VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

SECAB INSTITUTE OF ENGINEERING AND TECHNOLOGY,
VIJAYAPUR – 586101

2021 - 2022
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
(Accredited By NBA, New Delhi)
DBMS MINI-PROJECT (18CSL58) REPORT ON

"RAILWAY RESERVATION MANAGEMENT SYSTEM"

Submitted in the partial fulfillment of the requirements for the award of degree of
BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE & ENGINEERING
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CERTIFICATE

This is to certify that the mini - project entitled **"RAILWAY RESERVATION MANAGEMENT SYSTEM"** *is a bonafide work carried out by* **Firdaush Alam (2SA19CS013) and Md Kadeer Mujawar (2SA19CS018)** *in partial fulfilment for the award of Bachelor of Engineering in 5th semester of the Visvesvaraya Technological University, Belgaum during the year 2021-2022. It is certificated that all the suggestions/corrections indicated for mini-project have been incorporated in the report and has been approved as it satisfies the academic requirements in respect of mini-project prescribed for Bachelor of Engineering Degree.*

Signature of Guide   Signature of HOD

ACKNOWLEDGEMENT

A study or a project of this volume can never be the outcome of a single person or just a mere group of dedicated students, so we express our profound sense of gratitude to those who extended their whole hearted help and support to us in completing our project because successful completion of any work requires guidance and help from a number of people.

Firstly, it gives us immense pleasure to acknowledge our institute **Techno India NJR Institute of Technology** for providing us an opportunity in developing a project on **Railway Reservation System.**

In addition, we wish to express our deep sense of gratitude to **Mr. Manmohan Sharma, Assistant Professor CSE,** for permitting us to carry out this project work and for his guidance and support.

We give sincere thanks to **Mr. Gaurav Ameta, Senior Lecturer,** for his special concern and providing sufficient information related to the topic, which helped us in completing the project work in time and his timely guidance had been a source of inspiration in the conduct of our project work.

Last but not the least, we extend our whole-hearted gratitude for the invaluable contribution of our parents for their blessings and earnest affection and all those persons 'behind the veil' for their necessary support, which enabled us to complete this project.

TABLE OF CONTENT

OBJECTIVE

Our project introduces railway reservation system with an objective to make the reservation system more efficient, easier and fast. This project explores how computer technology can be used to solve the problem of user.

The main objectives provided by this software are as follows:

- We can enquire about availability of trains
- We can reserve and cancel their seats
- We can modify the information related to
  a) Trains
     1) Timetable
     2) Train Name
     3) Train Number
  b) Ticket Fare

This project is dedicated to model existing railway reservation systems that aim at development of Railway Reservation System that facilitates the railway customer to manage their reservations and the railway administrator to modify the backend database in a user-friendly manner.

INTRODUCTION

In this emerging world of computers, almost all-manual system has switched to automated and computerized system. Therefore, we are developing the software for "Railway Reservation System" to model the present system and to remove the drawbacks of the present system. This project explores how computer technology can be used to solve the problem of user.

This being a big step in terms of improvement in the railway system it is widely accepted across the country. Rather than designing manually, we have made use of computer. Use of computer has solved many problems, which are faced during manual calculation. Once data are fed, it can perform accurate functions. Therefore, to reduce the complexity and efficiency a versatile and an outsourcing railway reservation system has been developed.

This project introduces railway reservation system. It explains how reservation is being done in Indian Railways. The systematic procedure is explained. This project is developed in C++ language. All most all the header files have been used in this project. Proper comments have been given at desired locations to make the project user friendly. Various functions and structures are used to make a complete use of this language.

The customers are required to register on the server for getting access to the database and query result retrieval. Upon registration, each user has an account that is essentially the 'view level' for the customer. The account contains comprehensive information of the user entered during registration and permits the customer to get access to his/her past reservations, enquire about travel fare and availability of seats, make fresh reservations, and update his account details. Each passenger is allotted a unique PNR no. through which one can access his/her account.

TECHNOLOGY (TOOLS AND CONTENTS)

Platform Used:

Hardware Platform:

- System Model   :   Compaq Presario C700
- Processor   :   Intel Pentium Dual Core T2370, 1.73 GHz
- RAM   :   512 MB
- Hard disk   :   160 GB

Software Platform:

- Operating System   : Windows XP with Service Pack 3(CHT)

- Compiler   : Turbo C++

SOFTWARE REQUIREMENT SPECIFICATION

A Software Requirement Specification (SRS) is a requirements specification for a software system that is a complete description of the behavior of a system to be developed. It includes a set of use cases that describe all the interactions the users will have with the software. Use cases are also known as functional requirements. In addition to use cases, the SRS also contains non-functional (or supplementary) requirements. Non-functional requirements are requirements that impose constraints on the design or implementation (such as performance engineering requirements, quality standards, or design constraints).

The initial specifications of user requirements may be based on interviews with the database users and on the designers own analysis of the enterprise. The basic issues that the SRS writer(s) shall address are the following:

- Functionality:

  What is the software supposed to do?

- External interfaces.

  How does the software interact with people, the system's hardware, other hardware, and other software?

- Performance.

  What is the speed, availability, response time, recovery time of various software functions, etc.?

- Attributes.

  What is the portability, correctness, maintainability, security, etc. considerations?

An SRS should be:

a) Correct

b) Unambiguous

c) Complete

d) Consistent

e) Ranked for importance and/or stability

f) Verifiable

g) Modifiable

h) Traceable

INTRODUCTION:

PURPOSE:

The purpose of this software is to describe the Railway Reservation System which provides the rail timing details, reservation, enquiry, billing and cancellation on various types of reservation namely:-

- Confirm reservation for confirm seat

- Reservation against cancellation

- PNR generation

SCOPE:

The scope of this project is limited to an engineering college. This project aims to maintain passenger and train information.

Other scopes of this project are as follows:

- Freight Revenue enhancement

- Passenger Revenue enhancement

- Improved and optimised service

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DEFINITIONS, ACRONYMS AND ABBREVIATIONS

- NTES : National Train Enquiry System

- IVRS : Interactive Voice Response System

- PRS   : Passenger Reservation System

- SMS : Short Message Service

OVERVIEW:

This project aims at development of a Railway Reservation System that facilitates the Railway customers to manage their reservations and the Railway administrators to modify the backend databases in a User-Friendly manner.

This project includes the following functions:

Create new database

- Add new Record

- Modify

- Display record

- Ticket reservation

- Ticket Modification

- Ticket Cancellation

- Ticket printing

2. THE OVERALL DESCRIPTION:

2.1. PRODUCT PERSPECTIVE:

It enables us to maintain the railway train details like their timings, number of seat available, reservation billing and cancelling the tickets.

2.1.1.   SYSTEM INTERFACE:

- Keyboard

- Mouse

2.1.2.   HARDWARE INTERFACE:

- System Model   :   Compaq Presario C700
- Processor   :   Intel Pentium Dual Core T2370,1.73 GHz
- RAM   :   512 MB
- Hard disk   :   160 GB

2.1.3.   SOFTWARE INTERFACE:

- Operating System   : Windows XP with Service Pack 3(CHT)

- Compiler   : C++

- Indian Railway's website www.indianrail.gov.in PRS enquires regarding Berth availability, Passenger Status, Fare, Train Schedule etc.

- National Train Enquiry System (NTES) website www.trainenquiry.com gives dynamic information about the running status of any train and its expected arrival/departure at given station.

- Mobile telephone based SMS enquiry service. A new phone based facility for rail users' viz.,

  Country wide extension of Universal Rail Enquiry number "139" through setting up of Interactive Voice Response System (IVRS)

2.1.4. MEMORY CONSTRAINTS:

2.1.5. OPERATIONS:

- Any Reservation counter from 8 am to 8 pm.

- One form for five persons.

- To save time and queue Agents are other guides.

2.2. PRODUCT FUNCTIONS:

It tells the short note about the product.

2.2.1. TRAIN DETAILS:

Customers may view the train number, train name, train timing (arrival and departure), arrival and departure station of the train and number

<div align="center">RESERVATION:</div>

After checking the number of seats available, the customers reserve the tickets.

2.2.2. BILLING:

After reserving the required number of tickets, the customer paid the fare.

2.2.4 CANCELLATION:

If the customer wants to cancel the ticket, he can cancel it using PNR number.

2.3. USER CHARACTERISTICS:

- Knowledgeable User
- Novice User
- Expert User

2.4. CONSTRAINTS:

There is no maintainability of back up so availability will get affected. Real-life credit card validation and Banking system is not implemented. No multilingual support. Given below is an overall picture of the system, as depicted in the above

Administrator:

Database Management:

- Control the database customers and keep track of all records of customers.

- Control the database of trains and keep track of all records of train.

- Control fare management.

- View the details of all orders and control the whole application

Customers:

Login:

- Customers must have a valid login id (PNR number) to enter into the site.

Registration:

- New users can sign up by creating new ID.

Cancel Details

- Can cancel his reservation details.

3. SPECIFIC REQUIREMENTS:

3.1. EXTERNAL INTERFACES:

- Booking Terminals

- Enquiry Terminals

3.2. PERFORMANCE REQUIREMENTS:

It's available during all 24 hours.

Variety of compartments based on comfort:

- AC

- Non-AC

- General

Types of concerns and complexities:

- 10 types of trains

- 3 types of classes

3.3. SOFTWARE SYSTEM ATTRIBUTES:

- Reliable

- Available

- Secure

- Portable

3.4. FUNCTIONAL REQUIREMENTS:

In software engineering, a functional requirement defines a function of a software-system or component. A function is described as a set of inputs, the behavior and outputs. Functional requirements may be calculations, technical details, data manipulation and processing and other specific functionality that show how a use case to be fulfilled. Typically, a requirements analyst generates functional requirements after building use cases. However, this may have exceptions since software development is an iterative process and sometime certain requirements are conceived prior to the definition of the use case. Both artifacts (use cases documents and requirements documents) complement each other in a bidirectional process. A typical functional requirement will contain a unique name and number, a brief summary, and a rationale. This information is used to help the reader understand why the requirement is needed, and to track the requirement through the development of the system. The core of the requirement is the description of the required behavior, which must be a clear and readable description of the required behavior. This behavior may come from organizational or business rule, or it may be discovered through elicitation sessions with users, stakeholders and other experts within the organization. Software requirements must be clear, correct unambiguous, specific and verifiable.

3.4.1. RESERVATION OF TICKET:

- REQUEST TIME TABLE:

    Passenger requests database to display railway timetable.

- DISPLAY TIMETABLE:

    Database displays timetable to the customer.

- REQUEST TO RESERVE TICKET:

    Passenger requests the clerk to reserve his/her ticket.

- INPUT DETAILS:

    Clerk asks customer to enter details for the reservation of ticket.

- CALCULATE FARE:

Clerk calculates the total fare of the journey according to the number of passengers and tells the customer.

- RESERVE TICKET:

  Ticket is reserved and customer pays the fare.

- REQUEST TO PRINT:

  Customer requests to print the ticket.

- PRINT TICKET:

  Ticket is been printed and handled to the customer.

3.4.2. CANCELLATION OF TICKET:

- REQUEST TO CANCEL TICKET:

  Customer requests to cancel his/her ticket for which he/she has to give the PNR number.

- CANCEL TICKET:

  Once the PNR number is received, the ticket is cancelled.

3.5. NON-FUNCTIONAL REQUIREMENTS:

In systems engineering and requirements engineering, non-functional requirements are requirements that specify criteria that can be used to judge the operation of system, rather than specific behaviors. Non-functional requirements are often called qualities of a system. Other terms for non-functional requirements are "constraints", "quality attributes", "quality goals" and "quality of service requirements" .

Qualities, i.e. non-functional requirements can be divided into 2 main categories:

1. Execution qualities such as security and usability are observable at run time.
2. Evolution qualifies, such as extensibility and scalability embody in the static structure of the software system.

The Non-Functional requirements of our project are:

- Time:

  This project should be completed within the stimulated time period.

- Cost:

  The cost involved in marketing the project should be less.

- Usability:

  This requirement is present, as this system will interact with the user.

- Reliability:

  This system must be highly robust.

- Performance:

  It should be fast enough to produce output

3.6 DOCUMENT APPROVAL:

The bill passed on any proposals related to railway management needs approval of Ministry of Railway Department.

E-R DIAGRAM
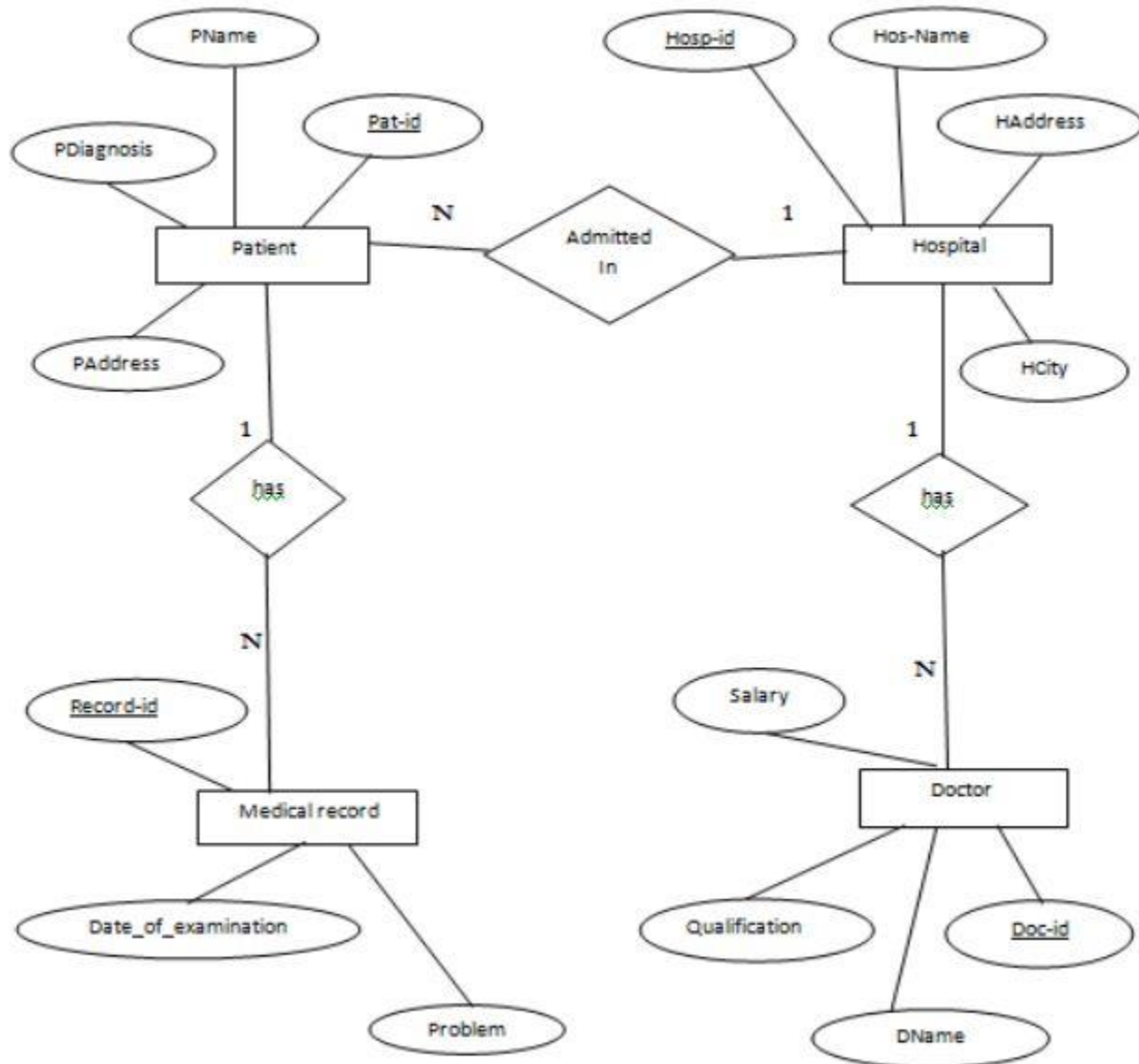
DATA DICTIONARY

NAME	ALIAS	USE	CONTENT	ADDITIONAL INFORMATION
PNR Number	None	Enquiry Reservation Cancellation	PNR=rand()	None

LIMITATIONS

Our project meets the following limitations:

1) The software is not able to reserve tickets for more than 10 people per train.

2) The fare allotted for every reservation is independent of Kilometres travelled instead it is set for every mode (AC, Non-AC or General) of each train.

3) The software is made such to carry out reservation in max 15 trains.

4) The software does not support multi-day reservation system, i.e., the reservations cannot be done in advance rather it is carried out for single day.

5) The software does not provide concession in fare rates for children, aged people, armament etc. i.e., the fare identical for all people.

6) The software does not take into consideration the stations falling in between the source and destination statio

FUTURE SCOPE

If anyone wants to extend this project then he/she can make an additional database of Train Fare. And database for updated availability of seats which is available after the cancellation of ticket on that specific train etc. He/she can also add some more command buttons in the existing software and extend working of the existing software.

Implementations of this project idea are in industrial use. Hence, this can be used for suggesting improvements in design, performance and greater usability. Apart from the industrial applications, it is a research-oriented project as well, the task of performance evaluation of different database designs, for efficiency, is in this sp

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