

Final Project Guidelines

Here are some of the basic procedures that are required for the project: *NOTE: for this project assume that all flights are direct and one way only.*

Customer Functions:

1. Should be able to register by entering his/her name, address, city, state, phone number. Once successfully registered, the system should provide him an ID.
2. Should be able to search for a flight by giving the source, destination and date. The procedure should return a list of flights along with fares from the source to the destination on the given date.
3. Should be able to make a reservation by giving the number of passengers, and the flight number (based on the search made in 2 above)
4. Should be able to view all of his reservations by entering his ID.

Admin Functions:

1. Should be able to view all flight details from a location (given the source).
2. Should be able to change the fare of any flight (based on Flight ID).
3. Should be able to see all the reservations on a given flight
4. Should be able to view any customer details (given the ID of the customer)
5. Add a new flight

Your program should consist of the above procedures. You can use a text based menu for Customer and have the customer make a choice as to what he wants to do. For example the customer should see:

Customer Menu

1. Register
2. Search for a flight
3. Make Reservation
4. View your Reservation
5. Exit

Similarly the admin should see the following menu:

Admin Menu

1. View flight details by entering the source location
2. Change the fare of any flight
3. Add a flight
4. View all reservations for a given flight
5. View Customer details (by entering the ID of the customer)
6. Exit

Extra Credit

If the flight is full, the customer should be notified and not allowed to make a reservation. After each successful reservation, the number of seats in the flight should be reduced by the number of passengers.

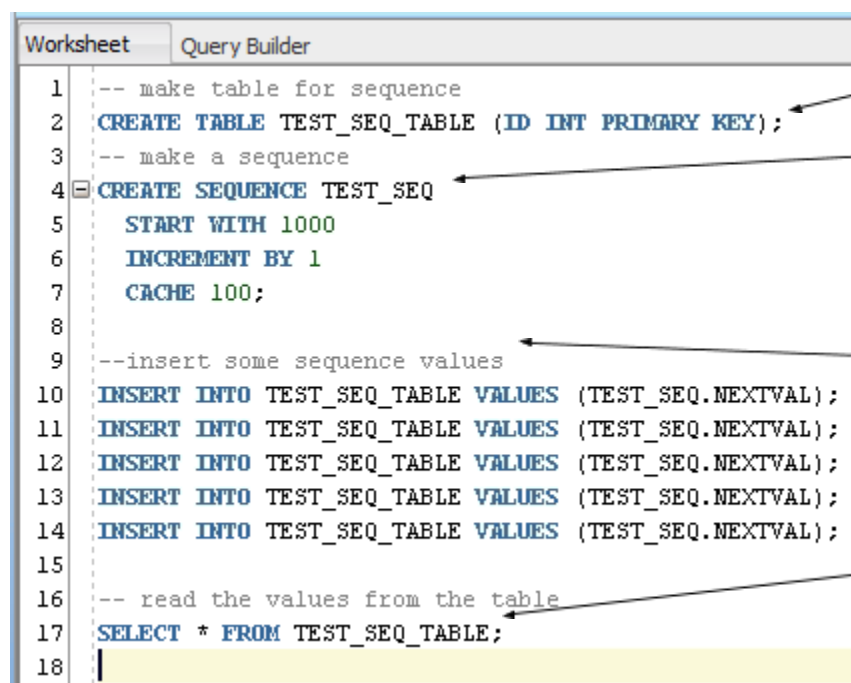
Hints and Suggestions:

1. Use nextval for automatically generating the ID of the customer (during the registration process). That ID should be given to the customer after successful registration.

Here's an example sequence I created in SQL Developer (you'll get to try this later on)

```
CREATE SEQUENCE TEST_SEQ
START WITH 1000
INCREMENT BY 1
CACHE 100;
```

Here is an example of a Sequence for creating unique numbers for an Order table's primary key. Notice that I cached 100 sequence numbers for performance reasons.



```
Worksheet  Query Builder
1  -- make table for sequence
2  CREATE TABLE TEST_SEQ_TABLE (ID INT PRIMARY KEY);
3  -- make a sequence
4  CREATE SEQUENCE TEST_SEQ
5      START WITH 1000
6      INCREMENT BY 1
7      CACHE 100;
8
9  --insert some sequence values
10 INSERT INTO TEST_SEQ_TABLE VALUES (TEST_SEQ.NEXTVAL);
11 INSERT INTO TEST_SEQ_TABLE VALUES (TEST_SEQ.NEXTVAL);
12 INSERT INTO TEST_SEQ_TABLE VALUES (TEST_SEQ.NEXTVAL);
13 INSERT INTO TEST_SEQ_TABLE VALUES (TEST_SEQ.NEXTVAL);
14 INSERT INTO TEST_SEQ_TABLE VALUES (TEST_SEQ.NEXTVAL);
15
16 -- read the values from the table
17 SELECT * FROM TEST_SEQ_TABLE;
18
```

Make a table for the sequence.

Make the sequence

Use the sequence in 5 inserts

See the sequence numbers users

2. Use the execute procedure command to test each of the above procedures.

For example:

1. **execute register_customer ('Ashwin S', '300 Jay st', 'Brooklyn', 'NY', '111-222-3333');**
Should display the following statements:
The new customer has been successfully registered, and his Customer ID is: 1111;
We should then be able to view this customer by typing the following:
select * from customer;
2. **execute find_flight ('jfk', 'chicago', '10-MAY-2017');**
should display something like below:

FlightID	Source	Destination	Fare	Date	Number of Seats remaining
1111	Jfk	Chicago	\$300	10-MAY-2017	10
2222	Jfk	Chicago	\$400	10-MAY-2017	40
3333	Jfk	Chicago	\$200	10-MAY-2017	2
4444	Jfk	Chicago	\$100	10-MAY-2017	56

3. **execute make_a_reservation (1111, 2222, 2)**
should return
The customer 1111 has made the reservation on flight 2222 with 2 seats confirmed.

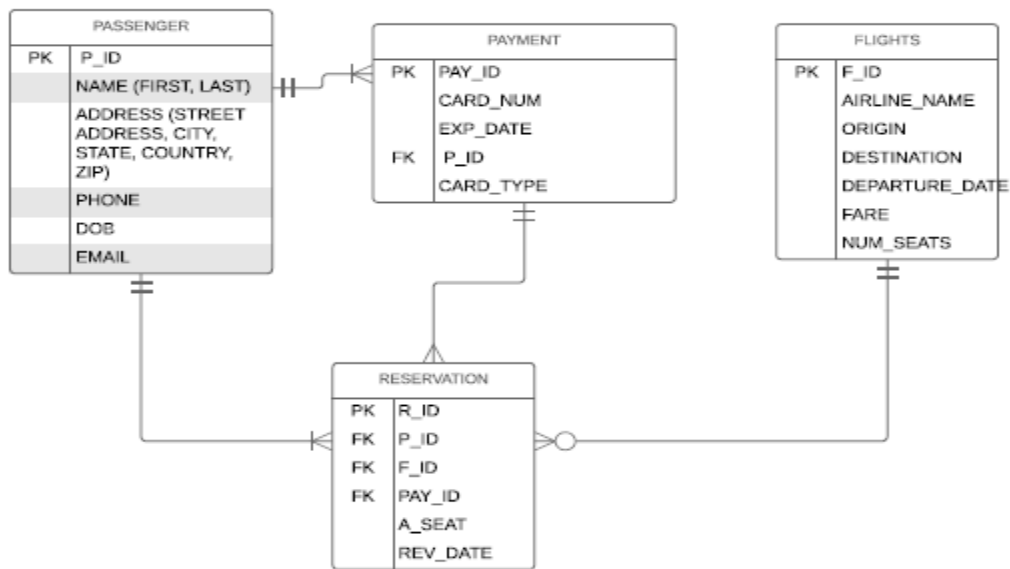
And so on..

Trigger for generating the ID of the inserted movie:

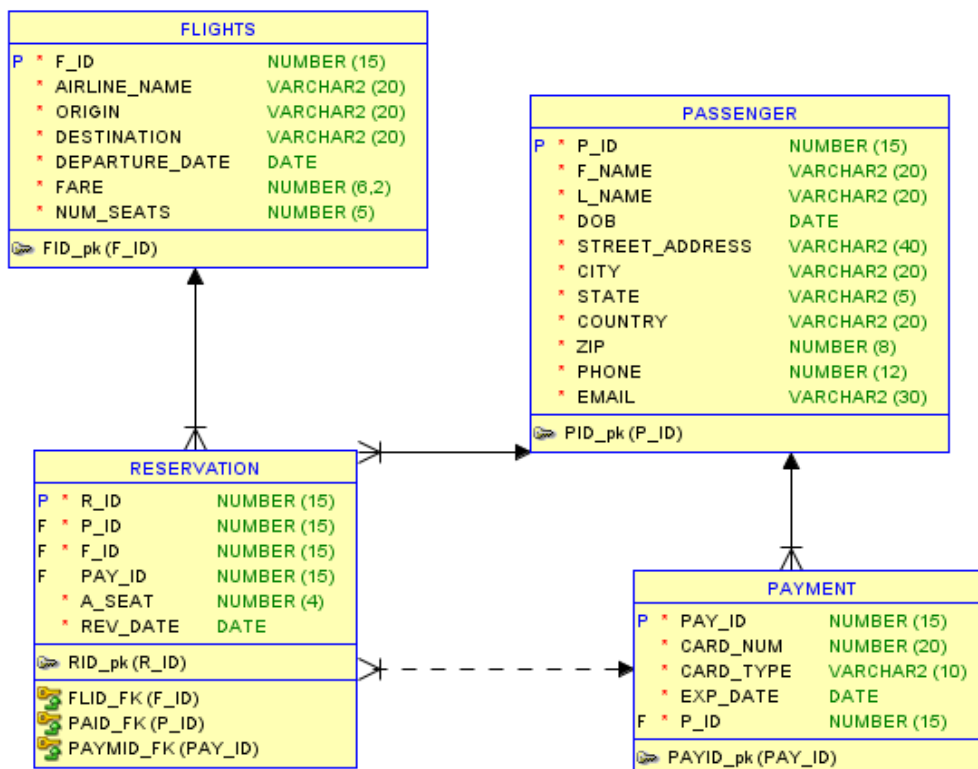
```
create or replace trigger generateID
before insert or update of id on movies
for each row
begin
  dbms_output.put_line('The id of the movie inserted is: ' || :NEW.id);
end;
```

Airline Booking System: Created an Entity Relationship Diagram model from a business requirement. The goal was to create an airline booking system by following the requirements. First, created a physical model and then implemented all data into Oracle 11g server. Pulled out data using SQL query. Any user can log in to the airline's booking system using their credential and book, update and cancel flights

ERD DIAGRAM:



Physical Model



CUSTOMER FUNCTIONS

1. Should be able to register by entering his/her name, address, city, state, phone number. Once successfully registered, the system should provide him an ID.

```

set serveroutput on
create or replace procedure Register_Customer(v_fn passenger.F_NAME%type,v_ln passenger.L_NAME%type,v_dob passenger.DOB%type, v_StAdd passenge
v_city passenger.CITY%type,v_st passenger.STATE%type, v_country passenger.COUNTRY%type, v_zip passenger.ZIP%type,
v_phn passenger.PHONE%type, v_email passenger.EMAIL%type)
IS
BEGIN
insert into passenger values(PID_SEQ.NEXTVAL,v_fn,v_ln,v_dob,v_StAdd,v_city,v_st,v_country,v_zip,v_phn,v_email);
DBMS_OUTPUT.PUT_LINE('The new customer has been successfully registered, and new Customer ID is: '||PID_SEQ.CURRVAL);
END;

```

Script Output x

Task completed in 0.198 seconds

Procedure REGISTER_CUSTOMER compiled

Output:

```

Execute register_customer('&F_NAME','&L_NAME','&DOB','&STREET_ADDRESS','&CITY','&STATE ','&COUNTRY','&ZIP','&PHONE','&EMAIL');

```

Script Output x

Task completed in 65.754 seconds

The new customer has been successfully registered, and new Customer ID is: 1006

PL/SQL procedure successfully completed.

2. Should be able to search for a flight by giving the source, destination and date. The procedure should return a list of flights along with fares from the source to the destination on the given date.

```

SET SERVEROUTPUT ON
CREATE OR REPLACE PROCEDURE Search_flight(v_location FLIGHTS.ORIGIN%TYPE, v_dest FLIGHTS.DESTINATION%TYPE, v_date FLIGHTS.DEPARTURE_DATE%TYPE
IS
v_FID FLIGHTS.F_ID%TYPE;
v_Aname FLIGHTS.AIRLINE_NAME%TYPE;
v_orig FLIGHTS.ORIGIN%TYPE;
v_des FLIGHTS.DESTINATION%TYPE;
v_depDate FLIGHTS.DEPARTURE_DATE%TYPE;
v_fare FLIGHTS.FARE%TYPE;
v_seat FLIGHTS.SEATS%TYPE;
CURSOR c1 IS
SELECT * FROM FLIGHTS WHERE ORIGIN = v_location AND DESTINATION = v_dest AND DEPARTURE_DATE = v_date;
BEGIN
OPEN c1;
LOOP
fetch c1 into v_FID,v_Aname,v_orig,v_des,v_depDate,v_fare,v_seat;
EXIT WHEN c1%NOTFOUND;
DBMS_OUTPUT.PUT_LINE('FLIGHT ID: '||v_FID||' AIRLINE: '||v_Aname||' SOURCE: '||v_orig||' DESTINATION: '||v_des||' DEPARTURE_DATE: '||v_depDate||' FARE: '||v_fare||' SEATS: '||v_seat||');
END LOOP;
CLOSE c1;
END;

```

Script Output x

Task completed in 0.185 seconds

Procedure SEARCH_FLIGHT compiled

Output:

```
Execute Search_flight('%ORIGIN','%DESTINATION','%DEPARTURE_DATE');|
```

Script Output x

Task completed in 20.744 seconds

FLIGHT ID: 20004 AIRLINE: EMIRATES AIRLINES SOURCE: JFK DESTINATION: DUBAI DEPARTURE_DATE: 18-NOV-18 FARE: \$822.99 -- AVAILABE SEATS: 550

PL/SQL procedure successfully completed.

3. Should be able to make a reservation by giving the number of passengers, and the flight number (based on the search made in 2 above)

```
SET SERVEROUTPUT ON
CREATE OR REPLACE PROCEDURE Make_Reservation(v_PID RESERVATION.P_ID%TYPE,v_FID RESERVATION.F_ID%TYPE,v_seat RESERVATION.SEAT%TYPE)
IS
v_PAYID RESERVATION.PAY_ID%TYPE;
n1 RESERVATION.SEAT%TYPE;
n2 RESERVATION.SEAT%TYPE;
BEGIN
SELECT SEATS INTO n1 FROM FLIGHTS WHERE F_ID =v_FID ;
n2:= n1 - v_seat;
IF (n2>=0) THEN
INSERT INTO RESERVATION VALUES (RID_SEQ.NEXTVAL,v_PID,v_FID,v_PAYID,v_seat,SYSDATE);
UPDATE FLIGHTS
SET SEATS = n2
WHERE F_ID = v_FID;
DBMS_OUTPUT.put_line('Congratulation!!! Your Reservation has been Confirmed.');
```

```
DBMS_OUTPUT.put_line('The customer '||v_PID||' has made the reservation on flight '||v_FID||' with '||v_seat||' seats confirmed.');
```

```
ELSE
DBMS_OUTPUT.put_line('Sorry!!! We do not have enough seats available');
```

```
END IF;
END;
```

Output:

```
execute Make_Reservation(&P_ID,&F_ID,&SEAT);|
```

Script Output x

Task completed in 10.145 seconds

Congratulation!!! Your Reservation has been Confirmed.

The customer 1001 has made the reservation on flight 20004 with 5 seats confirmed.

PL/SQL procedure successfully completed.

Here you can see Flight#2004 has 450 seats.

```
select * from flights;
```

```
execute Make_Reservation(&P_ID,&F_ID,&SEAT)
```

Script Output x Query Result x

SQL | All Rows Fetched: 6 in 0.022 seconds

	F_ID	AIRLINE_NAME	ORIGIN	DESTINATION	DEPARTURE_DATE	FARE	SEATS
1	20001	QATAR AIRLINES	JFK	DHAKA INT	12-NOV-18	1239.99	750
2	20002	AMERICAN AIRLINES	LAGUARDIA	ARIZONA	08-NOV-18	219.99	450
3	20003	SPRINT AIRLINES	EWB	ROME	15-NOV-18	639.99	300
4	20004	EMIRATES AIRLINES	JFK	DUBAI	18-NOV-18	822.99	450
5	20005	SOUDI AIRLINES	JFK	RYAD	22-DEC-18	1199	500
6	20006	British Airlines	London	JFK	18-DEC-18	899	2

After booking 5 seats, now Flight#20004 has 445 seats. The number of booking seats has been deducted from total seats number.

```
select * from flights;
```

Script Output x Query Result x

SQL | All Rows Fetched: 6 in 0.005 seconds

	F_ID	AIRLINE_NAME	ORIGIN	DESTINATION	DEPARTURE_DATE	FARE	SEATS
1	20001	QATAR AIRLINES	JFK	DHAKA INT	12-NOV-18	1239.99	750
2	20002	AMERICAN AIRLINES	LAGUARDIA	ARIZONA	08-NOV-18	219.99	450
3	20003	SPRINT AIRLINES	EWB	ROME	15-NOV-18	639.99	300
4	20004	EMIRATES AIRLINES	JFK	DUBAI	18-NOV-18	822.99	445
5	20005	SOUDI AIRLINES	JFK	RYAD	22-DEC-18	1199	500
6	20006	British Airlines	London	JFK	18-DEC-18	899	2

4. Should be able to view all of his reservations by entering his ID.

```

SET SERVEROUTPUT ON
CREATE OR REPLACE PROCEDURE View_Booking (v_ID RESERVATION.P_ID%TYPE)
IS
v_RID RESERVATION.R_ID%TYPE;
v_FID RESERVATION.F_ID%TYPE;
v_seat RESERVATION.SEAT%TYPE;
v_date RESERVATION.REV_DATE%TYPE;
v_fn PASSENGER.F_NAME%TYPE;
v_ln PASSENGER.L_NAME%TYPE;
v_Aname FLIGHTS.AIRLINE_NAME%TYPE;
v_origin FLIGHTS.ORIGIN%TYPE;
v_dest FLIGHTS.DESTINATION%TYPE;
v_depDate FLIGHTS.DEPARTURE_DATE%TYPE;
CURSOR c1 IS
SELECT P.F_NAME,P.L_NAME,R.R_ID,R.F_ID,R.SEAT,R.REV_DATE,F.AIRLINE_NAME,F.ORIGIN,F.DESTINATION,F.DEPARTURE_DATE
FROM PASSENGER P,RESERVATION R, FLIGHTS F
WHERE P.P_ID = R.P_ID
AND R.F_ID = F.F_ID
AND R.P_ID = v_ID;
BEGIN
OPEN c1;
LOOP
fetch c1 into v_fn,v_ln,v_RID,v_FID,v_seat,v_date,v_Aname,v_origin,v_dest,v_depDate;
EXIT WHEN c1%NOTFOUND;
DBMS_OUTPUT.PUT_LINE('CUSTOMER NAME: '||v_fn||' '||v_ln);
DBMS_OUTPUT.PUT_LINE('RESERVATION#: '||v_RID||' PASSENGER#: '||v_FID||' FLIGHT#: '||v_FID||' BOOKED SEATS: '||v_seat||' BOOKED ON: '||v_date);
END LOOP;
END View_Booking;

```

Script Output x

Task completed in 0.146 seconds

Procedure VIEW_BOOKING compiled

OUTPUT:

```

EXECUTE View_Booking(&P_ID);

```

Script Output x

Task completed in 4.928 seconds

```

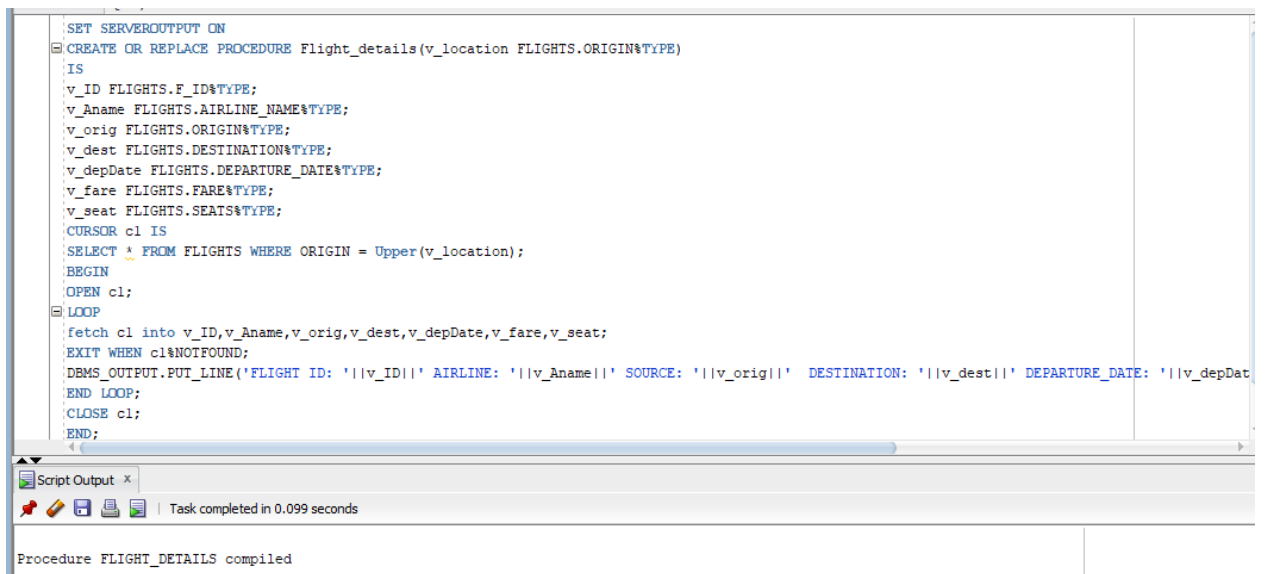
CUSTOMER NAME: ASHLEY FONTINE
RESERVATION#: 30005 PASSENGER#: 1003 FLIGHT#: 20003 BOOKED_SEATS: 59 BOOKED_ON: 07-JUN-18
ORIGIN: EWR | DESTINATION: ROME | DEPARTURE: 15-NOV-18

PL/SQL procedure successfully completed.

```


Admin Functions:

1. Should be able to view all flight details from a location (given the source).



```

SET SERVEROUTPUT ON
CREATE OR REPLACE PROCEDURE Flight_details(v_location FLIGHTS.ORIGIN%TYPE)
IS
v_ID FLIGHTS.F_ID%TYPE;
v_Aname FLIGHTS.AIRLINE_NAME%TYPE;
v_orig FLIGHTS.ORIGIN%TYPE;
v_dest FLIGHTS.DESTINATION%TYPE;
v_depDate FLIGHTS.DEPARTURE_DATE%TYPE;
v_fare FLIGHTS.FARE%TYPE;
v_seat FLIGHTS.SEATS%TYPE;
CURSOR c1 IS
SELECT * FROM FLIGHTS WHERE ORIGIN = Upper(v_location);
BEGIN
OPEN c1;
LOOP
fetch c1 into v_ID,v_Aname,v_orig,v_dest,v_depDate,v_fare,v_seat;
EXIT WHEN c1%NOTFOUND;
DBMS_OUTPUT.PUT_LINE('FLIGHT ID: '||v_ID||' AIRLINE: '||v_Aname||' SOURCE: '||v_orig||' DESTINATION: '||v_dest||' DEPARTURE_DATE: '||v_depDate||' FARE: '||v_fare||' SEATS: '||v_seat||');
END LOOP;
CLOSE c1;
END;

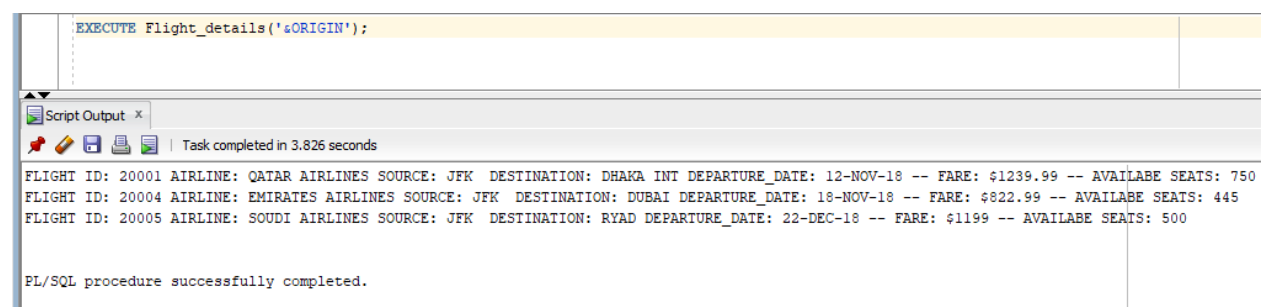
```

Script Output x

Task completed in 0.099 seconds

Procedure FLIGHT_DETAILS compiled

OUTPUT:



```

EXECUTE Flight_details('JFK');

```

Script Output x

Task completed in 3.826 seconds

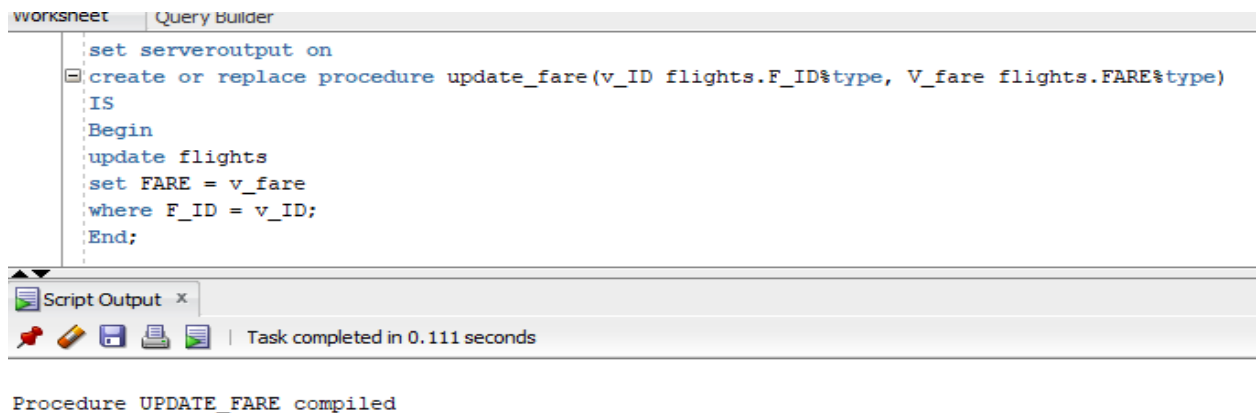
```

FLIGHT ID: 20001 AIRLINE: QATAR AIRLINES SOURCE: JFK DESTINATION: DHAKA INT DEPARTURE_DATE: 12-NOV-18 -- FARE: $1239.99 -- AVAILABE SEATS: 750
FLIGHT ID: 20004 AIRLINE: EMIRATES AIRLINES SOURCE: JFK DESTINATION: DUBAI DEPARTURE_DATE: 18-NOV-18 -- FARE: $822.99 -- AVAILABE SEATS: 445
FLIGHT ID: 20005 AIRLINE: SOUDI AIRLINES SOURCE: JFK DESTINATION: RYAD DEPARTURE_DATE: 22-DEC-18 -- FARE: $1199 -- AVAILABE SEATS: 500

```

PL/SQL procedure successfully completed.

2. Should be able to change the fare of any flight (based on Flight ID).



OUTPUT: This screenshot displays the fare of flights.

SQL | All Rows Fetched: 5 in 0.01 seconds

	F_ID	AIRLINE_NAME	ORIGIN	DESTINATION	DEPARTURE_DATE	FARE	SEATS
1	20001	QATAR AIRLINES	JFK	DHAKA INT	12-NOV-18	1239.99	750
2	20002	AMERICAN AIRLINES	LAGUARDIA	ARIZONA	08-NOV-18	219.99	450
3	20003	SPRINT AIRLINES	EWR	ROME	15-NOV-18	639.99	300
4	20004	EMIRATES AIRLINES	JFK	DUBAI	18-NOV-18	822.99	550
5	20005	SOUDI AIRLINES	JFK	RYAD	22-DEC-18	699.69	500

Flight#20005 Fare has been updated.

SQL | All Rows Fetched: 5 in 0.017 seconds

	F_ID	AIRLINE_NAME	ORIGIN	DESTINATION	DEPARTURE_DATE	FARE	SEATS
1	20001	QATAR AIRLINES	JFK	DHAKA INT	12-NOV-18	1239.99	750
2	20002	AMERICAN AIRLINES	LAGUARDIA	ARIZONA	08-NOV-18	219.99	450
3	20003	SPRINT AIRLINES	EWR	ROME	15-NOV-18	639.99	300
4	20004	EMIRATES AIRLINES	JFK	DUBAI	18-NOV-18	822.99	445
5	20005	SOUDI AIRLINES	JFK	RYAD	22-DEC-18	1200	500

3. Should be able to see all the reservations on a given flight.

```

create or replace PROCEDURE View_Reservation (v_fld IN RESERVATION.F_ID%TYPE)
IS
v RID RESERVATION.R_ID%TYPE;
v PID RESERVATION.P_ID%TYPE;
v FID RESERVATION.F_ID%TYPE;
v PAYID RESERVATION.PAY_ID%TYPE;
v seat RESERVATION.SEAT%TYPE;
v date RESERVATION.REV_DATE%TYPE;
CURSOR cl IS
SELECT * FROM RESERVATION WHERE F_ID = v_fld;
BEGIN
OPEN cl;
LOOP
fetch cl into v RID,v PID,v FID,v PAYID,v seat,v date;
EXIT WHEN cl%NOTFOUND;
DBMS_OUTPUT.PUT_LINE('RESERVATION#: '||v RID||' PASSENGER#: '||v PID||' FLIGHT#: '||v FID||' PAYMENTID#: '||v PAYID||' BOOKED SEATS: '||v seat);
END LOOP;
CLOSE cl;
END;

```

Script Output x

Task completed in 0.069 seconds

Procedure VIEW_RESERVATION compiled

OUTPUT:

```

EXECUTE View_Reservation(&F_ID);

```

Script Output x Query Result x

Task completed in 4.052 seconds

PL/SQL procedure successfully completed.

RESERVATION#: 30004 PASSENGER#: 1002 FLIGHT#: 20005 PAYMENTID#: 50002 BOOKED SEATS: 42 BOOKED ON: 25-AUG-18

PL/SQL procedure successfully completed.

4. Should be able to view any customer details (given the ID of the customer).

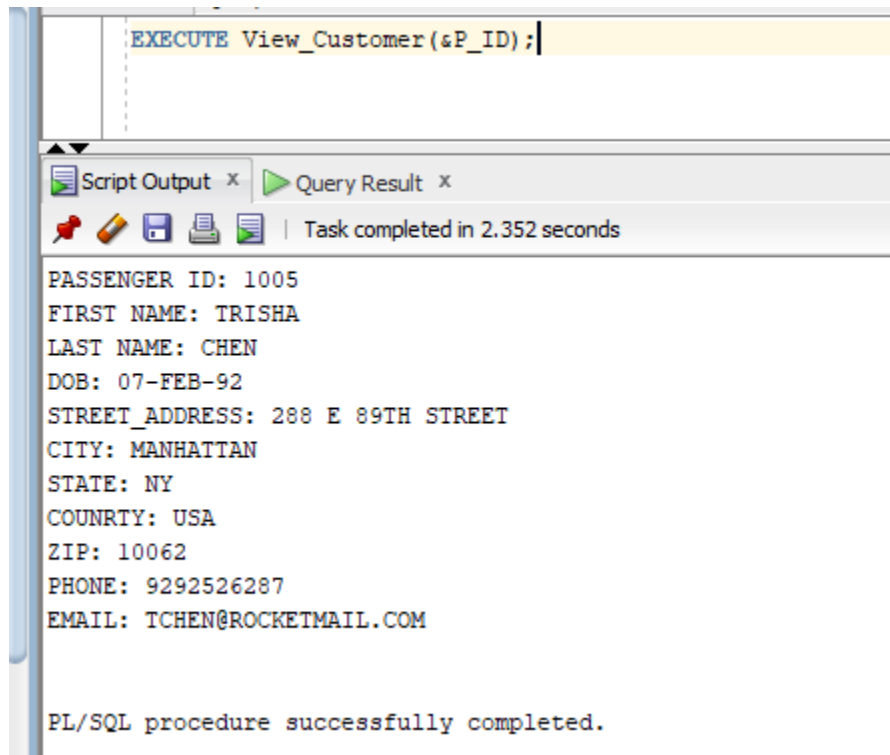
```

Begin
select * into v_ID, v_fn, v_ln, v_dob, v_stAdd, v_city, v_st , v_country, v_zip, v_phone, v_email
from passenger
where P_ID = v_num;
dbms_output.put_line('PASSENGER ID: '||v_ID);
dbms_output.put_line('FIRST NAME: '||v_fn);
dbms_output.put_line('LAST NAME: '||v_ln);
dbms_output.put_line('DOB: '||v_dob);
dbms_output.put_line('STREET ADDRESS: '||v_stAdd);
dbms_output.put_line('CITY: '||v_city);
dbms_output.put_line('STATE: '||v_st);
dbms_output.put_line('COUNTRY: '||v_country);
dbms_output.put_line('ZIP: '||v_zip);
dbms_output.put_line('PHONE: '||v_phone);
dbms_output.put_line('EMAIL: '||v_email);

EXCEPTION
WHEN NO_DATA_FOUND THEN
dbms_output.put_line('THERE HAS NO DATA IN OUR SYSTEM');

```

OUTPUT:

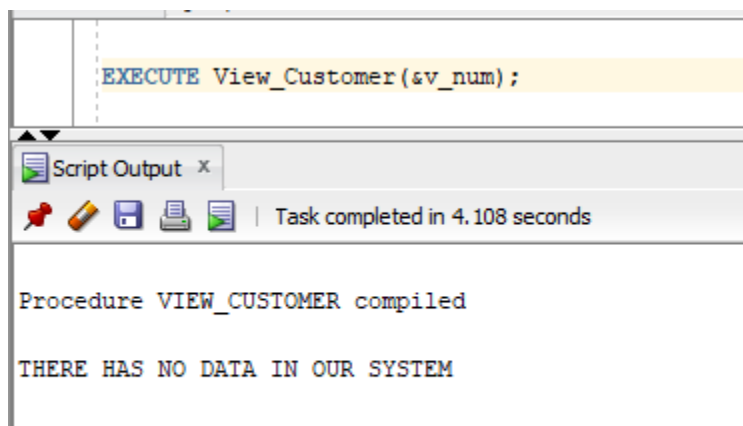


The screenshot shows a database query execution window. The top pane contains the SQL command: `EXECUTE View_Customer(&P_ID);`. The bottom pane shows the output of the procedure, which is a list of customer details for Passenger ID 1005. The output is as follows:

```
PASSENGER ID: 1005
FIRST NAME: TRISHA
LAST NAME: CHEN
DOB: 07-FEB-92
STREET_ADDRESS: 288 E 89TH STREET
CITY: MANHATTAN
STATE: NY
COUNRTY: USA
ZIP: 10062
PHONE: 9292526287
EMAIL: TCHE@ROCKETMAIL.COM

PL/SQL procedure successfully completed.
```

I used exception in this procedure. When I enter a invalid passenger ID, then database shows there is no data in our system for this passenger.



The screenshot shows a database query execution window. The top pane contains the SQL command: `EXECUTE View_Customer(&v_num);`. The bottom pane shows the output of the procedure, which is a message indicating that the procedure was compiled and that there is no data in the system for the given passenger ID. The output is as follows:

```
Procedure VIEW_CUSTOMER compiled

THERE HAS NO DATA IN OUR SYSTEM
```

5. Add a new flight.

```

set serveroutput on
create or replace procedure Add_flight(
  v_ID flights.F_ID%type,
  v_Aname flights.AIRLINE_NAME%type,
  v_origin flights.ORIGIN%type,
  v_dest FLIGHTS.DESTINATION%TYPE,
  v_depDate flights.DEPARTURE_DATE%type,
  v_fare flights.FARE%type,
  v_seat flights.SEATS%type)
IS
Begin
  insert into flights values(v_ID,v_Aname,v_origin,v_dest,v_depDate,v_fare,v_seat);
  dbms_output.put_line('NEW FLIGHT HAS BEEN ADDED');
  dbms_output.put_line('FLIGHT ID: '||v_ID||' AIRLINE_NAME: '||v_Aname||' SOURCE: '||v_origin||' DESTINATION: '||v_dest||
  ' DEPARTUE_DATE: '||v_depDate||' FARE: $'|| v_fare||' AVAILABE SEATS: '||v_seat);
End;

```

Script Output x

Task completed in 0.15 seconds

Procedure ADD_FLIGHT compiled

OUTPUT:

```

EXECUTE ADD_FLIGHT(&F_ID,'&AIRLINE_NAME','&ORIGIN','&DESTINATION','&DEPARTURE_DATE',&FARE ,&SEATS );

```

Script Output x Query Result x

Task completed in 39.216 seconds

NEW FLIGHT HAS BEEN ADDED
 FLIGHT ID: 20006 AIRLINE_NAME: British SOURCE: London DESTINATION: florida DEPARTUE_DATE: 18-DEC-18 FARE: \$250 AVAILABE SEATS: 350

PL/SQL procedure successfully completed.