DATA ANALYSIS PROJECT

SQL CASE STUDY

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CASE STUDY #1

THE TASTE OF SUCCESS

DATAWITHDANNY.COM

INTRODUCTION

Danny seriously loves Japanese food so in the beginning of 2021, he decides to embark upon a risky venture and opens up a cute little restaurant that sells his 3 favourite foods: sushi, curry and ramen.

Danny's Diner is in need of your assistance to help the restaurant stay afloat - the restaurant has captured some very basic data from their few months of operation but have no idea how to use their data to help them run the business.

PROBLEM STATEMENT

Danny wants to use the data to answer a few simple questions about his customers, especially about their visiting patterns, how much money they've spent and also which menu items are their favourite.

He plans on using these insights to help him decide whether he should expand the existing customer loyalty program - additionally he needs help to generate some basic datasets so his team can easily inspect the data without needing to use SQL.

Danny has shared with you 3 key datasets for this case study:

- sales
- menu
- members

ER-DIAGRAM

Table 1 : Sales

customer_id	order_date	product_id
A	2021-01-01	1
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

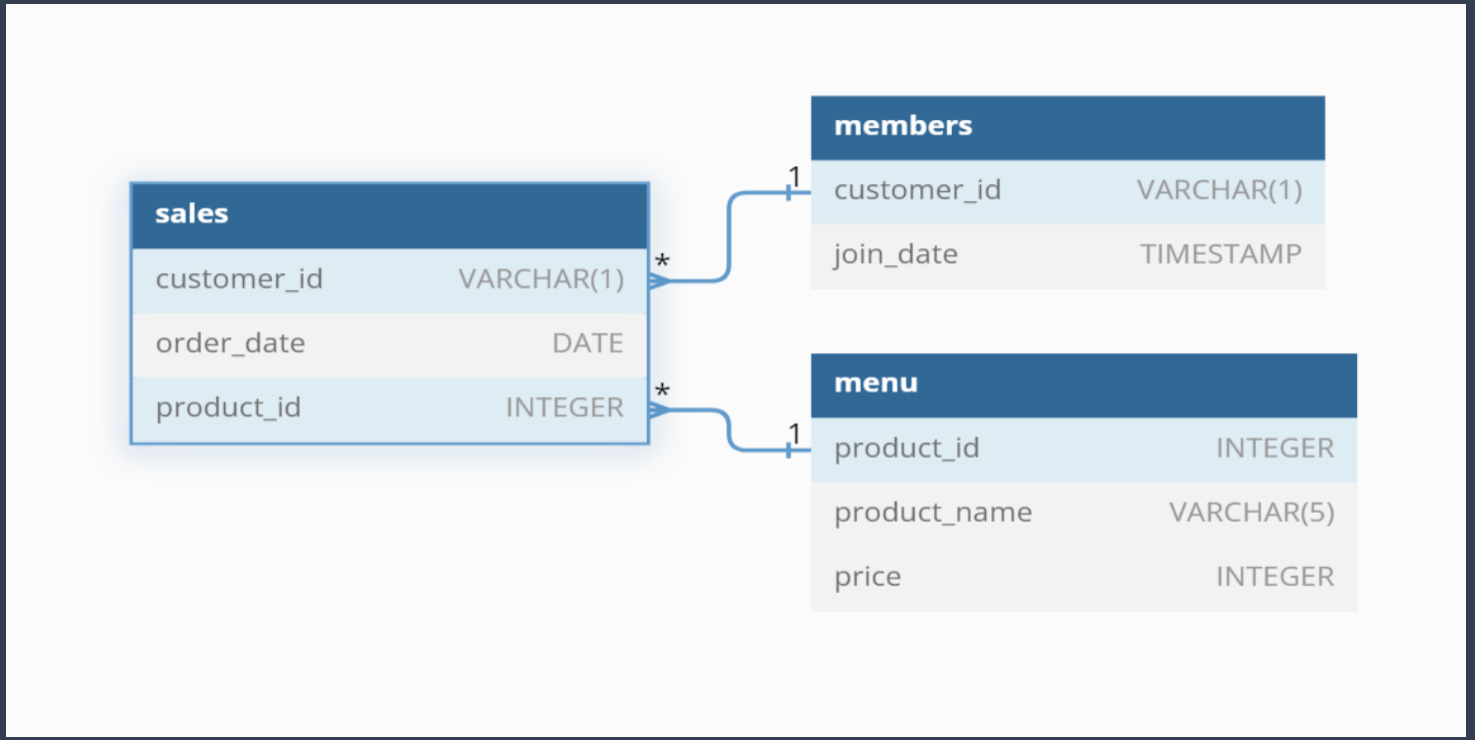

Table 2 : Menu

product_id	product_name	price
1	sushi	10
2	curry	15
3	ramen	12

Table 3 : Members

customer_id	join_date
A	2021-01-07
B	2021-01-09

Q1 - What is the total amount each customer spent at the restaurant?

```sql
SELECT customer_id, SUM(price) Total_Amount
FROM Sales S
JOIN Menu M ON S.product_id = M.product_id
GROUP BY customer_id;
```

customer_id	Total_Amount
A	76
B	74
C	36

Q2 - How many days has each customer visited the restaurant?

```sql
SELECT customer_id, COUNT(DISTINCT order_date) AS Days
FROM Sales
GROUP BY customer_id;
```

customer_id	Days
A	4
B	6
C	2

Q3 - What was the first item from the menu purchased by each customer?

```sql
WITH CTE AS (
    SELECT customer_id, product_name, order_date,
           ROW_NUMBER() OVER(PARTITION BY customer_id ORDER BY order_date) AS rn
    FROM Sales S
    JOIN Menu M ON S.product_id = M.product_id
)
SELECT customer_id, product_name, order_date
FROM CTE
WHERE rn = 1;
```

customer_id	product_name	order_date
A	sushi	2021-01-01
B	curry	2021-01-01
C	ramen	2021-01-01

Q4 - What is the most purchased item on the menu and how many times was it purchased by all customers?

```sql
SELECT product_name, COUNT(M.product_id) AS Order_Placed
FROM Sales S
JOIN Menu M ON S.product_id = M.product_id
GROUP BY product_name
ORDER BY Order_Placed DESC
LIMIT 1;
```

product_name	Order_Placed
ramen	8

Q5 - Which item was the most popular for each customer?

```sql
WITH CTE AS (
    SELECT s.customer_id, m.product_name, COUNT(m.product_name) AS Count,
           ROW_NUMBER() OVER(PARTITION BY s.customer_id ORDER BY COUNT(m.product_name) DESC) AS Rn
    FROM sales s
    JOIN menu m ON s.product_id = m.product_id
    GROUP BY s.customer_id, m.product_name
)
SELECT customer_id, product_name AS Most_Fav, Count AS Order_Placed
FROM CTE
WHERE Rn = 1;
```

customer_id	Most_Fav	Order_Placed
A	ramen	3
B	curry	2
C	ramen	3

Q6 - Which item was purchased first by the customer after they became a member?

```sql
WITH CTE AS (
    SELECT s.customer_id, m.product_name,
        ROW_NUMBER() OVER(PARTITION BY s.customer_id ORDER BY s.order_date) AS rn
    FROM sales s
    JOIN members mem ON s.customer_id = mem.customer_id
    JOIN menu m ON s.product_id = m.product_id
    WHERE mem.join_date <= s.order_date
)
SELECT customer_id, product_name
FROM CTE
WHERE rn = 1;
```

customer_id	product_name
A	curry
B	sushi

Q7 - Which item was purchased just before the customer became a member?

```sql
WITH CTE AS (
    SELECT s.customer_id, m.product_name,
           ROW_NUMBER() OVER(PARTITION BY s.customer_id ORDER BY s.order_date DESC) AS rn
    FROM sales s
    JOIN members mem ON s.customer_id = mem.customer_id
    JOIN menu m ON s.product_id = m.product_id
    WHERE mem.join_date > s.order_date
)
SELECT customer_id, product_name
FROM CTE
WHERE rn = 1;
```

customer_id	product_name
A	sushi
B	sushi

Q8- What is the total items and amount spent for each member before they became a member?

```sql
SELECT s.customer_id, COUNT(product_name) AS Total_Items, SUM(price) AS Amount_Spent
FROM sales s
JOIN members mem ON s.customer_id = mem.customer_id
JOIN menu m ON s.product_id = m.product_id
WHERE order_date < join_Date
GROUP BY s.customer_id;
```

customer_id	Total_Items	Amount_Spent
A	2	25
B	3	40

Q9- If each $1 spent equates to 10 points and sushi has a 2x points multiplier - how many points would each customer have?

```sql
WITH CTE AS (
    SELECT *,
           CASE
               WHEN product_name = 'sushi' THEN price * 10 * 2
               ELSE price * 10
           END AS Points
    FROM Menu
)
SELECT s.customer_id, SUM(Points) AS Total_Points
FROM Sales S
JOIN CTE ON S.product_id = CTE.product_id
GROUP BY s.customer_id;
```

customer_id	Total_Points
A	860
B	940
C	360

Q10- In the first week after a customer joins the program (including their join date) they earn 2x points on all items, not just sushi - how many points do customer A and B have at the end of January?

```sql
SELECT s.customer_id,
       SUM(CASE WHEN s.order_date BETWEEN MEM.join_Date
       AND DATE_ADD(mem.join_date, INTERVAL 7 DAY) THEN 2 * m.price*10 ELSE m.price*10 END) AS total_points
FROM sales s
JOIN menu m ON s.product_id = m.product_id
JOIN members mem ON s.customer_id = mem.customer_id
WHERE s.order_date <= '2021-01-31'
GROUP BY s.customer_id;
```

customer_id	total_points
A	1270
B	840