SRM Institute of Science & Technology

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18CSC303J

(Database Management Systems)

RAILWAY MANAGEMENT SYSTEM

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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.

The main purpose of maintaining database for Railway Reservation System is to reduce the manual errors involved in the booking and cancelling of tickets and make it convenient for the customers and providers to maintain the data about their customers and also about the seats available at them.Due to automation many loopholes that exist in the manual maintenance of the records can be removed. The speed of obtaining and processing the data will be fast. For future expansion the proposed system can be web enabled so that clients can make various enquiries about trains between stations. Due to this, sometimes a lot of problems occur and they are facing many disputes with customers. To solve the above problem, we design a data base which includes customer details, availability of seats in trains, no of trains and their details.

This project is about creating the database about Railway Reservation System.

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. The record of train includes its number, name, source, destination, and days on which it is available, whereas record of train status includes dates for which tickets can be booked, total number of seats available, and number of seats already booked.

To implement this sample case study, some assumptions have been made, which are as follows:

1. The number of trains has been restricted to 5.
2. The booking is open only for next seven days from the current date.
3. Only two categories of tickets can be booked, namely, AC and General.
4. The total number of tickets that can be booked in each category (AC and General) is 10.
5. The total number of tickets that can be given the status of waiting is 2.

The in- between stoppage stations and their bookings are not considered

LIST OF ENTITIES & ATTRIBUTES

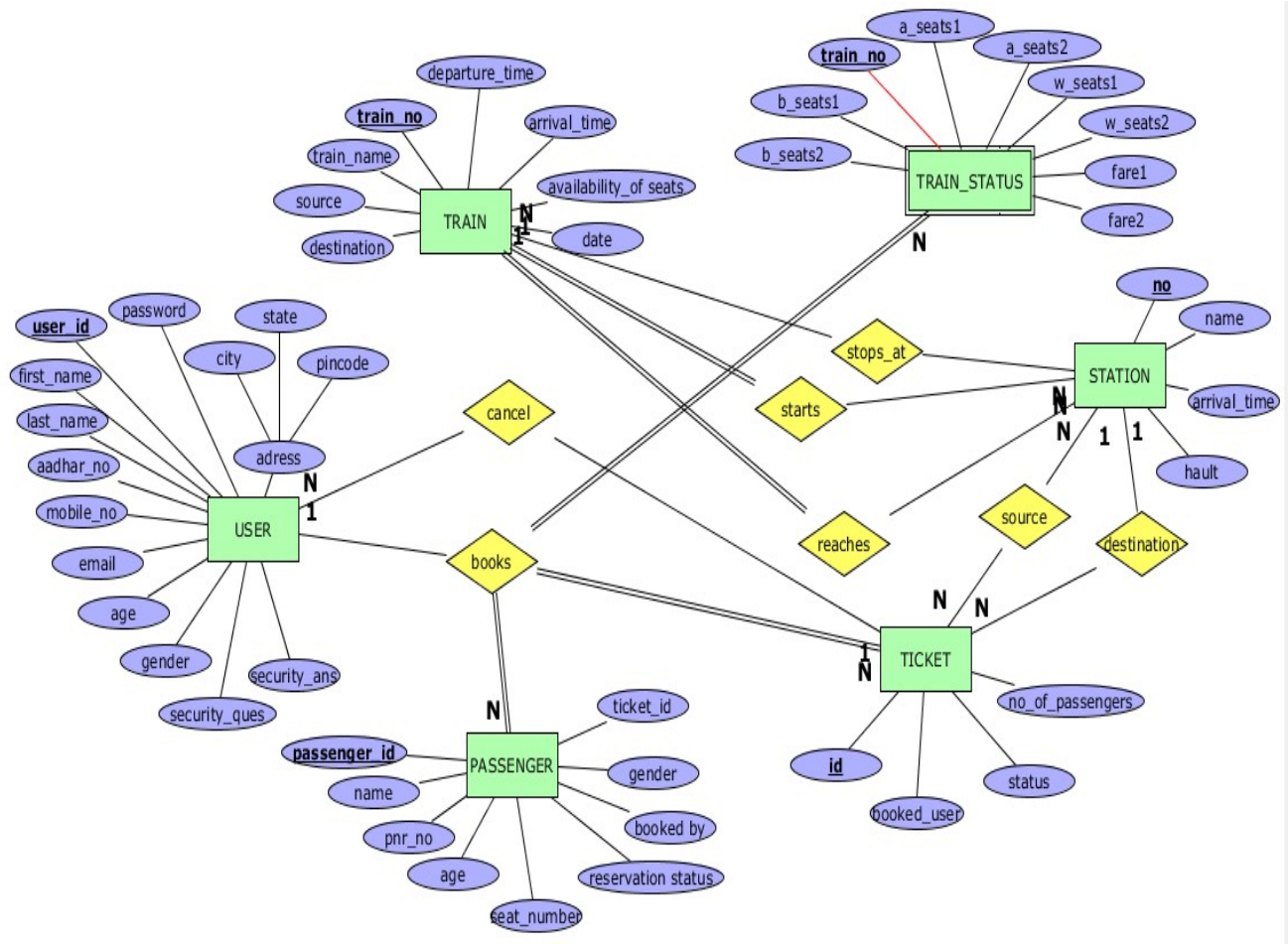
ENTITES	ATTRIBUTES

User	**User_id** Password First_name Last_name Gender Age Email Aadhar_no Mobile_no City State Pincode Security_ques Security_ans
passenger	**Passenger_id** Name Gender Age Pnr_no Seat_no Booked_by Reservation_status

Train	**Train_no** Train_name Source Destination Arrival_time Departure_time Avalibility_of_seats Train_no A_seats1 A_seats2 A_seats3 B_seats1 B_seats2 B_seats3 W_Seats1 W_seats2 W_seats3
Station	Name **No** Train_no Arrival_time Hault

Ticket	**Id** Train_no Booked_user Status No_of_passengers

ER DIAGRAM (CONCEPTUAL MODEL)



RELATION SHIPS:

- books -Ternary relation ship between USER,TRAIN,PASSENGER and TICKET.
- starts –Between TRAIN and STATION
- reaches –Between TRAIN and STATION
- cancel –Between USER and TICKET
- stops_at –Between TRAIN and STATION

CREATE & INSERT SQL QUERIES

CREATE COMMANDS:

1. create table if not exists USER(user_id int primary key,first_name varchar(50),last_name varchar(50),adhar_no varchar(20),gender char,age int,mobile_no varchar(50),email varchar(50),city varchar(50),state varchar(50),pincode varchar(20),_password varchar(50),security_ques varchar(50),security_ans varchar(50));
2. create table if not exsists TRAIN(train_no int primary key,train_name varchar(50),arrival_time time,departure_time time,availability_of seats char,date date);
3. create table if not exists STATION(no int ,name varchar(50),hault int,arrival_time time,train_noint,primary key(station_no,train_no),constarint foreign key(train_no) references TRAIN(train_no));
4. create table if not exsists TRAIN_STATUS(train_no int primary key,b_seats1 int,b_seats2 int,a_seats1 int,a_seats2 int,w_seats1 int,w_seats2 int,fare1 float,fare2 float);
5. create table if not exsists TICKET(id int primary key,user_id int,status char,no_of_passengers int,train_no int,constraint foreign key(user_id) references USER(user_id),constraint foreign key(train_no) references TRAIN(train_no));
6. create table if not exists PASSENGER(passenger_id int primary key,pnr_no int,age int,gender char,user_id int,reservation_status char,seat_number varchar(5),name varchar(50),ticket_id int,constraint foreign key(user_id) references USER(user_id),constraint foreign key(ticket_id) references TICKET(id));
7. create table if not exsists STARTS(train_no int primary key,station_no int,constraint foreign key(train_no) references TRAIN(train_no),constraint foreign key(station_no) references STATION(no));
8. create table if not exsists STOPS_AT(train_no int,station_no int,constraint foreign key(train_no) references TRAIN(train_no),constraint foreign key(station_no) references STATION(no));

9. create table if not exsists REACHES(train_no int,station _no int,time time,constraint foreign key(train_no) references TRAIN(train_no),constraint foreign key(station _no) references STATION(no));
10. create table if not exsists BOOKS(user_id int,id int,constraint foreign key(user_id) references USER(user_id),constraint foreign key(id) references TICKET(id));
11. create table if not exsists CANCEL(user_id int,id int,passenger_id int,constraint foreign key(id) references TICKET(id),constraint foreign key(passenger_id) references PASSENGER(passenger_id),constraint foreign key(user_id) references USER(user_id));

INSERT QUERIES:

1. insert into USER(user_id,first_name,last_name,aadhar_no,gender,age,mobile_no,email,city,state,pincode,_password,security_ques,security_ans) values(1701,'vijay','sharma','309887340843','M',34,'9887786655','vijay1@gmail.com','vijayawada','andhrapradesh','520001','12345@#','favouritecolour','red'),(1702,'rohith','kumar','456709871234','M',45,'9809666555','rohith1kumar@gmail.com','guntur','andhrapradesh','522004','12@#345','favouritebike','bmw'),(1703,'manasvi','sree','765843210987','F',20,'9995550666','manasvi57@gmail.com','guntur','andhra pradesh','522004','0987hii','favourite flower','rose');

2. insert into TRAIN(train_no,train_name,arrival_time,departure_time,availability_of seats,date) values(12711,'pinakini exp','113000','114000','A',20170410),(12315,'cormandel exp','124500',125000','NA',20170410);
3. insert into STATION(no,name,hault,arrival_time,train_no) values(111,'vijayawada',10,'113000',12711),(222,'tirupathi',5,'114500',12315);
4. insert into TRAIN_STATUS(train_no,w_seats1,b_seats1,b_seats2,a_seats1,a_seats2,w_seats 2,fare1,fare2) values(12711,10,4,0,1,1,0,100,450),(12315,10,5,0,0,2,1,300,600);

5. insert into TICKET(id,user_id,status,no_of_passengers,train_no) values(4001,1701,'C',1,,12711),(4002,1702,'NC',1,12315);
6. insert into PASSENGERS(passenger_id,pnr_no,age,gender,user_id,reservation

_status,seat_number,name,ticket_id) values(5001,78965,45,'M',1701,'C'

,'B645','ramesh',4001),(5002,54523,54,'F',1701,'W','B3-21','surekha',4002); insert

into STARTS(train_no,station_no) values(12711,111),(12315,222); insert into

STOPS_AT(train_no,station_no) values(12711,222),(12315,111);

7. insert into REACHES(train_no,station _no,time) values(12711,222,'040000'),

(12315,111,'053500'); insert into BOOKS(user_id,id)

values(1701,4001),(1702,4002); insert into

CANCEL(user_id,id,passenger_id) values(1701,4001,5001);

SQL QUERIES RELATED TO REPORT GENERATION

1.print user id and name of all those user who booked ticket for pinakini express

select u.user_id,concat(u.first_name,u.last_name)as name

from user u,train t,ticket tc

where u.user_id=tc.user_id and t.train_no=tc.train_no and t.train_name like 'pinakini exp';

```
mysql> select u.user_id,concat(u.first_name,u.last_name)as name
    -> from user u,train t,ticket tc
    -> where u.user_id=tc.user_id and t.train_no=tc.train_no and t.train_name
    -> like'pinakini exp';
+---------+-------------+
| user_id | name        |
+---------+-------------+
|    1701 | vijaysharma |
|    1701 | vijaysharma |
+---------+-------------+
2 rows in set (0.00 sec)
```

2. print detaisl of passengers travelling under ticket

no 4001 select * from passenger where ticket_id like

4001;

```
mysql> select *
    -> from passenger
    -> where ticket_id like 4001;
+--------------+---------+------+--------+---------+--------------------+-------------+--------+-----------+
| passenger_id | pnr_no  | age  | gender | user_id | reservation_status | seat_number | name   | ticket_id |
+--------------+---------+------+--------+---------+--------------------+-------------+--------+-----------+
|         5001 |  78965  |   45 | M      |    1701 | C                  | B6-45       | ramesh |      4001 |
+--------------+---------+------+--------+---------+--------------------+-------------+--------+-----------+
1 row in set (0.00 sec)
```

3. display all those train no's which reach station no

------ select t.*

from train t,station s,reaches r

where t.train_no=r.train_no and r.station_no=s.no and s.name like 'vijayawada';

```
mysql> select t.*
    -> from train t,station s,reaches r
    -> where t.train_no=r.train_no and r.station_no=s.no and s.name like 'vijayawada';
+----------+--------------+--------------+----------------+------------------------+------------+
| train_no | train_name   | arrival_time | departure_time | availability_of_seats | date       |
+----------+--------------+--------------+----------------+------------------------+------------+
|    12315 | cormandel exp | 12:45:00     | 12:50:00       | N                      | 2017-04-10 |
|    12255 | shatabdhi exp | 13:55:00     | 14:00:00       | N                      | 2017-04-11 |
+----------+--------------+--------------+----------------+------------------------+------------+
2 rows in set (0.00 sec)
```

4. display time at which train no----- reaches

station no ------ select r.*,s.name from reaches r,station s

where r.station_no=s.no;

```
mysql> select r.*,s.name
    -> from reaches r,station s
    -> where r.station_no=s.no;
+----------+------------+----------+-------------+
| train_no | station_no | time     | name        |
+----------+------------+----------+-------------+
|    12711 |        222 | 04:00:00 | tirupathi   |
|    12315 |        111 | 05:35:00 | vijayawada  |
|    12255 |        111 | 06:00:00 | vijayawada  |
+----------+------------+----------+-------------+
3 rows in set (0.00 sec)
```

5. display details of all those users who cancled

tickets for train no------ select u.*

from user u,cancel c,ticket t

where c.user_id=u.user_id and c.id=t.id and t.train_no like 12711;

```
mysql> select u.*
    -> from user u,cancel c,ticket t
    -> where c.user_id=u.user_id and c.id=t.id and t.train_no like 12711;
+---------+------------+-----------+--------------+--------+------+-----------+-----------------+----------+-------------+---------+-----------+-----------------+
| user_id | first_name | last_name | adhar_no     | gender | age  | mobile_no | email           | city     | state       | pincode | _password | security_ques   |
+---------+------------+-----------+--------------+--------+------+-----------+-----------------+----------+-------------+---------+-----------+-----------------+
|    1701 | vijay      | sharma    | 309807340843 | M      |   34 | 9988776655 | vijay1@gmail.com | vijayawada | andhra pradesh | 520001  | 12345@#   | favourite colour |
+---------+------------+-----------+--------------+--------+------+-----------+-----------------+----------+-------------+---------+-----------+-----------------+
1 row in set (0.00 sec)
```

6. diplay the train no with increasing order of the fares of class 1 select ts.train_no,ts.fare1,t.train_name

from train_status ts,train t where t.train_no=ts.train_no

order by fare1 asc;

```
mysql> select ts.train_no,ts.fare1,t.train_name
    -> from train_status ts,train t
    -> where t.train_no=ts.train_no
    -> order by fare1 asc;
+----------+-------+----------------+
| train_no | fare1 | train_name     |
+----------+-------+----------------+
|    12711 |   100 | pinakini exp   |
|    12315 |   300 | cormandel exp  |
|    12255 |   400 | shatabdhi exp  |
+----------+-------+----------------+
3 rows in set (0.00 sec)
```

7.display passenger details for train pinakini.

select p.*

from passenger p,train t,ticket tc

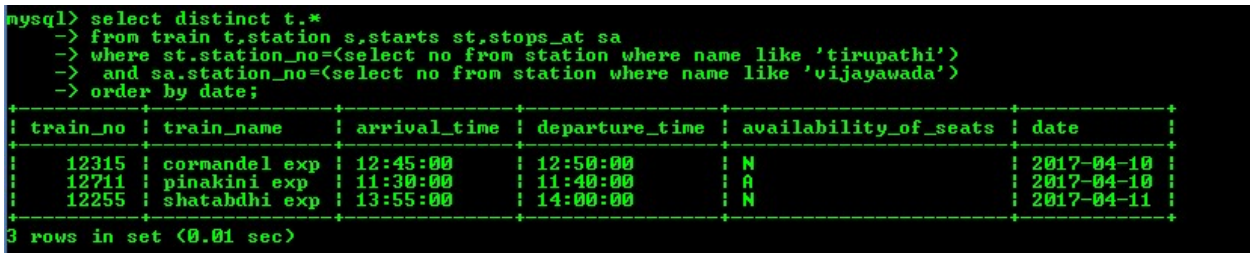
where tc.train_no=t.train_no and tc.id=p.ticket_id and t.train_name like

'pinakini exp'

```
mysql> select p.*
    -> from passenger p,train t,ticket tc
    -> where tc.train_no=t.train_no and tc.id=p.ticket_id and t.train_name like
    -> 'pinakini exp'
    -> ;
+--------------+--------+------+--------+---------+--------------------+-------------+---------+------------+
| passenger_id | pnr_no | age  | gender | user_id | reservation_status | seat_number | name    | ticket_id  |
+--------------+--------+------+--------+---------+--------------------+-------------+---------+------------+
|         5001 |  78965 |   45 | M      |    1701 | C                  | B6-45       | ramesh  |       4001 |
|         5003 |  55776 |   54 | M      |    1701 | C                  | B3-22       | mukhesh |       4003 |
+--------------+--------+------+--------+---------+--------------------+-------------+---------+------------+
2 rows in set (0.00 sec)
```

8. display immediate train from tirupathi to Vijayawada

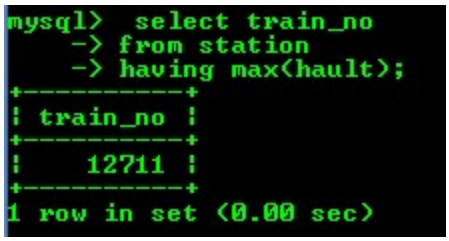
```
select distinct t.*
from train t,station s,starts st,stops_at sa
where st.station_no=(select no from station where name like 'tirupathi')

and sa.station_no=(select no from station where name like 'vijayawada')
order by date;
```



```
mysql> select distinct t.*
    -> from train t,station s,starts st,stops_at sa
    -> where st.station_no=(select no from station where name like 'tirupathi')
    ->  and sa.station_no=(select no from station where name like 'vijayawada')
    -> order by date;
+----------+---------------+--------------+----------------+-----------------------+------------+
| train_no | train_name    | arrival_time | departure_time | availability_of_seats | date       |
+----------+---------------+--------------+----------------+-----------------------+------------+
|    12315 | cormandel exp | 12:45:00     | 12:50:00       | N                     | 2017-04-10 |
|    12711 | pinakini exp  | 11:30:00     | 11:40:00       | A                     | 2017-04-10 |
|    12255 | shatabdhi exp | 13:55:00     | 14:00:00       | N                     | 2017-04-11 |
+----------+---------------+--------------+----------------+-----------------------+------------+
3 rows in set (0.01 sec)
```

9 display the train no which haults for more time in station . no---------

```
Select
train_no
from
station
having
max(hau
lt);
```



```
mysql>  select train_no
    -> from station
    -> having max(hault);
+----------+
| train_no |
+----------+
|    12711 |
+----------+
1 row in set (0.00 sec)
```