# Summer 2022 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](https://docs.google.com/spreadsheets/d/16i38oonuX1y1g7C_UAmiK9GkY7cS-64DfiDMNiR41LM/edit#gid=0)

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.

1. Think about what could be going wrong with our calculation. Think about a better way to evaluate this data.
2. What metric would you report for this dataset?
3. What is its value?

**Question 2:** For this question you’ll need to use SQL. [Follow this link](https://www.w3schools.com/SQL/TRYSQL.ASP?FILENAME=TRYSQL_SELECT_ALL) 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.

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

SELECT COUNT(ShipperName) FROM (SELECT \* FROM Shippers inner join Orders ON Shippers.ShipperID = Orders.ShipperID) WHERE ShipperName = 'Speedy Express';

**54 Orders were shipped by Speedy Express in total.**

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

SELECT COUNT(\*), LastName FROM (SELECT \* FROM Employees inner join Orders ON Employees.EmployeeID = Orders.EmployeeID) Group BY LastName ORDER BY COUNT(\*) desc;

**Seems that Peacock had the most orders (40 orders).**

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

SELECT Count(\*), ProductName, Country FROM

(SELECT \* FROM Customers inner join Orders ON Customers.CustomerID = Orders.CustomerID) table1

inner join (SELECT \* FROM OrderDetails inner join Products ON OrderDetails.ProductID = Products.ProductID) table2

ON table1.OrderID = table2.OrderID WHERE Country = 'Germany' GROUP BY ProductName ORDER BY Count(\*) desc;

**The product ordered most by customers in Germany was Gorgonzola Telino.**

**If you were to open a Shopify store, what would you sell and why (or tell us about your store if you have one!) (200 word limit)**

If I were to open a Shopify store, I would sell piano sheet music that I have mastered over the years. I would personally arrange the piano music into its own repertoires, depending on the genre of music. For example, if I were to have a repertoire focused on Christmas music, I would arrange several songs into a laminated folder. At the same time, I could sell recordings of the music along with the folder to help piano players learn the song through ear. Furthermore, I could supply the players with warm-up exercises that could strengthen their technique before attempting the songs. The warm-up exercises could include triads, chords, scales, or simple patterns to build strong technical expertise in the student.

**Any last thoughts? (ie. proud accomplishments, cool ideas, a joke, any links) (200 word limit)**

The reason why I would open a Shopify store related to piano is that I have been practicing piano for over 15 years now. I have reached level 9 out of the 10 levels in the Royal Conservatory of Music and have achieved an advanced level on theoretical piano.

Now that I think of it, I might like coding because it resembles similarity to piano sheet music. They both have their structure and grammar that one must understand to make an impactful use.