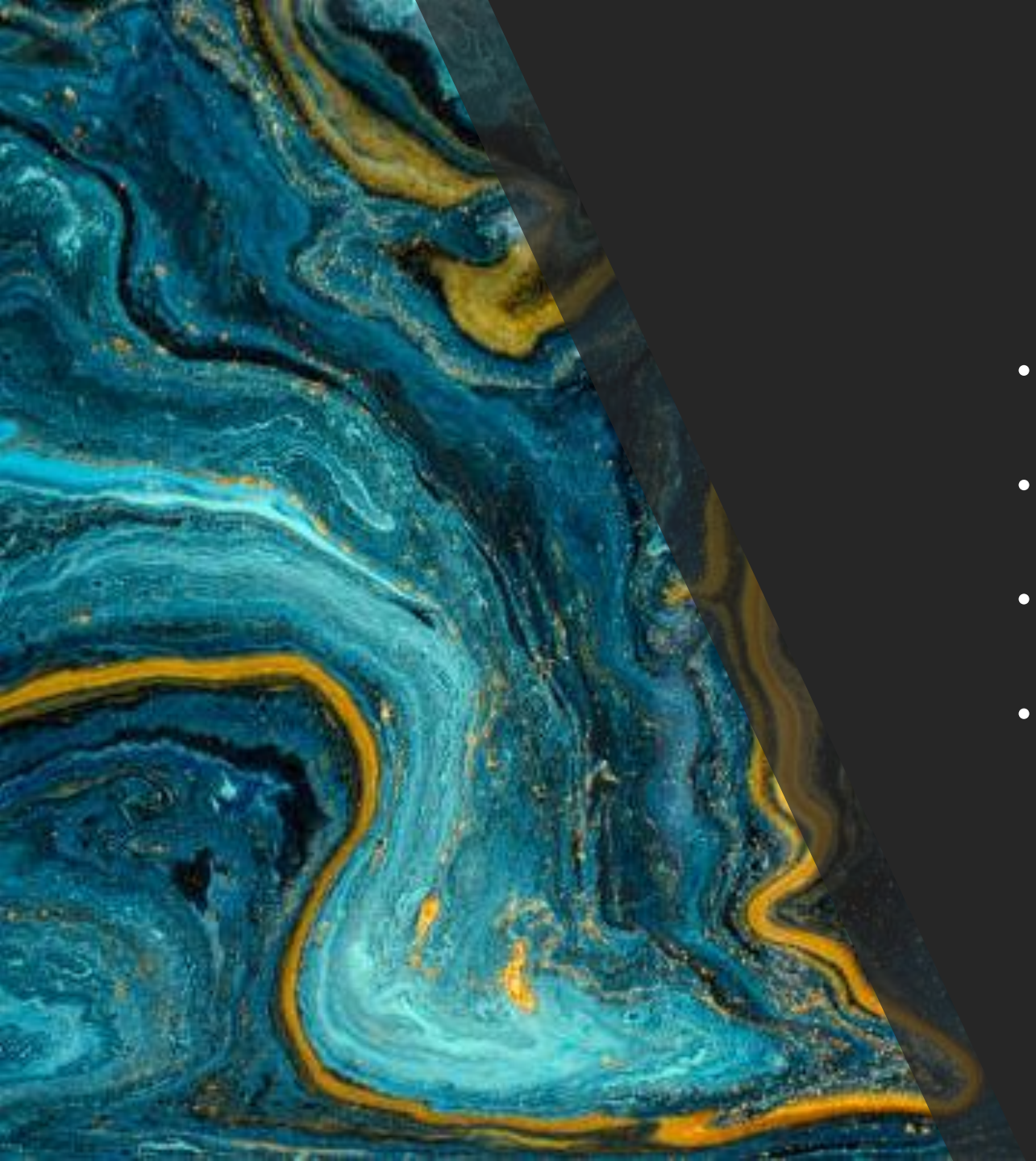
Module 3 Project Executive Summary

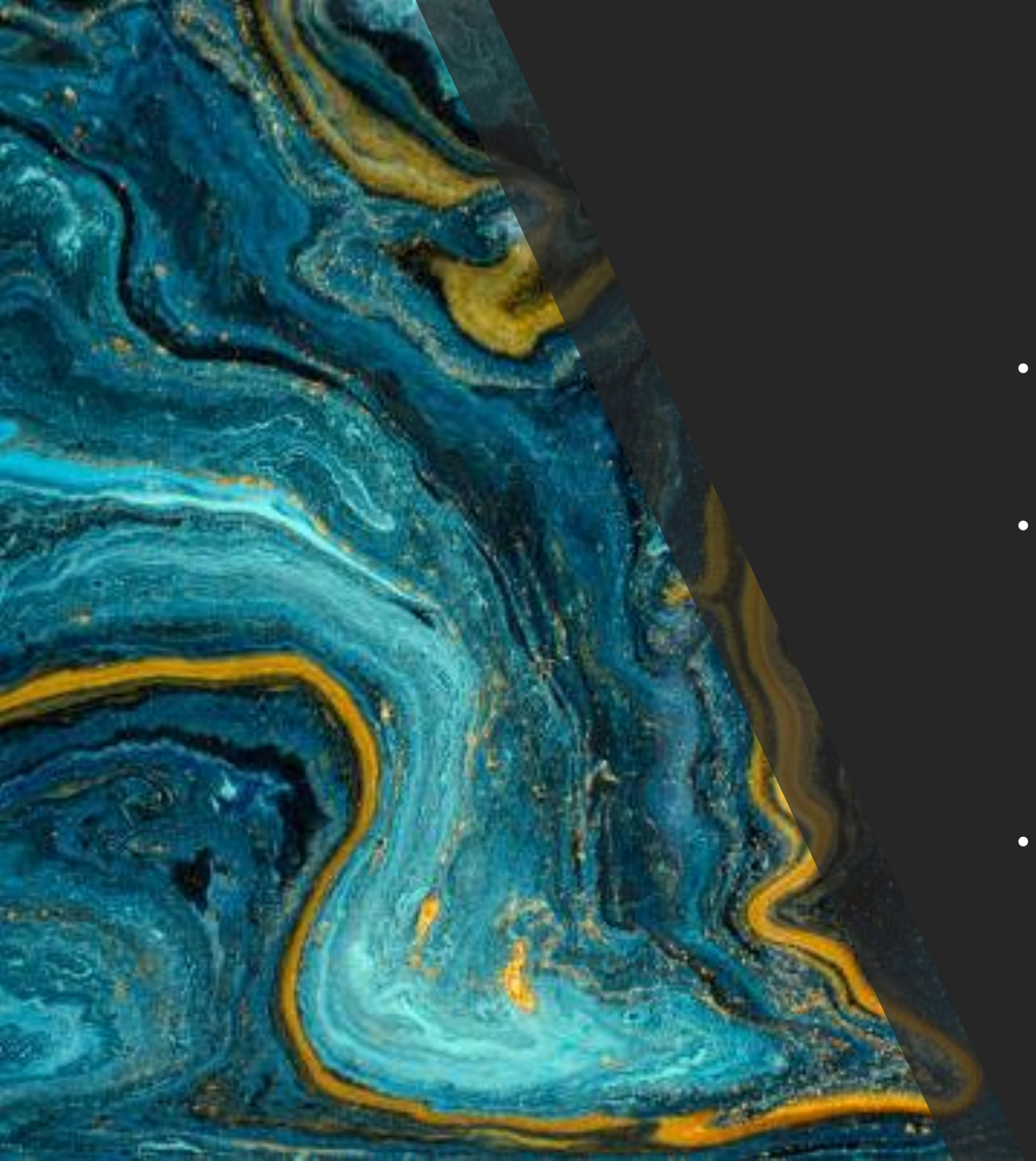
By: Darius Fuller

Part-time cohort 10/7/19



Target(s)

- Query the database to retrieve the necessary data to do a statistical analysis.
- Arrange the data in a useful manner using Python.
- Use hypothesis testing to verify any differences among the data.
- Find useful information to the company per the results



Scope/Database

- Microsoft Northwind SQL Database
  - Contains sales and product data for a fictional company
- Included:
  - General employee info (personal, location, clients)
  - Product info (prices, suppliers, categories)
  - Order info (prices, shipping, salesperson)
  - Customer info (personal, location, orders)
- Total of 13 tables!

Interpreting Results

Confidence level

- Testing is done at industry standard (95%)
- “Alpha” = 0.05

Significant result?

- **If and only if:**
  - Test result falls within pre-determined confidence level
- Otherwise “inconclusive”

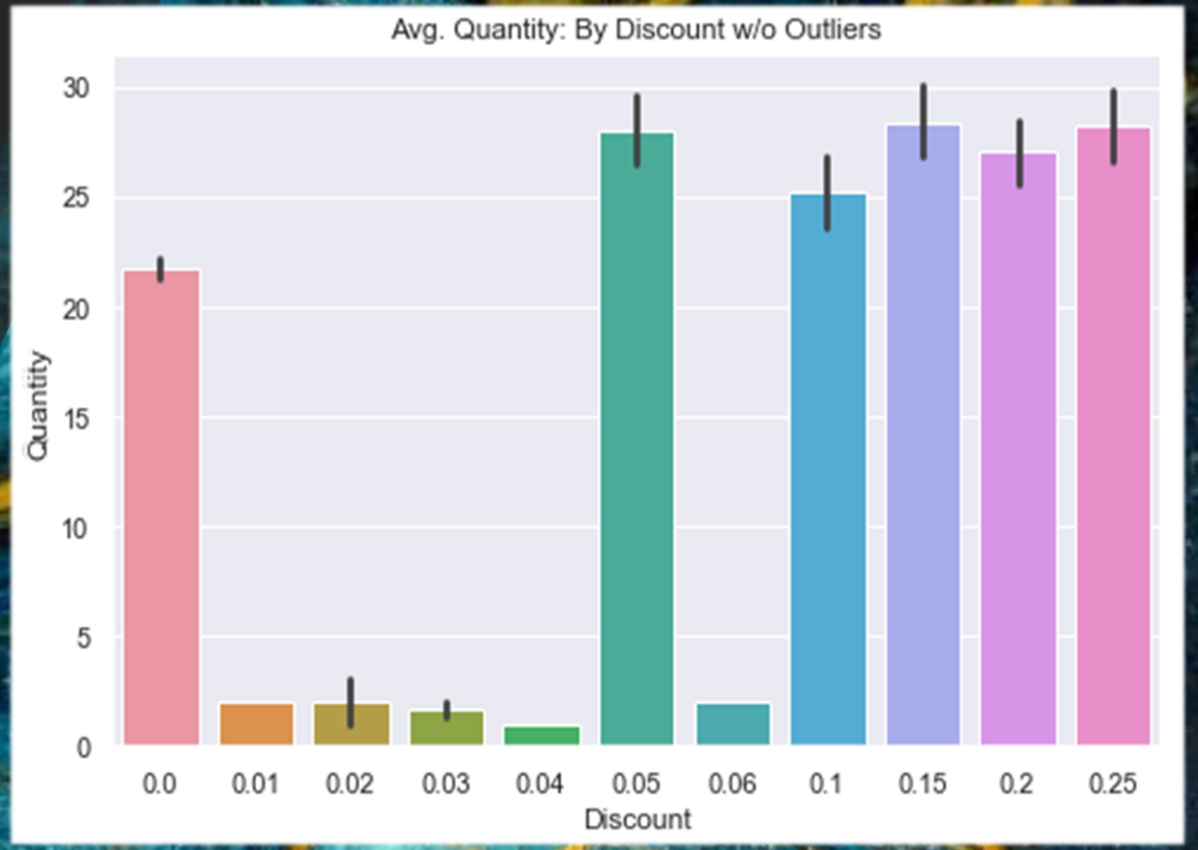
Questions Tested (1)

Does discounting an order have a significant effect on the quantity of a product in an order? If so, at what level(s)?

Our test concluded that discounting an order **does** have a significant effect on how much is ordered in total.

Positively too!

The levels: 5%, 15%, 20%, 25%

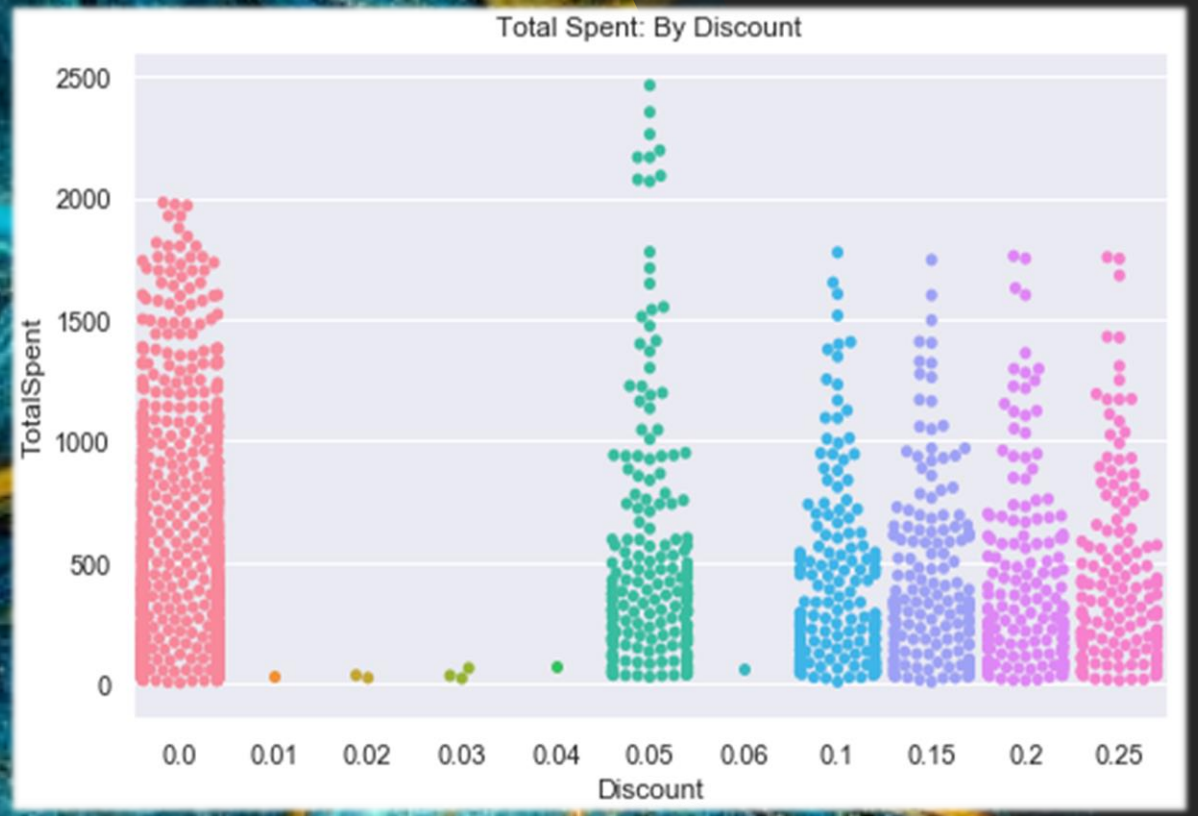


Q1 Recommendation

Our test concluded that discounting an order **does** have a significant effect on how much is ordered in total.

The company has no reason to give discounts larger than 5%, as it effects the quantity purchased just the same as any of the higher options.

Questions Tested (2)



Does discount amount have a statistically significant effect on the total amount spent in an order? If so, at what levels?

Our test showed that discounting an order **does** have a significant effect on how much is spent in total on that order.

The level: 5%

Q2 Recommendation

Our test concluded that discounting an order at 5% **does** have a significant effect on how much is spent in total.

Considering Q1, I recommend that they either:

A) Stop offering discounts > 5%

OR

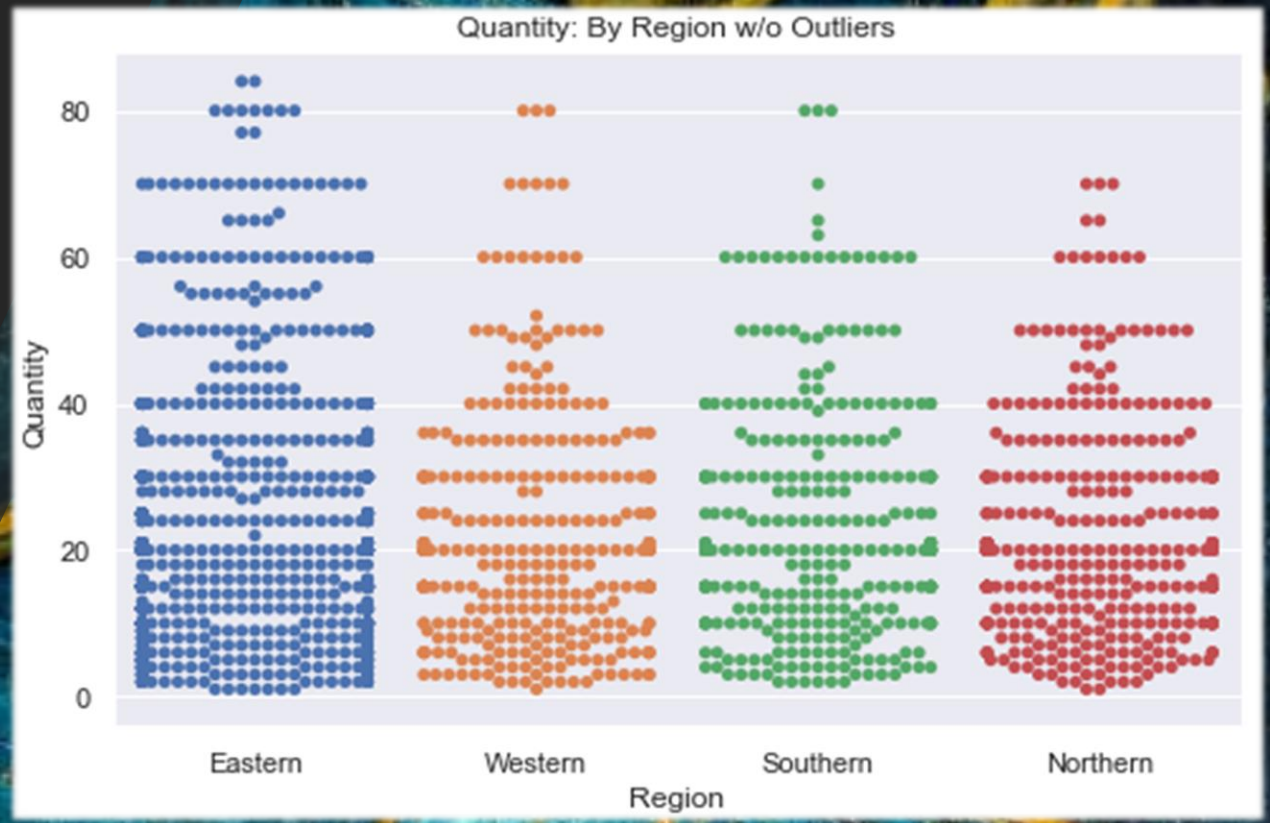
B) Do not give more than 15%, as my results show that this is the next level at which there is no significant difference.

Questions Tested (3)

Does the region in which a product is sold have a significant effect on the quantity of a product in an order? If so, at what region buys the most?

Our test showed that the purchasing region **does not** have a significant effect on how much is ordered in total.

Inter-regionally our test found the same result.

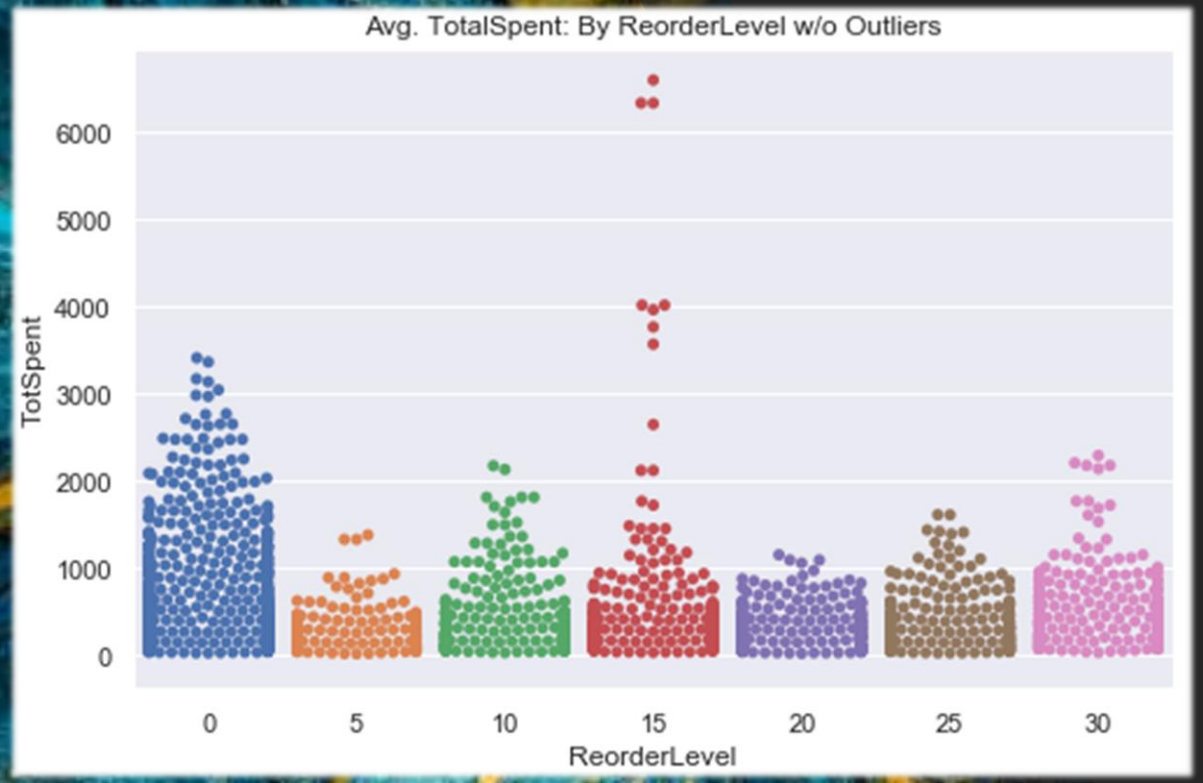


Q3 Recommendation

Our test concluded that the ordering region **does not** have a significant effect on how much is ordered in total.

I recommend that this company consolidate their shipping costs as much as possible. Looking into an option that will provide them the widest reach for the least amount of money will prove useful to cost reduction.

Questions Tested (4)



Does whether the company always keeps a product in stock have any significant effect on the total amount spent in an order? If so, is there any optimal level?

Our test showed that always keeping an item in stock **does** have a significant effect on how much is spent in total on an order.

Items reordered at 0 and 15 units left proved to be significant.

Q4 Recommendation

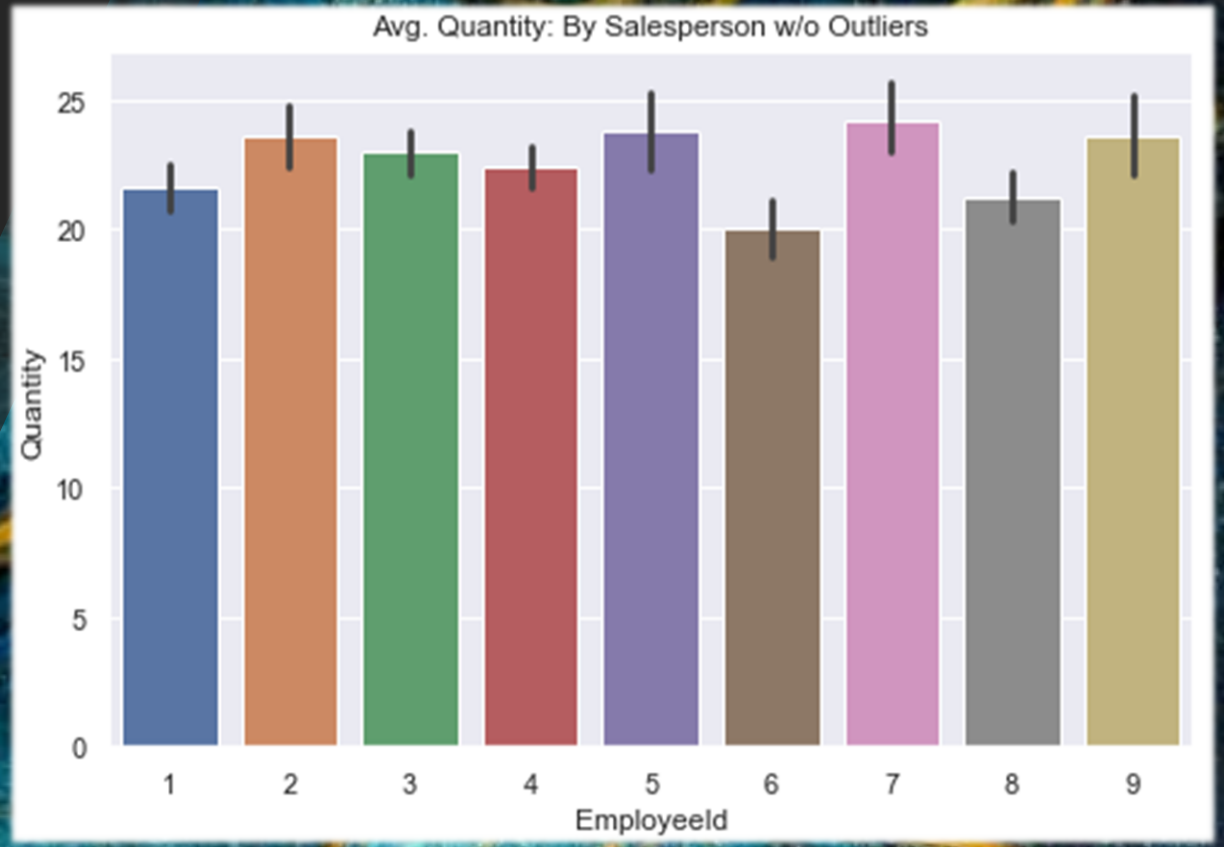
Our test concluded that the reorder level of a product **does** have a significant effect on how much is spent on them in an order.

I suggest setting a reorder level of 0 *or* 15 for items, given that my finding would indicate a higher revenue to be generated from them.

Questions Tested (5a)

Does the sales representative making the deal have a significant effect on the quantity of product ordered? What about total spent?

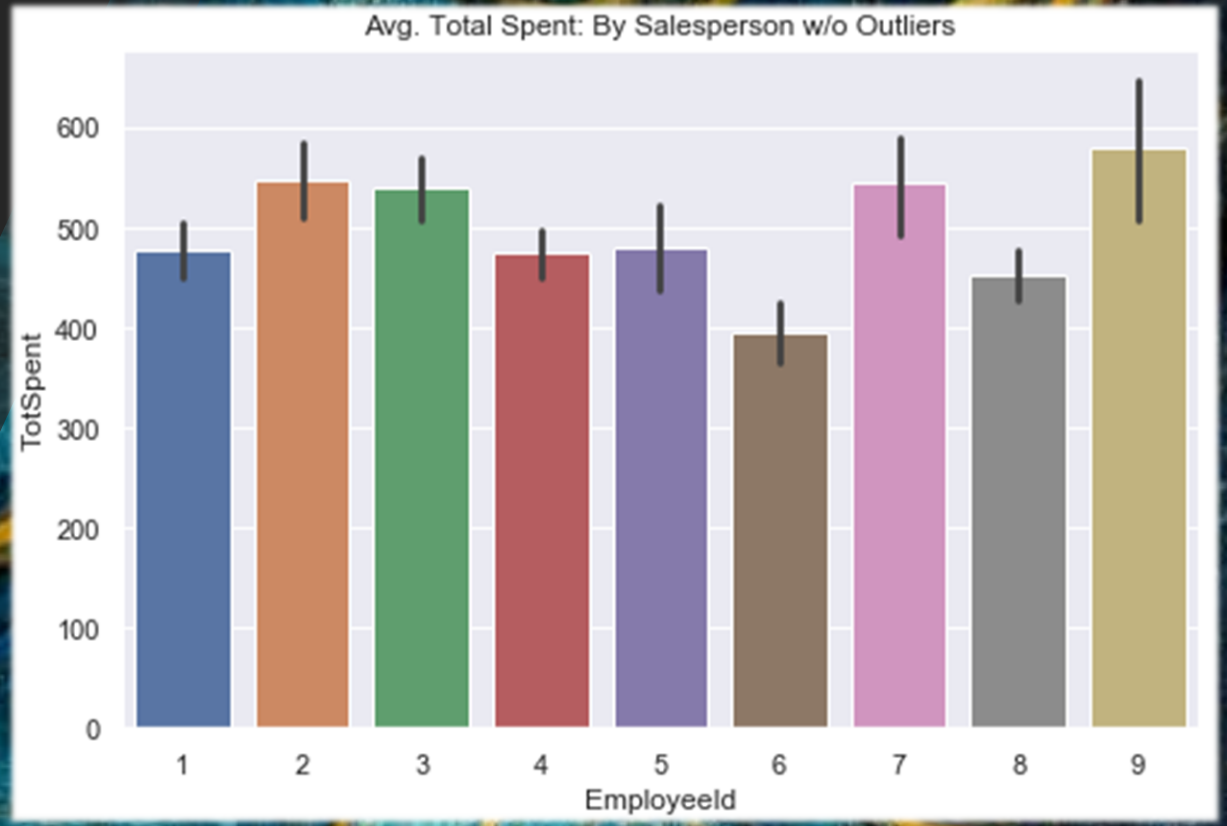
Our test showed that the corresponding sales rep **does not** have a *significant* influence on how much is ordered in total.



Questions Tested (5b)

Does the sales representative making the deal have a significant effect on the quantity of product ordered? What about total spent?

Our test showed that the corresponding sales rep **does** have a *significant* influence how much is spent in total.



Q5 Recommendation

Our test concluded that the salesperson handling an order **does** have a significant effect on how much is spent in total but **does not** on quantity purchased.

I am unable to make a clear recommendation about their salesforce due to conflicting results. I **can** say that the salesperson effects the total amount spent on an order and to consult high-selling employees on their techniques.

Conclusions

- Q1: Given the levels we found, the company's policy surrounding discounts ***is*** allowing them to send out larger orders.

- Q2: As is, only 5% discounts prove to have a significant effect on revenue.

- Q3: The data was unable to pinpoint any region that orders a *significantly* different amount of product than others. No need to segment greatly. Consolidation would be preferred.

Conclusions

- Q4: Unless waiting until a product is out of stock, there is something behind the revenue generated by products with a reorder level of 15.

- Q5: Reliably the data shows ***no*** significance for sales rep on quantity ordered. However, there is ***some*** significance with respect to revenue. The data was unable to indicate a specific salesperson.

Future Works

- More information concerning why different levels of discount are offered will help me tailor my recommendation
- More time to dive into which specific products fit have which reorder level will help to determine how to focus and improve upon my recommendation
- More sales data would be needed, but there is relevant information to be found with respect to salespeople and their effect on the business


Thank You!