-- SAFETY RESET

DROP TABLE IF EXISTS Orders;

DROP TABLE IF EXISTS OrderDetails;

DROP TABLE IF EXISTS Products;

-- STEP 1: Create base tables

CREATE TABLE Products (

ProductID INTEGER PRIMARY KEY,

Name TEXT

);

CREATE TABLE Orders (

OrderID INTEGER PRIMARY KEY,

OrderDate TEXT

);

CREATE TABLE OrderDetails (

OrderID INTEGER,

ProductID INTEGER,

Quantity INTEGER,

FOREIGN KEY (OrderID) REFERENCES Orders(OrderID),

FOREIGN KEY (ProductID) REFERENCES Products(ProductID)

);

-- STEP 2: Insert sample data

-- Products

INSERT INTO Products VALUES (1, 'Laptop'), (2, 'Chair');

-- Orders with different months

INSERT INTO Orders VALUES (101, '2025-01-10'); -- Jan

INSERT INTO Orders VALUES (102, '2025-02-15'); -- Feb

INSERT INTO Orders VALUES (103, '2025-01-20'); -- Jan

INSERT INTO Orders VALUES (104, '2025-03-05'); -- Mar

-- OrderDetails

INSERT INTO OrderDetails VALUES (101, 1, 10); -- Laptop Jan

INSERT INTO OrderDetails VALUES (102, 1, 5); -- Laptop Feb

INSERT INTO OrderDetails VALUES (103, 2, 3); -- Chair Jan

INSERT INTO OrderDetails VALUES (104, 1, 7); -- Laptop Mar

-- STEP 3: PIVOT - Monthly sales quantity per product

SELECT

p.Name AS Product,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '01' THEN od.Quantity ELSE 0 END) AS Jan,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '02' THEN od.Quantity ELSE 0 END) AS Feb,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '03' THEN od.Quantity ELSE 0 END) AS Mar

FROM Orders o

JOIN OrderDetails od ON o.OrderID = od.OrderID

JOIN Products p ON od.ProductID = p.ProductID

GROUP BY p.Name;

-- STEP 4: UNPIVOT manually using UNION ALL

SELECT Product, 'Jan' AS Month, Jan AS Quantity FROM (

SELECT

p.Name AS Product,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '01' THEN od.Quantity ELSE 0 END) AS Jan,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '02' THEN od.Quantity ELSE 0 END) AS Feb,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '03' THEN od.Quantity ELSE 0 END) AS Mar

FROM Orders o

JOIN OrderDetails od ON o.OrderID = od.OrderID

JOIN Products p ON od.ProductID = p.ProductID

GROUP BY p.Name

)

UNION ALL

SELECT Product, 'Feb', Feb FROM (

SELECT

p.Name AS Product,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '01' THEN od.Quantity ELSE 0 END) AS Jan,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '02' THEN od.Quantity ELSE 0 END) AS Feb,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '03' THEN od.Quantity ELSE 0 END) AS Mar

FROM Orders o

JOIN OrderDetails od ON o.OrderID = od.OrderID

JOIN Products p ON od.ProductID = p.ProductID

GROUP BY p.Name

)

UNION ALL

SELECT Product, 'Mar', Mar FROM (

SELECT

p.Name AS Product,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '01' THEN od.Quantity ELSE 0 END) AS Jan,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '02' THEN od.Quantity ELSE 0 END) AS Feb,

SUM(CASE WHEN strftime('%m', o.OrderDate) = '03' THEN od.Quantity ELSE 0 END) AS Mar

FROM Orders o

JOIN OrderDetails od ON o.OrderID = od.OrderID

JOIN Products p ON od.ProductID = p.ProductID

GROUP BY p.Name

);



