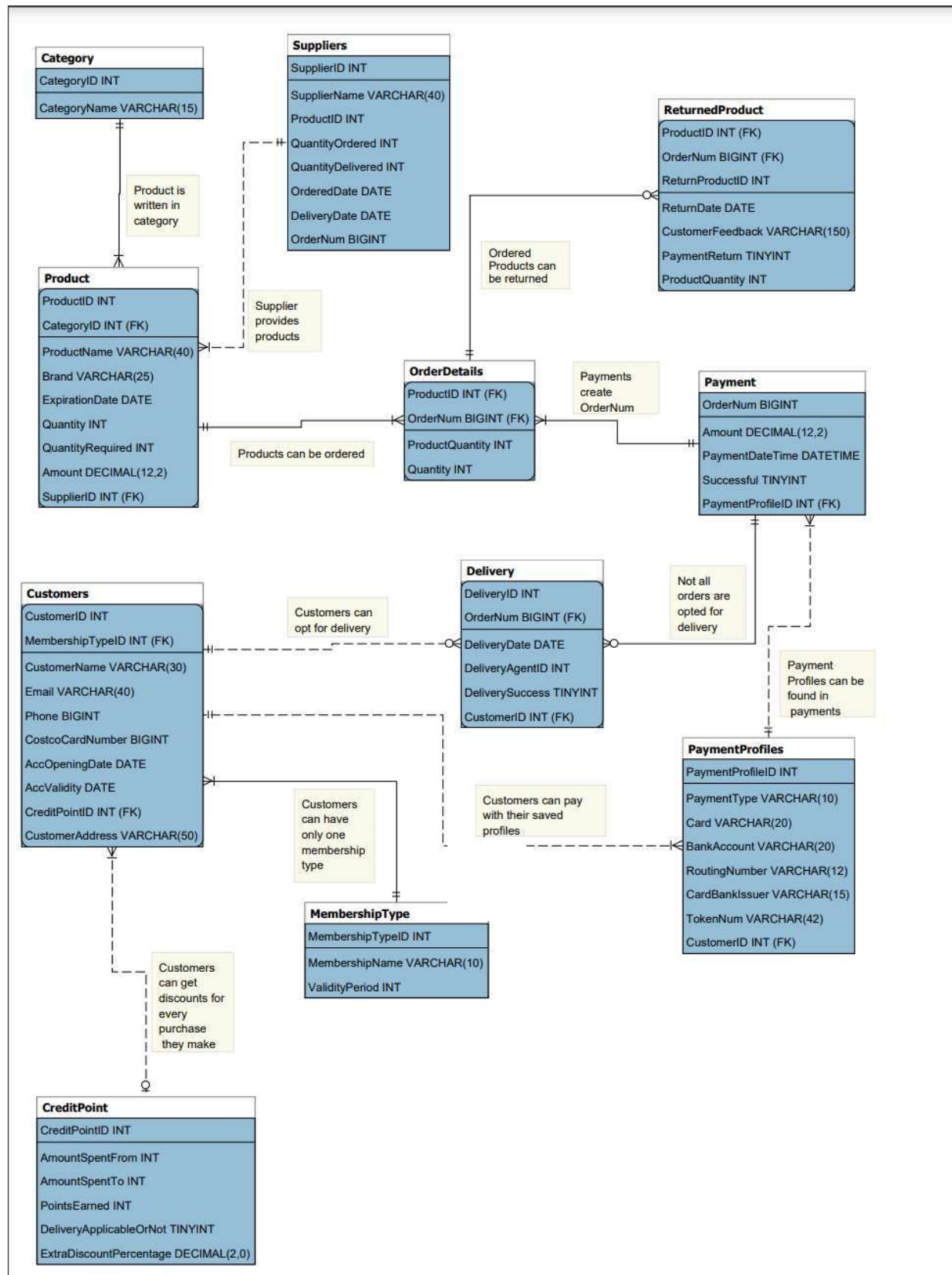


Project Title: Costco Inventory Management System

Model



Queries

Query 1.

This SQL query retrieves the total quantity of products ordered by each customer by joining information from customer profiles, payments, and order details, providing insights into customer purchasing behavior

```
SELECT c.CustomerID, c.CustomerName, SUM(od.ProductQuantity) AS TotalProductQuantityOrdered
FROM Customers AS c
JOIN PaymentProfiles AS pp ON c.CustomerID = pp.CustomerID
JOIN Payment AS p ON pp.PaymentProfileID = p.PaymentProfileID
JOIN OrderDetails AS od ON p.OrderNum = od.OrderNum
GROUP BY c.CustomerID, c.CustomerName;
```

	CustomerID	CustomerName	TotalProductQuantityOrdered
►	841	Christabella Giddens	6
	675	Lillie Frankham	8
	758	Fraser Hatto	9
	395	Waverley Nickols	9
	227	Nyssa Luther	3
	438	Malena Anthoin	7
	89	Maddy Daley	10
	513	Lilly Bleazard	1
	726	Gerti Block	10
	252	Kimberlee Beamond	11
	674	Caryl Coyne	13
	346	Regen Claesens	5
	173	Aeriela Coo	12
	937	Fanya Grier	9
	591	Julissa Knox	13

Query 2.

This SQL query calculates the average amount spent by all customers with different payment types, offering insights into spending habits across payment methods.

```

SELECT pp.PaymentType, AVG(p.Amount) AS AvgAmountSpent
FROM Payment AS p
JOIN PaymentProfiles AS pp ON p.PaymentProfileID = pp.PaymentProfileID
GROUP BY pp.PaymentType;

```

	PaymentType	AvgAmountSpent
▶	Bank	164.108996
	Card	156.619847

Query 3.

This SQL query computes the number of deliveries made by each delivery agent on a specific date, along with the count of successful deliveries and their success rates.

```

SELECT d.DeliveryAgentID, COUNT(*) AS TotalDeliveries, SUM(CASE WHEN d.DeliverySuccess = 1
THEN 1 ELSE 0 END) AS SuccessfulDeliveries,
      AVG(CASE WHEN d.DeliverySuccess = 1 THEN 1 ELSE 0 END) AS SuccessRate
FROM Delivery AS d
WHERE d.DeliveryDate = '2023-08-19'
GROUP BY d.DeliveryAgentID;

```

	DeliveryAgentID	TotalDeliveries	SuccessfulDeliveries	SuccessRate
▶	6	2	1	0.5000
	23	1	1	1.0000
	11	1	1	1.0000
	7	1	1	1.0000

Query 4.

This SQL query identifies the top 10 suppliers based on the maximum quantity of products ordered from each supplier. It assists in supplier performance evaluation and inventory management.

```

SELECT p.SupplierID, s.SupplierName, p.ProductName, MAX(s.QuantityOrdered) AS QuantityOrdered
FROM Product AS p
JOIN Suppliers AS s ON p.SupplierID = s.SupplierID
GROUP BY p.SupplierID, s.SupplierName, p.ProductName
ORDER BY MAX(s.QuantityOrdered) DESC

```

LIMIT 10;

	SupplierID	SupplierName	ProductName	QuantityOrdered
▶	1059	Hane-Spencer	Corn - Mini	500
	197	Kunze, Leffler and Raynor	Carbonated Water - Cherry	500
	607	Hegmann-Lind	Beer - Guinness	500
	120	Dickens Group	Pepsi - Diet, 355 Ml	499
	542	Hickle-Conroy	Spinach - Packaged	498
	846	Walsh LLC	Halibut - Steaks	498
	642	Fadel Group	Pastry - Carrot Muffin - Mini	497
	962	Flatley-Herzog	Trout - Hot Smkd, Dbl Fillet	496
	953	Cassin-Mills	Lamb - Rack	496
	1013	Runolfsson Group	Juice - Mango	495

Query 5.

This SQL query calculates the average amount spent per order by customers with specific membership types. It aids in understanding spending behaviors among different membership tiers.

```
SELECT mt.MembershipName, AVG(p.Amount) AS AvgAmountSpent
FROM Payment AS p
JOIN PaymentProfiles AS pp ON p.PaymentProfileID = pp.PaymentProfileID
JOIN Customers AS c ON pp.CustomerID = c.CustomerID
JOIN MembershipType AS mt ON c.MembershipTypeID = mt.MembershipTypeID
GROUP BY mt.MembershipName;
```

	MembershipName	AvgAmountSpent
▶	Silver	163.357077
	Gold	162.362017
	Platinum	154.545189

Query 6.

This SQL query retrieves the total number of products returned by each customer along with their feedback. It provides valuable insights into customer satisfaction and product quality issues, enabling businesses to address concerns.

```
SELECT c.CustomerID, c.CustomerName, COUNT(rp.ReturnProductID) AS TotalProductsReturned,
       GROUP_CONCAT(rp.CustomerFeedback) AS CustomerFeedback
FROM Customers AS c
JOIN PaymentProfiles AS pp ON c.CustomerID = pp.CustomerID
JOIN Payment AS p ON pp.PaymentProfileID = p.PaymentProfileID
```

JOIN OrderDetails AS od ON p.OrderNum = od.OrderNum

JOIN ReturnedProduct AS rp ON od.OrderNum = rp.OrderNum and od.ProductID = rp.ProductID

GROUP BY c.CustomerID, c.CustomerName;

	CustomerID	CustomerName	TotalProductsReturned	CustomerFeedback
▶	6	Laney Boodle	1	Feedback
	14	Malorie Lerhinan	1	Feedback
	15	Trisha Batting	2	Feedback,Feedback
	31	Noah Cordelle	1	Feedback
	32	Maximilian Hainey	1	Feedback
	38	Frans Cristofolo	1	Feedback
	40	Upton Strood	1	Feedback
	41	Norine Ringham	2	Feedback,Feedback
	42	Millard Schutze	1	Feedback
	47	Cyrill Christoforou	1	Feedback
	52	Saloma Tunna	1	Feedback
	59	Gretna Crookshank	1	Feedback
	61	Eleanor Kyllford	1	Feedback
	70	Juanita Giovanizio	1	Feedback
	76	Pattie Domerq	1	Feedback

Query 7.

This SQL query calculates the total number of products returned by customers who have spent more than a certain amount on their orders. It assists in identifying patterns of product dissatisfaction or quality issues among higher-spending customers.

```
SELECT c.CustomerID, c.CustomerName,  
       COUNT(rp.ReturnProductID) AS TotalProductsReturned  
FROM Customers AS c  
JOIN PaymentProfiles AS pp ON c.CustomerID = pp.CustomerID  
JOIN Payment AS p ON pp.PaymentProfileID = p.PaymentProfileID  
JOIN OrderDetails AS od ON p.OrderNum = od.OrderNum  
JOIN ReturnedProduct AS rp ON od.OrderNum = rp.OrderNum  
WHERE p.Amount > 100  
GROUP BY c.CustomerID, c.CustomerName;
```

	CustomerID	CustomerName	TotalProductsReturned
▶	758	Fraser Hatto	1
	937	Fanya Grier	2
	38	Frans Cristofolo	1
	767	Corena Kloser	2
	645	Silvio Okey	1
	322	Melba Loftus	2
	15	Trisha Batting	4
	47	Cyrill Christoforou	3
	365	Bertine Gile	1
	534	Meir McLoughlin	1
	907	Phaidra Jirusek	2
	70	Juanita Giovanizio	1
	32	Maximilian Hainey	1
	549	Rosamond Heas...	2
	41	Norine Ringham	3

Query 8.

This SQL query retrieves a list of all customers who have purchased more than 5 products, regardless of whether all their orders are recorded. By joining order details, payments, payment profiles, and customer information, it provides insights into high-volume purchasers.

```
SELECT c.CustomerID, c.CustomerName, COALESCE(COUNT(od.OrderNum), 0) AS TotalOrders
FROM OrderDetails AS od
RIGHT JOIN Payment AS p ON od.OrderNum = p.OrderNum
JOIN PaymentProfiles AS pp ON p.PaymentProfileID = pp.PaymentProfileID
RIGHT JOIN Customers AS c ON pp.CustomerID = c.CustomerID
GROUP BY c.CustomerID, c.CustomerName
HAVING TotalOrders > 5;
```


	CustomerID	CustomerName	TotalOrders
▶	15	Trisha Batting	9
	72	Addie Forkan	6
	105	Agata Venditto	6
	255	Cesar Vardy	7
	389	Crissy Bucklee	6
	537	Tessy Jiggen	6
	591	Julissa Knox	7
	594	Brandyn Gregolotti	6
	597	Rogers Bearward	6
	699	Alberik Kyte	6
	702	Bennett Dellow	6
	824	Calli Norway	6
	979	Bette-ann Morris	6

Query 9.

This SQL query calculates the number of total orders and the number of orders that are being delivered. By utilizing a LEFT OUTER JOIN between the Payment and Delivery tables on the OrderNum field, it ensures that all orders are counted, regardless of whether they have corresponding delivery records. This provides insights into order fulfillment and delivery efficiency.

```
SELECT COUNT(p.OrderNum) AS NumberOfOrders,
       COUNT(d.OrderNum) AS NumberOfDeliveries
FROM Payment AS p
LEFT OUTER JOIN
Delivery AS d ON p.OrderNum = d.OrderNum;
```

	NumberOfOrders	NumberOfDeliveries
▶	1372	1000

Query 10.

This SQL query retrieves the top 10 categorical months with the highest amount of sales, formatted with the financial year. By grouping payment data by month, summing up the sales amounts, and ordering the results in descending order, it provides insights into sales performance over time, facilitating strategic decision-making.

```
SELECT DATE_FORMAT(PaymentDateTime, '%Y-%m') AS PaymentMonth,  
       SUM(Amount) AS TotalSales  
FROM Payment  
GROUP BY DATE_FORMAT(PaymentDateTime, '%Y-%m')  
ORDER BY TotalSales DESC  
LIMIT 10;
```

	PaymentMonth	TotalSales
►	2023-06	16218.67
	2023-12	15057.32
	2023-10	14145.83
	2023-04	13209.49
	2023-08	13161.24
	2023-03	12945.27
	2023-05	12566.72
	2023-09	12537.35
	2023-11	12390.08
	2024-01	12362.57

Query 11.

This SQL query calculates the total number of orders placed by customers who have a membership type with a validity period of more than 2 year. It achieves this by filtering orders based on membership types with a validity period greater than 2 year, using nested subqueries to retrieve relevant data from the Customers, PaymentProfiles, Payment, and MembershipType tables.

```
SELECT m.MembershipName, COUNT(*) AS TotalOrders
FROM OrderDetails AS od
JOIN Payment AS p ON od.OrderNum = p.OrderNum
JOIN PaymentProfiles AS pp ON p.PaymentProfileID = pp.PaymentProfileID
JOIN Customers AS c ON pp.CustomerID = c.CustomerID
JOIN MembershipType AS m ON c.MembershipTypeID = m.MembershipTypeID
WHERE c.MembershipTypeID IN (
    SELECT MembershipTypeID
    FROM MembershipType
    WHERE ValidityPeriod > 2
)
GROUP BY m.MembershipName;
```

	MembershipName	TotalOrders
▶	Platinum	201

Stored Procedures

***Note: For it to run on localhost please change the create procedures like mentioned below:**

```
CREATE DEFINER='root'@'localhost' PROCEDURE `QuantityByCustNCatID`
```

Stored Procedure 1.

This procedure calculates the total number of orders placed by a customer for a given category.

```
CALL QuantityByCustNCatID(888, 1003);
```

	Quantity	CategoryName	ProductID	CategoryID
▶	15	Dairy	10005527	1003

Stored Procedure 2.

Takes a customer ID as input and returns the following information:

Total number of orders placed by the customer (Total_orders).

Total amount spent by the customer (Total_amount).

Average amount spent per order by the customer (Average_amount).

```
CALL GetCustomerPurchaseHistory(888, @Total_orders, @Total_amount, @Average_amount);
```

```
SELECT @Total_orders, @Total_amount, @Average_amount;
```

	@Total_orders	@Total_amount	@Average_amount
▶	3	1616.40	538.80

