Name- Ranbir Singh Gosal.
University of Waterloo, Computer Engineering Class of 25.

Question- 1

On Shopify, we have exactly 100 sneaker shops, and each of these shops sells only one model of shoe. We want to do some analysis of the average order value (AOV). When we look at orders data over a 30 day window, we naively calculate an AOV of $3145.13. Given that we know these shops are selling sneakers, a relatively affordable item, something seems wrong with our analysis.

a) Think about what could be going wrong with our calculation. Think about a better way to evaluate this data.

Answer:- The problem with the calculation was in the way Shopify calculated it's AOV. The AOV should be calculated by dividing the total revenue by the number of orders received.

b) What metric would you report for this dataset?

Answer:- The metric to be used for this dataset should be number of orders.

Average order value = Total revenue/No. of orders.

c) What is its value?

Answer:- The number of orders is 43936. This when used in generating the AOV gives a value of 357.92$.

Question- 2

a) How many orders were shipped by Speedy Express in total?

Answer: - For this question, I first needed to know the ShipperID of Speedy Express and then use that value to count the number of orders shipped by Speedy Express using the Count function in SQL.
I have also written the reserved words in SQL in Capital letters for ease of reading.

Query : -

```
FROM Orders
WHERE ShipperID IN(  SELECT ShipperID
                     FROM Shippers
                     WHERE ShipperName='Speedy Express');
```

Result : -

Number of Records: 1

Expr1000
54

b) What is the last name of the employee with the most orders?

Answer : - For this question, I used a two-step process to make the code easy to write and understand. Firstly, I found the EmployeeID of the Employee with most orders and then used another piece of code to find out the last name of the Employee with that Specific ID.

Query :-

Part 1-
```
SELECT Count(EmployeeID), EmployeeID
FROM Orders
 Group by EmployeeID
  Order by Count(EmployeeID) Desc;
```

Initial Result :-

Number of Records: 9

Expr1000	EmployeeID
40	4

*I chose not to display the entire table here because we just need the first value. I could've used Limit function but chose not to.

Part 2 -
```
SELECT LastName
FROM Employees
Where EmployeeID=4;
```

Final Result: -

Number of Records: 1

LastName

Peacock

c) What product was ordered the most by customers in Germany?

Answer:- For this question, I used the Concept of Nested Queries. I solved this problem in two steps. Firstly, I used nested queries and got the Product ID of the most ordered Product by Customers in Germany and then I used that Product ID to find out the product name in the second step.

Query :-

Part 1-
```
SELECT Count(ProductID), ProductID
FROM OrderDetails
Where OrderID IN(SELECT OrderID
                 FROM Orders
                  Where CustomerID IN (SELECT CustomerID
                                       FROM Customers
                                        Where Country ='Germany'))
Group By ProductID
Order by Count (ProductID) Desc;
```

Initial Result:-

Number of Records: 45

Expr1000	ProductID
5	31

*I chose not to display the entire table here because we just need the first value. I could've used Limit function but chose not to.

Part 2-
```
Select ProductName
From Products
Where ProductID= 31;
```

Final Result:-

Number of Records: 1

ProductName
Gorgonzola Telino