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Fall 2021 Data Science Intern Challenge

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?

Answer: GitHub link to Jupyter Notebook with response.

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?

Assuming we don't know the shipping ID for Speedy Express, we would run the following query:

```
SELECT COUNT(*) AS num_orders_speedy_express
FROM Shippers s
INNER JOIN Orders o ON s.ShipperID = o.ShipperID
WHERE s.ShipperName = "Speedy Express";
```

Alternatively, a quicker query would assume we know that Speedy Express has shipping ID 1, which would be a more efficient query since it does not require a join:

```
SELECT COUNT(*) AS num_orders_speedy_express
```

FROM Orders
WHERE Orders.ShipperID = 1;

Answer: 54 orders were shipped by Speedy Express in total.

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

SELECT TOP 1
       e.LastName
       , COUNT(*)
FROM Orders o
INNER JOIN Employees e ON e.EmployeeID = o.EmployeeID
GROUP BY e.LastName
ORDER BY 2 DESC;

Answer: Peacock is the last name of the employee with the most orders (40 orders).

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

SELECT TOP 1
       p.ProductName
       , COUNT(*) AS times_product_ordered
FROM (((Orders o
       INNER JOIN OrderDetails od ON o.OrderID = od.OrderID)
       INNER JOIN Customers c ON o.CustomerID = c.CustomerID)
       INNER JOIN Products p ON p.productID = od.productID)
WHERE c.Country = "Germany"
GROUP BY p.ProductName
ORDER BY 2 DESC;

Answer: Gorgonzola Telino was the most ordered product by customers in Germany (5 orders).

Question 3: We're always looking to see where passion and engagement shows itself in all aspects of your life. Please answer the questions outlined in the application to tell us more about yourself!

Tell us about a time you messed up and what you learned from it. (200 word limit)

In the spring of 2019, I was in my senior year of high school, and I made a mistake as the captain of my track team that I still remember now two years later. Our team and a rival school had gone undefeated the entire season, and this track meet would determine the league champion. Pole vaulting was my specialty, and my coaches did not expect me to compete in other events. I won the points for my event, but our team ultimately lost by a marginal number of points. Had I stepped up as a leader and put myself into the long and high jump, events I had competed in before, we could have scored enough points to win the meet. I failed to step up, I failed to step outside of my assigned role, and I felt that I let my whole team down. Whenever I face an opportunity where my action has an uncertain chance of success, I remember that day and make sure to take the extra mile. I learned that I will never regret putting my best foot forward, and I promised myself to do so with every opportunity.

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 custom bookshelf speakers. My brother and I thoroughly enjoy listening to music, and over the summer we explored that passion by building our own bookshelf speakers from scratch. We designed the crossover, soldered the crossover connectives to the drivers and tweeter, installed the pieces into the frame, added soundproofing, sanded and painted the exterior, added veneers, and finally calibrated the sound to the room we set them up in. I am a builder at heart, and my Shopify store would be an extension of that where I would combine my creative skills, music passion, and builder core to deliver a fun product to interested buyers. I would sell speakers to be able to spread the same joy that I receive from listening to music, and it would be all the more satisfying to deliver a custom, high quality product with my own creative touches.

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

Track and field is a big aspect of my life. I've been competing since the sixth grade, but I started pole vaulting freshman year of high school and fell in love with the sport. Pole vaulters are a niche but passionate community in the track world, the technique and drive that it takes to improve by just a single inch is addicting for almost all who compete in the event. I've learned valuable lessons as a pole vaulter: how to become a student of myself to improve on my mistakes, how to build the confidence to push myself to my absolute limits and launch myself 16 feet into the air, and how to dive into ambiguity and take initiative over my training. I am confident that I have become better for pole vaulting in ways that I have not recognized myself.

The winter of 2020 was the last time I had the opportunity to compete before the pandemic broke, and in that last meet I hit my highest personal record to date of 16'3", which was one of my long time goals. This video is that last jump, and it was one of my proudest accomplishments in pole vaulting to date.