Case Study #1 : Danny's Diner

Background:

Danny's Diner is a popular restaurant chain with several locations across the city. They're known for their mouth-watering burgers, crispy fries, and refreshing shakes. To better understand their customers and optimize their menu, he needs your help with data analysis.

Problem Statement:

Danny, the owner of Danny's Diner, wants to leverage data to gain a deeper understanding of his customers' visiting patterns, spending habits, and favorite menu items. This insight will enable him to deliver a more personalized experience for his loyal customers.

Danny aims to use these findings to inform his decision to expand the existing customer loyalty program. Additionally, he needs help generating basic datasets that his team can easily inspect without requiring SQL expertise.

Due to privacy concerns, Danny has shared a sample of his overall customer data. He hopes this sample is sufficient for you to write fully functional SQL queries to answer his questions.

Danny has provided three key datasets for this case study:

- sales
- menu
- members

Example Datasets

All datasets exist within the Danny Diner database schema - be sure to include this reference within your SQL scripts as you start exploring the data and answering the case study questions.

Table 1: sales

The sales table captures all `customer_id` level purchases with corresponding `order_date` and `product_id` information for when and what menu items were ordered.

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

The menu table maps the `product_id` to the actual `product_name` and price of each menu item.

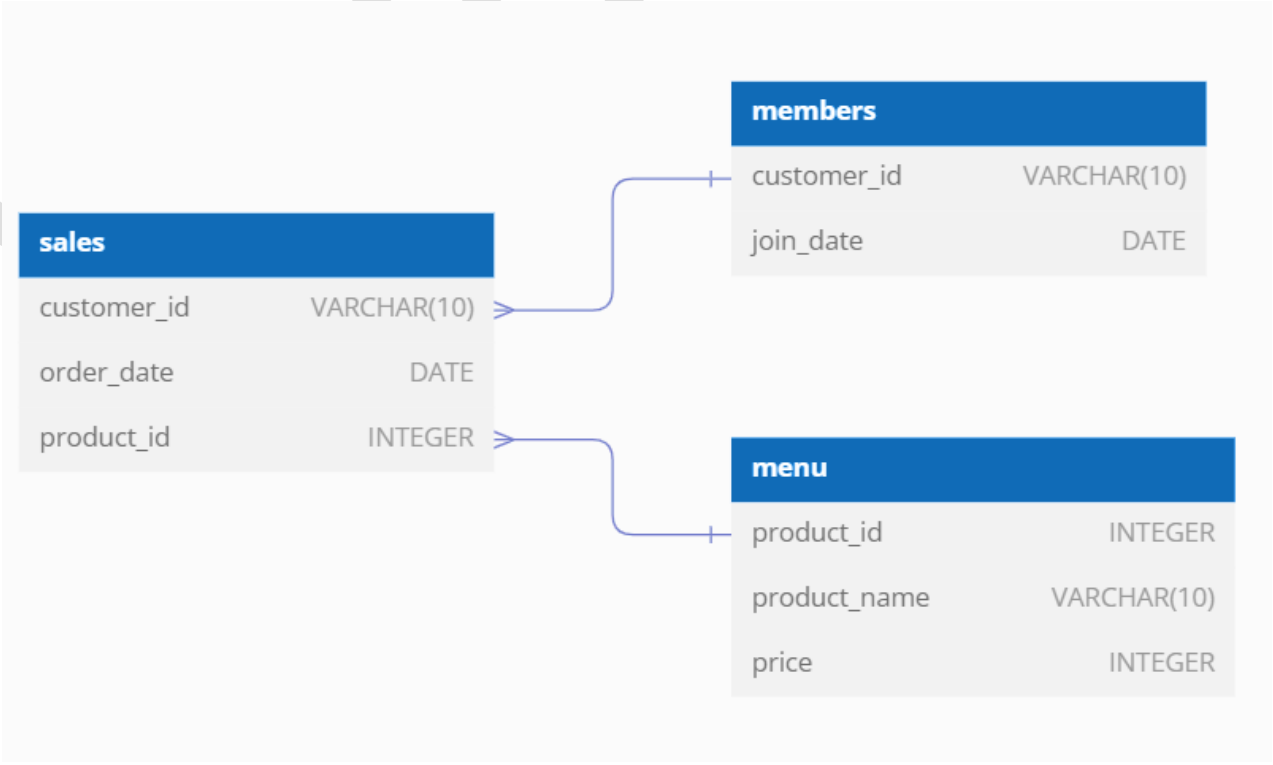
product_id	product_name	price
1	sushi	10
2	curry	15
3	ramen	12

Table 3: members

The final members table captures the `join_date` when a `customer_id` joined the beta version of the loyalty program.

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

Entity Relationship Diagram



Case Study Questions

Each of the following case study questions can be answered using a single SQL statement:

1. What is the total amount each customer spent at the restaurant?
2. How many days has each customer visited restaurant?
3. What was the first item from the menu purchased by each customer?
4. What is the most purchased item on the menu and how many times was it purchased by all customers?
5. Which item was the most popular for each customer?
6. Which item was purchased first by the customer after they became a member?
7. Which item was purchased just before the customer became a member?
8. What is the total items and amount spent for each member before they became a member?
9. If each $1 spent equates to 10 points and sushi has a 2x points multiplier - how many points would each customer have?
10. 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?

Bonus Questions:

Q1. Join All The Things

Recreate the table with columns:

`customer_id, order_date, product_name, price, member_status (Y/N)`

Sample Output:

customer_id	order_date	product_name	price	member_status
A	2021-01-01	sushi	10	N
A	2021-01-01	curry	15	N
A	2021-01-07	curry	15	Y

Q2. Rank All The Things

Danny also requires further information about the ranking of customer products, but he purposely does not need the ranking for non-member purchases, so he expects null ranking values for the records when customers are not yet part of the loyalty program.

Sample Output:

customer_id	order_date	product_name	price	member_status	ranking
A	2021-01-01	curry	15	N	NULL
A	2021-01-01	sushi	10	N	NULL
A	2021-01-07	Curry	15	Y	1
A	2021-01-10	ramen	12	Y	2

For more such SQL Challenges and Data Analysis related stuff,

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Above Case study is taken from https://8weeksqlchallenge.com/case-study-1/