

# Fall 2021 Data Science Intern Challenge

Please complete the following questions and provide your thought process/work. You can attach your work in a text file, link, etc. on the application page. Please ensure answers are easily visible for reviewers!

**Question 1:** Given some sample data, write a program to answer the following: [click here to access the required data set](#)

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.
- b. What metric would you report for this dataset?
- c. What is its value?

## ANALYSIS AND ANSWER IN THE JUPYTER NOTEBOOK

**Question 2:** For this question you'll need to use SQL. [Follow this link](#) to access the data set required for the challenge. Please use queries to answer the following questions. Paste your queries along with your final numerical answers below.

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

```
SELECT ShipperName, Num_of_orders
FROM Shippers
JOIN (SELECT ShipperID, COUNT(ShipperID) AS Num_of_orders
FROM Orders
WHERE ShipperID = 1) AS ID
ON Shippers.ShipperID = ID.ShipperID
```

**Answer: Speedy Express - 54**

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

```
SELECT LastName, Max_Orders
FROM Employees
JOIN
(SELECT EmployeeID, MAX(Quantity) AS Max_Orders
FROM Orders
JOIN OrderDetails
ON Orders.OrderID = OrderDetails.OrderID) AS qty
ON Employees.EmployeeID = qty.EmployeeID
```

**Answer: Fuller - 120**

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

```
SELECT ProductName, Quantity
FROM Products
JOIN
(SELECT cst.CustomerID, prd.OrderID, CustomerName, Country , prd.ProductID, Quantity
FROM
(SELECT CustomerID, CustomerName, Country
FROM Customers
WHERE Country = 'Germany') AS cst
JOIN
(SELECT od.OrderID, CustomerID, ProductID, Quantity
FROM Orders o
JOIN OrderDetails od
ON o.OrderID = od.OrderID) as prd
ON cst.CustomerID = prd.CustomerID
ORDER BY Quantity Desc
LIMIT 5) AS P
ON Products.ProductID = P.ProductID
```

**Answer: Steeleye Stout - 100**