1. CREATE TABLES AND INSERT DATA

-- Create the Customers table

CREATE TABLE Customers (

    customer\_id INT PRIMARY KEY,

    name VARCHAR(50),

    city VARCHAR(50)

);

-- Insert sample data into the Customers table

-- Note that Customer 4 ('Charlie') has no orders

INSERT INTO Customers (customer\_id, name, city) VALUES

    (1, 'Alice', 'New York'),

    (2, 'Bob', 'Los Angeles'),

    (3, 'Jane', 'Chicago'),

    (4, 'Charlie', 'Houston');

-- Create the Orders table

-- The customer\_id here is a foreign key referencing the Customers table

CREATE TABLE Orders (

    order\_id INT PRIMARY KEY,

    customer\_id INT,

    order\_date DATE,

    amount DECIMAL(10, 2)

);

-- Insert sample data into the Orders table

-- Note that Order 104 has a customer\_id of 5, which does not exist in the Customers table

INSERT INTO Orders (order\_id, customer\_id, order\_date, amount) VALUES

    (101, 1, '2023-01-15', 250.00),

    (102, 2, '2023-01-16', 50.50),

    (103, 1, '2023-01-17', 75.25),

    (104, 5, '2023-01-18', 120.00);

-- 2. PERFORM DIFFERENT JOIN QUERIES

-- INNER JOIN

-- Returns only the rows that have a matching value in both tables.

-- In this case, it shows Alice and Bob's orders, but not Charlie or the orphaned order.

SELECT

    C.name,

    O.order\_id,

    O.amount

FROM

    Customers AS C

INNER JOIN

    Orders AS O ON C.customer\_id = O.customer\_id;

-- LEFT JOIN

-- Returns all rows from the left table (Customers), even if there are no matches

-- in the right table (Orders). It shows Alice, Bob, and Charlie. Charlie's order

-- details will be NULL.

SELECT

    C.name,

    O.order\_id,

    O.amount

FROM Customers AS C

LEFT JOIN

    Orders AS O ON C.customer\_id = O.customer\_id;

-- RIGHT JOIN

-- Returns all rows from the right table (Orders), even if there are no matches

-- in the left table (Customers). It shows Alice's orders, Bob's order, and the

-- orphaned order (order\_id 104), which will have a NULL customer name.

SELECT

    C.name,

    O.order\_id,

    O.amount

FROM

    Customers AS C

RIGHT JOIN

    Orders AS O ON C.customer\_id = O.customer\_id;

-- FULL OUTER JOIN

-- Returns all rows from both tables, combining results where a match is found.

-- Where there is no match, the result columns from the non-matching table will be NULL.

-- It shows all customers and all orders.

SELECT

    C.name,

    O.order\_id,

    O.amount

FROM Customers AS C

FULL OUTER JOIN

    Orders AS O ON C.customer\_id = O.customer\_id;