Railway Management System

SE Project report submitted in
partial fulfillment of the
requirements for the award of the Degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE & ENGINEERING

By

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DECLARATION BY THE CANDIDATE

I, **S.V.N Ramakanth,** bearing hall ticket number, **1602-19-733-118,** hereby declare that the project report entitled **Railway Management System** is submitted in partial fulfilment of the requirement for the award of the degree of **Bachelor of Engineering** in **Computer Science & Engineering**.

This is a record of bonafide work carried out by me and the results embodied in this project report have not been submitted to any other university or institute for the award of any other degree or diploma.

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BONAFIDE CERTIFICATE

This is to certify that the project entitled **Railway Management System** being submitted by **S.V.N. Ramakanth,** bearing **1602-19-733-118,** in partial fulfilment of the requirements for the award of the degree of Bachelor of Engineering in Computer Science & Engineering is a record of bonafide work carried out by her under my guidance.

Dr. T. Adilakshmi,

Professor & HOD,

Dept. of CSE

ACKNOWLEDGEMENT

With immense pleasure, I record my deep sense of gratitude to our guide Mrs. Anusha, Professor, Vasavi College of Engineering, Hyderabad, for the keen interest and thorough encouragement extended throughout the period of the project work. This project would add an asset to my academic profile.

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1. ABSTRACT

This teaching case discusses the challenges being faced by the technology managers at Indian railways(IR) in the current scenario of a resurgent national economy coupled with increasing customer expectations. In the face of growing competition from road and low-cost airlines, to retain its customers, IR has responded by changing its business rules. The Railway Ministry expects a rapid response from the center from Railway Information System(CRIS) to incorporate all these changes in the passenger reservation system(PRS). the old PRS, which is time-tested and reliable, and has been serving the customers' needs for nearly two decades, is now proving to be relatively inflexible to match the rapidly changing business requirements. Although the current scenario of a constant need to change the programming. The logic of PRS has been making maintenance tougher for CRIC officials, they have realized that PRS is a time-tested, proven,and reliable technology. Though they would be happy to replace old PRS with a new state-of-art system that would provide them greater maintenance flexibility, the repercussions associated with the possible failure of the new system are far too serious.

2. 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 and hence officiants.

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.

3. OBJECTIVES AND OVERVIEW OF PROJECT

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 user friendly system, which will save precious time and effort.
- ➢ Reduce the cases of wrong details as the system has many checks performed throughout the system.
- ➢ A systematic and tabular storage of data.

4. PROJECT PROFILE

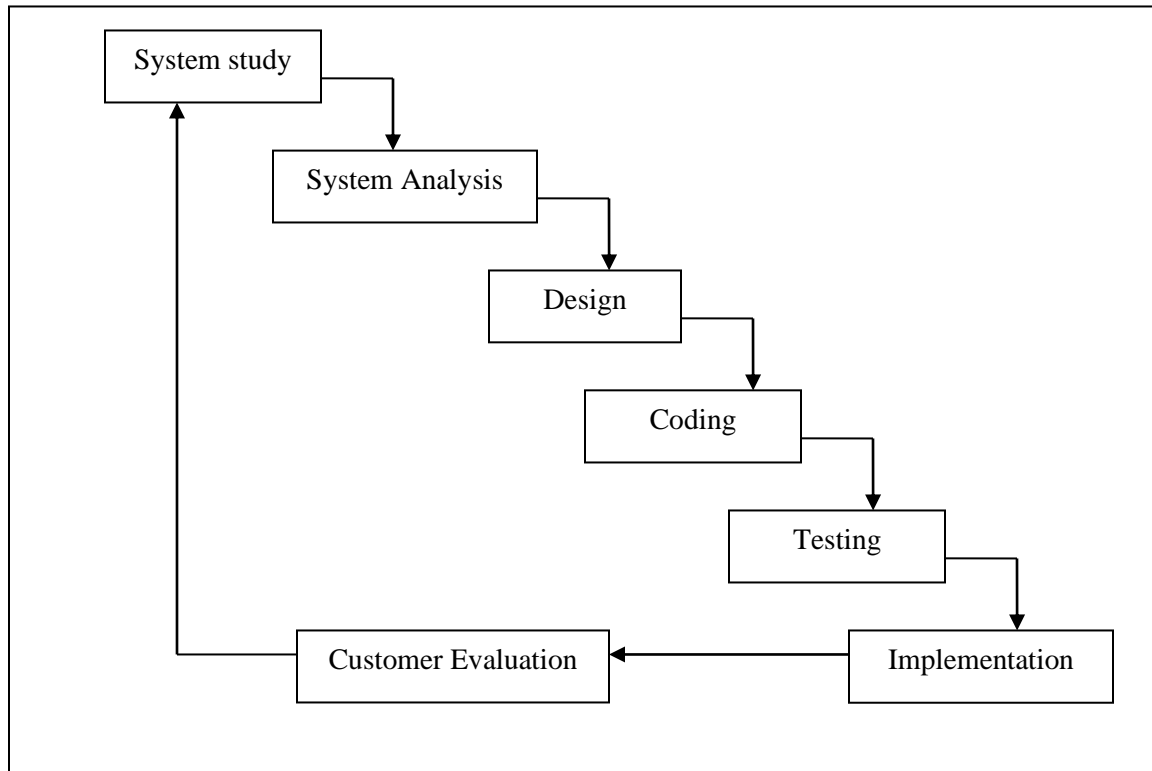**PROJECT**   **: Railway Management System**

PLATFORM USED   **: Windows XP**

FRONTEND   **: VB.NET**

BACKEND   **: MS – ACCESS 2007**

5. SOFTWARE ENGINEERING PARADIGM APPLIED

This paradigm also known as **Software Development Life Cycle** (SWDLC). SWDLC is an abstract representation of gradual development and evaluation of software that undergoes a series of sequential or concurrent steps of the software development process. Our project "**Stock Maintenance System"** includes this type for analyzing our requirements to make us understand the exact needs of employer & employee.

```
System study
    |
    v
System Analysis
        |
        v
      Design
          |
          v
        Coding
            |
            v
          Testing
              |
              v
Customer Evaluation <--- Implementation
    |
    ^ (back to System study)
```

6. SYSTEM STUDY

System study is the first stage of system development life cycle. The system study is done in two phases:

- **Preliminary Survey:** This helps in identifying the scope of the system.
- **Detailed Study:** This phase is more detailed and in-depth study in which the identification of user's requirement and the limitations and problems of the present system are studied.

After completing the system study, a system proposal is prepared and placed before the user. The proposed system contains the findings of the present system and recommendation to overcome the limitations and problems of the present system in the light of the user's requirements.

6.1 Feasibility Study

Many feasibility studies are disillusioning for both user and analysts. First, the study often presupposes that when the feasibility document is being prepared, the analyst is in apposition to evaluate solutions. Second, most studies tend to overlook the confusion inherent in system development- the constraints and the assumed attitudes. If the feasibility study is to serve as a decision document, it must answer three key questions:

1. Is there a new and better way to do the job that benefits the user?
2. What are the costs and savings of the alternative(s)?
3. What is recommended'?

Economic Feasibility: Economic analysis is the most frequently used method for evaluating the effectiveness of a candidate system. More commonly known as cost/benefit analysis, the procedure is to determine the benefits and savings that are expected from a candidate system and compare them with cost.

- Developing training cost.
- Hardware cost.

Technical Feasibility: Technical feasibility centers around the existing computer system (h/w, s/w) and to what extent it can support the proposed addition.

Operational Feasibility: Operational feasibility has no adverse effects. To find out whether the proposed system is operationally feasible or not we compare it with the existing system and manual work and find out whether it satisfy the end users need. Then the existing system and manual work will be completely discarded. The proposed system is flexible, easy to understand and provides an interface with actual implementation, so it fulfills every requirement of end users.

TimeFeasibility:

- Analysis   : 15 days
- Design   : 5 days

7. REQUIREMENT ANALYSIS

Analysis specifies what the software should do. Analysis is the process of gathering and interpreting facts, diagnosing problems and using the information to recommend improvements to the system.

Analysis is a detailed study of various operations performed by a system and their relationships within and outside the system. During analysis, data are collected on the available files, decision points and transaction handled by the present system.

During this phase we determined the following system elements:

1.**System Objective:** We determine the centralized and single objective of the system.

2.**Required Resources**: Resources may be hardware, people, software etc. We use   resources such as VB.NET & MS – ACCESS 2007 in the initial phase.

3.**Assessment of Feasibility**: Our system satisfies the technical, economical, operational feasibilities.

Working of Existing system:

In the present scenario of the system all the information related to the maintenance of stock has to be done manually in a transaction book. We have to keep all the details of the stock separately. There is a lot of manual work and a separate logbook is to be maintained for each type of transaction.

Disadvantages of Existing System:

- It is a time-consuming job because the work is done manually i.e. the storing of information.
- Since it requires operating manually hence consumes manpower .
- Quick generation of information is not possible.
- No data consistency is there.
- Lack of data security.
- High implementation cost.
- Data redundancy.

Proposed System:

To overcome all the drawback of the existing system, an automated system is required, which fulfills all the requirements of the end users. This software provides a facility store the information about the stock details.

Advantages of the Proposed System:

- Redundancy of data is reduced at high level.
- Saves time.
- Reduces manual work.
- Quick Generation of report on time.
- Provides data security.

SOFTWARE REQUIREMENTS

Software required for the accomplishment of our project are:

- Visual Studio .NET 2003 Version
- Microsoft Access-2007
- Visual VB Dot NET (Language Used)

HARDWARE REQUIREMENTS

Hardware Specifications of the system on which the project has been devised are:

- Hard Disk   20 GB
- Memory   128 MB of   RAM
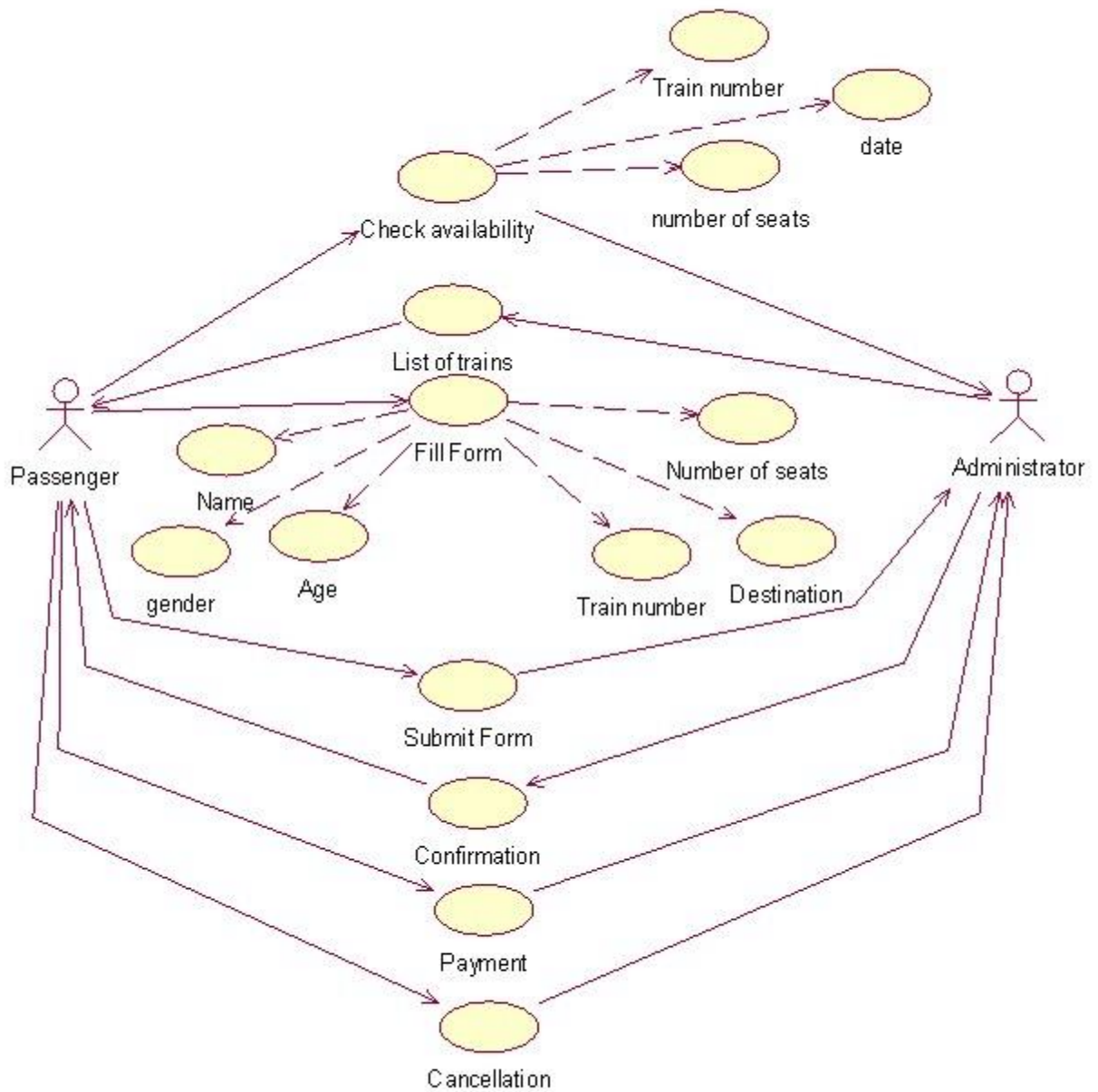- Processor   Intel® Pentium
- CPU   1.72 GHz

8. APPLICATION DESIGN

8.1 DESIGN DESCRIPTION

The design of an information system provides the details that state how a system will meet the requirements identified during system analysis. Designing phase was most interesting and creating part of our project during this period we made various windows based forms according to the requirement of our project, basically a form is designed by inserting various controls from the toolbox provided in the .NET Studio. The design proceeds in two stages:
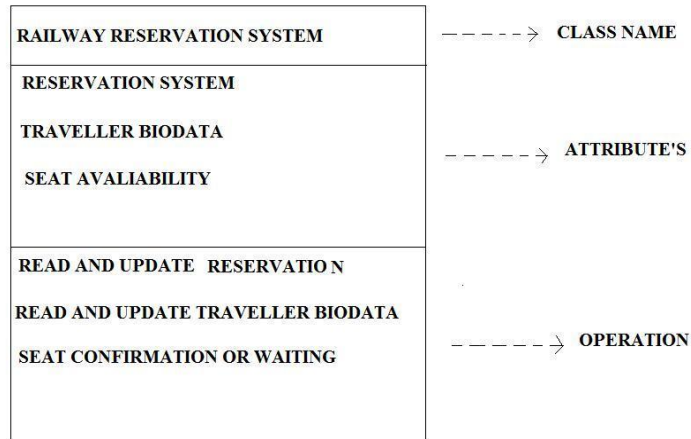
- **Preliminary Design:** In the preliminary design, the features of the new system are specified. The costs of implementing these features and the benefits to be derived are estimated. If the project is still considered to be feasible, we move to the detailed design stage.

- **Structured or Detailed Design:** In the detailed design stage, computer oriented work begins in earnest. At this stage, the design of the system becomes more structured. Input, output and processing specifications are drawn up in detail. In the design stage, the programming language and the platform in which the new system will run are also decided.
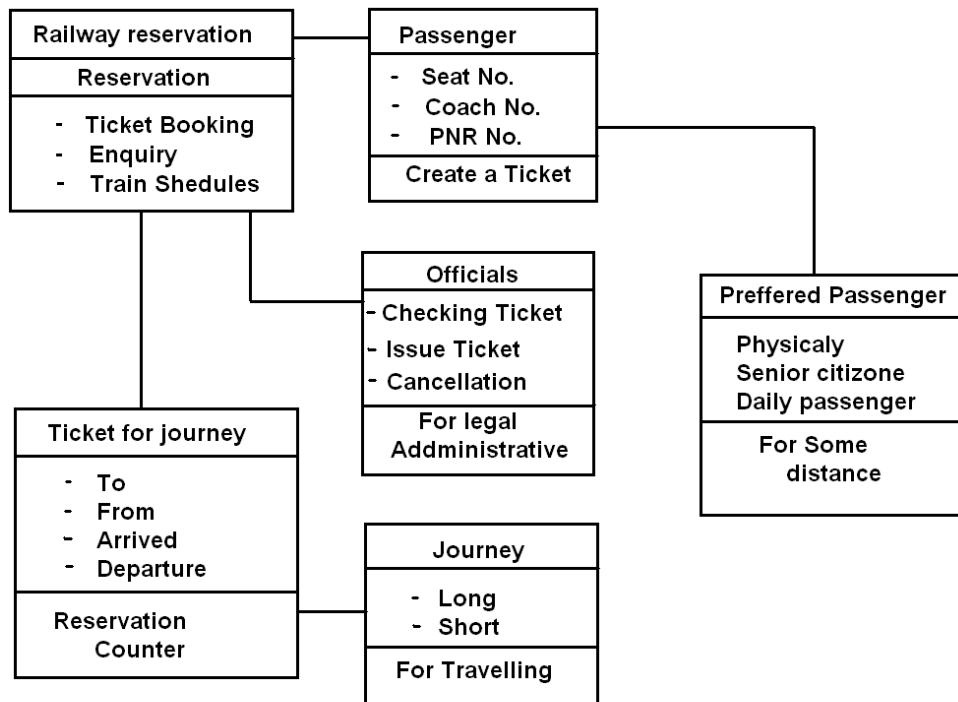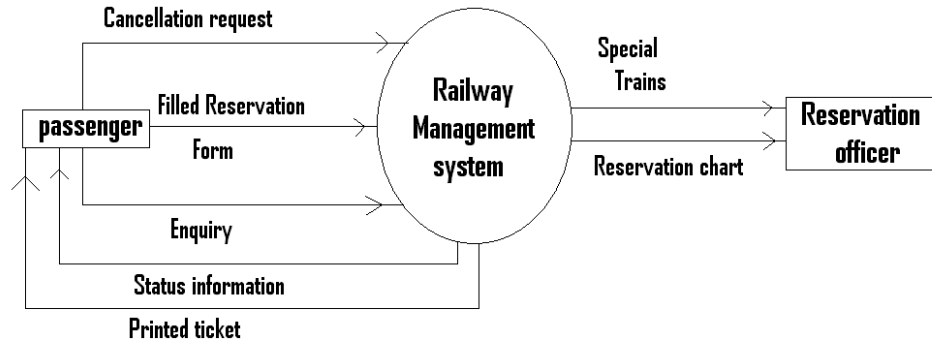
8.1.1. Use Case Diagram
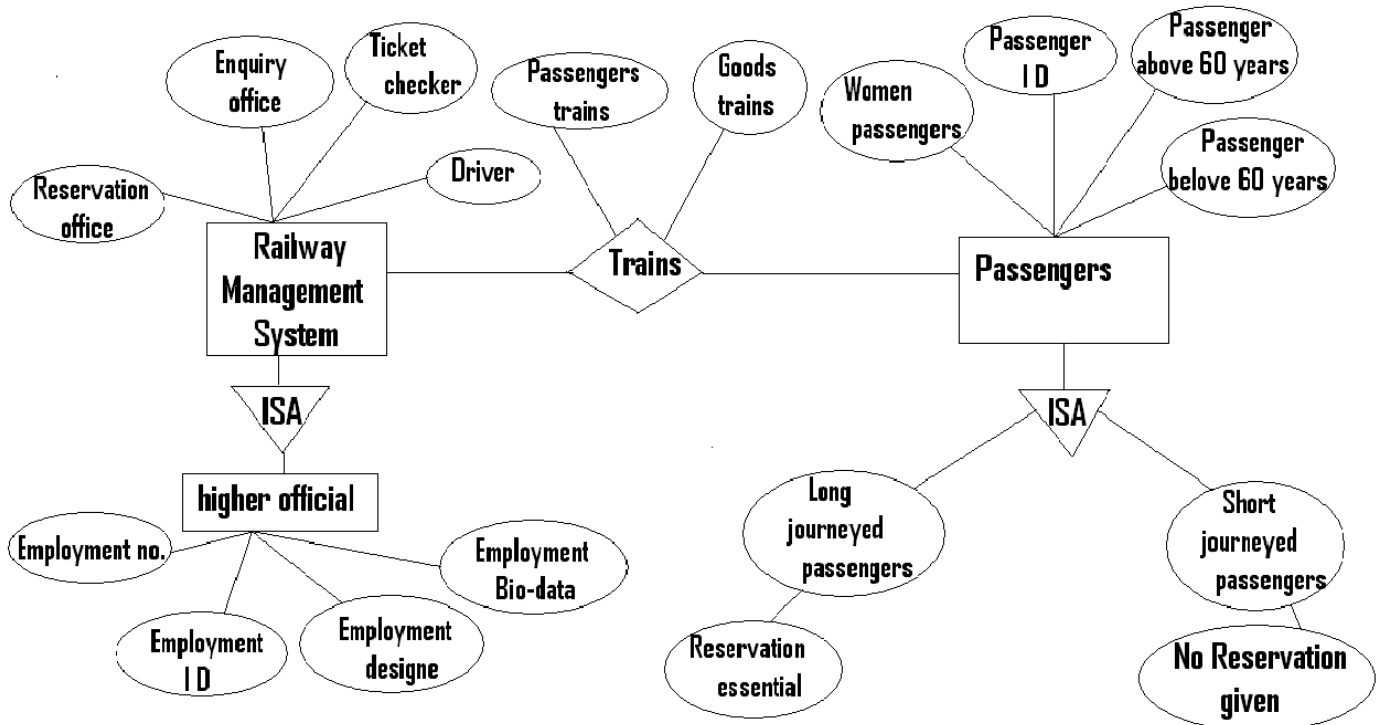

Ticket Use-Case

8.1.2. Class Diagram

RAILWAY RESERVATION SYSTEM   - - - - → CLASS NAME

RESERVATION SYSTEM

TRAVELLER BIODATA

SEAT AVALIABILITY   - - - - → ATTRIBUTE'S

READ AND UPDATE   RESERVATIO N

READ AND UPDATE TRAVELLER BIODATA

SEAT CONFIRMATION OR WAITING   - - - - → OPERATION

CLASS DIAGRAM

Railway reservation

Reservation

- Ticket Booking
- Enquiry
- Train Shedules

Passenger

- Seat No.
- Coach No.
- PNR No.

Create a Ticket

Officials

- Checking Ticket
- Issue Ticket
- Cancellation

For legal
Addministrative

Preffered Passenger

Physicaly
Senior citizone
Daily passenger

For Some
distance

Ticket for journey

- To
- From
- Arrived
- Departure

Reservation
Counter

Journey

- Long
- Short

For Travelling

8.1.3. Data Flow Diagram

8.1.4. ER Diagram

8.2 DATABASE DESIGN

- **Reservation Table:**

Reservation		
ID	Field1	Add New Field
Age		
Date		
From		
Name		
Ticket no.		
To		
Train		
Train no.		
*		

- **Passenger Table:**

Passangers		
ID	Field1	Add New Field
Pass. Belove 60		
Passanger ID		
senior citizen		
Women passar		
*		

- **Train table:**

Trains		
ID	Field1	Add New Field
Goods train		
Passanger train		
Train no.		
Water train		
*		

- **Journey table**

Table1		
ID	Field1	Add New Field
Long		
Short		
*		

- **Types of seat Table**

Types of seat	
ID	Add New Field
Seating	
Sleeper	
AC 2-Tier	
AC 3-Tier	
*	

8.3 INPUT OUTPUT SCREENS

Our project comprises of following forms, viz:

1. **Login:** This form checks if the user is a valid user or not and asks the password, username for authentication.
2. **Password Change:** This form is used to change the password of the existing user.
3. **Main Form:** This form is the Central Form of our project through which we can visit to any other forms excluding Login Form. The main menu is used as control.
4. **Book your rail ticket:** By using this form we can book tickets.
5. **Purchasing ticket:** This process is of purchasing ticket by giving money on ticket counter.
6. **Layout of railway path:** This is a layout of railway path.

- **Login Form**

- **Password change**

- **Main Form**

- **Book your rail ticket**

- **Purchasing ticket**

HAPPY JOURNEY

PNR NO.	TRAIN NO. DATE K.M ADULT CHILD	TICKET NO.
– – – – – – – – – – –	- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	– – – – – – – –
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.

- **Layout of railway path**

Ashprington Road BR(WR)
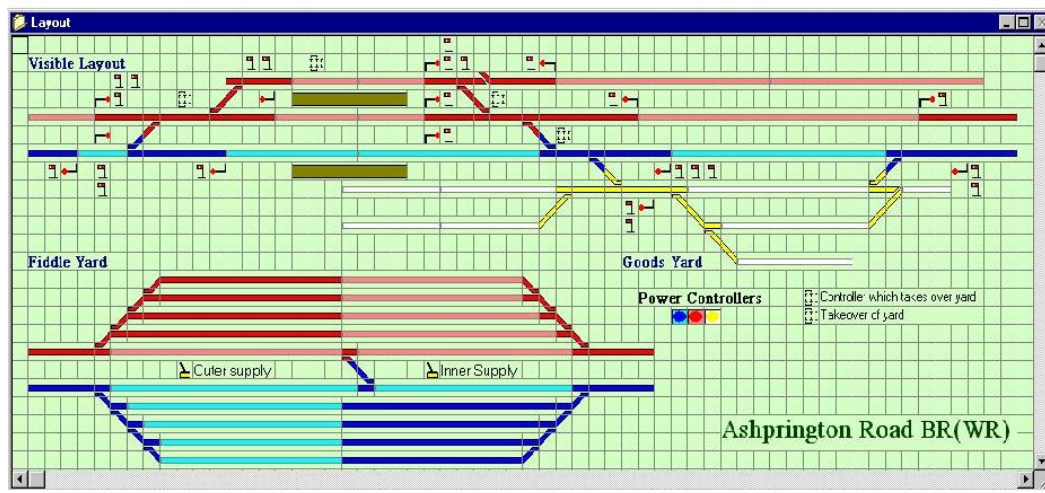
9. TESTING

Testing provides an interesting anomaly for software engineers during earlier software engineering activities. The engineer create a series of test that are intended to "demolish" the software has been built. In fact testing is one step in the software process that could be viewed as distinctive rather than constructive. Testing requires that the developer discard preconceived. Notions of the "correctness" of software just developed and overcome a conflict of interest that occurs when error are uncovered.

The testing phase of our module in this we test our project with some dummy data's in order to retrieve the progression of our report to seek the proper functioning of the controls we included in our project.

Testing should have these features:

1. Testing should begin "in the small" and progress toward testing "in the large".

2. To be most effective, testing should be conducted by an independent third party.

3. All tests should be traceable to customer requirements.

- **Unit Testing:**

    Unit testing focuses verification effort on the smallest unit of Software Design –Software component or module. Using the Component level design description as a guide, important control paths are tested to uncovered errors within the boundary of the module.

    Boundary conditions are tested to ensure that the module operates properly at boundaries established to limit or restrict processing. All independent paths through the control structure to ensure that all statements in a module have been executed at least once. And finally, all error handling paths are tested.

- **Integration Testing:**

    Integration testing is a systematic technique for constructing the program structure while at the same time conducting tests to uncover errors associated with interfacing. The objective is to take unit tested components and build a program structure that has been dictated by design.

- **Validation Testing:**

    At the culmination of integration testing, software is completely assembled as a package, interfacing errors have been uncovered and corrected, and a final series of software test- validation testing- may begin.

    Validation can be defined in many ways, but a simple definition is that validation succeeds when software functions in a manner that can be reasonably expected by the customer

10. IMPLEMENTATION

After having the user acceptance of the new system developed, the implemented phase begins. Implementation is the stage of a project during which theory is turned into practice. During this phase, all the programs of the system are loaded onto the user's computer. After loading the system, training of the user starts. Main topics of such type of training are:

- How to execute the package
- How to enter the data
- How to process the data
- How to take out the reports

After the users are trained about the computerized system, manual working has to shift from manual to computerized working.

11. ADVANTAGES & LIMITATIONS

ADVANTAGES:

- ➢ Simple & easy to understand.
- ➢ Economical.
- ➢ User Friendly.
- ➢ Catering to Exact Needs.
- ➢ Use of report provides print facility.

LIMITATIONS:

- ➢ This software supports only English language.

12. FUTURE SCOPE

➢ This software supports only English language.

➢ Help facility can be provided.

➢ Icons for direct access can be provided.

➢ Context menu can be provided.

➢ Railway Management System next version will contain better features
with above limitations removed.

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13. 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.

14. REFERENCES

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2. http://www.microsoft.com
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📖 Software Engineering- Pressman

📖 Data Base System Concepts –Korth,Sudarshan,Silberschatz