

## CASE STUDY ASSIGNMENT

```
CREATE TABLE menu (  
    product_id INT PRIMARY KEY NOT NULL,  
    product_name VARCHAR(5),  
    price INTEGER  
);
```

```
CREATE TABLE members (  
    customer_id VARCHAR(1) PRIMARY KEY NOT NULL,  
    join_date DATE  
);
```

```
CREATE TABLE sales (  
    customer_id VARCHAR(1) FOREIGN KEY REFERENCES  
MEMBERS(customer_id) ON DELETE CASCADE ,  
    order_date DATE,  
    product_id INT FOREIGN KEY REFERENCES MENU(product_id) ON DELETE  
CASCADE  
);
```

```
INSERT INTO sales  
VALUES  
( 'A', '2021-01-01', '1'),  
( 'A', '2021-01-01', '2'),  
( 'A', '2021-01-01', '2'),  
( 'A', '2021-01-07', '2'),  
( 'A', '2021-01-10', '3'),  
( 'A', '2021-01-11', '3'),  
( 'A', '2021-01-11', '3'),  
( 'B', '2021-01-01', '2'),  
( 'B', '2021-01-02', '2'),  
( 'B', '2021-01-04', '1'),  
( 'B', '2021-01-11', '1'),  
( 'B', '2021-01-16', '3'),  
( 'B', '2021-02-01', '3'),  
( 'C', '2021-01-01', '3'),  
( 'C', '2021-01-01', '3'),  
( 'C', '2021-01-07', '3')
```

```
INSERT INTO menu
VALUES
('1', 'sushi', '10'),
('2', 'curry', '15'),
('3', 'ramen', '12');
```

```
INSERT INTO MEMBERS
VALUES
('A', '2021-01-07'),
('B', '2021-01-09'),
('C', '2021-01-07')
```

### 1. What is the total amount each customer spent at the restaurant?

```
SELECT customer_id ,SUM(m.price) AS total_spent
FROM sales s
INNER JOIN menu m
ON s.product_id =m.product_id
GROUP BY customer_id
```

```
--1)
SELECT customer_id ,SUM(m.price) AS total_spent
FROM sales s
INNER JOIN menu m
ON s.product_id =m.product_id
GROUP BY customer_id
```

	customer_id	total_spent
1	A	76
2	B	74
3	C	36

### 2. How many days has each customer visited the restaurant?

```
SELECT customer_id, COUNT(DISTINCT order_date) AS no_of_days_visited
FROM sales
GROUP BY customer_id
```

```
--2)
SELECT customer_id, COUNT(DISTINCT order_date) AS no_of_days_visited
FROM sales
GROUP BY customer_id
```

	customer_id	no_of_days_visited
1	A	4
2	B	6
3	C	2

### 3. What was the first item from the menu purchased by each customer?

```
SELECT DISTINCT d.customer_id ,d.product_id,d.product_name
FROM (
    SELECT s.customer_id ,s.product_id,m.product_name,
    DENSE_RANK() OVER(PARTITION BY customer_id ORDER BY
order_date) AS rank
    FROM sales s
    INNER JOIN menu m
    ON s.product_id =m.product_id) AS d
WHERE d.rank=1
```

```
--3)
SELECT DISTINCT d.customer_id ,d.product_id,d.product_name
FROM (
    SELECT s.customer_id ,s.product_id,m.product_name,
    DENSE_RANK() OVER(PARTITION BY customer_id ORDER BY order_date) AS rank
    FROM sales s
    INNER JOIN menu m
    ON s.product_id =m.product_id) AS d
WHERE d.rank=1
```

	customer_id	product_id	product_name
1	A	1	sushi
2	A	2	curry
3	B	2	curry
4	C	3	ramen

### 4. What is the most purchased item on the menu and how many times was it purchased by all customers?

```
SELECT TOP 1 s.product_id ,M.product_name,COUNT(s.product_id) AS
no_of_orders
FROM sales s
INNER JOIN menu m
ON s.product_id =m.product_id
GROUP BY s.product_id ,m.product_name
ORDER BY COUNT(s.product_id) DESC
```

```
--4)
SELECT TOP 1 s.product_id ,M.product_name,COUNT(s.product_id) AS no_of_orders
FROM sales s
INNER JOIN menu m
ON s.product_id =m.product_id
GROUP BY s.product_id ,m.product_name
ORDER BY COUNT(s.product_id) DESC
```

	product_id	product_name	no_of_orders
1	3	ramen	8

## 5. Which item was the most popular for each customer?

```
SELECT d.customer_id ,d.product_id,d.product_name
FROM (
SELECT s.customer_id ,m.product_id,m.product_name,COUNT(m.product_id)
as no_of_times_purchased ,
DENSE_RANK() OVER(PARTITION BY s.customer_id ORDER BY
COUNT(m.product_id) DESC) AS RANK
FROM sales s
INNER JOIN menu m
ON s.product_id=m.product_id
GROUP BY s.customer_id ,m.product_id,m.product_name ) as d
WHERE rank=1
```

```
--5)
SELECT d.customer_id ,d.product_id,d.product_name
FROM (SELECT s.customer_id ,m.product_id,m.product_name,COUNT(m.product_id) as no_of_times_purchased ,
DENSE_RANK() OVER(PARTITION BY s.customer_id ORDER BY COUNT(m.product_id) DESC) AS RANK
FROM sales s
INNER JOIN menu m
ON s.product_id=m.product_id
GROUP BY s.customer_id ,m.product_id,m.product_name ) as d
WHERE rank=1
```

	customer_id	product_id	product_name
1	A	3	ramen
2	B	1	sushi
3	B	2	cumy
4	B	3	ramen
5	C	3	ramen

**6. Which item was purchased first by the customer after they became a member?**

```
WITH CTE_CUSOTMER_MEMBER
AS
(
    SELECT s.customer_id,m.product_name,s.product_id,
           DENSE_RANK() OVER(PARTITION BY s.customer_id ORDER BY
s.order_date) AS rank
    FROM SALES S
    INNER JOIN MENU M
    ON M.product_id=S.product_id
    INNER JOIN MEMBERS D
    ON S.customer_id=D.customer_id
    WHERE S.order_date > D.join_date
)
SELECT customer_id ,product_name,product_id
FROM CTE_CUSOTMER_MEMBER C
WHERE RANK=1
```

```
--6)
WITH CTE_CUSOTMER_MEMBER
AS
(
    SELECT s.customer_id,m.product_name,s.product_id,
           DENSE_RANK() OVER(PARTITION BY s.customer_id ORDER BY s.order_date) AS rank
    FROM SALES S
    INNER JOIN MENU M
    ON M.product_id=S.product_id
    INNER JOIN MEMBERS D
    ON S.customer_id=D.customer_id
    WHERE S.order_date > D.join_date
)
SELECT customer_id ,product_name,product_id
FROM CTE_CUSOTMER_MEMBER C
WHERE RANK=1
```

	customer_id	product_name	product_id
1	A	ramen	3
2	B	sushi	1

## 7. Which item was purchased just before the customer became a member?

```
SELECT customer_id,product_name,product_id,join_date, order_date
FROM (
    SELECT s.customer_id,m.product_name,s.product_id,D.join_date,
    s.order_date,
        DENSE_RANK() OVER(PARTITION BY s.customer_id ORDER BY
s.order_date DESC) AS RANK
    FROM SALES S
    INNER JOIN MENU M
    ON M.product_id=S.product_id
    INNER JOIN MEMBERS D
    ON S.customer_id=D.customer_id AND S.order_date < D.join_date
) AS A
WHERE RANK=1
```

```
--7)
SELECT customer_id,product_name,product_id,join_date, order_date
FROM (
    SELECT s.customer_id,m.product_name,s.product_id,D.join_date, s.order_date,
        DENSE_RANK() OVER(PARTITION BY s.customer_id ORDER BY s.order_date DESC) AS RANK
    FROM SALES S
    INNER JOIN MENU M
    ON M.product_id=S.product_id
    INNER JOIN MEMBERS D
    ON S.customer_id=D.customer_id AND S.order_date < D.join_date
) AS A
WHERE RANK=1
```

	customer_id	product_name	product_id	join_date	order_date
1	A	curry	2	2021-01-07	2021-01-01
2	A	sushi	1	2021-01-07	2021-01-01
3	B	sushi	1	2021-01-09	2021-01-04
4	C	ramen	3	2021-01-07	2021-01-01
5	C	ramen	3	2021-01-07	2021-01-01

**8. What is the total items and amount spent for each member before they became a member?**

SELECT s.customer\_id ,COUNT(S.customer\_id) AS total\_items ,SUM (m.price)  
AS amount

FROM SALES S  
INNER JOIN MENU M  
ON M.product\_id=S.product\_id  
INNER JOIN MEMBERS D  
ON S.customer\_id=D.customer\_id AND S.order\_date < D.join\_date  
GROUP BY S.customer\_id

```
--8)
SELECT s.customer_id ,COUNT(S.customer_id) AS total_items ,SUM (m.price) AS amount
FROM SALES S
INNER JOIN MENU M
ON M.product_id=S.product_id
INNER JOIN MEMBERS D
ON S.customer_id=D.customer_id AND S.order_date < D.join_date
GROUP BY S.customer_id
```

	customer_id	total_items	amount
1	A	2	25
2	B	3	40
3	C	2	24