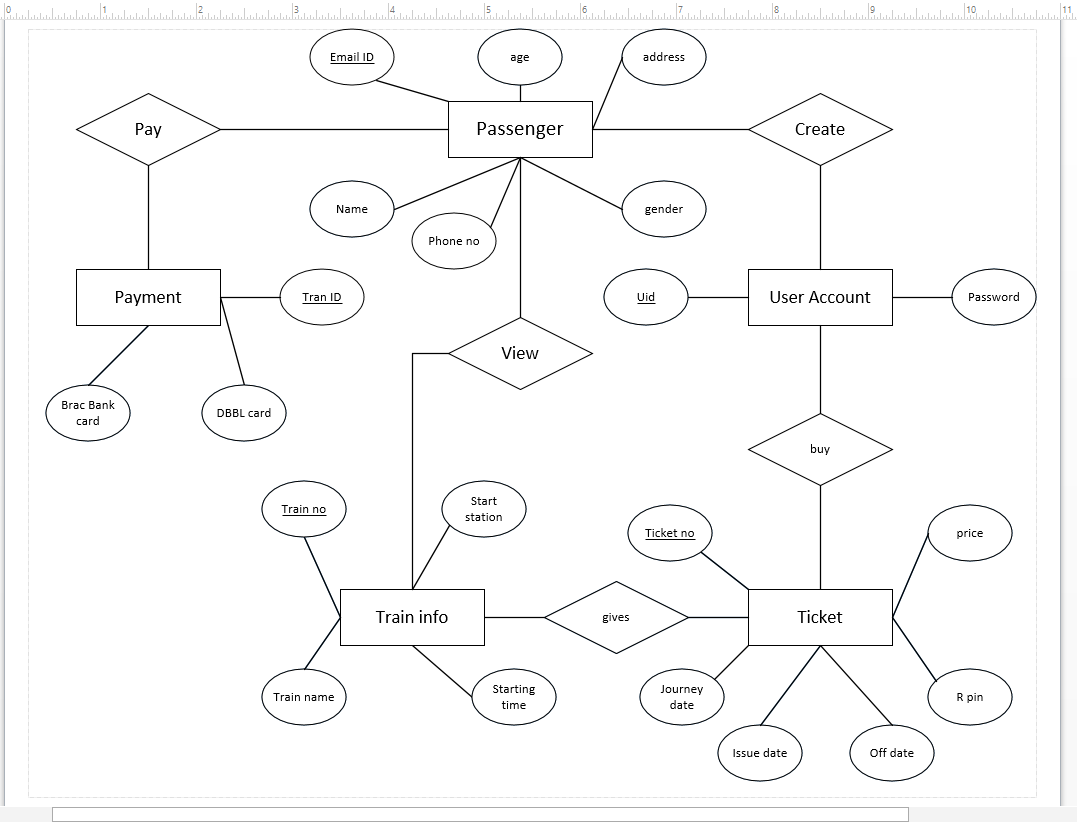
**Topic: Railway Reservation System**

A well-Known railway e-ticket service ‘CNS Limited’ wants us to design their database system. Here is all the information we have.

CNS limited has lot of passenger. Every passenger has name, address, phone number, age, gender and a unique email id. Passenger can create user account. Every account has a unique id and a secure password. Passenger can buy ticket through user account. Ticket has a reservation pin number, an issued date, a specific journey date and different prices. Ticket is identified by ticket no. The off date is also written in the ticket. Ticket gives train info. The train name, starting time and starting station are known by train info. Every Train has a unique train no. Passenger can pay the payment through brac bank card and DBBL card only. Each payment has a unique transaction id. Passenger can also view the train information without buying ticket.

**E-R DIAGRAM**



**Normalization:**

***Create:***

**UNF:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| email\_id | age | address | name | gender | password | u\_id | phone no. |

**1NF:**

Passenger1:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Email\_id | age | address | name | Gender | Phone\_no | u\_id |

User\_account1:

|  |  |
| --- | --- |
| u\_id | Password |

**2NF**: same  
  
**3NF**: same  
  
  
***Buy:***  
  
**UNF:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| u\_id | password | Ticket\_no | price | Journey\_date | r\_pin | issue\_date | Off\_date. |

**1NF:**

user\_account2:

|  |  |
| --- | --- |
| u\_id | Password |

Ticket1:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Ticket\_no | price | Journey\_date | R\_pin | Issue\_date | Off\_date | u\_id |

**2NF**: same  
  
**3NF**: same

***View:***

**UNF**:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Email\_id | age | address | gender | name | phone no | Train\_no | start\_station | starting time | train name. |

Passenger2:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Email\_id | age | address | gender | name | Phone\_no | train\_no |

Train1:

|  |  |  |  |
| --- | --- | --- | --- |
| Train\_no | Starting\_station | Starting\_time | Train\_name. |

**2NF**: Same

**3NF**: Same

***Gives:***

**UNF**:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ticket\_no | price | R pin | off\_date | issue\_date | journey\_date | start\_station | starting\_time | train\_no | train\_name. |

**1NF:**

Train2:

|  |  |  |  |
| --- | --- | --- | --- |
| Train no | train\_name | start\_station | starting\_time. |

Ticket2:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Ticket\_no | price | r\_pin | off\_date | issue\_date | journey\_date | train\_no |

***Pay:***

**UNF:**

Email\_id, age, address, gender, phone\_no, name, brac\_bank\_card,DBBL\_card, Tran\_id.

Payment:

|  |  |  |
| --- | --- | --- |
| tran id | brac\_bank\_card | DBBL\_card. |

Passenger3:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Email id | age | address | gender | phone\_no | name | tran\_id |

**2NF**: same

**3NF**: same

***Table Creation:***

**Create:**

create table passenger1(email\_id varchar2(20),name varchar2(20)not null,address

varchar2(30)not null,gender varchar2(20),phone\_no number(11)unique,u\_id number(20))

alter table passenger1 add constraint pass1 primary key(email\_id)

alter table passenger1 add constraint pass2 check gender(in('male','female'))

alter table passenger1 add constraint pass3 foreign key(u\_id) references user\_account1(u\_id)

create table user\_account1(u\_id number(20),password number(20)not null)

alter table user\_account1 add constraint user1 primary key(u\_id)

**Buy:**

create table user\_account2(u\_id number(20),password number(20)not null)

alter table user\_account2 add constraint user2nd1 primary key(u\_id)

create table ticket1(ticket\_no number(20),price number(20)not null,journey\_date varchar2(20)not null,r\_pin number(20)not null,issue\_date varchar2(20),off\_date varchar2(20),u\_id number(20))

alter table ticket1 add constraint tic1 primary key(ticket\_no)

alter table ticket1 add constraint tic2 foreign key(u\_id) references user\_account2(u\_id)

**View:**

create table passenger2(email\_id varchar2(20),name varchar2(20)not null,address varchar2(30)not null,gender varchar2(20),phone\_no number(11)unique,train\_no number(20))

alter table passenger2 add constraint pass2nd1 primary key(email\_id)

alter table passenger2 add constraint pass2nd2 check (gender in('male','female'))

alter table passenger2 add constraint pass2nd3 foreign key(train\_no) references train1(train\_no)

create table train1(train\_no number(20),starting\_station varchar2(20),starting\_time varchar2(20),train\_name varchar2(20)unique)

alter table train1 add constraint tra1 primary key(train\_no)

**Gives:**

create table train2(train\_no number(20),starting\_station varchar2(20),starting\_time varchar2(20),train\_name varchar2(20)unique)

alter table train2 add constraint tra2nd1 primary key(train\_no)

create table ticket2(ticket\_no number(20),price number(20)not null,journey\_date varchar2(20)not null,r\_pin number(20)not null,issue\_date varchar2(20),off\_date varchar2(20),train\_no number(20))

alter table ticket2 add constraint tic2nd1 primary key(ticket\_no)

alter table ticket2 add constraint tic2nd2 foreign key(train\_no) references train2(train\_no)

**Pay:**

create table payment(tran\_id number(20),brac\_bank\_card number(20),DBBL\_card number(20))

alter table payment add constraint pay1 primary key(tran\_id)

create table passenger3(email\_id varchar2(20),name varchar2(20)not null,address varchar2(30)not null,gender varchar2(20),phone\_no number(11)unique,tran\_id number(20))

alter table passenger3 add constraint pass3rd1 primary key(email\_id)

alter table passenger3 add constraint pass3rd2 check (gender in('male','female'))

alter table passenger3 add constraint pass3rd3 foreign key(tran\_id) references payment(tran\_id)

***Data input:***

insert into passenger1(email\_id,name,address,gender,phone\_no,u\_id) values('Samiur@gmail.com','Samiur','Rangpur','male',01758037522,100000)

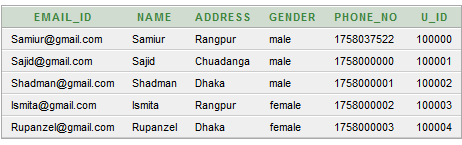
insert into passenger1(email\_id,name,address,gender,phone\_no,u\_id) values('Sajid@gmail.com','Sajid','Chuadanga','male',01758000000,100001)

insert into passenger1(email\_id,name,address,gender,phone\_no,u\_id) values('Shadman@gmail.com','Shadman','Dhaka','male',01758000001,100002)

insert into passenger1(email\_id,name,address,gender,phone\_no,u\_id) values('Ismita@gmail.com','Ismita','Rangpur','female',01758000002,100003)

insert into passenger1(email\_id,name,address,gender,phone\_no,u\_id) values('Rupanzel@gmail.com','Rupanzel','Dhaka','female',01758000003,100004)

select \* from passenger1



insert into user\_account1 values(100000,500000)

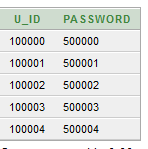
insert into user\_account1 values(100001,500001)

insert into user\_account1 values(100002,500002)

insert into user\_account1 values(100003,500003)

insert into user\_account1 values(100004,500004)

select \* from user\_account1



insert into user\_account2(u\_id,password)values(100000,500000)

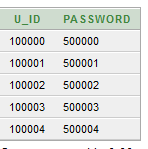
insert into user\_account2(u\_id,password)values(100001,500001)

insert into user\_account2(u\_id,password)values(100002,500002)

insert into user\_account2(u\_id,password)values(100003,500003)

insert into user\_account2(u\_id,password)values(100004,500004)

select \* from user\_account2



insert into ticket1(ticket\_no,price,journey\_date,r\_pin,issue\_date,off\_date,u\_id) values(100,750,'24/09/2017',4343,'20/09/2017','Sunday',100000)

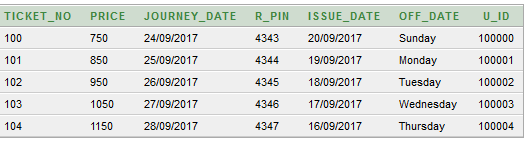
insert into ticket1(ticket\_no,price,journey\_date,r\_pin,issue\_date,off\_date,u\_id) values(101,850,'25/09/2017',4344,'19/09/2017','Monday',100001)

insert into ticket1(ticket\_no,price,journey\_date,r\_pin,issue\_date,off\_date,u\_id) values(102,950,'26/09/2017',4345,'18/09/2017','Tuesday',100002)

insert into ticket1(ticket\_no,price,journey\_date,r\_pin,issue\_date,off\_date,u\_id) values(103,1050,'27/09/2017',4346,'17/09/2017','Wednesday',100003)

insert into ticket1(ticket\_no,price,journey\_date,r\_pin,issue\_date,off\_date,u\_id) values(104,1150,'28/09/2017',4347,'16/09/2017','Thursday',100004)

select \* from ticket1



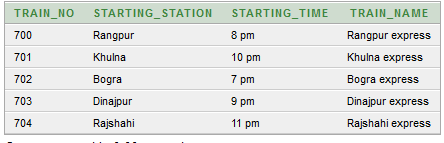
insert into train1(train\_no,starting\_station,starting\_time,train\_name) values(700,'Rangpur','8 pm','Rangpur express')

insert into train1(train\_no,starting\_station,starting\_time,train\_name) values(701,'Khulna','10 pm','Khulna express')

insert into train1(train\_no,starting\_station,starting\_time,train\_name) values(702,'Bogra','7 pm','Bogra express')

insert into train1(train\_no,starting\_station,starting\_time,train\_name) values(703,'Dinajpur','9 pm','Dinajpur express')

insert into train1(train\_no,starting\_station,starting\_time,train\_name) values(704,'Rajshahi','11 pm','Rajshahi express')



insert into passenger2(email\_id,name,address,gender,phone\_no,train\_no) values('Samiur@gmail.com','Samiur','Rangpur','male',01758037522,700)

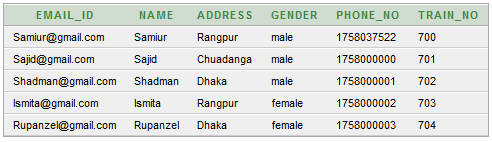
insert into passenger2(email\_id,name,address,gender,phone\_no,train\_no) values('Sajid@gmail.com','Sajid','Chuadanga','male',01758000000,701)

insert into passenger2(email\_id,name,address,gender,phone\_no,train\_no) values('Shadman@gmail.com','Shadman','Dhaka','male',01758000001,702)

insert into passenger2(email\_id,name,address,gender,phone\_no,train\_no) values('Ismita@gmail.com','Ismita','Rangpur','female',01758000002,703)

insert into passenger2(email\_id,name,address,gender,phone\_no,train\_no) values('Rupanzel@gmail.com','Rupanzel','Dhaka','female',01758000003,704)

select \* from passenger2



insert into train2(train\_no,starting\_station,starting\_time,train\_name) values(700,'Rangpur','8 pm','Rangpur express')

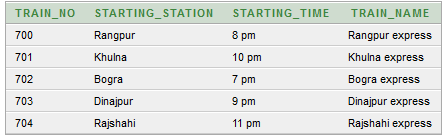
insert into train2(train\_no,starting\_station,starting\_time,train\_name) values(701,'Khulna','10 pm','Khulna express')

insert into train2(train\_no,starting\_station,starting\_time,train\_name) values(702,'Bogra','7 pm','Bogra express')

insert into train2(train\_no,starting\_station,starting\_time,train\_name) values(703,'Dinajpur','9 pm','Dinajpur express')

insert into train2(train\_no,starting\_station,starting\_time,train\_name) values(704,'Rajshahi','11 pm','Rajshahi express')

select \* from train2



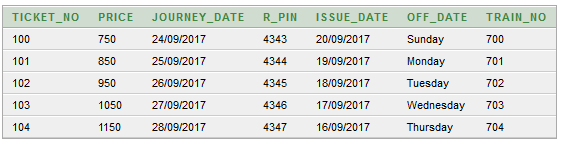
insert into ticket2(ticket\_no,price,journey\_date,r\_pin,issue\_date,off\_date,train\_no) values(100,750,'24/09/2017',4343,'20/09/2017','Sunday',700)

insert into ticket2(ticket\_no,price,journey\_date,r\_pin,issue\_date,off\_date,train\_no) values(101,850,'25/09/2017',4344,'19/09/2017','Monday',701)

insert into ticket2(ticket\_no,price,journey\_date,r\_pin,issue\_date,off\_date,train\_no) values(102,950,'26/09/2017',4345,'18/09/2017','Tuesday',702)

insert into ticket2(ticket\_no,price,journey\_date,r\_pin,issue\_date,off\_date,train\_no) values(103,1050,'27/09/2017',4346,'17/09/2017','Wednesday',703)

insert into ticket2(ticket\_no,price,journey\_date,r\_pin,issue\_date,off\_date,train\_no) values(104,1150,'28/09/2017',4347,'16/09/2017','Thursday',704)



insert into payment(tran\_id,brac\_bank\_card) values(1111,11110000)

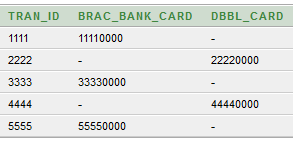
insert into payment(tran\_id,DBBL\_card) values(2222,22220000)

insert into payment(tran\_id,brac\_bank\_card) values(3333,33330000)

insert into payment(tran\_id,DBBL\_card) values(4444,44440000)

insert into payment(tran\_id,brac\_bank\_card) values(5555,55550000)

select \* from payment



insert into passenger3(email\_id,name,address,gender,phone\_no,tran\_id) values('Samiur@gmail.com','Samiur','Rangpur','male',01758037522,1111)

insert into passenger3(email\_id,name,address,gender,phone\_no,tran\_id) values('Sajid@gmail.com','Sajid','Chuadanga','male',01758000000,2222)

insert into passenger3(email\_id,name,address,gender,phone\_no,tran\_id) values('Shadman@gmail.com','Shadman','Dhaka','male',01758000001,3333)

insert into passenger3(email\_id,name,address,gender,phone\_no,tran\_id) values('Ismita@gmail.com','Ismita','Rangpur','female',01758000002,4444)

insert into passenger3(email\_id,name,address,gender,phone\_no,tran\_id) values('Rupanzel@gmail.com','Rupanzel','Dhaka','female',01758000003,5555)

select \* from passenger3

