DBMS PROJECT

TOPIC: RAILWAY MANAGEMENT SYSTEM

1. B. Harshavardhan   21EEB0A13
2. Y. Yeswanth   21EEB0A68

Problem Statement: -

The **Railway Management System** project is a database management system project that aims to provide a platform for managing the data related to railway reservations. The project includes various tables such as User, Train Details, Transaction Details, Passengers Details, etc. These tables store information about users, trains, transactions, passengers, etc...

If users have already registered and logged into the system, the system allows them to manage the data related to the availability of seats in trains, booked tickets and other related information.

The system assumes that the information entered by the users is correct, and the seat availability information is up-to-date. The cancellation and refund policy of the system is also assumed to be well-defined and transparent to the users.

Overall, the Railway Management System project is a comprehensive solution that simplifies the process of managing railway reservations data for both users and administrators, with the below-mentioned assumptions.

Assumptions:

- Every train is assumed to run every day.
- Each User may reserve an unlimited number of tickets.
- All Compartments of a certain class type are grouped together under a single name (for example, B1, B2... are regarded to be 3A, etc.).
- Any number of passengers may book their seats using a single ticket id.

Tables: -

User

Attribute	Data type	Constraints and Characteristics
UserId	VARCHAR(20)	Primary key
Password	VARCHAR(20)	Not null
UserEmail	VARCHAR(40)	Unique, not null
DateoFBirth	DATE	Not null
Age	INT	Not null
UserName	VARCHAR(30)	Not null

Station

Attribute	Data type	Constraints and Characteristics
StationCode	VARCHAR(8)	Primary key
StationName	VARCHAR(20)	Not null

Class

Attribute	Data type	Constraints and Characteristics
ClassCode	VARCHAR(5)	Primary key
ClassName	VARCHAR(20)	Not null

Train

Attribute	Data type	Constraints and Characteristics
TrainNo	NUMBER(5)	Primary key
TrainName	VARCHAR(20)	Not null
StartingStation	VARCHAR(8)	Not null
Destination	VARCHAR(8)	Not null
Distance	INT	-

Transaction

Attribute	Data type	Constraints and Characteristics
TransactionId	VARCHAR(64)	Primary key
ModeOfPayment	VARCHAR(20)	Not null
PaymentStatus	VARCHAR(15)	Not null
PaymentDate	DATE	Not null
Amount	INT	Not null
UserId	VARCHAR(20)	Foreign key, not null

Ticket

Attribute	Data type	Constraints and Characteristics
TicketId	NUMBER(10)	Primary key
NoOfPassengers	INT	Not null
StartingStation	VARCHAR(8)	Not null
Destination	VARCHAR(8)	Not null
TransactionId	VARCHAR(64)	Foreign key (1) , not null
TrainNo	NUMBER(5)	Foreign key (2), Not null

Passenger

Attribute	Data type	Constraints and Characteristics
First_Name	VARCHAR(20)	Not null
Last_Name	VARCHAR(20)	Not null
StartingStation	VARCHAR(8)	Not null
Destination	VARCHAR(8)	Not null
Age	INT	Not null
SeatNo	INT	Primary key (1), Not null
ClassCode	VARCHAR(5)	Primary key (2), Foreign key(1), Not null
TrainNo	NUMBER(5)	Primary key (3), Foreign key (2), Not null
TicketId	BIGINT	Foreign key (3), Not null

Seats

Attribute	Data type	Constraints and Characteristics
TrainNo	NUMBER(5)	Primary key(1),Foreign key(1)
ClassCode	VARCHAR(5)	Primary key (2), Foreign key (2)
NoOfSeats	INT	Not null

Stoppage

Attribute	Data type	Constraints and Characteristics
StationCode	VARCHAR(8)	Primary key (1), Foreign key (1)
TrainNo	NUMBER(5)	Primary key (2), Foreign key (2)
ArrivalTime	TIME	Not null
DepartureTime	TIME	Not null

Functional Dependencies and Primary key: -

1)User: -

UserId-> {DateOfBirth, UserEmail, Password, Age,UserName} .
Since all the fields depend on UserId, $(UserId)^+$ -> **R**.
Hence, UserId is a Primary Key.

2)Station: -

StationCode-> { StationName} .
Since all the fields depend on StationCode, $(StationCode)^+$ -> **R**.
Hence, StationCode is a Primary Key.

3)Class: -

ClassCode-> { ClassName} .
Since all the fields depend on ClassCode, $(ClassCode)^+$ -> **R**.
Hence, ClassCode is a Primary Key.

4)Train: -

TrainNo-> { TrainName, StartingStation, Destination, Distance} .
Since all the fields depend on TrainNo, $(TrainNo)^+$ -> **R**.
Hence, TrainNo is a Primary Key.

5)Transaction: -

TransactionId-> { ModeOfPayment, PaymentStatus, PaymentDate, Amount, UserId } .
Since all the fields depend on TransactionId, $(TransactionId)^+$ -> **R**.
Hence, TransactionId is a Primary Key.

6)Ticket: -

TicketId-> { NoOfPassengers, StartingStation, Destination, TransactionId, TrainNo } .
Since all the fields depend on TicketId, $(TicketId)^+$ -> **R**.
Hence, TicketId is a Primary Key.

7)Passenger: -

{TrainNo, ClassCode, SeatNo}-> { First_Name, Last_Name, StartingStation, Destination, Age, TicketId } .
Since all the fields depend on { TrainNo,ClassCode,SeatNo },
 $(\{TrainNo, ClassCode, SeatNo\})^+$ -> **R**.
Hence, {TrainNo, ClassCode, SeatNo} is Combinedly a Composite Primary Key.

8)Seats: -

{ClassCode, TrainNo}-> { NoOfSeats} .
Since all the fields depend on {ClassCode, TrainNo}, ({ClassCode, TrainNo})$^+$ -> **R**.
Hence, {ClassCode, TrainNo} is Combinedly a Composite Primary Key.

8)Stoppage: -

{StationCode, TrainNo}-> { ArrivalTime, DepatureTime} .
Since all the fields depend on {StationCode, TrainNo}, ({StationCode, TrainNo})$^+$ -> **R**.
Hence, {StationCode, TrainNo} is Combinedly a Composite Primary Key.

Normalisation: -

1)User: -

Primary key: UserId.
All attributes depend on the UserId, hence the table is in 2NF.
All attributes depend directly on UserId, hence the table is in 3NF.
All determinants (UserId) are Super key, hence the table is in BCNF.

2)Station: -

Primary key: StationCode.
All attributes depend on the StationCode, hence the table is in 2NF.
All attributes depend directly on StationCode, hence the table is in 3NF.
All determinants (StationCode) are Super key, hence the table is in BCNF.

3)Class: -

Primary key: ClassCode.
All attributes depend on the ClassCode, hence the table is in 2NF.
All attributes depend directly on ClassCode, hence the table is in 3NF.
All determinants (ClassCode) are Super key, hence the table is in BCNF.

4)Train: -

Primary key: TrainNo.
All attributes depend on the TrainNo, hence the table is in 2NF.
All attributes depend directly on TrainNo, hence the table is in 3NF.
All determinants (TrainNo) are Super key, hence the table is in BCNF.

5)Transaction: -

Primary key: TransactionId.
All attributes depend on the TransactionId, hence the table is in 2NF.
All attributes depend directly on TransactionId, hence the table is in 3NF.
All determinants (TransactionId) are Super key, hence the table is in BCNF.

6)Ticket: -

Primary key: TicketId.
All attributes depend on the TicketId, hence the table is in 2NF.
All attributes depend directly on TicketId, hence the table is in 3NF.
All determinants (TicketId) are Super key, hence the table is in BCNF.

7)Passenger: -

Primary key: TrainNo, ClassCode, SeatNo.
All attributes depend on the TrainNo, ClassCode, SeatNo, hence the table is in 2NF.
All attributes depend directly on TrainNo, ClassCode, SeatNo, hence the table is in 3NF.
All determinants (TrainNo, ClassCode, SeatNo) is Super key, hence the table is in BCNF.

8)Seats: -

Primary key: TrainNo, ClassCode.
All attributes depend on the TrainNo, ClassCode, hence the table is in 2NF.
All attributes depend directly on TrainNo, ClassCode, hence the table is in 3NF.
All determinants (TrainNo, ClassCode) are Super key, hence the table is in BCNF.
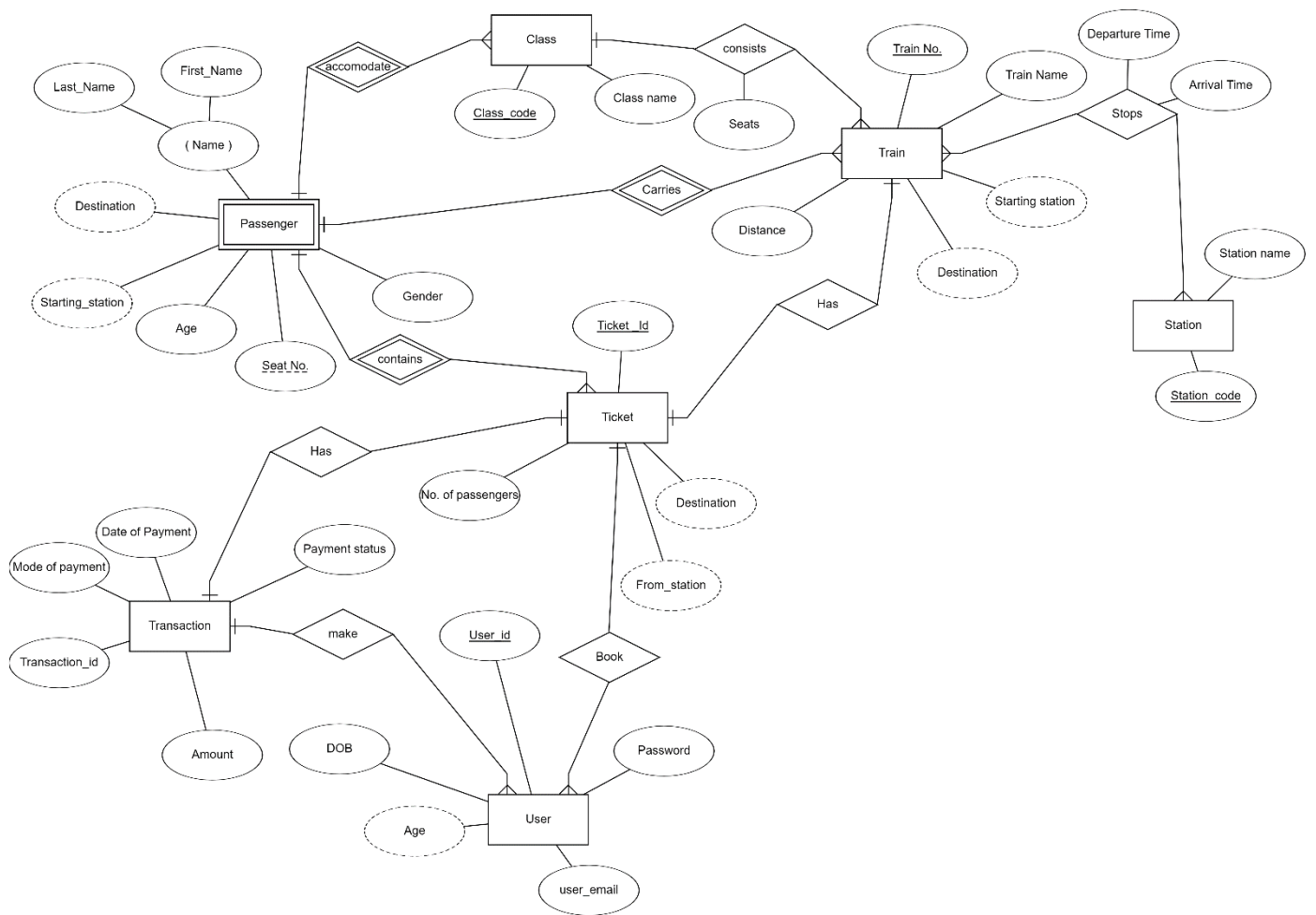
8)Stoppage: -

Primary key: TrainNo, StationCode.
All attributes depend on the TrainNo, StationCode, hence the table is in 2NF.
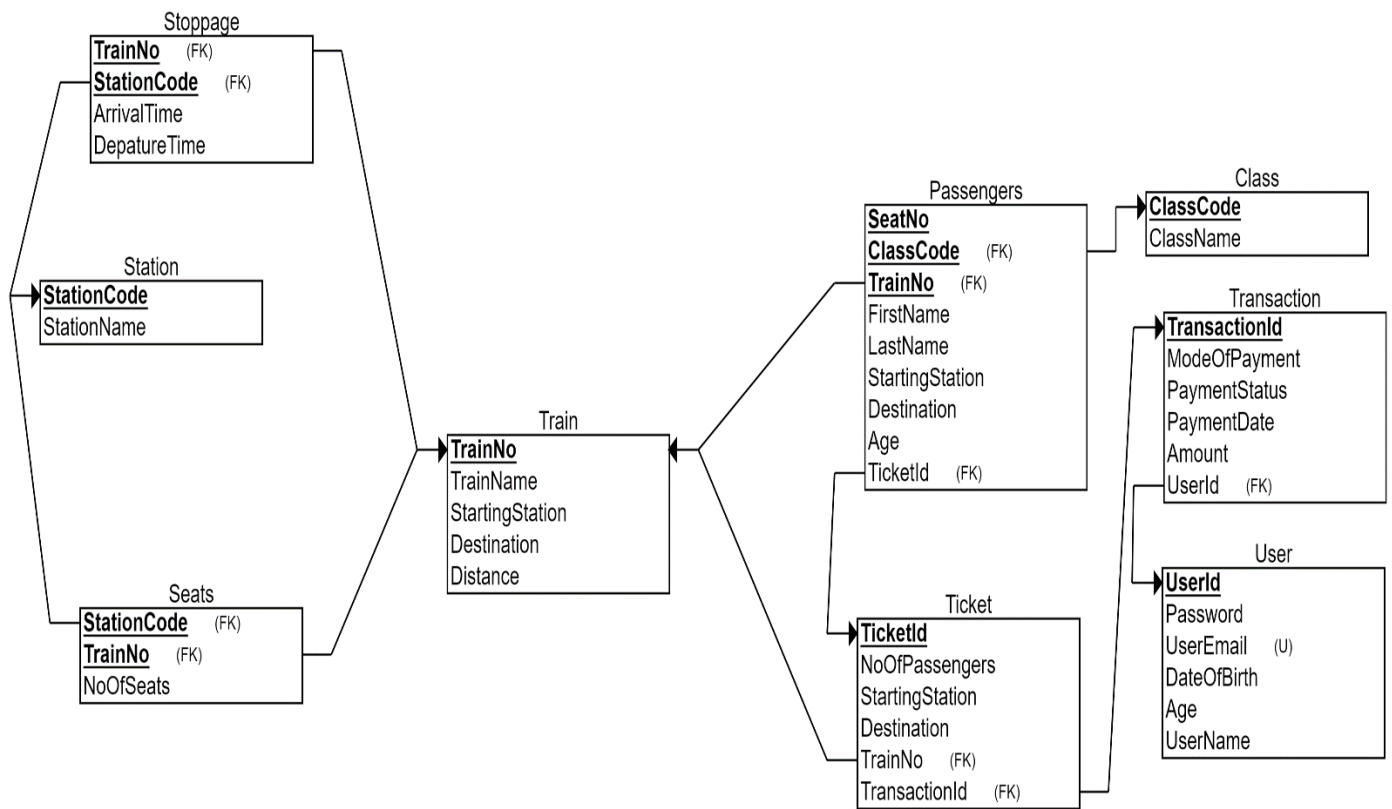All attributes depend directly on TrainNo, StationCode, hence the table is in 3NF.
All determinants (TrainNo, StationCode) are Super key, hence the table is in BCNF.

ER Diagram: -

Relational Schema with Normalised Tables: -

Stoppage
- **TrainNo** (FK)
- **StationCode** (FK)
- ArrivalTime
- DepatureTime

Station
- **StationCode**
- StationName

Seats
- **StationCode** (FK)
- **TrainNo** (FK)
- NoOfSeats

Train
- **TrainNo**
- TrainName
- StartingStation
- Destination
- Distance

Passengers
- **SeatNo**
- **ClassCode** (FK)
- **TrainNo** (FK)
- FirstName
- LastName
- StartingStation
- Destination
- Age
- TicketId (FK)

Class
- **ClassCode**
- ClassName

Transaction
- **TransactionId**
- ModeOfPayment
- PaymentStatus
- PaymentDate
- Amount
- UserId (FK)

Ticket
- **TicketId**
- NoOfPassengers
- StartingStation
- Destination
- TrainNo (FK)
- TransactionId (FK)

User
- **UserId**
- Password
- UserEmail (U)
- DateOfBirth
- Age
- UserName

SQL Codes

Creating tables: -

```sql
create table class(
class_code varchar(5) ,
class_name varchar(20) not null,
primary key (class_code)
);
```

```sql
create table passenger(
first_name varchar(20) not null,
last_name varchar(20) not null,
starting_station varchar(8) not null,
destination varchar(8) not null,
age int not null,
seat_number int not null,
class_code varchar(5) not null,
train_number int not null,
ticket_id bigint not null,
primary key (seat_number,class_code,train_number),
foreign key (class_code) references class(class_code) on delete cascade,
foreign key (ticket_id) references ticket(ticket_id) on delete cascade,
foreign key (train_number) references train(train_number) on delete cascade
);
```

```sql
create table seats(
class_code varchar(5) not null,
train_number int(5) not null ,
number_of_seats int not null,
primary key (class_code,train_number),
foreign key (class_code) references class(class_code) on delete cascade,
foreign key (train_number) references train(train_number) on delete cascade
);
```

```sql
create table station(
station_code varchar(8) ,
station_name varchar(20) not null,
primary key (station_code)
);
```

```sql
create table stoppage(
station_code varchar(8) not null,
train_number int not null ,
arrival_time time not null,
departure_time time not null,
primary key (station_code,train_number),
foreign key (station_code) references station(station_code) on delete cascade,
foreign key (train_number) references train(train_number) on delete cascade
);
```

```sql
create table ticket(
ticket_id bigint not null,
number_of_passengers int not null,
starting_station varchar(8) not null,
destination varchar(8) not null,
transaction_id varchar(64) not null,
train_number int not null,
primary key (ticket_id),
foreign key (transaction_id) references transactions(transaction_id) on delete cascade,
foreign key (train_number) references train(train_number) on delete cascade
);
describe ticket ;
```

```sql
create table train(
train_number int ,
train_name varchar(20) not null,
starting_station varchar(8) not null,
destination varchar(8) not null,
distance int ,
primary key (train_number)
);
```

```sql
create table transactions(
transaction_id varchar(64) ,
mode_of_payment varchar(20) not null,
payment_status varchar(15) not null,
payment_date date not null,
amount int not null,
user_id varchar(20) not null,
primary key (transaction_id),
foreign key (user_id) references user(user_id) on delete cascade
);
```

```sql
create table user(
user_id varchar(20) ,
password varchar(20) not null ,
user_email varchar(40) unique not null,
date_of_birth date not null,
age int not null,
user_name varchar(30) not null,
primary key (user_id)
);
```

Inserting Data: -

```sql
insert into user values('8412679EE', 'harsha@123', 'harsha123@gmail.com', '2004-01-08', 19, 'harsha08010');
insert into user values('7063510EE', 'vamsi@644', 'vamsitenali@gmail.com', '2000-02-14', 23, 'vamsi2000');
insert into user values('2004081CS', 'asrith$123', 'asrith1216@gmail.com', '2001-02-14', 22, 'asrith9876');
```

```sql
insert into transactions values('100003987772035','cash','success','2023-01-23', 1600, '8412679EE');
insert into transactions values('100003987782031','credit card','success','2023-02-23', 900, '7063510EE');
insert into transactions values('100006792843210','upi','success','2023-03-06', 1000, '2004081CS');
insert into transactions values('100006811846220','cash','success','2023-03-20', 600, '2004081CS');
insert into transactions values('100007814332108','cash','success','2023-04-01', 1200, '8412679EE');
insert into transactions values('100003954204594','credit card','success','2023-05-21', 2000, '7063510EE');
insert into transactions values('100002590442945','cash','success','2023-06-02', 400, '8412679EE');
insert into transactions values('100005294024495','debit card','success','2023-06-28', 800, '2004081CS');
insert into transactions values('100003937167061','net banking','success','2023-06-30', 1200, '7063510EE');
insert into transactions values('100009373610716','cash','success','2023-07-24', 300, '8412679EE');
insert into transactions values('100006732567810','upi','failed','2023-08-23', 0, '2004081CS');
insert into transactions values('100007982671120','debit card','failed','2023-08-30', 0, '7063510EE');
insert into transactions values('100006728221020','cash','pending','2023-09-16', 0, '8412679EE');
```

```sql
insert into train values(12759,'charminar express', 'MAS', 'SC', 700);
insert into train values(12760,'charminar express', 'SC', 'MAS', 700);
insert into train values(12709,'simhapuri express', 'GDR', 'SC', 500);
insert into train values(12710,'simhapuri express', 'SC', 'GDR', 500);
insert into train values(12202,'golconda express', 'KRNT', 'SC', 300);
insert into train values(12203,'golconda express', 'SC', 'KRNT', 300);
insert into train values(12711,'pinakini express', 'MAS', 'BZA', 500);
insert into train values(12712,'pinakini express', 'BZA', 'MAS', 500);
insert into train values(17028,'hundry express', 'MAS', 'SC', 700);
insert into train values(17029,'hundry express', 'SC', 'MAS', 700);
insert into train values(12799,'godavari express', 'MAS', 'VSKP', 1200);
insert into train values(12800,'godavari express', 'VSKP', 'MAS', 1200);
insert into train values(57992,'past passenger', 'MAS', 'SC',1300);
insert into train values(57993,'past passenger', 'SC', 'MAS',1300);
```

```sql
insert into ticket values(4657299175, 4, 'GDR','BZA','100003987772035',12760);
insert into ticket values(4657299176, 3, 'NLR','GNT','100003987782031',12711);
insert into ticket values(4657299178, 2, 'BZA','VSKP','100006792843210',12799);
insert into ticket values(4667288194, 1, 'KVZ','WL','100006811846220',12759);
insert into ticket values(4767345174, 2, 'GDR','SC','100007814332108',12709);
insert into ticket values(4357364192, 4, 'SC','MAS','100003987772035',17029);
insert into ticket values(4356763203, 1, 'SC','KRNT','100002590442945',12203);
insert into ticket values(4125679102, 2, 'BZA','NLR','100005294024495',12712);
insert into ticket values(8562844096, 3, 'VSKP','RJY','100003937167061',12800);
insert into ticket values(4343427276, 1, 'SC','NLR','100009373610716',12710);
```

```sql
insert into stoppage values('KRNT',12203,'6:47','6:47');
insert into stoppage values('GWD',12203,'9:45','9:50');
insert into stoppage values('SC',12203,'12:45','12:45');
insert into stoppage values('KRNT',12202,'6:47','6:47');
insert into stoppage values('GWD',12202,'9:45','9:50');
insert into stoppage values('SC',12202,'12:45','12:45');
insert into stoppage values('GDR',12709,'2:45','2:46');
insert into stoppage values('NLR',12709,'3:45','3:47');
insert into stoppage values('KVZ',12709,'4:45','4:49');
insert into stoppage values('OGL',12709,'5:45','5:47');
insert into stoppage values('GNT',12709,'6:45','6:46');
insert into stoppage values('BZA',12709,'7:45','7:46');
insert into stoppage values('WL',12709,'8:45','8:46');
```

```sql
insert into station values('KVZ','kavali');
insert into station values('MAS','chennai central');
insert into station values('NLR','nellore');
insert into station values('WL','warangal');
insert into station values('SC','secunderabad');
insert into station values('OGL','ongole');
insert into station values('BZA','vijayawada');
insert into station values('GDR','gudur junction');
insert into station values('RJY','rajamundry');
insert into station values('VSKP','vishakhapatnam');
insert into station values('GNT','Guntur');
insert into station values('KRNT','kurnool');
insert into station values('GWD','gadwal junction');
insert into station values('GY','gooty junction');
```

```sql
insert into seats values('3A',17029,36);
insert into seats values('2A',17029,30);
insert into seats values('1A',17029,12);
insert into seats values('SL',17030,70);
insert into seats values('3A',17030,36);
insert into seats values('2A',17030,30);
insert into seats values('1A',17030,12);
insert into seats values('SL',17030,70);
insert into seats values('3A',12203,38);
insert into seats values('2A',12203,25);
insert into seats values('1A',12203,14);
insert into seats values('SL',12203,76);
insert into seats values('3A',12204,38);
insert into seats values('2A',12204,25);
insert into seats values('1A',12204,14);
insert into seats values('SL',12204,76);
insert into seats values('3A',12712,40);
insert into seats values('2A',12712,30);
```

```sql
insert into passenger values('Harsha','Vardhan','GDR','BZA',19,7,'3A',12760,4657299175);
insert into passenger values('Challa','Abhinay','GDR','BZA',20,8,'3A',12760,4657299175);
insert into passenger values('Yenduri','Yeshwant','GDR','BZA',21,9,'3A',12760,4657299175);
insert into passenger values('Nikhil','Boob','GDR','BZA',22,10,'3A',12760,4657299175);
insert into passenger values('Bejugam','Vignesh','NLR','GNT',45,10,'2A',12711,4657299176);
insert into passenger values('Ashish','Bharadwaj','NLR','GNT',5,12,'2A',12711,4657299176);
insert into passenger values('Roshan','Kumar','NLR','GNT',20,13,'2A',12711,4657299176);
insert into passenger values('Harsha','Bayavarapu','BZA','VSKP',19,9,'2A',12799,4657299178);
insert into passenger values('Asrith','Samanthapudi','BZA','VSKP',19,10,'2A',12799,4657299178);
insert into passenger values('Vamsi','Tenali','KVZ','WL',20,35,'SL',12759,4667288194);
insert into passenger values('Lokesh','Rahul','GDR','SC',31,1,'1A',12709,4767345174);
insert into passenger values('Virat','Kohli','GDR','SC',33,2,'1A',12709,4767345174);
insert into passenger values('Ravindra','Jadeja','SC','MAS',29,21,'2A',17029,4357364192);
insert into passenger values('Moeen','Ali','SC','MAS',31,22,'2A',17029,4357364192);
insert into passenger values('Ambati','Rayudu','SC','MAS',30,23,'2A',17029,4357364192);
insert into passenger values('Harsha','Vardhan','SC','MAS',21,24,'2A',17029,4357364192);
insert into passenger values('Abhinay','Challa','SC','KRNT',69,1,'1A',12203,4356763203);
insert into passenger values('Harsha','Vardhan','BZA','NLR',19,18,'2A',12712,4125679102);
insert into passenger values('Nikhil','Boob','BZA','NLR',19,19,'2A',12712,4125679102);
```

```sql
insert into class values('SL','sleeper');
insert into class values('3A','3rd AC');
insert into class values('2A','2nd AC');
insert into class values('1A','1st AC');
insert into class values('PC','pantry car');
insert into class values('ENG','engine');
```

Tables created

User

user_id	password	user_email	date_of_birth	age	user_name
2004081CS	asrith$123	asrith1216@gmail.com	2001-02-14	22	asrith9876
7063510EE	vamsi@644	vamsitenali@gmail.com	2000-02-14	23	vamsi2000
8412679EE	harsha@123	harsha123@gmail.com	2004-01-08	19	harsha08010
NULL	NULL	NULL	NULL	NULL	NULL

Station

station_code	station_name
BZA	vijayawada
GDR	gudur junction
GNT	Guntur
GWD	gadwal junction
GY	gooty junction
KRNT	kurnool
KVZ	kavali
MAS	chennai central
NLR	nellore
OGL	ongole
RJY	rajamundry
SC	secunderabad
VSKP	vishakhapatnam
WL	warangal
NULL	NULL

Class

class_code	class_name
1A	1st AC
2A	2nd AC
3A	3rd AC
ENG	engine
PC	pantry car
SL	sleeper
NULL	NULL

Train

train_number	train_name	starting_station	destination	distance
12202	golconda express	KRNT	SC	300
12203	golconda express	SC	KRNT	300
12709	simhapuri express	GDR	SC	500
12710	simhapuri express	SC	GDR	500
12711	pinakini express	MAS	BZA	500
12712	pinakini express	BZA	MAS	500
12759	charminar express	MAS	SC	700
12760	charminar express	SC	MAS	700
12799	godavari express	MAS	VSKP	1200
12800	godavari express	VSKP	MAS	1200
17028	hundry express	MAS	SC	700
17029	hundry express	SC	MAS	700
NULL	NULL	NULL	NULL	NULL

Transaction

transaction_id	mode_of_payment	payment_status	payment_date	amount	user_id
100002590442945	cash	success	2023-06-02	400	8412679EE
100003937167061	net banking	success	2023-06-30	1200	7063510EE
100003954204594	credit card	success	2023-05-21	2000	7063510EE
10000398777	cash	success	2023-01-23	1600	8412679EE
100003987772035	cash	success	2023-01-23	1600	8412679EE
100003987782031	credit card	success	2023-02-23	900	7063510EE
100005294024495	debit card	success	2023-06-28	800	2004081CS
100006728221020	cash	pending	2023-09-16	0	8412679EE
100006732567810	upi	failed	2023-08-23	0	2004081CS
100006792843210	upi	success	2023-03-06	1000	2004081CS
100006811846220	cash	success	2023-03-20	600	2004081CS
100007814332108	cash	success	2023-04-01	1200	8412679EE
100007982671120	debit card	failed	2023-08-30	0	7063510EE
100009373610716	cash	success	2023-07-24	300	8412679EE
NULL	NULL	NULL	NULL	NULL	NULL

Ticket

ticket_id	number_of_passengers	starting_station	destination	transaction_id	train_number
4125679102	2	BZA	NLR	100005294024495	12712
4343427276	1	SC	NLR	100009373610716	12710
4356763203	1	SC	KRNT	100002590442945	12203
4357364192	4	SC	MAS	100003987772035	17029
4657299175	4	GDR	BZA	100003987772035	12760
4657299176	3	NLR	GNT	100003987782031	12711
4657299178	2	BZA	VSKP	100006792843210	12799
4667288194	1	KVZ	WL	100006811846220	12759
4767345174	2	GDR	SC	100007814332108	12709
8562844096	3	VSKP	RJY	100003937167061	12800
NULL	NULL	NULL	NULL	NULL	NULL

Passenger

first_name	last_name	starting_station	destination	age	seat_number	class_code	train_number	ticket_id
Abhinay	Challa	SC	KRNT	69	1	1A	12203	4356763203
Lokesh	Rahul	GDR	SC	31	1	1A	12709	4767345174
Yeshwant	Yenduri	VSKP	RJY	20	1	SL	12800	8562844096
Virat	Kohli	GDR	SC	33	2	1A	12709	4767345174
Challa	Abhinay	VSKP	RJY	21	2	SL	12800	8562844096
Vignesh	Bejugam	VSKP	RJY	92	3	SL	12800	8562844096
Harsha	Vardhan	GDR	BZA	19	7	3A	12760	4657299175
Challa	Abhinay	GDR	BZA	20	8	3A	12760	4657299175
Harsha	Bayavarapu	BZA	VSKP	19	9	2A	12799	4657299178
Yenduri	Yeshwant	GDR	BZA	21	9	3A	12760	4657299175
Bejugam	Vignesh	NLR	GNT	45	10	2A	12711	4657299176
Asrith	Samanthap...	BZA	VSKP	19	10	2A	12799	4657299178
Nikhil	Boob	GDR	BZA	22	10	3A	12760	4657299175
Ashish	Bharadwaj	SC	NLR	10	10	SL	12710	4343427276
Ashish	Bharadwaj	NLR	GNT	5	12	2A	12711	4657299176
Roshan	Kumar	NLR	GNT	20	13	2A	12711	4657299176
Harsha	Vardhan	BZA	NLR	19	18	2A	12712	4125679102
Nikhil	Boob	BZA	NLR	19	19	2A	12712	4125679102
Ravindra	Jadeja	SC	MAS	29	21	2A	17029	4357364192
Moeen	Ali	SC	MAS	31	22	2A	17029	4357364192
Ambati	Rayudu	SC	MAS	30	23	2A	17029	4357364192
Harsha	Vardhan	SC	MAS	21	24	2A	17029	4357364192
Vamsi	Tenali	KVZ	WL	20	35	SL	12759	4667288194
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Seats

class_code	train_number	number_of_seats
1A	12202	14
1A	12203	14
1A	12709	12
1A	12710	12
1A	12711	10
1A	12712	10
1A	12759	12
1A	12760	12
1A	12799	14
1A	12800	14
1A	17028	12
1A	17029	12
2A	12202	25
2A	12203	25
2A	12709	30
2A	12710	30
2A	12711	30

Stoppage

station_code	train_number	arrival_time	departure_time
BZA	12709	07:45:00	07:46:00
BZA	12710	07:45:00	07:46:00
BZA	12711	07:45:00	07:46:00
BZA	12712	07:45:00	07:46:00
BZA	12759	07:45:00	07:46:00
BZA	12760	07:45:00	07:46:00
BZA	12799	07:45:00	07:46:00
BZA	12800	07:45:00	07:46:00
GDR	12709	02:45:00	02:46:00
GDR	12710	02:45:00	02:46:00
GDR	12711	03:25:00	03:26:00
GDR	12712	03:25:00	03:26:00
GDR	12759	03:25:00	03:26:00
GDR	12760	03:25:00	03:26:00
GNT	12709	06:45:00	06:46:00
GNT	12710	06:45:00	06:46:00
GNT	12711	06:45:00	06:46:00
GNT	12712	06:45:00	06:46:00
GNT	12759	06:45:00	06:46:00
GNT	12760	06:45:00	06:46:00

Queries:

Display of number of payments done using different modes of payment

```sql
1  select mode_of_payment , count(mode_of_payment) as number_of_payments
2  from transactions group by mode_of_payment order by number_of_payments asc
3
```

mode_of_payment	number_of_payments
net banking	1
credit card	2
debit card	2
upi	2
cash	7

Display of passenger details whose age above 18

```sql
1  select * from passenger
2  where age >=19 and first_name = 'Harsha';
3
```

first_name	last_name	starting_station	destination	age	seat_number	class_code	train_number	ticket_id
Harsha	Vardhan	GDR	BZA	19	7	3A	12760	4657299175
Harsha	Bayavarapu	BZA	VSKP	19	9	2A	12799	4657299178
Harsha	Vardhan	BZA	NLR	19	18	2A	12712	4125679102
Harsha	Vardhan	SC	MAS	21	24	2A	17029	4357364192
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Display of trains which are starting from a particular station

```sql
1  select train_number , train_name , destination
2  from train t1 join station t2
3  on t2.station_code= t1.starting_station where t2.station_name='chennai central'
```

train_number	train_name	destination
12711	pinakini express	BZA
12759	charminar express	SC
12799	godavari express	VSKP
17028	hundry express	SC

Details of users who did failed transactions

```sql
1 • select * from user where user_id
2   in (select user_id from transactions where payment_status='failed')
3
```

user_id	password	user_email	date_of_birth	age	user_name
2004081CS	asrith$123	asrith1216@gmail.com	2001-02-14	22	asrith9876
7063510EE	vamsi@644	vamsitenali@gmail.com	2000-02-14	23	vamsi2000
NULL	NULL	NULL	NULL	NULL	NULL

THANK YOU

1. B. HARSHAVARDHAN
2. Y. YESWANTH