

Project Report
On
Railway Management System
(UCS-310)



THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

Submitted By:

Inaayat Goyal	102003050
Atul Thakur	102003064
Harishankar Kumar	102003066
Abhinandan Singla	102183001
Abhilash Jena	102053017

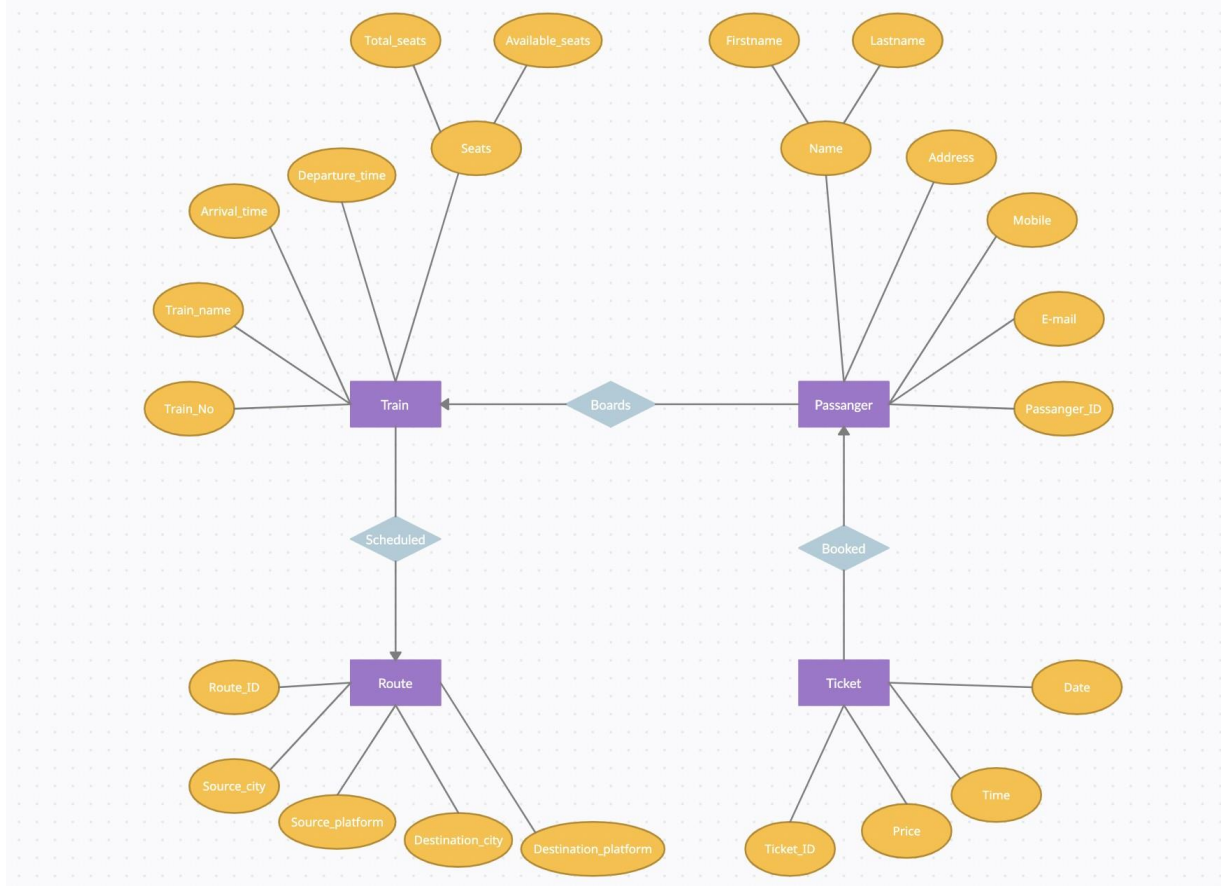
INDEX

CONTENTS	PAGE NUMBER
Problem Statement	3
ER Diagram	4
ER Diagram to Table	5
Normalized Tables	6
Creating tables	7
Insertion of data in the tables	8
SQL Output Screenshots	10
PL/SQL Codes and screenshots	13

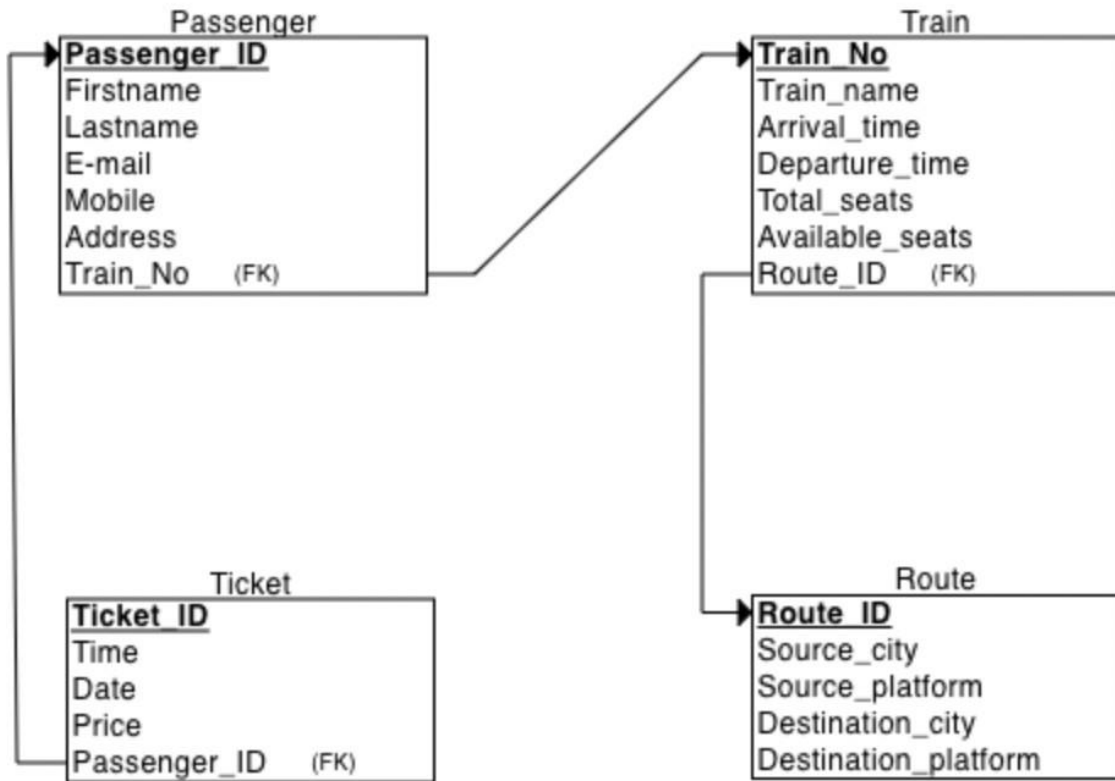
Problem Statement

A database to keep record of train timings and tracking the routes of trains. Moreover, keeping track of the total number of seats, the number of seats available and the price of each type of ticket while also keeping record of all the passengers and their type of ticket.

Entity-Relationship Diagram



ER Diagram to Table



Normalized Table

Ticket Table

Ticket_ID	Time	Date	Price	Passenger_ID
-----------	------	------	-------	--------------

Passenger Table

Passenger_ID	First name	Last name	E-mail	Mobile	Address	Train_No
--------------	------------	-----------	--------	--------	---------	----------

Train Table

Train_No	Train_name	Arrival_time	Departure_time	Total_seats	Available_seats	Route_ID
----------	------------	--------------	----------------	-------------	-----------------	----------

Route Table

Route_ID	Source_city	Source_platform	Destination_city	Destination_platform
----------	-------------	-----------------	------------------	----------------------

Creating Table

```
create table Route(Route_ID int primary key,  
Source_city varchar(20),  
Source_platform int,  
Destination_city varchar(20),  
Destination_platform int);
```

```
create table Train(Train_No int primary key,  
Train_name varchar(20),  
Arrival_time timestamp,  
Departure_time timestamp,  
Total_seats int,  
Available_seats int,  
Route_ID int,  
CONSTRAINT FK_Route_ID FOREIGN KEY (Route_ID)  
REFERENCES Route(Route_ID));
```

```
create table Passenger(Passenger_ID int primary key,  
Firstname varchar(20),  
Lastname varchar(20),  
Email varchar(30),  
Mobile number(10),  
Address varchar(50),  
Train_No int,  
CONSTRAINT FK_Train_No FOREIGN KEY (Train_No)  
REFERENCES Train(Train_No));
```

```
create table Ticket(Ticket_ID int primary key,  
Train_time timestamp,  
Train_date date,  
Price number(10),  
Passenger_ID int,  
CONSTRAINT FK_Passenger_ID FOREIGN KEY (Passenger_ID)  
REFERENCES Passenger(Passenger_ID));
```

Inserting data in the Table

```
INSERT INTO Route VALUES(1, 'Delhi', 2, 'Patiala', 3);
INSERT INTO Route VALUES(2, 'Mumbai', 1, 'Kolkata', 6);
INSERT INTO Route VALUES(3, 'Chennai', 4, 'Ahemdabad', 4);
INSERT INTO Route VALUES(4, 'Shimla', 7, 'Bhopal', 5);
INSERT INTO Route VALUES(5, 'Goa', 3, 'Bengluru', 8);
Select * from Route;
```


```
INSERT INTO Train VALUES(123,'PTL Express','10-Jun-2022 07:20:00am','9-Jun-2022
10:30:00pm',1000,843,1);
INSERT INTO Train VALUES(666,'BLR Shatabdi','19-May-2022 08:05:00pm','18-Jan2022
12:35:00am',500,321,5);
INSERT INTO Train VALUES(341,'Bengal EXP','22-May-2022 11:30:00am','21-May-2022
02:30:30pm',500,254,2);
INSERT INTO Train VALUES(101,'MP EXP','26-May-2022 11:30:00pm','26-May-2022
02:30:30pm',1000,754,4);
INSERT INTO Train VALUES(255,'GUJ Express','31-May-2022 09:30:00am','30-May-2022
12:30:30pm',500,254,3);
Select * from Train;
```

```
INSERT INTO Passenger VALUES(124, 'Ishan', 'Jain', 'ijain@gmail.com', 9899898812, 'Model
Town, Ludhiana', 123);
INSERT INTO Passenger VALUES(73, 'Raj', 'Gupta', 'rgupta@gmail.com', 9873654812, 'Mall
road, Shimla', 101);
INSERT INTO Passenger VALUES(492, 'Rohit', 'Thapar', 'rthapar@gmail.com', 8899898833,
'Ashok Vihar, Delhi', 123);
INSERT INTO Passenger VALUES(44, 'Riya', 'Rampal', 'rrampal@gmail.com', 7645898812,
'Beach road, Goa', 666);
INSERT INTO Passenger VALUES(317, 'Ishani', 'Sharma', 'isharma@gmail.com', 6439894313,
'Chennai', 255);
Select * from Passenger;
```



```
INSERT INTO Ticket VALUES(2819542664,'26-May-2022 02:30:30pm','26-May-2022',1500,
73);
INSERT INTO Ticket VALUES(1817642634,'9-Jun-2022 10:30:00pm','09-Jun-2022',500, 1);
INSERT INTO Ticket VALUES(2961542333,'9-Jun-2022 10:30:00pm','09-Jun-2022',1250,
492);
INSERT INTO Ticket VALUES(1613742677,'30-May-2022 12:30:30pm','30-May-2022',400,
317);
INSERT INTO Ticket VALUES(1939542312,'18-Jan-2022 12:35:00am','18-Jan-2022',15000,
44);
```


SQL Output Screenshots

 Live SQL

SQL Worksheet

```
1 create table Route(Route_ID int primary key,
2 Source_city varchar(20),
3 Source_platform int,
4 Destination_city varchar(20),
5 Destination_platform int);
6
7 create table Train(Train_No int primary key,
8 Train_name varchar(20),
9 Arrival_time timestamp,
10 Departure_time timestamp,
11 Total_seats int,
12 Available_seats int,
13 Route_ID int,
14 CONSTRAINT FK_Route_ID FOREIGN KEY (Route_ID)
15 REFERENCES Route(Route_ID));
16
17 create table Passenger(Passenger_ID int primary key,
18 Firstname varchar(20),
19 Lastname varchar(20));
```


Table created.

© 2022 Oracle - Live SQL 22.1.3, running Oracle Database 19c Enterprise Edition - 19.8.0.0.0 - Database Documentation - Ask Tom - Dev Gym
Built with  using Oracle APEX - Privacy - Terms of Use

SQL Worksheet

```
15 REFERENCES Route(Route_ID));
16
17 create table Passenger(Passenger_ID int primary key,
18 Firstname varchar(20),
19 Lastname varchar(20),
20 Email timestamp,
21 Mobile number(10),
22 Address varchar(50),
23 Train_No int,
24 CONSTRAINT FK_Train_No FOREIGN KEY (Train_No)
25 REFERENCES Train(Train_No));
26
27 create table Ticket(Ticket_ID int primary key,
28 Train_time timestamp,
29 Train_date date,
30 Price number(10),
31 Passenger_ID int,
32 CONSTRAINT FK_Passenger_ID FOREIGN KEY (Passenger_ID)
33 REFERENCES Passenger(Passenger_ID));
```

Table created.

© 2022 Oracle - Live SQL 22.1.3, running Oracle Database 19c Enterprise Edition - 19.8.0.0.0 - Database Documentation - Ask Tom - Dev Gym
Built with  using Oracle APEX - Privacy - Terms of Use

```

34
35 INSERT INTO Route VALUES(1, 'Delhi', 2, 'Patiala', 3);
36 INSERT INTO Route VALUES(2, 'Mumbai', 1, 'Kolkata', 6);
37 INSERT INTO Route VALUES(3, 'Chennai', 4, 'Ahemdabad', 4);
38 INSERT INTO Route VALUES(4, 'Shimla', 7, 'Bhopal', 5);
39 INSERT INTO Route VALUES(5, 'Goa', 3, 'Bengluru', 8);
40 Select * from Route;|

```

ROUTE_ID	SOURCE_CITY	SOURCE_PLATFORM	DESTINATION_CITY	DESTINATION_PLATFORM
1	Delhi	2	Patiala	3
2	Mumbai	1	Kolkata	6
3	Chennai	4	Ahemdabad	4
4	Shimla	7	Bhopal	5
5	Goa	3	Bengluru	8

[Download CSV](#)

5 rows selected.

```

41
42 INSERT INTO Train VALUES(123,'PTL Express','10-Jun-2022 07:20:00am','9-Jun-2022 10:30:00pm',1000,843,1);
43 INSERT INTO Train VALUES(666,'BLR Shatabdi','19-May-2022 08:05:00pm','18-Jan2022 12:35:00am',500,321,5);
44 INSERT INTO Train VALUES(341,'Bengal EXP','22-May-2022 11:30:00am','21-May-2022 02:30:30pm',500,254,2);
45 INSERT INTO Train VALUES(101,'MP EXP','26-May-2022 11:30:00pm','26-May-2022 02:30:30pm',1000,754,4);
46 INSERT INTO Train VALUES(255,'GUJ Express','31-May-2022 09:30:00am','30-May-2022 12:30:30pm',500,254,3);
47 Select * from Train;|

```

TRAIN_NO	TRAIN_NAME	ARRIVAL_TIME	DEPARTURE_TIME	TOTAL_SEATS	AVAILABLE_SEATS	ROUTE_ID
123	PTL Express	10-JUN-22 07.20.00.000000 AM	09-JUN-22 10.30.00.000000 PM	1000	843	1
666	BLR Shatabdi	19-MAY-22 08.05.00.000000 PM	18-JAN-22 12.35.00.000000 AM	500	321	5
341	Bengal EXP	22-MAY-22 11.30.00.000000 AM	21-MAY-22 02.30.30.000000 PM	500	254	2
101	MP EXP	26-MAY-22 11.30.00.000000 PM	26-MAY-22 02.30.30.000000 PM	1000	754	4
255	GUJ Express	31-MAY-22 09.30.00.000000 AM	30-MAY-22 12.30.30.000000 PM	500	254	3

[Download CSV](#)

5 rows selected.

```

50
51 INSERT INTO Passenger VALUES(124, 'Ishan', 'Jain', 'ijain@gmail.com', 9899898812, 'Model Town, Ludhiana', 123);
52 INSERT INTO Passenger VALUES(73, 'Raj', 'Gupta', 'rgupta@gmail.com', 9873654812, 'Mall road, Shimla', 101);
53 INSERT INTO Passenger VALUES(492, 'Rohit', 'Thapar', 'rthapar@gmail.com', 8899898833, 'Ashok Vihar, Delhi', 123);
54 INSERT INTO Passenger VALUES(44, 'Riya', 'Rampal', 'rrampal@gmail.com', 7645898812, 'Beach road, Goa', 666);
55 INSERT INTO Passenger VALUES(317, 'Ishani', 'Sharma', 'isharma@gmail.com', 6439894313, 'Chennai', 255);
56 Select * from Passenger;

```

PASSENGER_ID	FIRSTNAME	LASTNAME	EMAIL	MOBILE	ADDRESS	TRAIN_NO
1	Ishan	Jain	ijain@gmail.com	9899898812	Model Town, Ludhiana	123
73	Raj	Gupta	rgupta@gmail.com	9873654812	Mall road, Shimla	101
492	Rohit	Thapar	rthapar@gmail.com	8899898833	Ashok Vihar, Delhi	123
44	Riya	Rampal	rrampal@gmail.com	7645898812	Beach road, Goa	666
317	Ishani	Sharma	isharma@gmail.com	6439894313	Chennai	255

Download CSV
5 rows selected.

```

57
58 INSERT INTO Ticket VALUES(2819542664, '26-May-2022 02:30:30pm', '26-May-2022', 1500, 73);
59 INSERT INTO Ticket VALUES(1817642634, '9-Jun-2022 10:30:00pm', '09-Jun-2022', 500, 1);
60 INSERT INTO Ticket VALUES(2961542333, '9-Jun-2022 10:30:00pm', '09-Jun-2022', 1250, 492);
61 INSERT INTO Ticket VALUES(1613742677, '30-May-2022 12:30:30pm', '30-May-2022', 400, 317);
62 INSERT INTO Ticket VALUES(1939542312, '18-Jan-2022 12:35:00am', '18-Jan-2022', 15000, 44);
63 Select * from Ticket;

```

TICKET_ID	TRAIN_TIME	TRAIN_DATE	PRICE	PASSENGER_ID
2961542333	09-JUN-22 10.30.00.000000 PM	09-JUN-22	1250	492
1613742677	30-MAY-22 12.30.30.000000 PM	30-MAY-22	400	317
1939542312	18-JAN-22 12.35.00.000000 AM	18-JAN-22	15000	44
1817642634	09-JUN-22 10.30.00.000000 PM	09-JUN-22	500	1
2819542664	26-MAY-22 02.30.30.000000 PM	26-MAY-22	1500	73

Download CSV
5 rows selected.

PL/SQL Codes and Screenshots

1. To display details of all passengers

```
Declare
P_Firstname Passenger.Firstname%type;
P_Lastname Passenger.Lastname%type;
Mobile Passenger.Mobile%type;
Address Passenger.Address%type;
Cursor c IS select Firstname,Lastname,Mobile,Address from Passenger;
Begin
open c;
loop
fetch c into P_Firstname,P_Lastname,Mobile,Address;
exit when c%NOTFOUND;
dbms_output.put_line(P_Firstname||' '||P_Lastname||' '||Mobile||' '||Address);
end loop;
close c;
end;
```

```
64
65 declare
66 P_Firstname Passenger.Firstname%type;
67 P_Lastname Passenger.Lastname%type;
68 Mobile Passenger.Mobile%type;
69 Address Passenger.Address%type;
70 Cursor c IS select Firstname,Lastname,Mobile,Address from Passenger;
71 begin
72 open c;
73 loop
74 fetch c into P_Firstname,P_Lastname,Mobile,Address;
75 exit when c%NOTFOUND;
76 dbms_output.put_line(P_Firstname||' '||P_Lastname||' '||Mobile||' '||Address);
77 end loop;
78 close c;
79 end;|
```

```
Statement processed.
Ishan Jain 9899898812 Model Town, Ludhiana
Raj Gupta 9873654812 Mall road, Shimla
Rohit Thapar 8899898833 Ashok Vihar, Delhi
Riya Rampal 7645898812 Beach road, Goa
Ishani Sharma 6439894313 Chennai
```

2. To display the details of passenger whose has taken highest fair ticket

```
declare
P_Firstname Passenger.Firstname%type;
P_Lastname Passenger.Lastname%type;
Mobile Passenger.Mobile%type;
Address Passenger.Address%type;
CustomerId Passenger.Passenger_ID%type;
Cursor c IS select P.Firstname,P.Lastname,P.Mobile,P.Address,T.Passenger_ID from
Passenger P,Ticket T where
Price=(select max(Price) from Ticket) and T.Passenger_ID=P.Passenger_ID;
begin
open c;
loop
fetch c into
P_Firstname,P_Lastname,Mobile,Address,CustomerId;
exit when c%NOTFOUND;
dbms_output.put_line(P_Firstname||' '||P_Lastname||' '||Mobile||' '||Address||'
'CustomerId||' ');
end loop;
close c;
end;
```

```
81 declare
82 P_Firstname Passenger.Firstname%type;
83 P_Lastname Passenger.Lastname%type;
84 Mobile Passenger.Mobile%type;
85 Address Passenger.Address%type;
86 CustomerId Passenger.Passenger_ID%type;
87 Cursor c IS select P.Firstname,P.Lastname,P.Mobile,P.Address,T.Passenger_ID from Passenger P,Ticket T where
88 Price=(select max(Price) from Ticket) and T.Passenger_ID=P.Passenger_ID;
89 begin
90 open c;
91 loop
92 fetch c into
93 P_Firstname,P_Lastname,Mobile,Address,CustomerId;
94 exit when c%NOTFOUND;
95 dbms_output.put_line(P_Firstname||' '||P_Lastname||' '||Mobile||' '||Address||' '||CustomerId||' ');
96 end loop;
97 close c;
98 end;
```

Statement processed.
Riya Rampal 7645898812 Beach road, Goa 44

3. To display the details of passenger whose train is in evening declare

```
declare
P_Firstname Passenger.Firstname%type;
P_Lastname Passenger.Lastname%type;
Mobile Passenger.Mobile%type;
Address Passenger.Address%type;
Train_No Passenger.Train_No%type;
Cursor c IS select P.Firstname,P.Lastname,P.Mobile,P.Address,T.Train_No from
Passenger P,Train T where
to_char(T.Arrival_time,'pm')='pm' and T.Train_No=P.Train_No;
begin
open c;
loop
fetch c into
P_Firstname,P_Lastname,Mobile,Address,Train_No;
exit when c%NOTFOUND;
dbms_output.put_line(P_Firstname||' '||P_Lastname||' '||Mobile||' '||Address||' '||Train_No||'
');
end loop;
close c;
end;
```

```
100 declare
101 P_Firstname Passenger.Firstname%type;
102 P_Lastname Passenger.Lastname%type;
103 Mobile Passenger.Mobile%type;
104 Address Passenger.Address%type;
105 Train_No Passenger.Train_No%type;
106 Cursor c IS select P.Firstname,P.Lastname,P.Mobile,P.Address,T.Train_No from Passenger P,Train T where
107 to_char(T.Arrival_time,'pm')='pm' and T.Train_No=P.Train_No;
108 begin
109 open c;
110 loop
111 fetch c into
112 P_Firstname,P_Lastname,Mobile,Address,Train_No;
113 exit when c%NOTFOUND;
114 dbms_output.put_line(P_Firstname||' '||P_Lastname||' '||Mobile||' '||Address||' '||Train_No||' ');
115 end loop;
116 close c;
117 end;
```

Statement processed.
Raj Gupta 9873654812 Mall road, Shimla 101
Riya Rampal 7645898812 Beach road, Goa 666

4. Exception handling

```
declare
P_Email Passenger.Email%type;
P_Passenger_ID Passenger.Passenger_ID%type;
e_invalid_ID EXCEPTION;
begin
update Passenger
set Email = 'random@gmail.com'
where P_Passenger_ID = 2;
if SQL%NOTFOUND then
raise e_invalid_ID;
End if;
commit;
EXCEPTION
When no_data_found then
dbms_output.put_line('No such record');
When too_many_rown then
dbms_output.put_line('More than one record found');
When e_invalid_ID then
dbms_output.put_line('No such passenger exists');
When others then
dbms_output.put_line('Some error found');
end;
```

```
118
119 declare
120 P_Email Passenger.Email%type;
121 P_Passenger_ID Passenger.Passenger_ID%type;
122 e_invalid_ID EXCEPTION;
123 begin
124 update Passenger
125 set Email = 'random@gmail.com'
126 where P_Passenger_ID = 2;
127 if SQL%NOTFOUND then
128 raise e_invalid_ID;
129 End if;
130 commit;
131 EXCEPTION
132 When e_invalid_ID then
133 dbms_output.put_line('No such passenger exists');
134 end;
```

```
Statement processed.
No such passenger exists
```


5. Procedure to add route

```
create or replace procedure add_route
(R_ID in Route.Route_ID%type,
S_city in Route.Source_city%type,
S_platform in Route.Source_platform%type,
D_city in Route.Destination_city%type,
D_platform in Route.Destination_platform%type)
is
begin
insert into Route values (R_ID, S_city, S_platform, D_city, D_platform);
dbms_output.put_line('Route added.');
```

end;

```
execute add_route(6,'Patiala',4,'Hydrabad',8);
select * from route;
```

```
142 create or replace procedure add_route
143 (R_ID in Route.Route_ID%type,
144 S_city in Route.Source_city%type,
145 S_platform in Route.Source_platform%type,
146 D_city in Route.Destination_city%type,
147 D_platform in Route.Destination_platform%type)
148 is
149 begin
150 insert into Route values (R_ID, S_city, S_platform, D_city, D_platform);
151 dbms_output.put_line('Route added.');
```

152 end;

Procedure created.

```
153 execute add_route(6,'Patiala',4,'Hydrabad',8);
```

Statement processed.
Route added.

```

142 create or replace procedure add_route
143 (R_ID in Route.Route_ID%type,
144 S_city in Route.Source_city%type,
145 S_platform in Route.Source_platform%type,
146 D_city in Route.Destination_city%type,
147 D_platform in Route.Destination_platform%type)
148 is
149 begin
150 insert into Route values (R_ID, S_city, S_platform, D_city, D_platform);
151 dbms_output.put_line('Route added. ');
152 end;
153 execute add_route(6,'Patiala',4,'Hydrabad',8);
154 select * from route;|

```

ROUTE_ID	SOURCE_CITY	SOURCE_PLATFORM	DESTINATION_CITY	DESTINATION_PLATFORM
6	Patiala	4	Hydrabad	8
1	Delhi	2	Patiala	3
2	Mumbai	1	Kolkata	6
3	Chennai	4	Ahemdabad	4
4	Shimla	7	Bhopal	5
5	Goa	3	Bengluru	8

[Download CSV](#)

6 rows selected.