RAILWAY RESERVATION MANAGEMENT SYSTEM

A Course Based Project Submitted in Partial Fulfilment Of the Requirements

For the Award of the degree of

BACHELOR OF TECHNOLOGY

COMPUTER SCIENCE AND ENGINEERING-DATA SCIENCE

Submitted by

21071A6264 V.SATISH

21071A6258 ANSHU KARAN

22075A6204 M.VIJAY

Under the Guidance of

Mrs.N.Sunanda

(Assistant prof. Dept of CSE-CYS,DS &(AI&DS))

DEPARTMENT OF CSE-CYS,DS &(AI&DS)

VALLURUPALLI NAGESWARARAO VIGNANA JYOTHI

INSTITUTE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institute ,NAAC Accredited With 'A++' Grade ,NBA Accredited ,Approved by AICTE ,New Delhi ,Affiliated to JNTUH)

VALLURUPALLI NAGESWARARAO VIGNANA JYOTHI INSTITUTE OF

ENGINEERING AND TECHNOLOGY

(An Autonomous Institute)

CERTIFICATE

This is to Certify that
V.SATISH(21071A6264), ANSHU KARAN(21071A6258), M.VIJAY (22075A6204) have successfullycompleted their project work at CSE-CYS,DS &(AI&DS) Department of VNRVJIET, Hyderabad entitled

"RAILWAY RESERVATION MANAGEMENT SYSTEM" in partial fulfilment of the requirements for the award of the Bachelor of Technology degree during the Academic year 2022-2023

Project Guide	Head of Department
Mrs. N.Sunanda	Dr. M. RAJA SEKHAR
Assistant prof.& Internal guide	Prof. and Head
Dept. of CSE-CYS, DS &(AI&DS)	Dept. of CSE-CYS, DS &(AI&DS)
VNRVJIET	VNRVJIET

DECLARATION

This is to certify that the project work entitled " **RAILWAY RESERVATION MANAGEMENT SYSTEM** " submitted in VNR Vignana Jyothi Institute of Engineering & Technology in partial fulfilment of requirement for the award of Bachelor of Technology in Computer Science and Engineering. It is a Bonafide report of the work carried out by us under the guidance and supervision of Mr. R. Kranthi Kumar (Assistant Professor), Department of CSE-Data Science, VNRVJIET. To the best of our knowledge, this report has not been submitted in any form to any university or institution for the award of any degree or diploma.

V.SATISH	ANSHU KARAN	M.VIJAY
(21071A6264)	(21071A6258)	(22075A6204)
II B.tech - CSE-CYS	II B.tech - CSE-CYS	II B.tech-CSE-CYS
VNR VJIET	VNR VJIET	VNR VJIET

ACKNOWLEDGEMNET

Behind every acheivement lies the heartfelt gratitude to those who activated in completing the project. To them we lay the words of gratitude within us.

Wenare indebted to our venerable principal **Dr. C.D. NAIDU** for this unflicting devotion, which lesd us to complete this project. The support , encouragement given by him and his motivation lead us to complete the project.

We express our sincere thanks to internal guide **Mr. R. KRANTHI KUMAR** and also Head of the Departmant **Dr. M. RAJA SHEKHAR** for having provided us a lot of facilities to undertake the project work and guide us to complete the project.

We take the opportunity to express thanks to our faculty of the Dept. of **VOMPUTER SCIENCE AND ENGINEERING-DATA SCIENCE** and remaining members of our college **VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY** who extended their valuable support in helping us to complete the project in time.

V.SATISH(21071A6264)
ANSHU KARAN(21071A6258)
M.VIJAY(22075A6204)

ABSTRACT

The Railway Reservation System facilitates the passengers to enquire about the trains available on the basis of source and destination, Booking and Cancellation of tickets, enquire about the status of the booked ticket, etc. The aim of case study is to design and develop a database maintaining the records of different trains, train status, and passengers.

This project contains Introduction to the Railways reservation system .It is the computerized system of reserving the seats of train seats in advanced. It is mainly used for long route. On-line reservation has made the process for the reservation of seats very much easier than ever before.

In our country India, there are number of counters for the reservation of the seats and one can easily make reservations and get tickets. Then this project contains entity relationship model diagram based on railway reservation system and introduction to relation model .There is also design of the database of the railway reservation system based on relation model. Example of some SQL queries to retrieves data from rail management database.

SCHEMA

TRAINS Table -

Train_ID INT PRIMARY KEY ,
Train_Name VARCHAR(255) NOT NULL,
Total_Seats INT NOT NULL,
Regular VARCHAR(1),
Year_Started INT

Column name	Datatype	width	Constraint
Train_id	int	10	Primary Key
Train_Name	varchar	255	NOT NULL
Total_Seats	int	10	NOT NULL
Regular	varchar	1	
Year_Started	number	10	

Fares Table –

Fare_ID INT PRIMARY KEY ,
Train_ID INT NOT NULL,
Class VARCHAR(255) NOT NULL,
Amount DECIMAL(10, 2) NOT NULL,

Column Name	Datatype	Width	Constraint
Fare_ID	INT	10	Primary Key
Train_ID	INT	10	Foreign Key
Class	varchar	255	NOT NULL
Amount	DECIMAL	10,2	NOT NULL

SCHEDULED TRAINS TABLE-

Schedule_ID INT PRIMARY KEY ,
Train_ID INT NOT NULL,
Source VARCHAR(255) NOT NULL,
Destination VARCHAR(255) NOT NULL,
Departure_Time VARCHAR(255) NOT NULL,
Arrival_Time VARCHAR(255) NOT NULL,

Col Name	**datatype**	**Width**	**Constraint**
Schedule_ID	INT	10	Primary Key
Train_ID	INT	2	Foreign Key
Source	VARCHAR	255	NOT NULL
Destination	VARCHAR	255	NOT NULL
Departure_Time	VARCHAR	255	NOT NULL
Arrival_Time	VARCHAR	255	NOT NULL

RESERVATIONS TABLE

Reservation_ID INT PRIMARY KEY ,
Schedule_ID INT NOT NULL,
Customer_Name VARCHAR(255) NOT NULL,
Phone_Number VARCHAR(255) NOT NULL,
Email VARCHAR(255) NOT NULL,
Seats_Booked INT NOT NULL,

Col Name	**Datatype**	**Width**	**Constraint**
Reservation_ID	INT	10	Primary Key
Schedule_ID	INT	10	NOT NULL
Customer_Name	VARCHAR	255	NOT NULL

Phone_number	INT	20	NOT NULL
Email	VARCHAR	255	NOT NULL
Seats_Booked	INT	10	NOT NULL

DATA

TRAINS_TABLE :

Train_ID	Train_Name	Total_ Seats	Regular	Year Started
12437	Rajadhani Express	10	Yes	1985
22225	Mahapariniran Express	10	No	1976
123456	Palace on Wheels	10	No	1990
20834	Vande Bharath	10	Yes	2023
12795	LPI Intercity	10	Yes	2014

FARES TABLE :

Fare_id	Train_ID	Class	Amount
1	12437	General	1500
2	12437	AC	5500
3	22225	General	10000
4	22225	AC	30000
5	123456	General	50000
6	123456	AC	70000
7	20834	General	1300
8	20834	AC	2500
9	12795	General	120
10	12795	AC	500

SCHEDULES TABLE :

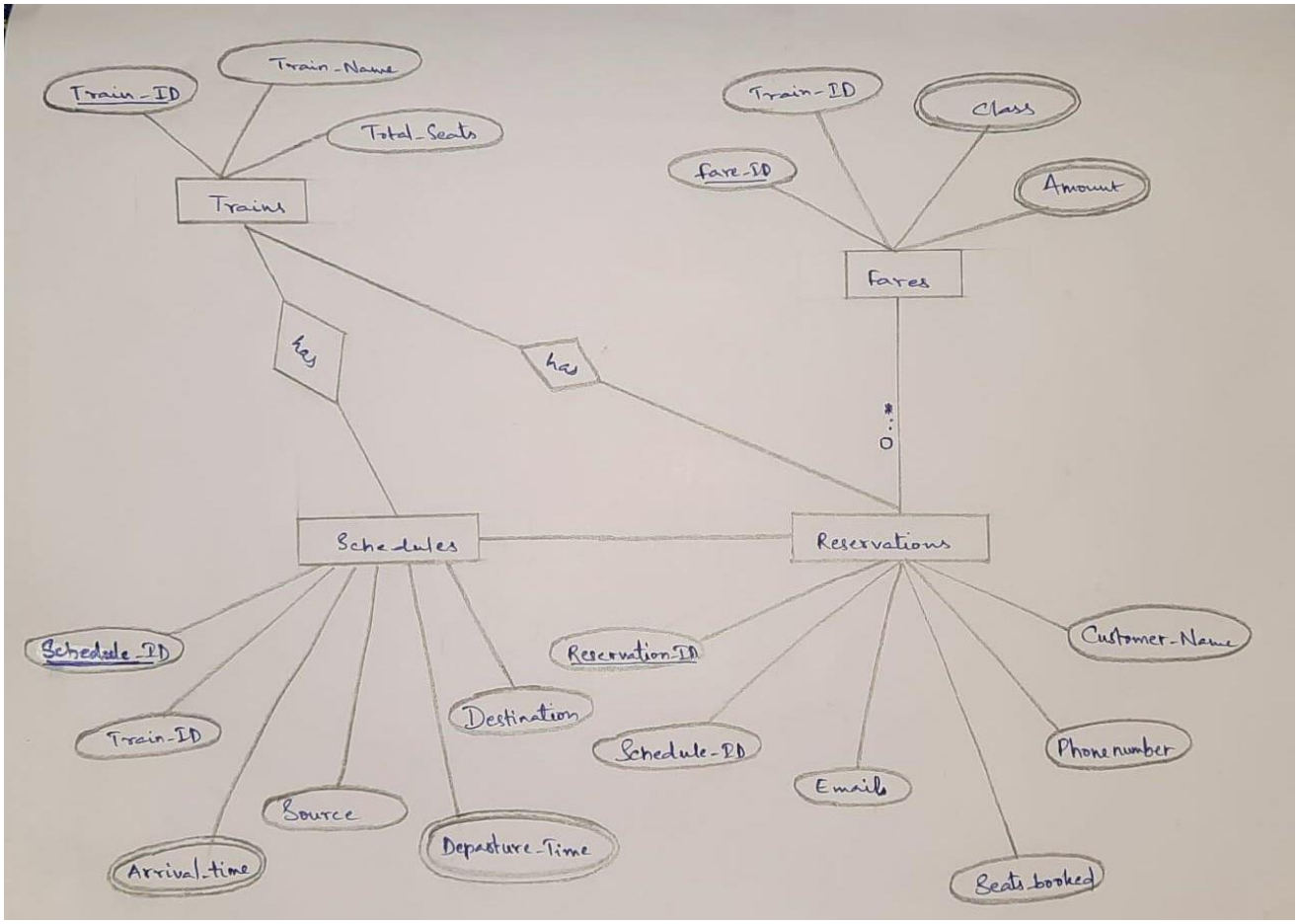
Schedule_ID	Train_ID	Source	Destination	Arrival_Time	Depature_Time
1	12437	Hyderabad	New Delhi	06:25	17:40
2	22225	New Delhi	Agra	13:30	16:15
3	123456	New Delhi	Bharathpur	16:00	20:45
4	20834	Secunderabad	Vishakapatnam	15:00	23:30
5	12795	Secunderabad	Vijayawada	17:00	23:30

RESERVATIONS TABLE :

Reservation_ID	Schedule_ID	Customer_Name	Phone_Number	Email	Seats Booked
1	1	Ravi Teja	9568736782	ravitej@gmail.com	5
2	1	Charan Tej	9876543210	charantej@gmail.com	5
3	2	Ranjith	0123456789	ranjith@gmail.com	5
4	2	Sharath	6549873210	sharath@gmail.com	5
5	3	Yashvanth	8500075456	yashvanth@gmail.com	5

6	3	Kruthik	6545700058	kruthik@gmail.com	5
7	4	Harsh	7330881651	harsh@gmail.com	5
8	4	Charan	8956231470	charan@gmail.com	5
9	5	Kundan	7845129630	kundan@gmail.com	5
10	5	Chandu	7946138552	kundan@gmail.com	5

ER DIAGRAM



Trains Table:

```
SQL> create table trains(Train_ID INT PRIMARY KEY ,
  2      Train_Name VARCHAR(255) NOT NULL,
  3      Total_Seats INT NOT NULL,
  4      Regular VARCHAR(1),
  5      Year_Started INT
  6  );
```

DDL-
DML-

```
SQL> insert into trains values(12437,'Rajadhani Express',10,'Y',1985);

1 row created.

SQL> insert into trains values(22225,'Mahapariniran Express',10,'N',1976);

1 row created.

SQL> insert into trains values(123456,'Palace on Wheels',10,'N',1990);

1 row created.

SQL> insert into trains values(20834,'Vande Bharath',10,'Y',2023);

1 row created.

SQL> insert into trains values(12795,'LPI Intercity',10,'Y',2014);

1 row created.
```

Fares Table:

```
SQL> create table fares(Fare_ID INT PRIMARY KEY ,
  2      Train_ID INT NOT NULL,
  3      Class VARCHAR(255) NOT NULL,
  4      Amount DECIMAL(10, 2) NOT NULL,
  5      FOREIGN KEY (Train_ID) REFERENCES trains(Train_ID)
  6  );

Table created.
```

DDL-

```
SQL> insert into fares values(1,12437,'General',1500);

1 row created.

SQL> insert into fares values(2,12437,'AC',5500);

1 row created.

SQL> insert into fares values(3,22225,'General',10000);

1 row created.

SQL> insert into fares values(4,22225,'AC',30000);

1 row created.

SQL> insert into fares values(5,123456,'General',50000);

1 row created.

SQL> insert into fares values(6,123456,'AC',70000);

1 row created.

SQL> insert into fares values(7,20834,'General',1300);

1 row created.

SQL> insert into fares values(8,20834,'AC',2500);

1 row created.

SQL> insert into fares values(9,12795,'General',120);

1 row created.
```

DM

Schedules Table-

```
SQL> create table schedules(Schedule_ID INT PRIMARY KEY ,
  2      Train_ID INT NOT NULL,
  3      Source VARCHAR(255) NOT NULL,
  4      Destination VARCHAR(255) NOT NULL,
  5      Departure_Time VARCHAR(255) NOT NULL,
  6      Arrival_Time VARCHAR(255) NOT NULL,
  7      FOREIGN KEY (Train_ID) REFERENCES trains(Train_ID)
  8  );

Table created.
```

DDL-

```
SQL> insert into schedules values(1,12437,'Hyderabad','New Delhi','06:25','07:40');

1 row created.

SQL> insert into schedules values(2,22225,'New Delhi','Agra','13:30','16:15');

1 row created.

SQL> insert into schedules values(3,123456,'New Delhi','Bharathpur','16:00','20:45');

1 row created.

SQL> insert into schedules values(4,20834,'Secunderabad','Visakhapatna,','15:00','23:30');

1 row created.

SQL> insert into schedules values(5,12795,'Vijayawada','Secunderabad','17:00','23:30');

1 row created.
```

DML-

Reservations Table-

DDL-

```
SQL> create table reservations( Reservation_ID INT PRIMARY KEY ,
  2      Schedule_ID INT NOT NULL,
  3      Customer_Name VARCHAR(255) NOT NULL,
  4      Phone_Number VARCHAR(255) NOT NULL,
  5      Email VARCHAR(255) NOT NULL,
  6      Seats_Booked INT NOT NULL,
  7      FOREIGN KEY (Schedule_ID) REFERENCES schedules(Schedule_ID)
  8  );

Table created.
```

```
SQL> insert into reservations values(1,1,'Ravi Teja','9568736782','ravitej@gmail.com',5);

1 row created.

SQL> insert into reservations values(2,1,'Charan Tej','9876543210','charantej@gmail.com',5)

1 row created.

SQL> insert into reservations values(3,2,'Ranjith','0123456789','ranjith@gmail.com',5);

1 row created.

SQL> insert into reservations values(4,2,'Sharath','6549873210','sharath@gmail.com',5);

1 row created.

SQL> insert into reservations values(5,3,'Yashvanth','8500075456','yash@gmail.com',5);

1 row created.

SQL> insert into reservations values(6,3,'Kruthik','6545700058','kruthik@gmail.com',5);

1 row created.

SQL> insert into reservations values(7,4,'Harsh','7330881651','harsh@gmail.com',5);

1 row created.

SQL> insert into reservations values(8,4,'Charan','8956231470','charan@gmail.com',5);

1 row created.

SQL> insert into reservations values(9,5,'Kundan','7845129630','kundan@gmail.com',5);

1 row created.

SQL> insert into reservations values(10,5,'Chandu','7946138552','kundan@gmail.com',5);

1 row created.
```

DML-

QUERIES AND SCREENSHOTS

1. List all the names of passengers in alphabetical order

```
SQL> select Customer_Name from reservations order by Customer_Name;
Chandu
Charan
Charan Tej
Harsh
Kruthik
Kundan
Ranjith
Ravi Teja
Sharath
Yashvanth

10 rows selected.
```

2. Give the contact details of passengers travelling in Vande Bharath Express

```
SQL> select Customer_Name,Phone_Number,Email from reservations where Schedule_ID=(select Schedule_ID from schedules where Train_ID=(select Train_ID from trains where Train_Name='Vande Bharath'));

CUSTOMER_NAME
--------------------------------------------------
PHONE_NUMBER
--------------------------------------------------
EMAIL
--------------------------------------------------
Harsh
7336881651
harsh@gmail.com

Charan
8956231470
charan@gmail.com
```

3. List the Trains from Vijayawada to Secinderabad

```
SQL> select t.Train_ID,t.Train_Name from Trains t,schedules s where s.Train_ID=t.Train_ID and s.Source='Vijayawada' and s.Destination='Secunderabad';

  TRAIN_ID
----------
TRAIN_NAME
--------------------------------------------------
     12795
LPI Intercity
```

4. Print the Souce,Destination and Train Name of each train.

```
SQL> select t.Train_ID,t.Train_Name,s.Source,s.Destination from Trains t,schedules s where s.Train_ID=
t.Train_ID;
     12437 Rajadhani Express
  Hyderabad
  New Delhi
     22225 Mahapariniran Express
  New Delhi
  Agra
    123456 Palace on Wheels
  New Delhi
  Bharathpur
     20834 Vande Bharath
  Secunderabad
  Visakhapatna,
     12795 LPI Intercity
  Vijayawada
  Secunderabad
```

5. List the trains in the order of year started

```
  TRAIN_ID
----------
TRAIN_NAME
--------------------------------------------------
YEAR_STARTED
------------
     22225
Mahapariniran Express
        1976

     12437
Rajadhani Express
        1985

    123456
Palace on Wheels
        1990

     12795
LPI Intercity
        2014

     20834
Vande Bharath
        2023
```

6. Print the Trains in the order of fares.

```
SQL> select t.Train_ID,t.Train_Name,f.Amount from Trains t,Fares f where t.Train_ID=f.Train_ID and f.class='General' order by f.Amount desc;

  TRAIN_ID
----------
TRAIN_NAME
--------------------------------------------------
    AMOUNT
----------
    123456
Palace on Wheels
     50000

     22225
Mahapariniran Express
     10000

     12437
Rajadhani Express
      1500

     20834
Vande Bharath
      1300

     12795
LPI Intercity
       120
```

7. Print the trains which travel daily.

```
SQL> select * from trains where regular='Y';

  TRAIN_ID
----------
TRAIN_NAME
--------------------------------------------------
TOTAL_SEATS R YEAR_STARTED
----------- - ------------
     12437
Rajadhani Express
         10 Y         1985

     20834
Vande Bharath
         10 Y         2023

     12795
LPI Intercity
         10 Y         2014
```

8. Print the details of the Trains along with Arrival Time and depature time.

```
  TRAIN_ID
----------
TRAIN_NAME
--------------------------------------------------
ARRIVAL_TIME
--------------------------------------------------
DEPARTURE_TIME
--------------------------------------------------
     12437
Rajadhani Express
07:40
06:25

     22225
Mahapariniran Express
16:15
13:30

    123456
Palace on Wheels
20:45
16:00

     20834
Vande Bharath
23:30
15:00

     12795
LPI Intercity
23:30
17:00
```

9. Select the trains starting from New Delhi

```
SQL> select Train_ID,Train_Name from trains where Train_ID in (select Train_ID from schedules where Source='New Delhi');

  TRAIN_ID
----------
TRAIN_NAME
--------------------------------------------------
     22225
Mahapariniran Express

    123456
Palace on Wheels
```

10. Print the Trains travelling from Hyderabad to Secunderabd.

```
SQL> select Train_ID,Train_Name from trains where Train_ID in (select Train_ID from schedules where Source in ('Hyderabad','Secunderabad'));

  TRAIN_ID
----------
TRAIN_NAME
--------------------------------------------------
     12437
Rajadhani Express

     20834
Vande Bharath
```

CONCLUSION

In our project Railway reservation system we have stored all the information about the Trains scheduled and the users booking tickets and even status of trains, seats etc. This data base is helpful for the applications which facilitate passengers to book the train tickets and check the details of trains and their status from their place itself it avoids inconviniences of going to railway station for each and every query they get.

We had considered the most important requriments only, many more features and details cand be added to our project inorder to obtain even more user friendly applications. These applications are already in progress and in future they can be upgraded and may become part of amazing technology.