Principle of Data Base Management Systems

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```
CUSTOMER_ID CUSTOMER_NAME                    QUANTITY
----------- ------------------------------ ----------
       2007 Messi                                   0

SQL> desc amazon;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 PRODUCT_ID                                NOT NULL NUMBER(10)
 PRODUCT_NAME                                       VARCHAR2(30)
 PRODUCT_PRICE                                      NUMBER(10)
 CUSTOMER_ID                                        NUMBER(10)
 TIME_OF_ORDER                                      VARCHAR2(30)
 DATE_OF_PURCHASE                                   VARCHAR2(30)
 QUANTITY                                           NUMBER(10)

SQL> desc customer;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_ID                               NOT NULL NUMBER(10)
 CUSTOMER_NAME                                      VARCHAR2(30)
 CUSTOMER_PHONENUMBER                               NUMBER(10)
 CUSTOMER_ADDRESS                                   VARCHAR2(30)
```

## Amazon table

| PRODUCT_ID | PRODUCT_NAME | PRODUCT_PRICE | CUSTOMER_ID | TIME_OF_ORDER | DATE_OF_PURCHASE | QUANTITY |
|---|---|---|---|---|---|---|
| 1001 | SmartTV | 500000 | 2001 | 9-AM | 01-JUL-2019 | 2 |
| 1002 | Dish wash | 25000 | 2002 | 10-PM | 25-AUGUST-2019 | 3 |
| 1003 | Home Theatre | 35000 | 2003 | 1-AM | 18-SEPTEMBER-2019 | 4 |
| 1004 | Alexa | 8000 | 2004 | 11-AM | 16-OCTOBER-2019 | 6 |
| 1005 | Mac book pro | 1000000 | 2005 | 5-PM | 10-NOVERMBER-2019 | 8 |
| 1006 | One plus 8pro | 45000 | 2006 | 8-AM | 24-APRIL-2019 | 1 |
| 1007 | Sony Bravia | 85000 | 2007 | 11-AM | 22-APRIL-2020 | 5 |
| 1008 | Iphone 11 pro max | 65000 | 2007 | 12-AM | 20-APRIL-2020 | 0 |

## Customer table

| CUSTOMER_ID | CUSTOMER_NAME | CUSTOMER_PHONENUMBER | CUSTOMER_ADDRESS |
|---|---|---|---|
| 2001 | Chandler | 902145 | Washington |
| 2002 | Ross | 45123 | London |
| 2003 | Prashanth | 98032 | Sydney |
| 2004 | Monica | 73821 | Austria |
| 2005 | Phoeba | 32456 | Ireland |
| 2006 | Rajesh | 29031 | California |
| 2007 | Messi | 19041 | Barcelona |

## Group Functions

1)How many customers purchased more than 50000

```
SQL> select count(c.customer_id) from customer c
  2  join amazon a on a.customer_id=c.customer_id
  3  where a.product_price>50000;

COUNT(C.CUSTOMER_ID)
--------------------
                   3
```

2) Print the maximum, minimum and the average amount of purchase.

```
SQL> select max(product_price),min(product_price),avg(product_price)
  2  from amazon;

MAX(PRODUCT_PRICE) MIN(PRODUCT_PRICE) AVG(PRODUCT_PRICE)
------------------ ------------------ ------------------
            500000               8000             114000
```

3) Find out the products pricing  > 40000

```
SQL> select product_id,product_name,product_price
  2  from amazon
  3  where product_price>40000;

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE
---------- ------------------------------ -------------
      1001 SmartTV                               500000
      1005 Mac book pro                          100000
      1006 One plus 8pro                          45000
      1007 Sony Bravia                            85000
```

4) Display the number of customers along with the product in which the customer brought ‘pro’ products.

```
  1  select c.customer_id,a.product_name from customer c
  2  join amazon a on a.customer_id=c.customer_id
  3* where a.product_name like '%pro'
SQL> /

CUSTOMER_ID PRODUCT_NAME
----------- --------------------------------
       2005 Mac book pro
       2006 One plus 8pro
```

5) Determine the minimum amount spent by the customer on the purchase

```
SQL> select c.customer_id,c.customer_name,a.product_price from customer c
  2  join amazon a on a.customer_id=c.customer_id
  3  where a.product_price=(select min(a.product_price) from amazon a);

CUSTOMER_ID CUSTOMER_NAME                 PRODUCT_PRICE
----------- ------------------------------ -------------
      2004 Monica                                  8000
```

6) Calculate the average amount of purchase who purchases >50000

```
import numpy as np
list1=[500000,25000,35000,8000,100000,45000,85000] # amount spent by individual customers
sum1=0
count=0
for i in list1:
    if i>50000:
        sum1+=i
        count+=1
print(sum1/count) # Average amount spent above 50000
```

```
228333.33333333334
```

```
SQL> select avg(product_price)
  2  from amazon
  3  where product_price>50000;

AVG(PRODUCT_PRICE)
------------------
        228333.333
```

7) Display the total number of customers and total amount purchased.

```
SQL> select count(c.customer_id),sum(a.product_price) from customer c
  2  join amazon a on a.customer_id=c.customer_id;

COUNT(C.CUSTOMER_ID) SUM(A.PRODUCT_PRICE)
-------------------- --------------------
                   7               798000
```

8) List the customers who bought minimum quantity of products

```
SQL> select c.customer_id,c.customer_name,a.product_price from customer c
  2  join amazon a on a.customer_id=c.customer_id
  3  where a.quantity=(select min(a.quantity) from amazon a);

CUSTOMER_ID CUSTOMER_NAME                  PRODUCT_PRICE
----------- ------------------------------ -------------
       2007 Messi                                  65000
```

9) How many customers bought exactly 0 quantity of product???

```
SQL> select customer_id,product_price,quantity
  2  from amazon
  3  where quantity = (select min(quantity) from amazon);

CUSTOMER_ID PRODUCT_PRICE   QUANTITY
----------- ------------- ----------
       2007         65000          0
```

10) Get the customer and their respective purchase from ‘Austria’ .

```
SQL> select c.customer_id,c.customer_name,a.product_name from customer c
  2  join amazon a on a.customer_id=c.customer_id
  3  where c.customer_address='Austria';

CUSTOMER_ID CUSTOMER_NAME                  PRODUCT_NAME
----------- ------------------------------ ------------------------------
       2004 Monica                         Alexa
```