1. Create the database:

CREATE DATABASE IF NOT EXISTS Lucky\_Shrub;

2. Use the database

USE Lucky\_Shrub;

3. Create the database tables

CREATE TABLE IF NOT EXISTS Orders (OrderID INT NOT NULL PRIMARY KEY, ClientID VARCHAR(10), ProductID VARCHAR(10), Quantity INT, Cost DECIMAL(6,2), Date DATE);

CREATE TABLE IF NOT EXISTS Products (ProductID VARCHAR(10), ProductName VARCHAR(100), BuyPrice DECIMAL(6,2), SellPrice DECIMAL(6,2), NumberOfItems INT);

CREATE TABLE IF NOT EXISTS Activity (ActivityID INT PRIMARY KEY, Properties JSON );

4. Populate the tables with data

INSERT INTO Orders (OrderID, ClientID, ProductID , Quantity, Cost, Date) VALUES

(1, "Cl1", "P1", 10, 500, "2020-09-01" ), (2, "Cl2", "P2", 5, 100, "2020-09-05"),

(3, "Cl3", "P3", 20, 800, "2020-09-03"), (4, "Cl4", "P4", 15, 150, "2020-09-07"),

(5, "Cl3", "P3", 10, 450, "2020-09-08"), (6, "Cl2", "P2", 5, 800, "2020-09-09"),

(7, "Cl1", "P4", 22, 1200, "2020-09-10"), (8, "Cl3", "P1", 15, 150, "2020-09-10"),

(9, "Cl1", "P1", 10, 500, "2020-09-12"), (10, "Cl2", "P2", 5, 100, "2020-09-13"),

(11, "Cl4", "P5", 5, 100, "2020-09-15"),(12, "Cl1", "P1", 10, 500, "2022-09-01"),

(13, "Cl2", "P2", 5, 100, "2022-09-05"), (14, "Cl3", "P3", 20, 800, "2022-09-03"),

(15, "Cl4", "P4", 15, 150, "2022-09-07"), (16, "Cl3", "P3", 10, 450, "2022-09-08"),

(17, "Cl2", "P2", 5, 800, "2022-09-09"), (18, "Cl1", "P4", 22, 1200, "2022-09-10"),

(19, "Cl3", "P1", 15, 150, "2022-09-10"), (20, "Cl1", "P1", 10, 500, "2022-09-12"),

(21, "Cl2", "P2", 5, 100, "2022-09-13"), (22, "Cl2", "P1", 10, 500, "2021-09-01"),

(23, "Cl2", "P2", 5, 100, "2021-09-05"), (24, "Cl3", "P3", 20, 800, "2021-09-03"),

(25, "Cl4", "P4", 15, 150, "2021-09-07"), (26, "Cl1", "P3", 10, 450, "2021-09-08"),

(27, "Cl2", "P1", 20, 1000, "2022-09-01"), (28, "Cl2", "P2", 10, 200, "2022-09-05"),

(29, "Cl3", "P3", 20, 800, "2021-09-03"), (30, "Cl1", "P1", 10, 500, "2022-09-01");

INSERT INTO Products (ProductID, ProductName, BuyPrice, SellPrice, NumberOfItems) VALUES

("P1", "Artificial grass bags ", 40, 50, 100),

("P2", "Wood panels", 15, 20, 250),

("P3", "Patio slates", 35, 40, 60),

("P4", "Sycamore trees ", 7, 10, 50),

("P5", "Trees and Shrubs", 35, 50, 75),

("P6", "Water fountain", 65, 80, 15);

INSERT INTO Activity(ActivityID, Properties) VALUES

(1, '{ "ClientID": "Cl1", "ProductID": "P1", "Order": "True" }' ),

(2, '{ "ClientID": "Cl2", "ProductID": "P4", "Order": "False" }' ),

(3, '{ "ClientID": "Cl5", "ProductID": "P5", "Order": "True" }' );

## **Task 1**

Lucky Shrub need to find out how many orders were placed by clients with the following Client IDs in 2022: Cl1, Cl2 and Cl3. They have created the following query to extract this information.

They have created the following query to extract this information.

SELECT CONCAT("Cl1: ", COUNT(OrderID), "orders") AS "Total number of orders"

FROM Orders

WHERE YEAR(Date) = 2022 AND ClientID = "Cl1"

UNION

SELECT CONCAT("Cl2: ", COUNT(OrderID), "orders")

FROM Orders

WHERE YEAR(Date) = 2022 AND ClientID = "Cl2"

UNION

SELECT CONCAT("Cl3: ", COUNT(OrderID), "orders")

FROM Orders

WHERE YEAR(Date) = 2022 AND ClientID = "Cl3";

Solution

WITH

CL1\_Orders AS (SELECT CONCAT("Cl1: ", COUNT(OrderID), "orders") AS "Total number of orders"

FROM Orders

WHERE YEAR(Date) = 2022 AND ClientID = "Cl1"),

CL2\_Orders AS (SELECT CONCAT("Cl2: ", COUNT(OrderID), "orders")

FROM Orders WHERE YEAR(Date) = 2022 AND ClientID = "Cl2"),

CL3\_Orders AS (SELECT CONCAT("Cl3: ", COUNT(OrderID), "orders")

FROM Orders WHERE YEAR(Date) = 2022 AND ClientID = "Cl3")

SELECT \* FROM CL1\_Orders

UNION

SELECT \* FROM CL2\_Orders

UNION

SELECT \* FROM CL3\_Orders;

### Task 2

Lucky Shrub need you to help them to create a prepared statement called ‘GetOrderDetail’. The prepared statement should accept two input arguments: a ClientID value and a year value. The statement should return the order id, the quantity, the order cost and the order date from the Orders table.

Solution

PREPARE GetOrderDetail FROM 'SELECT OrderID, Quantity, Cost, Date FROM Orders WHERE ClientID = ? AND YEAR(Date) = ? ';

### Task 3

The Lucky Shrub system logs the ClientID of each client, and the ProductID of the products they order, in a JSON Properties column in the Activity table.

You need to utilize the Properties column data to output the product id, name, buy price and sell price of the product where the Order value in the Activity table is True.

Tips:

* The product name, buy price and sell price data must be extracted from the Products table.
* Use the following code to access the property value with double quotations from the JSON datatype: ->'$.PropertyName
* Use the following code to access the property value without double quotations from JSON datatype: ->>'$. PropertyName

Solution

SELECT Activity.Properties ->>'$.ProductID'

AS ProductID, Products.ProductName, Products.BuyPrice, Products.SellPrice

FROM Products INNER JOIN Activity

ON Products.ProductID = Activity.Properties ->>'$.ProductID'

WHERE Activity.Properties ->>'$.Order' = "True";