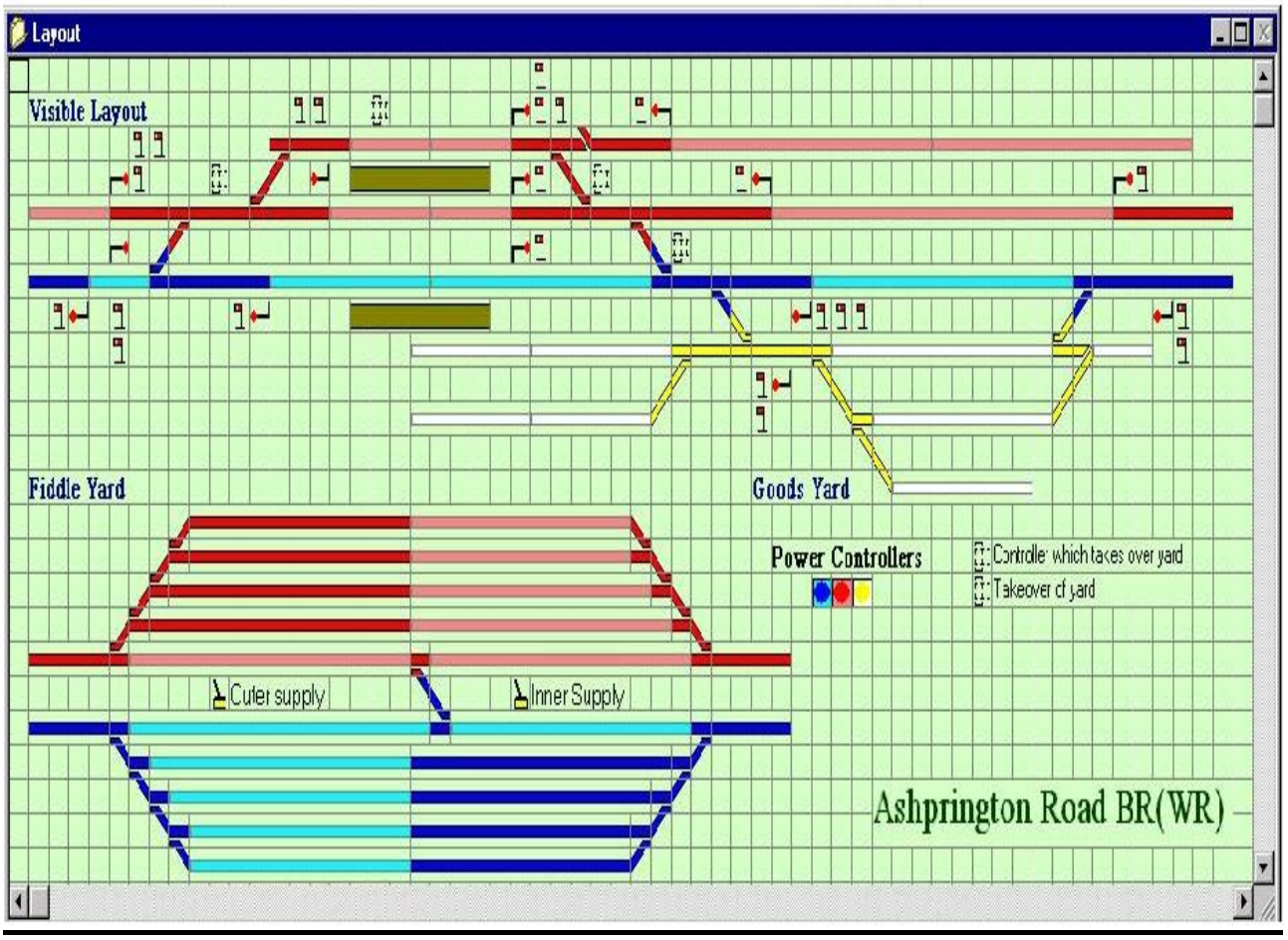

Figure 4.7 Layout of Railway

CHAPTER 5

MODULES

5.1 User Registration and Authentication Module:

Allows users to create accounts, log in, and manage their profiles.
Ensures security and authentication for accessing reservation services.

5.2 Ticket Booking Module:

Enables users to search for trains based on criteria such as source, destination, date, and class.
Facilitates seat selection, fare calculation, and booking confirmation.
Integrates payment gateways for secure online transactions.

5.3 Train Schedule and Availability Module:

Manages the schedule of trains including departure times, routes, stops, and seat availability.
Provides real-time updates on train status, cancellations, and delays.

5.4 Customer Management Module:

This module stores customer information, including their order history, preferences, and contact information. It also provides tools for managing customer feedback and complaints.

5.5 Billing and Payment Module:

This module manages the billing process, including generating invoices, tracking payments, and handling refunds. It may also include features for managing discounts, promotions, and loyalty programs.

5.6 Analytics and Reporting Module:

This module provides insights into the courier company's performance, including key metrics such as delivery times, order volumes, and customer satisfaction. It may also include tools for creating custom reports and dashboards.

CHAPTER 6

APPLICATIONS

Applications of the Railway Management System

1. **Efficient Ticket Booking**:

Passengers can easily book tickets online or through mobile apps, reducing the need for physical queues at ticket counters. This convenience leads to time savings and a smoother booking process.

2. **Seat Selection**:

The system allows passengers to choose their preferred seats or berths based on availability, such as window seats, aisle seats, upper berths, lower berths, etc.

2. **Multiple Ticket Types:**

Different types of tickets can be offered, including regular tickets, express tickets, first-class tickets, sleeper class tickets, and tickets with concessions for specific categories like senior citizens, students, or military personnel.

4. **Cancellation and Refunds**:

The system facilitates easy cancellation and refund processes for tickets, adhering to the railway's policies regarding cancellation charges and timelines.

5. **Real-Time Updates**:

Passengers receive real-time updates about train schedules, platform numbers, delays, cancellations, and other relevant information via SMS, email, or app notifications.

6. **Passenger Manifest**:

Railway authorities can maintain a digital passenger manifest that includes details such as passenger names, ages, ticket types, seat/berth numbers, and contact information, aiding in efficient management and communication.

CHAPTER 7

CONCLUSION

The project development period was really a very enriching and informative experience for us. We got the feel of the designing wear and field, besides developing our programming Skills .We understood the importance of planning and designing which is a part of software development .The making of the project has enhanced our practical knowledge and taught us how to work in teamwork. The project is the outcome of our continual teamwork. The regular guidance and constant watch never let us frivolous and kept us aware of what was going on in other parts of the department and the world. In the end, we would once again thank, all the persons who made such kind of project work possible for us. Developing this project has helped us to gain some experience on real time application.

Following modification or upgrades can be done in system.

1) More than one company can be integrated through this software.

2) Web services can be used to know exact delivery status of packets.

3) Client can check the repacked delivery status online.

4) Distributed database approach in place of centralized approach

CHAPTER 8

BIBLIOGRAPHY

It has been a great pleasure, honour, and challenge to work on the "Courier Management System" project and bring it to successful completion. Our journey involved gathering information from various sources to design, develop, and implement this project effectively.

We obtained most of our knowledge and guidance from online resources, which provided valuable insights into the technologies, frameworks, and best practices used in this project.

The following are some of the key resources we used:

- **W3Schools:** This website provided comprehensive tutorials and examples for web development, covering HTML, CSS, JavaScript, SQL, and various frameworks. It was invaluable for understanding the basics and advanced concepts of frontend and backend development.
  http://msdn.microsoft.com

- **TutorialsPoint:** TutorialsPoint offered a wide range of tutorials on web technologies, databases, and programming languages. We used it for additional reference and deeper understanding of certain topics.
  http://www.microsoft.com

- **Google and YouTube Tutorials:** These platforms provided a wealth of information in the form of articles, videos, and community forums. We used Google to find relevant articles and resources, while YouTube offered video tutorials on specific topics, helping us visualize concepts and solve specific problems.
  http://www.google.com

The knowledge and insights gained from these resources were instrumental in the successful completion of our project. We are grateful for the contributions of these platforms and the community of developers and educators who shared their expertise.