ASSIGNMENT NO:3b   **DATE:24/09/2016**

PROGRAM TITLE:Create the following tables in SQL with the proper integrity constraints and solve the queries that follow.

Customer1(cust_id,cust_name,annual_revenu,cust_type)
cust_id must be between 1000 and 10000, annual_revenue is by default equal to Rs 1000,cust_type must be manufacture,wholesaler or retailer.
shipment(shipment_no,cust_id,weight,truck_no,destination,ship_date)
Weight must be under 500 and defaults to 50.
truck(truck_no,driver_name)
city(city_name,population)

Queries:
a)List cities that have received shipment for every customer.
b)List truck_nos driver by Harbinth Singh which have never delivered a shipment
to Kolkata.
c)List driver name who have delivered shipment to every city.
d)Which cities in the database have thr largest and smallest population.

PROGRAM CODE:

Table Creation:

Customer1:
```
create table customer1(cust_id number(5) check (cust_id between
1000 and 10000),cust_name varchar2(20),annual_revenue number
default(1000),cust_type varchar2(20) check(cust_type
in('manufacturer','wholesaler','retailer')),primary
key(cust_id));
```

Shipment:
```
create table shipment(shipment_no number(10),cust_id
number(5),weight number(3) default(50) check(weight<500),truck_no
number(5),destination varchar2(20),ship_date date,primary
key(shipment_no));
```

Truck:
```
create table truck(truck_no number(5),driver_name
varchar2(20),primary key(truck_no));
```

City:
```
create table city(city_name varchar2(20),population number(10));
```

Table Insertion(example):

Customer1:
```
SQL> INSERT INTO
CUSTOMER1(CUST_ID,CUST_NAME,CUST_TYPE)VALUES(&CUST_ID,'&CUST_NAME',
'&CUST_TYPE');
Enter value for cust_id: 1000
Enter value for cust_name: RAJESH GUPTA
```

```
Enter value for cust_type: MANUFACTURER
old   1: INSERT INTO
CUSTOMER1(CUST_ID,CUST_NAME,CUST_TYPE)VALUES(&CUST_ID,'&CUST_NAME',
'&CUST_TYPE')
new   1: INSERT INTO
CUSTOMER1(CUST_ID,CUST_NAME,CUST_TYPE)VALUES(1000,'RAJESH
GUPTA','MANUFACTURER')

1 row created.
```

Shipment:
```
SQL> INSERT INTO SHIPMENT
VALUES(SHIPMENT_NO,CUST_ID,TRUCK_NO,'DESTINATION','&SHIP_DATE')VALU
ES(&SHIPMENT_
NO,&CUST_ID,&TRUCK_NO,'&DESTINATION',TO_DATE('&SHIP_DATE','DDMM-
YYYY');
Enter value for shipment_no: 2
Enter value for cust_id: 1001
Enter value for truck_no: 1
Enter value for destination: DURGAPUR
Enter value for ship_date: 25-5-2015
old   1: INSERT INTO SHIPMENT
VALUES(&SHIPMENT_NO,&CUST_ID,&TRUCK_NO,'&DESTINATION',TO_DATE('&SHI
P_DATE','DD-MM-YYYY'))
new   1: INSERT INTO SHIPMENT
VALUES(2,1001,1,'DURGAPUR',TO_DATE('25-5-2015','DD-MM-YYYY'))

1 row created.
```

Truck:
```
SQL> INSERT INTO TRUCK VALUES(&TRUCK_NO,'&DRIVER_NAME');
Enter value for truck_no: 01
Enter value for driver_name: HARBINTH SINGH
old   1: INSERT INTO TRUCK VALUES(&TRUCK_NO,'&DRIVER_NAME')
new   1: INSERT INTO TRUCK VALUES(01,'HARBINTH SINGH')

1 row created.
```

City:
```
SQL> INSERT INTO CITY VALUES('&CITY',&POPULATION);
Enter value for city: KOLKATA
Enter value for population: 50000
old   1: INSERT INTO CITY VALUES('&CITY',&POPULATION)
new   1: INSERT INTO CITY VALUES('KOLKATA',50000)

1 row created.
```

Final Tables Created:

Customer1:
```
    CUST_ID CUST_NAME         ANNUAL_REVENUE CUST_TYPE
---------- --------------- -------------- --------------------
      1000 RAJESH GUPTA               1000 MANUFACTURER
      1001 PRAKASH KHAN               4500 WHOLESALER
      1002 VIRAJ DHAR                 7000 RETAILER
```

Shipment:

SHIPMENT_NO	CUST_ID	WEIGHT	TRUCK_NO	DESTINATION	SHIP_DAT
1	1000	90	2	DURGAPUR	13-04-15
2	1001	200	1	DURGAPUR	25-05-15
3	1002	300	3	DURGAPUR	30-05-15
4	1001	400	1	PURI	06-08-14
5	1002	350	2	KOLKATA	05-05-13
6	1001	280	2	DURGAPUR	04-04-15
7	1000	370	2	PURI	07-03-13

Truck:

TRUCK_NO	DRIVER_NAME
1	HARBINTH SINGH
2	AYAN MONDAL
3	AJIT DEY

City:

CITY_NAME	POPULATION
KOLKATA	50000
DURGAPUR	30000
PURI	17000

Queries with output:

1)
```
SQL>  SELECT CITY_NAME FROM CITY WHERE NOT EXISTS ((SELECT CUST_ID FROM
CUSTOMER1) MINUS (SELECT CUST_ID FROM SHIPMENT WHERE
SHIPMENT.DESTINATION=CITY.CITY_NAME));

CITY_NAME
-------------------
DURGAPUR
```

2)
```
SQL>  SELECT TRUCK_NO FROM((SELECT TRUCK_NO FROM TRUCK NATURAL JOIN
SHIPMENT WHERE DRIVER_NAME='HARBINTH SINGH' AND DESTINATION <>
'KOLKATA')MINUS(SELECT TRUCK_NO FROM TRUCK NATURAL JOIN SHIPMENT
WHERE DRIVER_NAME='HARBINTH SINGH' AND DESTINATION = 'KOLKATA'));

TRUCK_NO
--------
       1
```

3)
```
SQL> SELECT DRIVER_NAME FROM TRUCK WHERE NOT EXISTS((SELECT
CITY_NAME FROM CITY)MINUS(SELECT DESTINATION FROM SHIPMENT WHERE
SHIPMENT.TRUCK_NO=TRUCK.TRUCK_NO));

DRIVER_NAME
----------------
AYAN MONDAL
```

4)

```
SQL> SELECT CITY_NAME FROM CITY WHERE POPULATION IN((SELECT
MAX(POPULATION) FROM
CITY),(SELECT MIN(POPULATION) FROM CITY));

CITY_NAME
--------------
KOLKATA
PURI
```