Data base project Phase 2

16843 CCCS 215 – CD1

Team members:

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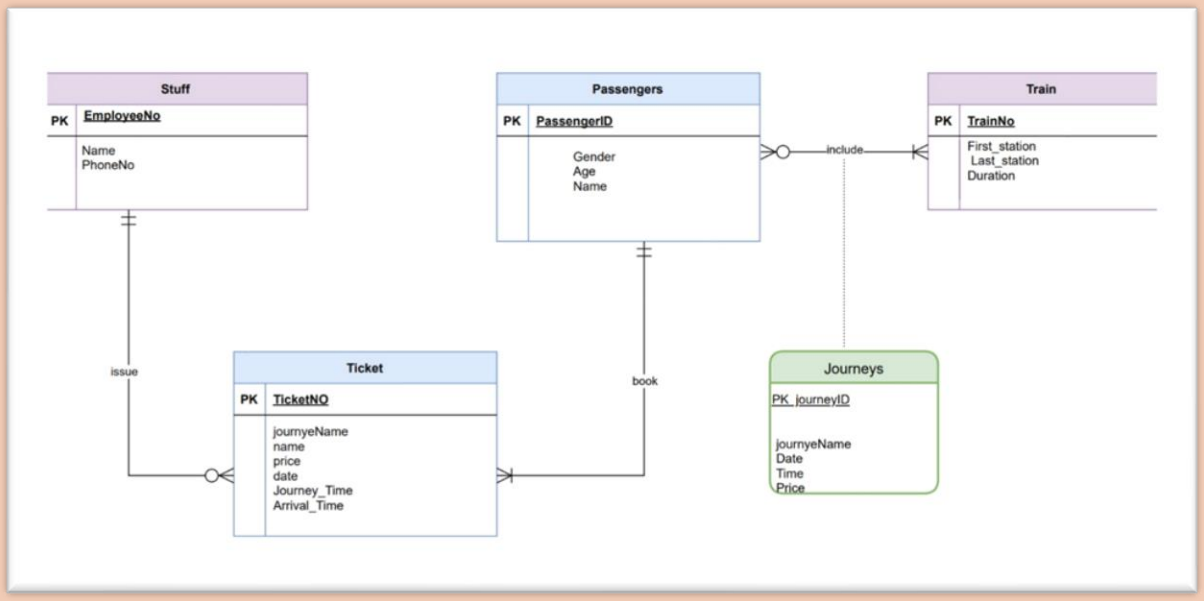

- ## Goal of database

1- Help not to cause traffic

2- Easy to make reservations

3- Organizing tasks and dividing them among staff

4- - Easy to use and convenient system

- ## Description of problem:

Confusion in reservations, staff non-compliance with the tasks assigned to them may cause many problems, including: confusion in journeys. schedules, overcrowd, and customer dissatisfaction with service. So we decided to create a database program from five tables which are

(Train, Passengers, Ticket, Staff, journeys). The idea is to help facilitate bookings for customers, schedule trips, and assign specific work to staff

Entity Name	description	PK
Staff	Employee id	EmployeeNo
Passengers	Passengers id	PassengersID
Train	Train number	TrainNo
Ticket	Ticket number	TicketNo
Journeys	Journery id	Journeys id

TABLE 1: Staff

Attribute	Size	type	constraint	description
EmployeeNo	3	number	Primary key	Employee number
Name	25	varchar	Not null	Name
phoneNo	10	number	Not null	Phone number

TABLE 2: Passengers

Attribute	size	type	constraint	description
PassengerID	4	number	Primary key	Passenger id
Gender	20	varchar	Not null	Gender
Age	2	number	Not null	Age
Name	25	varchar	Not null	Name

TABLE 3 : Train

Attribute	size	type	constraint	description
TrainNo	10	varchar	Primary key	Train number
First_Station	20	varchar	Not null	First station place
Last_Station	20	varchar	Not null	Last station place
Duration	20	varchar	Not null	duration

TABLE 4: Ticket

Attribute	size	type	constraint	description
TicketNO	4	number	Primary key	Ticket number
passengersID	4	number	Foreign key	Passengers ID
EmployeeNo	3	number	Foreign key	Employee number
journeyName	20	varchar	Not null	Journey name
Name	25	varchar	Not null	Name
Price	3	number	Not null	Price
Date	-	date	Not null	Date
Journey_Time	20	varchar	Not null	Journey time
Arrival_Time	20	varchar	Not null	Arrival time

TABLE 5: Journeys

Attribute	size	type	constraint	description
journeyID	4	number	Primary key	Journey ID
passengersID	4	number	Foreign key	Passengers ID
TrainNo	10	varchar	Foreign key	Train number
journeyName	20	varchar	Not null	Journey name
Date	-	date	Not null	Date
duration	10	varchar	Not null	Time
Price	3	number	Not null	price

- **Brief explanation of each relationship**

- The staff who can issue tickets for one or several passengers.
- One ticket is given to one passenger only, but the passenger must book ticket or several tickets
- The train may include one or several passengers or not include.
- The passenger must belong to one or more trains, depending on the journey

Data base project Phase 3

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Relations:

Staff

EmployeeNO	Name	phoneNo

Ticket

TicketNO	journyeName	name	price	date	Journey_Time	Arrival_Time	TrainNo	passengersID	EmployeeNO

passengers

passengersID	Name	Gender	Age	Guests

Journey

JounrnyID	journyeName	passengersID	TrainNo	Time	Date	Price

Train

TrainNo	First_station_NO	Last_station_NO	Duration

Normalization:

Staff table :

EmployeeNO	Name	PhoneNO
501	Ahmad	0569241535
502	Khaled	0587348743
503	Naif	0583975746
504	Ali	0532737777

Functional Dependencies :

EmployeeNO → Name , PhoneNO

The relation Staff is already in 1nf because The schemahave a unique PK assigned and do not have any multi- value attribute or repeated groups .
And it in 2nf because The schema in 1NF and and All nonprime attribute functionally dependent on PK
And it in 3nf because The schema in 1NF and 2NF and All non prime attributes are fully functionally dependent
.only on the PK .

Ticket table :

TicketNO	journyeName	Name	Price	Date	Journey_Time	Arrival_Time	FK: passengersID	FK: employeeNo
1001	Jeddah - Makkah	ENSA	230	nov 25	7 am	8 am	5430	501
1002	Riyadh - jeddah	YARA	250	25 nov	10 am	11 am	5431	502
1003	Riyadh - jeddah	AMJAD	250	25 nov	10 am	11 am	5432	503
1004	Jeddah - Riyadh	HANEEN	275	28 nov	9 am	10 am	5433	504

Functional Dependencies:

TicketNo → journeyName, Date, Journey time, Arrival time , price

The relation Ticket is already in 1nf because The schema have a unique PK assigned and do not have any multi value attribute or repeated groups .

And it in 2nf because The schema in 1NF and and All non prime attribute functionally dependent on PK

And it in 3nf because The schema in 1NF and 2NF and All non prime attributes are fully functionally dependent .only on the PK .

Passengers table:

passengersID	Name	Gender	Age
5430	Enas	female	21
5431	Yara	female	23
5432	Amjad	female	25
5433	Haneen	female	22

Functional Dependencies:

passengersID $\longrightarrow$ Name, Gender, Age

The relation **Passengers** is already in 1nf because The schema have a unique PK assigned and do not have anymulti-value attribute or repeated groups .

And it in 2nf because The schema in 1NF and and All nonprime attribute functionally dependent on PK

And it in 3nf because The schema in 1NF and 2NF and All non prime attributes are fully functionally dependent
.only on the PK .

journye table :

JounrnyID	passengersID	TrainNo	journyeName	duration	Date	Price
6008	5430	T15	Jeddah- Makkah	1 hour	25 nov	230
6009	5431	T16	Riyadh - jeddah	1 hour	25 nov	250
6010	5432	T17	Riyadh - jeddah	1 hour	25 nov	250
6011	5433	T18	Jeddah - Riyadh	1 hour	25 nov	275
6012	5434	T19	Jeddah- Makkah	1 hour	25 nov	250

Functional Dependencies :

journey ID ⟶ journyeName, duration, Date ,Price

A relational Journeye in this table already in 1NF ,2NF and 3NF andall attributes dependent on journyeID

The relation **journye** is already in 1nf because The schemahave a unique PK assigned and do not have any multi- value attribute or repeated groups .

And it in 2nf because The schema in 1NF and and All nonprime attribute functionally dependent on PK

And it in 3nf because The schema in 1NF and 2NF and All non prime attributes are fully functionally dependent
.only on the PK .

Train table :

TrainNo	First_station_NO	Last_station_NO	Duration
T15	Jeddah	makkah	1 hour
T16	Riyadh	Jeddah	1 hour
T17	Riyadh	Jeddah	1 hour
T18	Jeddah	Riyadh	1 hour

Functional Dependencies :

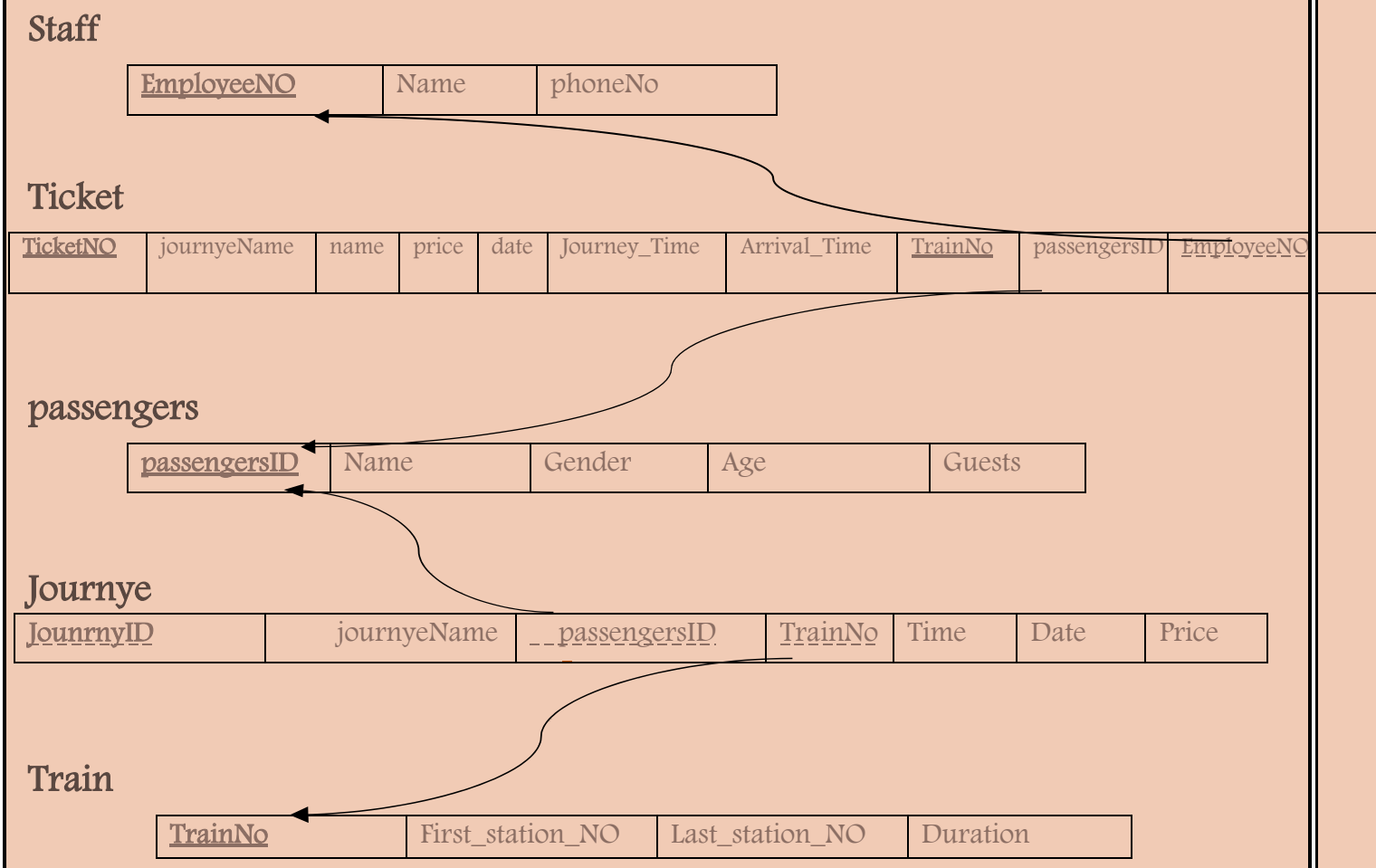
TrainNo ⟶ First_station_NO , Last_station_NO , Duration

The relation **Train** is already in 1nf because The schemahave a unique PK assigned and do not have any multi- value attribute or repeated groups .

And it in 2nf because The schema in 1NF and and All nonprime attribute functionally dependent on PK

And it in 3nf because The schema in 1NF and 2NF and All non prime attributes are fully functionally dependent
.only on the PK .

The final result schema have 5 relations:



Ticket

PK (TicketNO)

FK (passengersID) refers to (passengersID) passengers relation

FK (EmployeeNO) refers to (EmployeeNo) staff relation

passengers

PK (passengerID)

Journyes

PK(JournyeID)

FK (passengersID) refers to (passengersID) passengers relation

FK (TrainNo) refers to (passengersID) Train relation

Staff

PK(EmployeeNO)

Train

PK(TrainNO)

submission date: 5 December 2021

Database: Manage reservations for trips through trains

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Final Report

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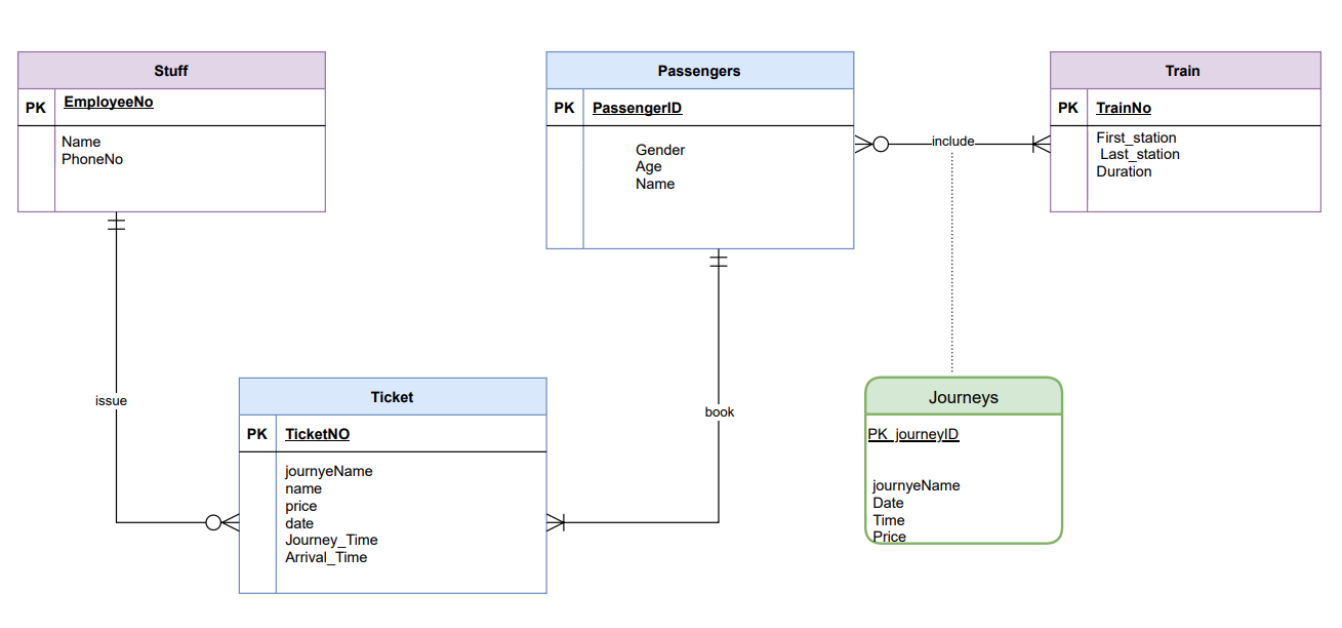
project schedule:

Haneen: 2 queries - create and insert tables

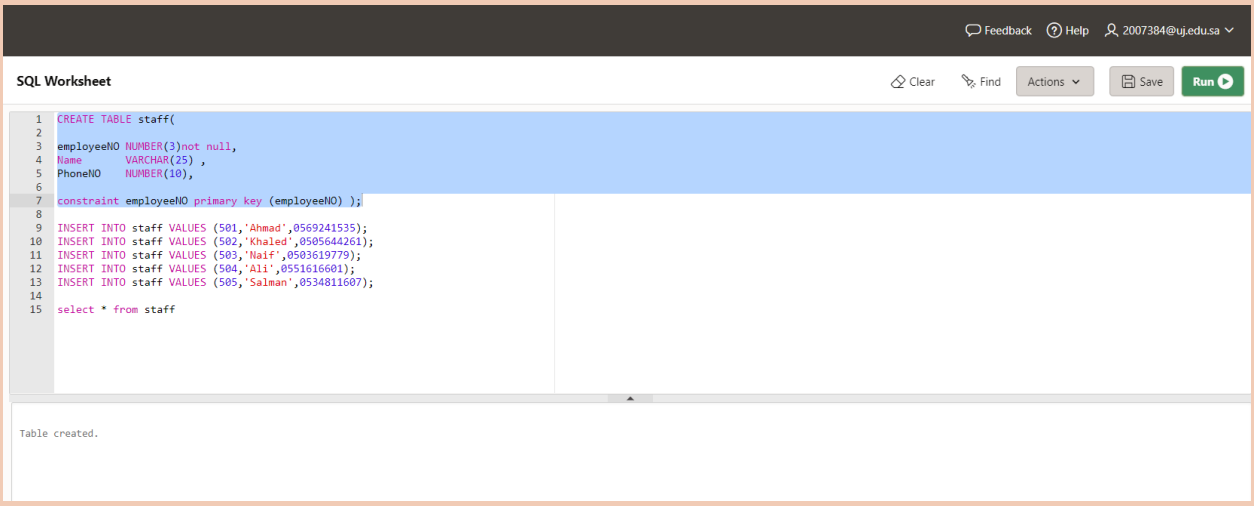
Amjaad: procedure1 - report

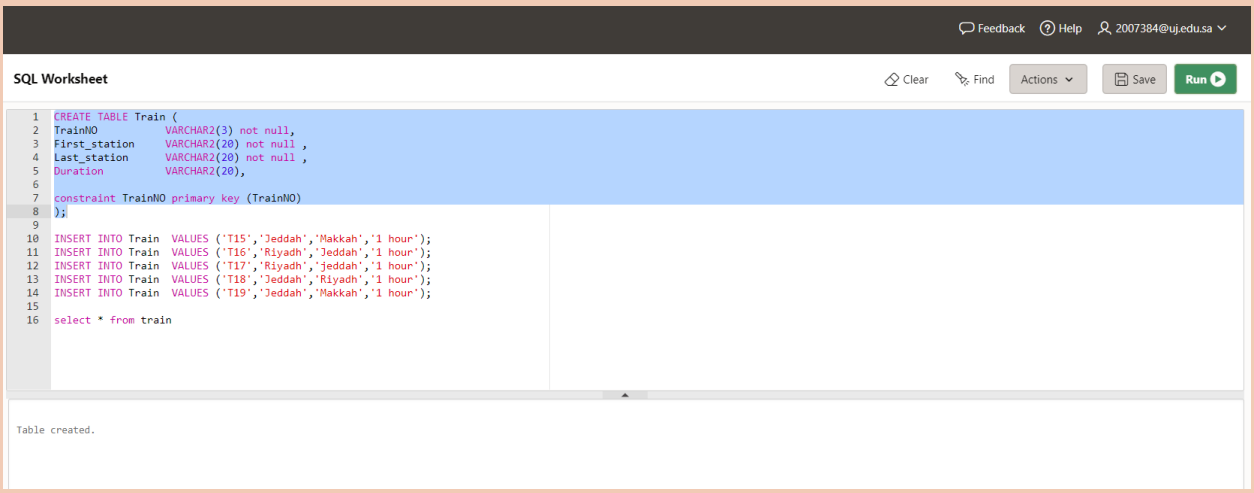
Yara: procedure 2

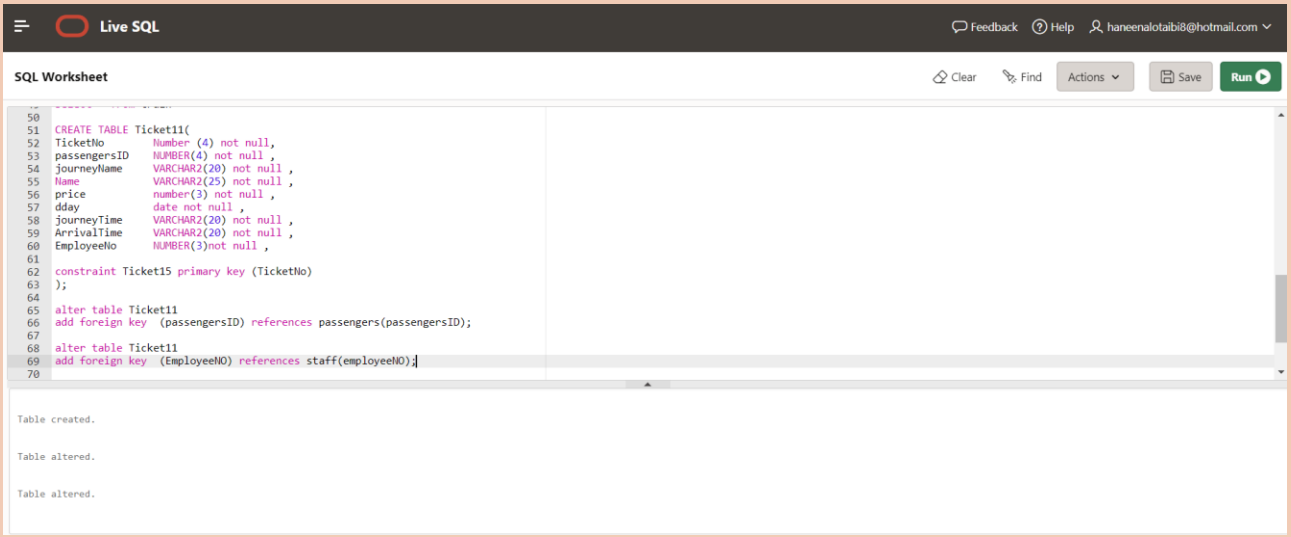
Enas: 2 queries - create tables

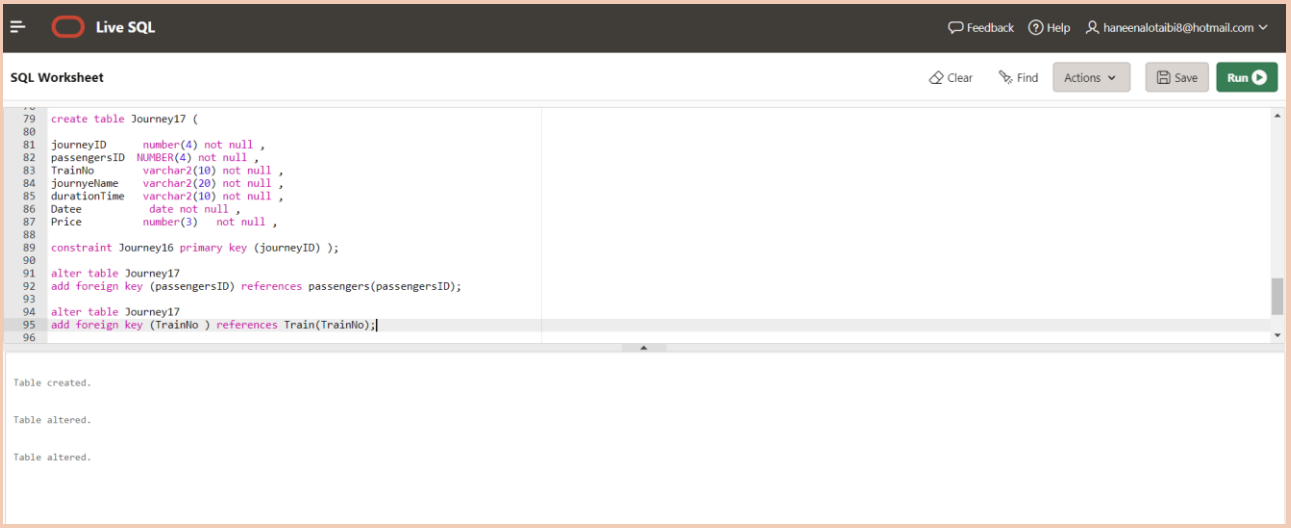


Part 1 (Tables creation):






Live SQL
Feedback
Help
haneenalotaibi8@hotmail.com
SQL Worksheet
Clear
Find
Actions
Save
Run
CREATE TABLE Ticket11(
TicketNo Number (4) not null,
passengersID NUMBER(4) not null ,
journeyName VARCHAR2(20) not null ,
Name VARCHAR2(25) not null ,
price number(3) not null ,
dday date not null ,
journeyTime VARCHAR2(20) not null ,
ArrivalTime VARCHAR2(20) not null ,
EmployeeNo NUMBER(3)not null ,
constraint Ticket15 primary key (TicketNo)
);
alter table Ticket11
add foreign key (passengersID) references passengers(passengersID);
alter table Ticket11
add foreign key (EmployeeNO) references staff(employeeNO);
Table created.
Table altered.
Table altered.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SQL Worksheet
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Find
Actions
Save
Run
create table Journey17 (
journeyID number(4) not null ,
passengersID NUMBER(4) not null ,
TrainNo varchar2(10) not null ,
journyeName varchar2(20) not null ,
durationTime varchar2(10) not null ,
Datee date not null ,
Price number(3) not null ,
constraint Journey16 primary key (journeyID));
alter table Journey17
add foreign key (passengersID) references passengers(passengersID);
alter table Journey17
add foreign key (TrainNo) references Train(TrainNo);
Table created.
Table altered.
Table altered.

Part 2 (inserting values):

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SQL Worksheet — Clear | Find | Actions | Save | Run

```
1  CREATE TABLE staff(
2
3  employeeNO NUMBER(3)not null,
4  Name       VARCHAR(25) ,
5  PhoneNO    NUMBER(10),
6
7  constraint employeeNO primary key (employeeNO) );
8
9  INSERT INTO staff VALUES (501,'Ahmad',0569241535);
10 INSERT INTO staff VALUES (502,'Khaled',0505644261);
11 INSERT INTO staff VALUES (503,'Naif',0503619779);
12 INSERT INTO staff VALUES (504,'Ali',0551616601);
13 INSERT INTO staff VALUES (505,'Salman',0534811607);
14
```

```
Table created.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```

Live SQL — Feedback | Help | haneenalotaibi8@hotmail.com

SQL Worksheet — Clear | Find | Actions | Save | Run

```
17 CREATE TABLE passengers (
18 passengersID NUMBER(4) not null ,
19 Name         VARCHAR(25) not null ,
20 Gender       VARCHAR(20),
21 age          NUMBER(2) ,
22
23 constraint passengersID primary key (passengersID)
24 );
25
26 INSERT INTO passengers  VALUES (5430,'Enas','female',21);
27 INSERT INTO passengers VALUES (5431,'Yara','female',23);
28 INSERT INTO passengers VALUES (5432,'Amjad','female',25);
29 INSERT INTO passengers  VALUES (5433,'Haneen','female',24);
30 INSERT INTO passengers  VALUES (5434,'Amal','female',22);
31
```

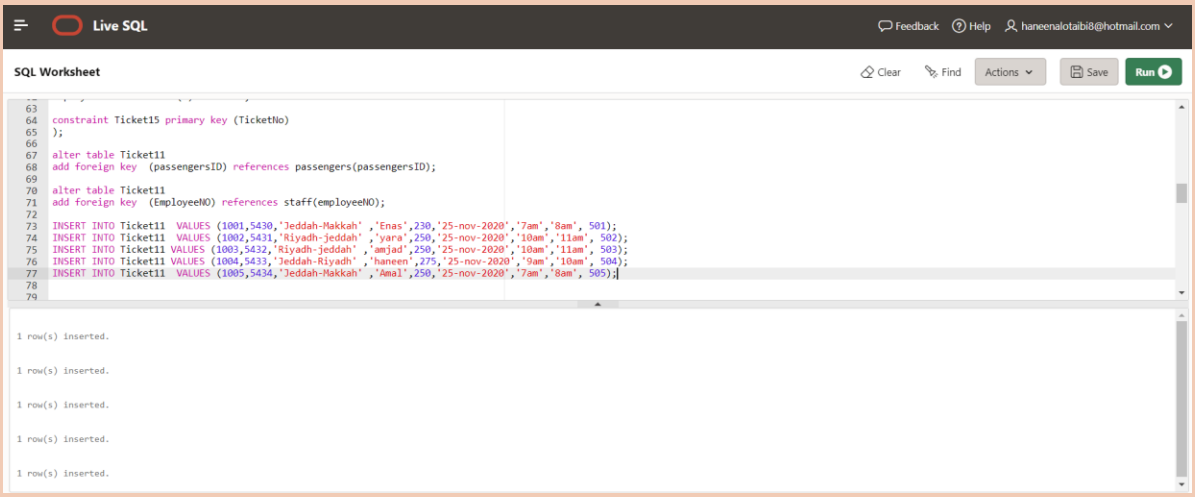
```
Table created.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```

Live SQL — Feedback | Help | haneenalotaibi8@hotmail.com

SQL Worksheet — Clear | Find | Actions | Save | Run

```
35 CREATE TABLE Train (
36 TrainNO          VARCHAR2(3) not null,
37 First_station    VARCHAR2(20) not null ,
38 Last_station     VARCHAR2(20) not null ,
39 Duration         VARCHAR2(20),
40
41 constraint TrainNO primary key (TrainNO)
42 );
43
44 INSERT INTO Train  VALUES ('T15','Jeddah','Makkah','1 hour');
45 INSERT INTO Train  VALUES ('T16','Riyadh','Jeddah','1 hour');
46 INSERT INTO Train  VALUES ('T17','Riyadh','jeddah','1 hour');
47 INSERT INTO Train  VALUES ('T18','Jeddah','Riyadh','1 hour');
48 INSERT INTO Train  VALUES ('T19','Jeddah','Makkah','1 hour');
49
```

```
Table created.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```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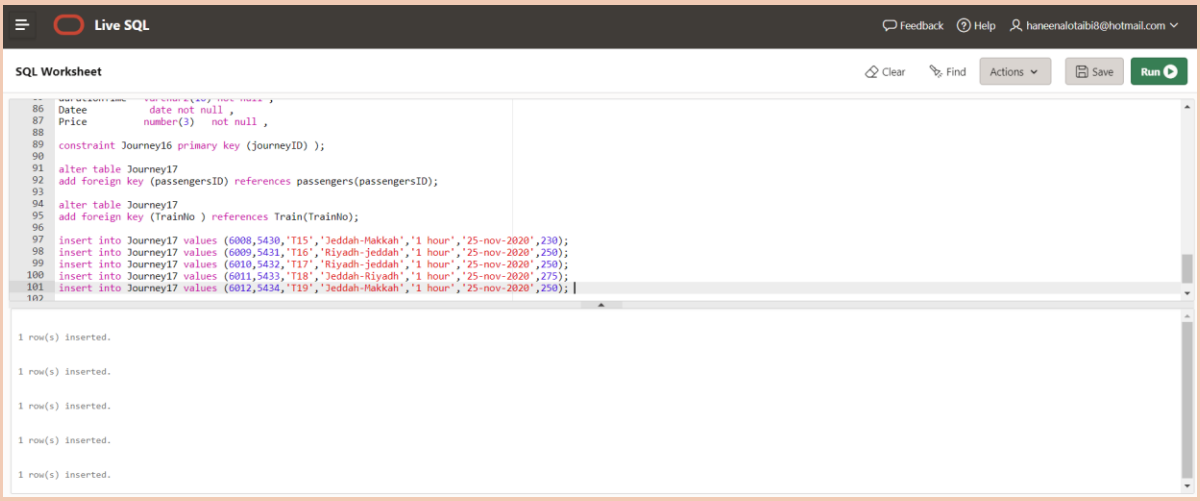
SQL Worksheet
Clear
Find
Actions
Save
Run
constraint Ticket15 primary key (TicketNo)
);
alter table Ticket11
add foreign key (passengersID) references passengers(passengersID);
alter table Ticket11
add foreign key (EmployeeNO) references staff(employeeNO);
INSERT INTO Ticket11 VALUES (1001,5430,'Jeddah-Makkah' ,'Enas',230,'25-nov-2020','7am','8am', 501);
INSERT INTO Ticket11 VALUES (1002,5431,'Riyadh-jeddah' ,'yara',250,'25-nov-2020','10am','11am', 502);
INSERT INTO Ticket11 VALUES (1003,5432,'Riyadh-jeddah' ,'amjad',250,'25-nov-2020','10am','11am', 503);
INSERT INTO Ticket11 VALUES (1004,5433,'Jeddah-Riyadh' ,'haneen',275,'25-nov-2020', '9am','10am', 504);
INSERT INTO Ticket11 VALUES (1005,5434,'Jeddah-Makkah' ,'Amal',250,'25-nov-2020','7am','8am', 505);
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.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SQL Worksheet
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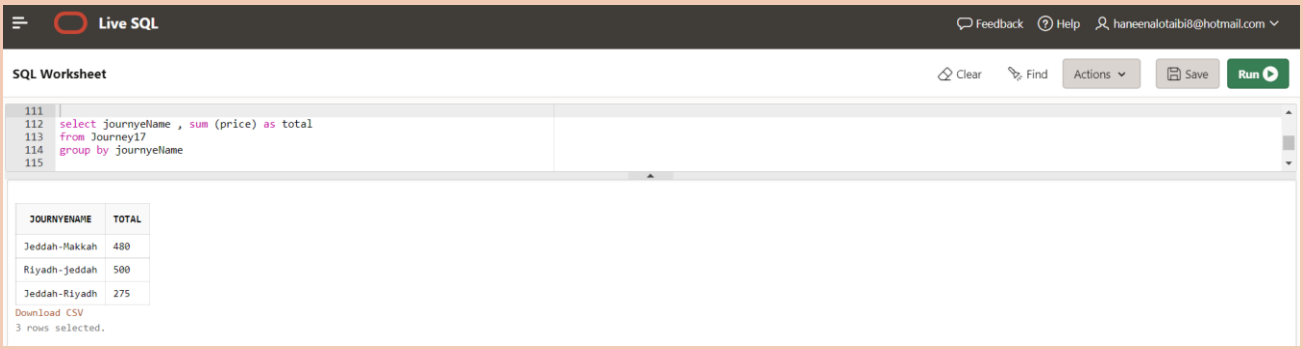
Actions
Save
Run
Datee date not null ,
Price number(3) not null ,
constraint Journey16 primary key (journeyID));
alter table Journey17
add foreign key (passengersID) references passengers(passengersID);
alter table Journey17
add foreign key (TrainNo) references Train(TrainNo);
insert into Journey17 values (6008,5430,'T15','Jeddah-Makkah','1 hour','25-nov-2020',230);
insert into Journey17 values (6009,5431,'T16','Riyadh-jeddah','1 hour','25-nov-2020',250);
insert into Journey17 values (6010,5432,'T17','Riyadh-jeddah','1 hour','25-nov-2020',250);
insert into Journey17 values (6011,5433,'T18','Jeddah-Riyadh','1 hour','25-nov-2020',275);
insert into Journey17 values (6012,5434,'T19','Jeddah-Makkah','1 hour','25-nov-2020',250);
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.

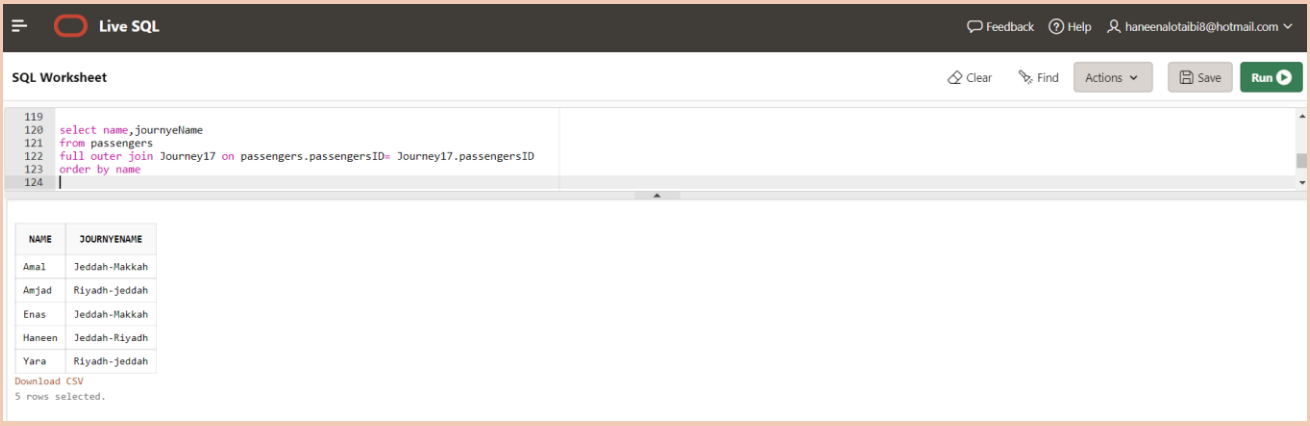
Part3 (queries implementation):



Description: the query display all journey names and total ticket prices for each one.

---SQL CODE:

```
select journyeName , sum (price) as total
from Journey17
group by journyeName
```



Description: the query joins between two tables passengers and journey and display name of passengers and names of journey from tables respectively.

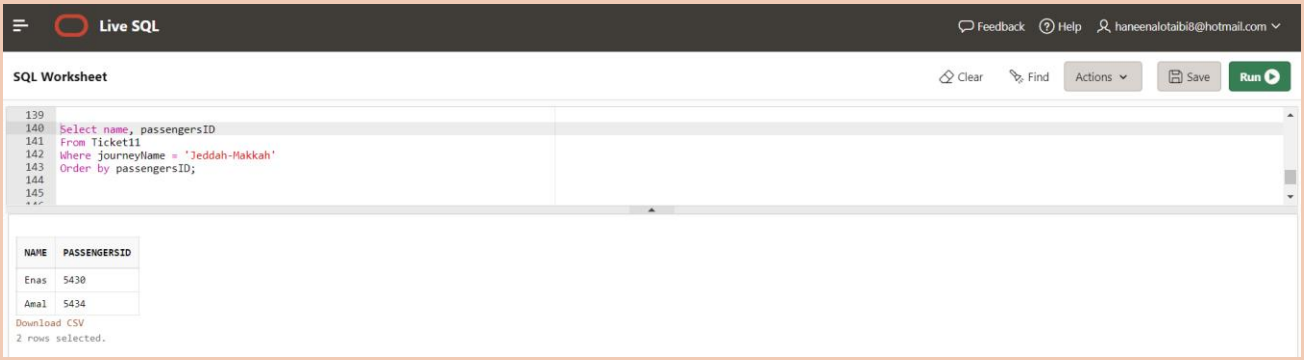
---SQL CODE:

```
select name,journyeName
from passengers
full outer join Journey17 on passengers.passengersID= Journey17.passengersID
order by name
```

Description: The query displays the names of passengers and ticket number which its price is 250.

---SQL CODE:

```
select Name ,TicketNo
from ticket11
where price in (
select price
from ticket11
 where price = 250)
 order by TicketNo;
```



Description: This query display names of passengers and their ID in specific Journey 'Jeddah-makkah' and arrange it asc by ID.

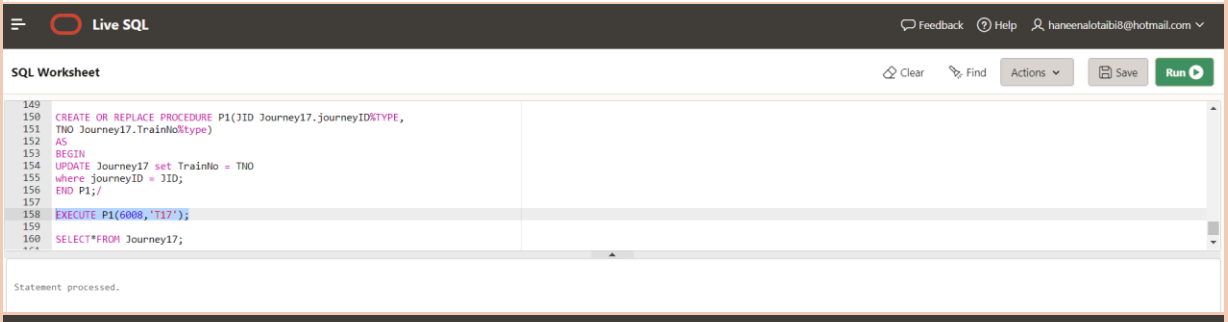
---SQL CODE:

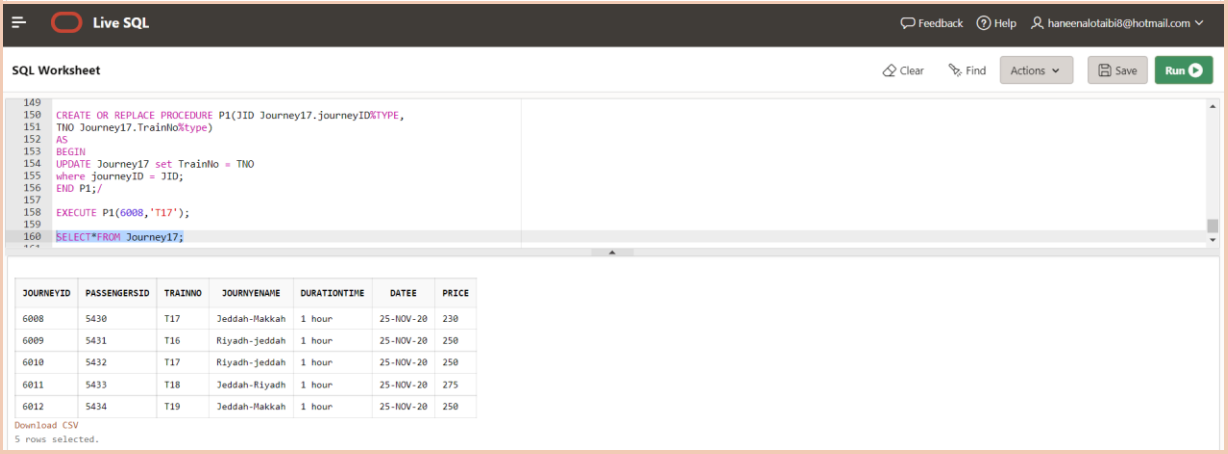
```
Select name, passengersID
From Ticket11
Where journeyName = 'Jeddah-Makkah'
Order by passengersID;
```

Part3 (Procedures):

Procedure 1:

Allows us to change train number we've already inserted in the table for each journeyID.



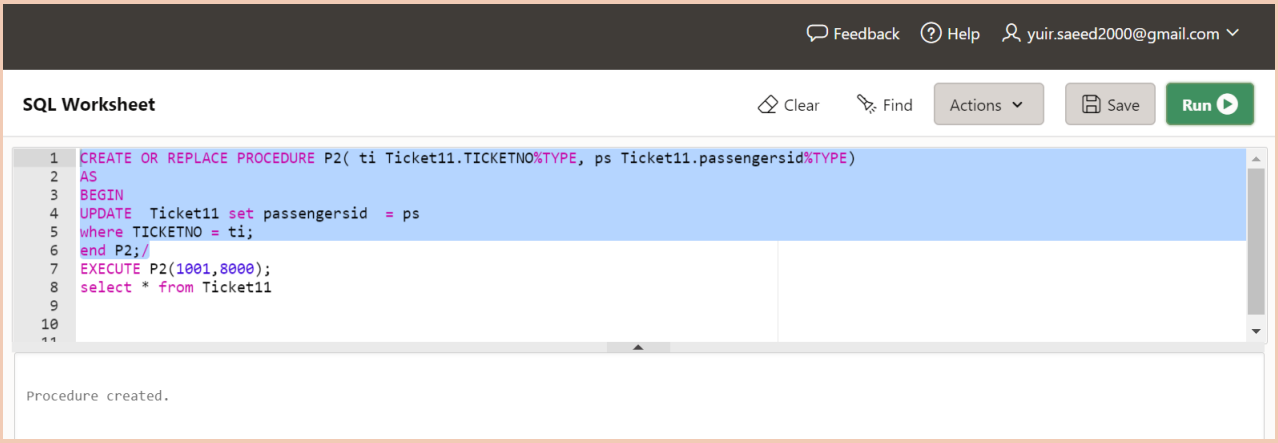


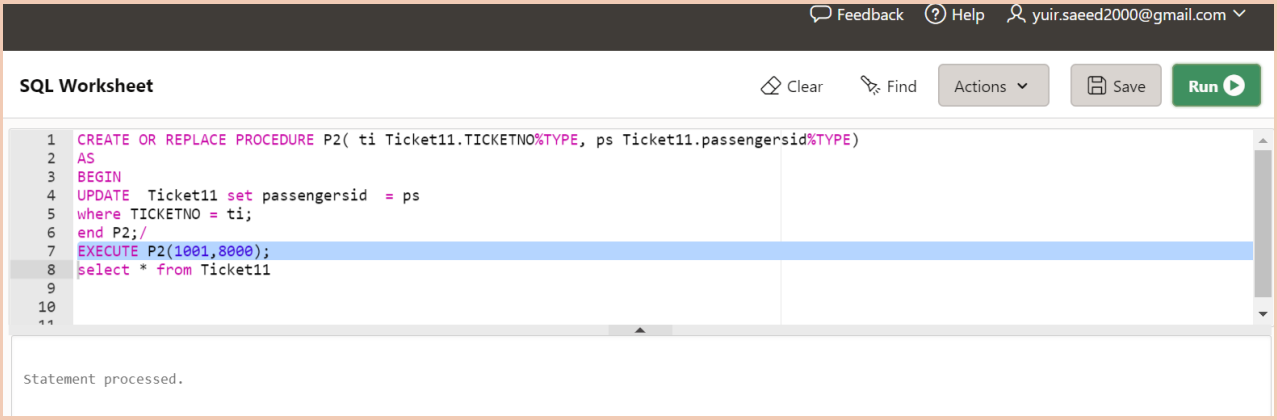
JOURNEYID	PASSENGERSID	TRAINNO	JOURNYENAME	DURATIONTIME	DATEE	PRICE
6008	5430	T17	Jeddah-Makkah	1 hour	25-NOV-20	230
6009	5431	T16	Riyadh-jeddah	1 hour	25-NOV-20	250
6010	5432	T17	Riyadh-jeddah	1 hour	25-NOV-20	250
6011	5433	T18	Jeddah-Riyadh	1 hour	25-NOV-20	275
6012	5434	T19	Jeddah-Makkah	1 hour	25-NOV-20	250

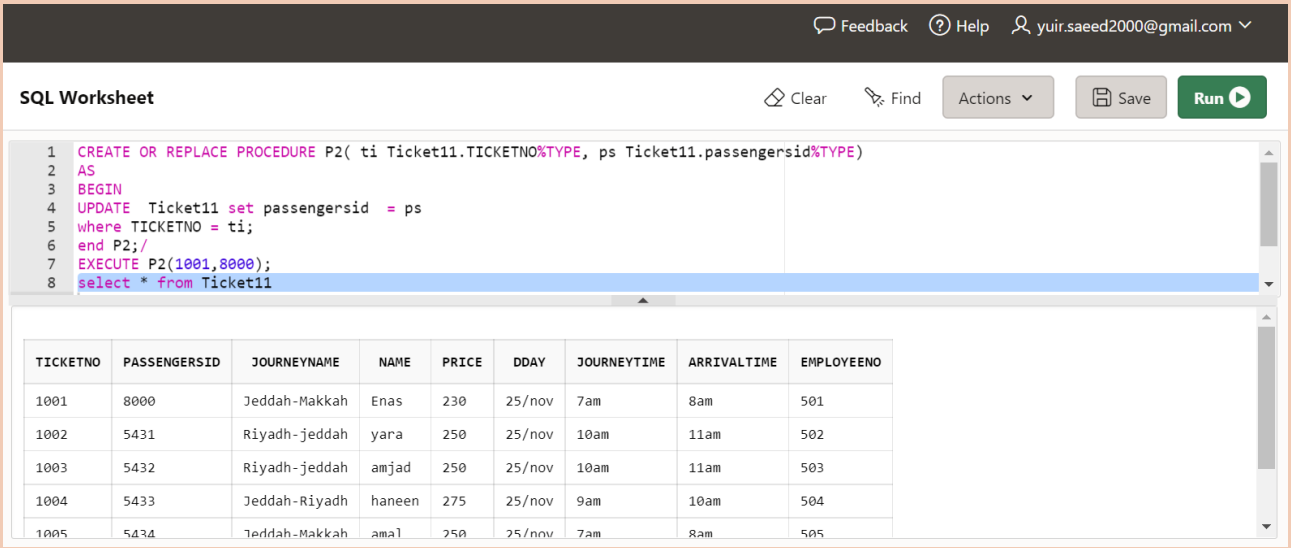
Download CSV
5 rows selected.

Procedure 2:

Allow us to change the passengers id for each ticket number







TICKETNO	PASSENGERSID	JOURNEYNAME	NAME	PRICE	DDAY	JOURNEYTIME	ARRIVALTIME	EMPLOYEENO
1001	8000	Jeddah-Makkah	Enas	230	25/nov	7am	8am	501
1002	5431	Riyadh-jeddah	yara	250	25/nov	10am	11am	502
1003	5432	Riyadh-jeddah	amjad	250	25/nov	10am	11am	503
1004	5433	Jeddah-Riyadh	haneen	275	25/nov	9am	10am	504
1005	5434	Jeddah-Makkah	amal	250	25/nov	7am	8am	505