Tables creation and inserting rows:

CREATE TABLE sales (

customer\_id VARCHAR(1),

order\_date DATE,

product\_id INTEGER

);

INSERT INTO sales

VALUES ('A',to\_date('2021-01-01', 'yyyy-mm-dd'),1);

INSERT INTO sales

VALUES ('A',to\_date('2021-01-01', 'yyyy-mm-dd'),2);

INSERT INTO sales

VALUES ('A',to\_date('2021-01-07', 'yyyy-mm-dd'),2);

INSERT INTO sales

VALUES ('A',to\_date('2021-01-10', 'yyyy-mm-dd'),3);

INSERT INTO sales

VALUES('A',to\_date('2021-01-11', 'yyyy-mm-dd'),3);

INSERT INTO sales

VALUES ('A',to\_date('2021-01-11', 'yyyy-mm-dd'),3);

INSERT INTO sales

VALUES ('B',to\_date('2021-01-01', 'yyyy-mm-dd'),2);

INSERT INTO sales

VALUES ('B',to\_date('2021-01-02', 'yyyy-mm-dd'),2);

INSERT INTO sales

VALUES ('B',to\_date('2021-01-04', 'yyyy-mm-dd'),1);

INSERT INTO sales

VALUES ('B',to\_date('2021-01-11', 'yyyy-mm-dd'),1);

INSERT INTO sales

VALUES ('B',to\_date('2021-01-16', 'yyyy-mm-dd'),3);

INSERT INTO sales

VALUES ('B',to\_date('2021-02-01', 'yyyy-mm-dd'),3);

INSERT INTO sales

VALUES ('C',to\_date('2021-01-01', 'yyyy-mm-dd'),3);

INSERT INTO sales

VALUES ('C',to\_date('2021-01-01', 'yyyy-mm-dd'),3);

INSERT INTO sales

VALUES ('C',to\_date('2021-01-07', 'yyyy-mm-dd'),3);

CREATE TABLE menu (

product\_id INTEGER,

product\_name VARCHAR(5),

price INTEGER

);

INSERT INTO menu

VALUES (1, 'sushi', 10);

INSERT INTO menu

VALUES (2, 'curry', 15);

INSERT INTO menu

VALUES (3, 'ramen', 12);

CREATE TABLE members (

customer\_id VARCHAR(1),

join\_date DATE

);

INSERT INTO members

VALUES ('A', to\_date('2021-01-07', 'yyyy-mm-dd'));

INSERT INTO members

VALUES ('B', to\_date('2021-01-09', 'yyyy-mm-dd'));

SELECT \* FROM sales;

SELECT \* FROM menu;

SELECT \* FROM members;

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

Query:

SELECT s.customer\_id , SUM(m.price) AS total\_amount

FROM sales s,menu m

WHERE s.product\_id = m.product\_id

GROUP BY s.customer\_id;



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

SELECT customer\_id, COUNT(DISTINCT order\_date) AS days\_visited FROM sales GROUP BY customer\_id;



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

WITH FirstPurchase AS (

SELECT

customer\_id,

MIN(order\_date) AS first\_order\_date

FROM

sales

GROUP BY

customer\_id

)

SELECT

f.customer\_id,

m.product\_name AS first\_item\_purchased

FROM

FirstPurchase f

JOIN

sales s ON f.customer\_id = s.customer\_id AND f.first\_order\_date = s.order\_date

JOIN

menu m ON s.product\_id = m.product\_id

GROUP BY

f.customer\_id, m.product\_name;

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

SELECT m.product\_name AS most\_purchased\_item, COUNT(\*) AS purchase\_count

FROM sales s

JOIN menu m ON s.product\_id = m.product\_id

GROUP BY m.product\_name

ORDER BY purchase\_count DESC

FETCH FIRST ROW ONLY;



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

WITH CustomerPurchaseCounts AS (

SELECT customer\_id,

product\_id,

COUNT(\*) AS purchase\_count

FROM

sales

GROUP BY

customer\_id,

product\_id

),

MaxPurchaseCounts AS (

SELECT

customer\_id,

MAX(purchase\_count) AS max\_purchase\_count

FROM

CustomerPurchaseCounts

GROUP BY

customer\_id

)

SELECT

c.customer\_id,

m.product\_name AS most\_popular\_item

FROM MaxPurchaseCounts mc

JOIN CustomerPurchaseCounts c ON mc.customer\_id = c.customer\_id AND mc.max\_purchase\_count = c.purchase\_count

JOIN menu m ON c.product\_id = m.product\_id

ORDER BY c.customer\_id;



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

SELECT s.customer\_id, m.product\_name AS first\_purchase\_after\_membership

FROM (

SELECT s.customer\_id, MIN(s.order\_date) AS first\_purchase\_date

FROM sales s

JOIN members m ON s.customer\_id = m.customer\_id

WHERE s.order\_date >= m.join\_date

GROUP BY s.customer\_id

) first\_purchase

JOIN sales s ON s.customer\_id = first\_purchase.customer\_id AND s.order\_date = first\_purchase.first\_purchase\_date

JOIN menu m ON s.product\_id = m.product\_id;



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

SELECT s.customer\_id, m.product\_name AS last\_purchase\_before\_membership

FROM (

SELECT s.customer\_id, MAX(s.order\_date) AS last\_purchase\_date

FROM sales s

JOIN members m ON s.customer\_id = m.customer\_id

WHERE s.order\_date < m.join\_date

GROUP BY s.customer\_id

) last\_purchase

JOIN sales s ON s.customer\_id = last\_purchase.customer\_id AND s.order\_date = last\_purchase.last\_purchase\_date

JOIN menu m ON s.product\_id = m.product\_id;



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

SELECT m.customer\_id,

COUNT(s.product\_id) AS total\_items\_purchased,

SUM(m2.price) AS total\_amount\_spent

FROM sales s

JOIN menu m2 ON s.product\_id = m2.product\_id

JOIN members m ON s.customer\_id = m.customer\_id

WHERE s.order\_date < m.join\_date

GROUP BY m.customer\_id;



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

SELECT

s.customer\_id,

SUM(

CASE

WHEN m.product\_name = 'sushi' THEN 20 \* m.price

ELSE 10 \* m.price

END

) AS total\_points

FROM sales s

JOIN menu m ON s.product\_id = m.product\_id

GROUP BY s.customer\_id;



-- 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?

SELECT

m.customer\_id,

SUM(

CASE

WHEN s.order\_date >= m.join\_date THEN 20 \* m2.price

ELSE 10 \* m2.price

END

) AS total\_points

FROM sales s

JOIN menu m2 ON s.product\_id = m2.product\_id

JOIN members m ON s.customer\_id = m.customer\_id

WHERE m.customer\_id IN ('A', 'B')

AND s.order\_date <= DATE '2021-01-31'

GROUP BY m.customer\_id;

