DBMS ASSIGNMENT - 7

Roll Number: U19CS012

Name: BHAGYA VINOD RANA

1.) Create the Following Tables:

Master tables: Seller, Category, Product and Customer

A.) **Seller**
(Seller Id, Seller Name, Rating)

```
CREATE TABLE Seller(
    Seller_Id CHAR(3) PRIMARY KEY,
    Seller_Name CHAR(10),
    Rating FLOAT,
    CHECK(RATING BETWEEN 0 AND 5)
);
```

B.) **Category**
(Category Id, Category)

```
CREATE TABLE Category (
    Category_Id CHAR(3) PRIMARY KEY,
    Category CHAR(10)
);
```

C.) **Product**
(Product Id, Product, amount, Quantity remaining, Category Id, seller id, Rating)

```
CREATE TABLE Product (
    Product_Id CHAR(4) PRIMARY KEY,
    Product VARCHAR(25),
    amount INT,
    Quantity_remaining INT,
    Category_Id CHAR(3),
    seller_id CHAR(3),
    Rating INT DEFAULT 0,
    FOREIGN KEY(CATEGORY_ID) REFERENCES CATEGORY(CATEGORY_ID),
    FOREIGN KEY(SELLER_ID) REFERENCES SELLER(SELLER_ID)
);
```

D.) **Customer**
(Customer Id, name, password)

```
CREATE TABLE Customer (
    Customer_Id CHAR(5) PRIMARY KEY,
    name CHAR(10),
    password VARCHAR(15)
);
```

Transaction tables: Order, Order_Products

E.) **Orders**
(Order id, customer id, amount, date, time)

```
CREATE TABLE Orders (
    Order_id CHAR(5) PRIMARY KEY,
    customer_id CHAR(10),
    amount INT,
    TIME_STAMP_OF_ORDER DATE,
    FOREIGN KEY(CUSTOMER_ID) REFERENCES CUSTOMER(CUSTOMER_ID)
);
```

F.) **Order_Products**
(Order id, Product id, quantity, seller id, Original amount, discount, product Rating)

```
CREATE TABLE Order_Products(
    Order_id CHAR(5) PRIMARY KEY,
    Product_id CHAR(4),
    quantity INT ,
    seller_id CHAR(3),
    Original_amount INT,
    discount INT,
    product_Rating INT ,
    FOREIGN KEY(ORDER_ID) REFERENCES ORDERS(ORDER_ID),
    FOREIGN KEY(PRODUCT_ID,PRODUCT_RATING) REFERENCES PRODUCT(PRODUCT_ID,RATING),
    FOREIGN KEY(SELLER_ID) REFERENCES SELLER(SELLER_ID)
);
```

Insert the Given Data into the Database.

```
INSERT INTO SELLER (Seller_Id, Seller_Name, Rating) VALUES ('1S', 'Abhay', 3.3);
INSERT INTO SELLER (Seller_Id, Seller_Name, Rating) VALUES ('2S', 'Priya', 1);
INSERT INTO SELLER (Seller_Id, Seller_Name, Rating) VALUES ('3S', 'Kishan', 4.8);
INSERT INTO SELLER (Seller_Id, Seller_Name, Rating) VALUES ('4S', 'Vicky', 4.3);
INSERT INTO SELLER (Seller_Id, Seller_Name, Rating) VALUES ('5S', 'Sneha', 3.6);
INSERT INTO SELLER (Seller_Id, Seller_Name, Rating) VALUES ('6S', 'Pushpa', 2.8);

INSERT INTO CATEGORY (Category_Id, Category) VALUES ('1C', 'Books');
INSERT INTO CATEGORY (Category_Id, Category) VALUES ('2C', 'Footwear');
INSERT INTO CATEGORY (Category_Id, Category) VALUES ('3C', 'Home Decor');
INSERT INTO CATEGORY (Category_Id, Category) VALUES ('4C', 'Accessories');

INSERT INTO PRODUCT (Product_Id, Product, Amount, Quantity_Remaining, Category_Id, Seller_Id)
 VALUES
('1P', 'The Programming language of ORACLE', 350, 4, '1C', '1S'),
('2P', 'Nike White shoes', 7000, 2, '2C', '3S'),
('3P', 'White Lamp', 800, 3, '3C', '5S'),
('4P', 'Antique Silver Earrings', 400, 7, '4C', '2S'),
('5P', 'Antique Silver Bracelet', 700, 5, '4C', '6S'),
('6P', 'Catwalk leather flats', 1599, 3, '2C', '4S'),
('7P', 'Introduction to Java', 650, 8, '1C', '5S'),
('8P', 'Portico King size bedsheet', 1999, 1, '3C', '1S'),
('9P', 'Book rack', 999, 7, '3C', '4S'),
('10P', 'Artificial Intelligence 3rd Edition', 570, 9, '1C', '2S'),
('11P', 'Introduction to python', 630, 10, '1C', '5S');

INSERT INTO CUSTOMER (CUSTOMER_ID, NAME, PASSWORD) VALUES
('CST01','ABRAHM LINCON','AB@LI'),
('CST02','GRAHAM BELL','#BELL'),
('CST03','NICHOLA TESLA','@TESLA'),
('CST04','SWAMI VIVEKANAND','@SWAMI'),
('CST05','VIRAT KOHLI','@RUN MACHINE'),
('CST06','LIONELL MESSI','FOOTBALL'),
('CST07','DUCKWARD LEWIS','drs'),
('CST08','PIED PIPPER','SILICONVALLEY'),
('CST09','STUART LITTLE','@MOUSE'),
('CST10','AXAR PATEL','MOTERA');

INSERT INTO ORDERS(Order_id, customer_id, amount, TIME_STAMP_OF_ORDER) VALUES
('O0001', 'CST01', 6500, '2021-03-09 10:00'),
('O0002', 'CST03', 760, '2021-03-07 12:00'),
('O0003', 'CST04', 350, '2021-03-08 18:00'),
('O0004', 'CST06', 6900, '2021-03-09 12:00'),
('O0005', 'CST08', 400, '2021-03-08 16:00'),
('O0006', 'CST09', 700, '2021-03-09 17:00'),
('O0007', 'CST01', 350, '2021-03-05 09:00'),
('O0008', 'CST03', 1900, '2021-03-09 11:00'),
('O0009', 'CST08', 350, '2021-03-06 10:00'),
```

```
('O0010', 'CST01', 970, '2021-03-08 14:00');

INSERT INTO Order_Products
( Order_id, Product_id, quantity, seller_id, Original_amount, discount, product_Rating) VALUE
S
('O0001', '2P', 1, '3S', 7000, 500, 4),
('O0002', '3P', 1, '5S', 800, 40, 3.5),
('O0003', '1P', 1, '1S', 350, 0, 3.8),
('O0004', '2P', 1, '3S', 7000, 100, 4.5),
('O0005', '4P', 1, '2S', 400, 0, 2.9),
('O0006', '5P', 1, '6S', 700, 0, 4),
('O0007', '1P', 1, '1S', 350, 0, 3.6),
('O0008', '8P', 1, '1S', 1999, 99, 4.8),
('O0009', '1P', 1, '1S', 350, 0, 4.7),
('O0010', '9P', 1, '4S', 999, 29, 4.3);
```

Initial Table:

SELLER TABLE

Seller_Id	Seller_Name	Rating
1S	Abhay	3.3
2S	Priya	1.0
3S	Kishan	4.8
4S	Vicky	4.3
5S	Sneha	3.6
6S	Pushpa	2.8

CATEGORY TABLE

Category_Id	Category
1C	Books
2C	Footwear
3C	Home Decor
4C	Accessorie

PRODUCT TABLE

Product_Id	Product	amount	Quantity_remaining	Category_Id	seller_id	Rating
1P	The Programming language of ORACLE	350	4	1C	1S	0
2P	Nike White shoes	7000	2	2C	3S	0
3P	White Lamp	800	3	3C	5S	0
4P	Antique Silver Earrings	400	7	4C	2S	0
5P	Antique Silver Bracelet	700	5	4C	6S	0
6P	Catwalk leather flats	1599	3	2C	4S	0
7P	Introduction to Java	650	8	1C	5S	0
8P	Portico King size bedsheet	1999	1	3C	1S	0
9P	Book rack	999	7	3C	4S	0
10P	Artificial Intelligence 3rd Editio	570	9	1C	2S	0
11P	Introduction to python	630	10	1C	5S	0

CUSTOMERS TABLE

Customer_Id	name	password
CST01	ABRAHM LINCON	AB@LI
CST02	GRAHAM BELL	#BELL
CST03	NICHOLA TESLA	@TESLA
CST04	SWAMI VIVEKAN	@SWAMI
CST05	VIRAT KOHLI	@RUN MACHI
CST06	LIONELL MESSI	FOOTBALL
CST07	DUCKWARD LEWI	drs
CST08	PIED PIPPER	SILICONVAL
CST09	STUART LITTLE	@MOUSE
CST10	AXAR PATEL	MOTERA

ORDER TABLE

Order_id	customer_id	amount	TIME_STAMP_OF_ORDER
O0001	CST01	6500	2021-03-09 10:00
O0002	CST03	760	2021-03-07 12:00
O0003	CST04	350	2021-03-08 18:00
O0004	CST06	6900	2021-03-09 12:00
O0005	CST08	400	2021-03-08 16:00
O0006	CST09	700	2021-03-09 17:00
O0007	CST01	350	2021-03-05 09:00
O0008	CST03	1900	2021-03-09 11:00
O0009	CST08	350	2021-03-06 10:00
O0010	CST01	970	2021-03-08 14:00

ORDER_PRODUCTS TABLE

Order_id	Product_id	quantity	seller_id	Original_amount	discount	product_Rating
00001	2P	1	3S	7000	500	4
00002	3P	1	5S	800	40	3.5
00003	1P	1	1S	350	0	3.8
00004	2P	1	3S	7000	100	4.5
00005	4P	1	2S	400	0	2.9
00006	5P	1	6S	700	0	4
00007	1P	1	1S	350	0	3.6
00008	8P	1	1S	1999	99	4.8
00009	1P	1	1S	350	0	4.7
00010	9P	1	4S	999	29	4.3

Q. Write queries for the following:

1. Display the highest sold product details.

Query:

```
SELECT *
FROM PRODUCT, ( SELECT P,MAX(COUNTS)
                FROM (  SELECT PRODUCT_ID P, COUNT(PRODUCT_ID) AS COUNTS
                        FROM ORDER_PRODUCTS O
                        GROUP BY PRODUCT_ID
                     ))
                WHERE PRODUCT.PRODUCT_ID = P;
```

Output:

Product_Id	Product	amount	Quantity_remaining	Category_Id	seller_id	Rating	P	MAX(COUNTS)
1P	The Programming language of ORACLE	350	4	1C	1S	0	1P	3

2. Update product rating column in product table as per the entries in order_product table (calculate average).

Query:

```
UPDATE PRODUCT
SET RATING=(    SELECT AVG(PRODUCT_RATING)
                FROM ORDER_PRODUCTS OLD
                GROUP BY PRODUCT_ID
                HAVING OLD.PRODUCT_ID=PRODUCT.PRODUCT_ID
);

select * from PRODUCT;
```

Output:

Product_Id	Product	amount	Quantity_remaining	Category_Id	seller_id	Rating
1P	The Programming language of ORACLE	350	4	1C	1S	4.03333333333333
2P	Nike White shoes	7000	2	2C	3S	4.25
3P	White Lamp	800	3	3C	5S	3.5
4P	Antique Silver Earrings	400	7	4C	2S	2.9
5P	Antique Silver Bracelet	700	5	4C	6S	4
6P	Catwalk leather flats	1599	3	2C	4S	NULL
7P	Introduction to Java	650	8	1C	5S	NULL
8P	Portico King size bedsheet	1999	1	3C	1S	4.8
9P	Book rack	999	7	3C	4S	4.3
10P	Artificial Intelligence 3rd Editio	570	9	1C	2S	NULL
11P	Introduction to python	630	10	1C	5S	NULL

3. Add a new seller with all details.

Query:

```
INSERT INTO SELLER VALUES('7S','JETHALAL','4.5');
SELECT * FROM SELLER;
```

Output:

Seller_Id	Seller_Name	Rating
1S	Abhay	3.3
2S	Priya	1.0
3S	Kishan	4.8
4S	Vicky	4.3
5S	Sneha	3.6
6S	Pushpa	2.8
7S	JETHALAL	4.5

4. Add a new product with all details.

Query:

```
INSERT INTO PRODUCT VALUES('12P','THE ATOMIC HABIT',350,3,'1C','7S',4.6);
SELECT * FROM PRODUCT;
```

Output:

Product_Id	Product	amount	Quantity_remaining	Category_Id	seller_id	Rating
1P	The Programming language of ORACLE	350	4	1C	1S	0
2P	Nike White shoes	7000	2	2C	3S	0
3P	White Lamp	800	3	3C	5S	0
4P	Antique Silver Earrings	400	7	4C	2S	0
5P	Antique Silver Bracelet	700	5	4C	6S	0
6P	Catwalk leather flats	1599	3	2C	4S	0
7P	Introduction to Java	650	8	1C	5S	0
8P	Portico King size bedsheet	1999	1	3C	1S	0
9P	Book rack	999	7	3C	4S	0
10P	Artificial Intelligence 3rd Editio	570	9	1C	2S	0
11P	Introduction to python	630	10	1C	5S	0
12P	THE ATOMIC HABIT	350	3	1C	7S	4.6

5. Display the details of the products which have never sold.

Query:

```
SELECT *
FROM PRODUCT P
WHERE P.PRODUCT_ID NOT IN ( SELECT PRODUCT_ID
                            FROM ORDER_PRODUCTS);
```

Output:

Product_Id	Product	amount	Quantity_remaining	Category_Id	seller_id	Rating
6P	Catwalk leather flats	1599	3	2C	4S	0
7P	Introduction to Java	650	8	1C	5S	0
10P	Artificial Intelligen	570	9	1C	2S	0
11P	Introduction to pytho	630	10	1C	5S	0

6. Display the details of the seller who has not sold any product today.

Query:

```
SELECT *
FROM SELLER
WHERE SELLER_ID NOT IN ( SELECT SELLER_ID
                         FROM ORDER_PRODUCTS
                         WHERE ORDER_ID IN (SELECT ORDER_ID
                                            FROM ORDERS
                                            WHERE STRFTIME("%Y-%m-
%d",ORDERS.TIME_STAMP_OF_ORDER) IS '2021-03-09')
);
```

Output:

Seller_Id	Seller_Name	Rating
2S	Priya	1.0
4S	Vicky	4.3
5S	Sneha	3.6
7S	JETHALAL	4.5

NOTE: Observe that the New Seller "JETHALAL" who was added recently, has not sold any Product and therefore is also there in the List.

7. Display the details of the seller who has sold the highest amount of products today.

Query:

```
SELECT *
FROM SELLER S, (SELECT SI ,MAX(SUMATION)
                FROM (SELECT SELLER_ID AS SI, SUM(ORIGINAL_AMOUNT- DISCOUNT) AS SUMATION
                FROM ORDER_PRODUCTS
                GROUP BY SELLER_ID))
                WHERE S.SELLER_ID=SI;
```

Output:

Seller_Id	Seller_Name	Rating	SI	MAX(SUMATION)
3S	Kishan	4.8	3S	13400

8. Display the product details with the highest rating.

Query:

```
SELECT *
FROM PRODUCT
WHERE RATING IS ( SELECT MAX(RATING)
                  FROM PRODUCT);
```

Output:

Product_Id	Product	amount	Quantity_remaining	Category_Id	seller_id	Rating
8P	Portico King size bedsheet	1999	1	3C	1S	4.8

9. Display the customer details who has repeated the same product purchase in the last three months.

Query:

```
INSERT INTO ORDERS( Order_id, customer_id, amount, TIME_STAMP_OF_ORDER ) VALUES
('O0011','CST01',350,'2021-03-09 16:00');

INSERT INTO Order_Products
( Order_id , Product_id , quantity , seller_id ,Original_amount , discount ,product_Rating )
VALUES ('O0011', '1P',1,'1S',350,0,4);

SELECT *
FROM CUSTOMER
WHERE CUSTOMER_ID IN (  SELECT O1.CUSTOMER_ID
                        FROM (ORDERS NATURAL JOIN ORDER_PRODUCTS) O1 ,(ORDERS NATURAL JOIN OR
DER_PRODUCTS) O2
                        WHERE O1.CUSTOMER_ID=O2.CUSTOMER_ID AND O1.ORDER_ID IS NOT O2.ORDER_I
D AND O1.PRODUCT_ID=O2.PRODUCT_ID
                        AND JULIANDAY('now')-JULIANDAY(O1.TIME_STAMP_OF_ORDER)<=90
);
```

Output:

Customer_Id	name	password
CST01	ABRAHM LINCON	AB@LI

10. Display the seller details who is second highest in selling products in the last three months.

Query:

```
-
- Note : HERE IN THIS QUESTION IT IS CONSIDERED THAT "HIGHEST IN SELLING PRODUCTS" = "HIGHEST
 QUANTITY SOLD"
-- IF ABOVE ONE IS NOT TRUE RATHER IF IT IS "HIGHEST IN SELLING PRODUCTS" = "HIGHEST AMOUNT"
-- THEN REPLACING QUANTITY TO AMOUNT WILL WORK AS PER REQUIREMENTS

CREATE TABLE TEMPORARY(
    SELLER_ID CHAR(3),
    TOTAL_QUANTITY INT
);

INSERT INTO TEMPORARY
SELECT SELLER_ID ,SUM(QUANTITY)
```

```
FROM (  SELECT *
        FROM ORDER_PRODUCTS NATURAL JOIN ORDERS
        WHERE JULIANDAY('now')-JULIANDAY(TIME_STAMP_OF_ORDER)<=90)
GROUP BY SELLER_ID;

SELECT *
FROM SELLER
WHERE SELLER_ID IN (    SELECT SELLER_ID
                        FROM (  SELECT SELLER_ID , MAX(TOTAL_QUANTITY) AS salary
                                FROM TEMPORARY
                                WHERE TOTAL_QUANTITY < (SELECT MAX(TOTAL_QUANTITY) FROM TEMPO
RARY))
);

DROP TABLE TEMPORARY;
```

Output:

Seller_Id	Seller_Name	Rating
3S	Kishan	4.8

11. Display products in the descending order of product amount sold by the seller who is having the highest rating.

Query:

```
SELECT DISTINCT PRODUCT_ID, PRODUCT , AMOUNT , QUANTITY_REMAINING , CATEGORY_ID , SELLER_ID
FROM (ORDER_PRODUCTS NATURAL JOIN PRODUCT)
WHERE SELLER_ID IN (SELECT SID
                    FROM (SELECT SELLER_ID SID, MAX(RATING) FROM SELLER))
                    ORDER BY ORIGINAL_AMOUNT-DISCOUNT DESC;
```

Output:

Product_id	Product	amount	Quantity_remaining	Category_Id	seller_id
2P	Nike White shoes	7000	2	2C	3S

12. Update the seller ratings as per the new entries in Order_Products table.

Query:

```
SELECT * FROM SELLER;

UPDATE SELLER
SET RATING=(
    SELECT AVG(PRODUCT_RATING)
    FROM ORDER_PRODUCTS OP
    GROUP BY SELLER_ID
    HAVING OP.SELLER_ID=SELLER.SELLER_ID
);

SELECT * FROM SELLER;
```

Output:

Before Updating:

Seller_Id	Seller_Name	Rating
1S	Abhay	3.3
2S	Priya	1.0
3S	Kishan	4.8
4S	Vicky	4.3
5S	Sneha	3.6
6S	Pushpa	2.8
7S	JETHALAL	4.5

After Updating:

Seller_Id	Seller_Name	Rating
1S	Abhay	4.18
2S	Priya	2.9
3S	Kishan	4.25
4S	Vicky	4.3
5S	Sneha	3.5
6S	Pushpa	4.0
7S	JETHALAL	NULL

13. Display the list of products having quantity remaining <= 4.

Query:

```
select product_id , product from product
where quantity_remaining <= 4;
```

Output:

Product_Id	Product
1P	The Programming language of ORACLE
2P	Nike White shoes
3P	White Lamp
6P	Catwalk leather flats
8P	Portico King size bedsheet
12P	THE ATOMIC HABIT

Submitted By:

BHAGYA VINOD RANA

U19CS012