Data Science: Module Three Project

David Mauger | October 28, 2019







### **Questions to Explore**



### **Question #1**

Do discounts have a statistically significant effect on the number of products customers order? If so, at what level(s) of discount?



### Question #2

Is there a difference in average product revenue between regions?



### Question #3

Is there a difference in efficiency between shippers?



### Question #4

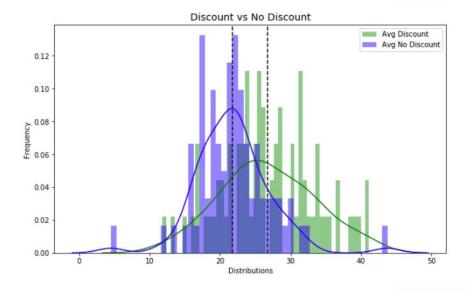
Is there a difference between the best selling products per region?

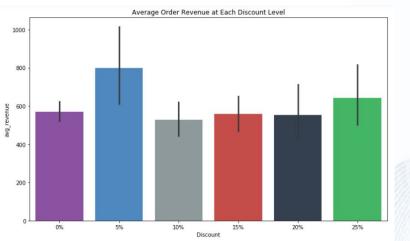
### Question #1:

"Do discounts have a statistically significant effect on the number of products customers order? If so, at what level(s) of discount?"

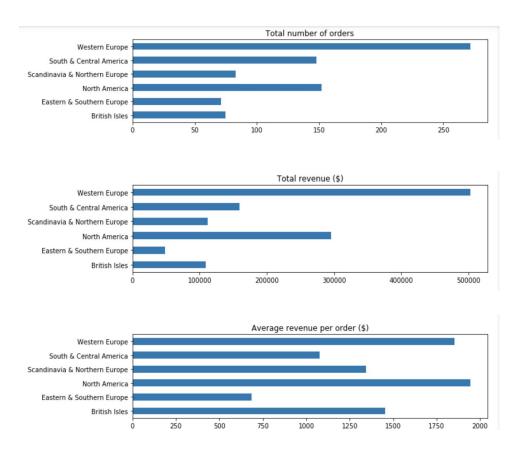
### **Observations:**

- Approximately a 25% increase in products ordered if discounted.
- The average amount of non-discounted items ordered is 21.8 vs 26.7 for discounted items.
- There is not a significant difference when comparing the levels of discounts offered vs items sold.





## **Question #2:** "Does average product revenue have a statistically significant difference between regions?"



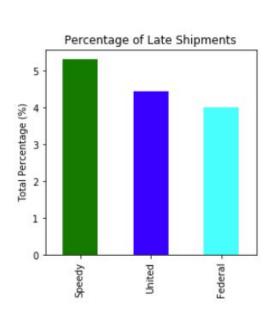
### **Observation:**

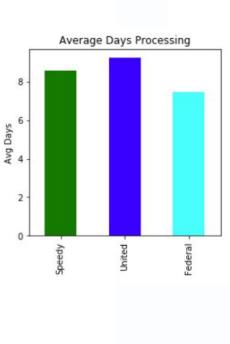
- Western European customers offer the greatest contribution to Northwind's bottom line and also place the most orders.
- North American customers spend slightly more per order although they only place half as many total orders as Western Europe.
- The difference between the highest and lowest regions is \$1,945 vs \$686.73 nearly 3 times higher.

**Question #3:** "Is there a difference in efficiency of shipping companies?"

### **Observation:**

- Federal Shipping has a slight advantage in decreased time from the moment an order is placed to the time it is shipped.
- Federal Shipping also has a lower percentage of late shipments.
- From an efficiency perspective, Federal Shipping performs better than the other two.
- Next study will compare cost vs efficiency.





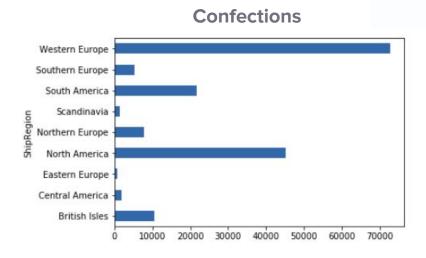


**Question #4:** "Does the best selling product category differ significantly between regions?"

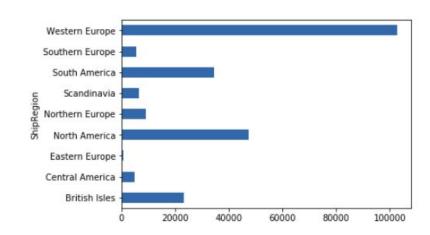
### **Observation:**

 Only two categories showed a significant difference between regions: Confections and Dairy.

Beverages	Soft drinks, coffees, teas, beers, and ales
Condiments	Sweet and savory sauces, relishes, spreads, and seasonings
Confections	Desserts, candies, and sweet breads
Dairy	Cheeses
Grains	Breads, crackers, pasta, and cereal
Meat/Poultry	Prepared meats
Produce	Dried fruit and bean curd
Seafood	Seaweed and fish



### Dairy



### **Additional Areas to Explore**

QUESTION #1
At what level do discounts lose their effectiveness to sell more items?

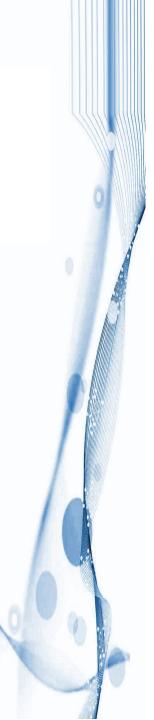
QUESTION #2
In order to maximize profits, should regions such as Western Europe and North America be prioritized in sales?

QUESTION #3
What additional recommendations for shipping companies surface in relation to cost?

What is the financial loss of late shipments?

**QUESTION #4** 

Would it be financially prudent to focus on best-selling products in each region and eliminate low-performing products?



# **THANK YOU!**

### **DAVID MAUGER**