**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. Having this deeper connection with his customers will help him deliver a better and more personalised experience for his loyal customers.

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.

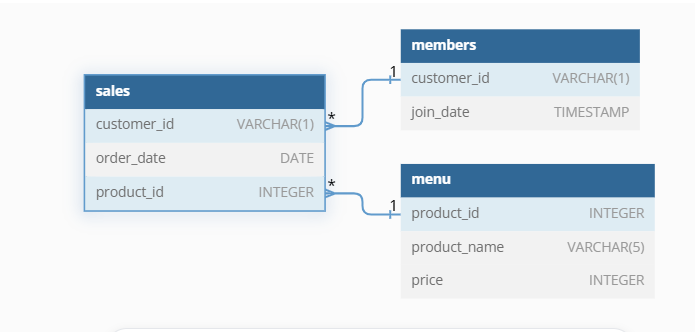
Danny has provided you with a sample of his overall customer data due to privacy issues - but he hopes that these examples are enough for you to write fully functioning SQL queries to help him answer his questions!

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

* sales
* menu
* members

You can inspect the entity relationship diagram and example data below.

**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 the 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?

-------------------Answers-----------

---------Case Study Questions---------

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

select customer\_id as Customer,SUM(Price) as Total\_Amountspent from sales A

inner join menu B on A.product\_id = B.product\_id group by customer\_id

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

select customer\_id as Customer,order\_date,count(DATEPART(Day,order\_date)) as NoofTimes\_visited from sales A

inner join menu B on A.product\_id = B.product\_id group by customer\_id,order\_date

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

select customer\_id,product\_name from (select A.customer\_id,dense\_Rank() over(partition by A.customer\_id order by Day(order\_date)) as Rank,product\_name from sales A

inner join menu B on A.product\_id = B.product\_id )As A where Rank =1

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

with MostPurchased as(

select product\_name,COUNT(product\_name) as Totapurchased from sales A

inner join menu B on A.product\_id = B.product\_id

group by product\_name

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)

select customer\_id,count(A.product\_id) as Nooftimespurchased from sales A

inner join menu B on A.product\_id = B.product\_id

where product\_name = (select top 1 product\_name from MostPurchased group by product\_name order by count(product\_name) desc)

group by customer\_id

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

WITH ProductCounts AS (

SELECT

customer\_id,

A.product\_id,

product\_name,

COUNT(\*) AS purchase\_count

FROM

sales A

inner join menu B on A.product\_id = B.product\_id

GROUP BY

customer\_id, A.product\_id, product\_name

),

RankedProducts AS (

SELECT

customer\_id,

product\_id,

product\_name,

purchase\_count,

ROW\_NUMBER() OVER (PARTITION BY customer\_id ORDER BY purchase\_count DESC) AS rank

FROM

ProductCounts

)

SELECT

customer\_id,

product\_id,

product\_name,

purchase\_count

FROM

RankedProducts

WHERE

rank = 1;

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

with CTE as (

select A.customer\_id,A.order\_date,A.product\_id,B.product\_name,B.price,C.join\_date,

case when order\_date >join\_date then 'Orders After Joining' else 'Orders before joining' End as Category

from sales A

inner join menu B on A.product\_id = B.product\_id

inner join members C on A.customer\_id = C.customer\_id ),

FirstpurchasedItems As(

select \*,RANK() over(partition by customer\_id order by order\_date) as Rank from CTE where Category = 'Orders After Joining')

select customer\_id,product\_name from FirstpurchasedItems where Rank = 1

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

with CTE as (

select A.customer\_id,A.order\_date,A.product\_id,B.product\_name,B.price,C.join\_date,

case when order\_date >join\_date then 'Orders After Joining' else 'Orders before joining' End as Category

from sales A

inner join menu B on A.product\_id = B.product\_id

inner join members C on A.customer\_id = C.customer\_id ),

FirstpurchasedItems As(

select \*,RANK() over(partition by customer\_id order by order\_date desc) as Rank from CTE where Category = 'Orders before joining')

--select \* from FirstpurchasedItems where Rank = 1

select customer\_id,product\_name from FirstpurchasedItems where Rank = 1

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

select count(product\_id) as TotalItems\_Purchased,sum(price) as Total\_price from (select A.customer\_id,A.order\_date,A.product\_id,B.price,B.product\_name,

case when order\_date >join\_date then 'Orders After Joining' else 'Orders before joining' End as Category

from sales A

inner join menu B on A.product\_id = B.product\_id

inner join members C on A.customer\_id = C.customer\_id ) as A where Category = 'Orders before joining'

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

select customer\_id,

sum(case when product\_name = 'sushi' then price\*20 else price \*10 end) TotalPoints

from sales A

inner join menu B on A.product\_id = B.product\_id group by customer\_id

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--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?

select A.customer\_id,

sum(case when product\_name = 'sushi' then price\*20

when order\_date>=join\_date then price \*20

else price \* 10 end) TotalPoints

from sales A

inner join menu B on A.product\_id = B.product\_id

inner join members C on A.customer\_id = C.customer\_id where MONTH(A.order\_date)<2 group by A.customer\_id

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