MODULE #2

# Final Project

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Self-Paced Data Science Program

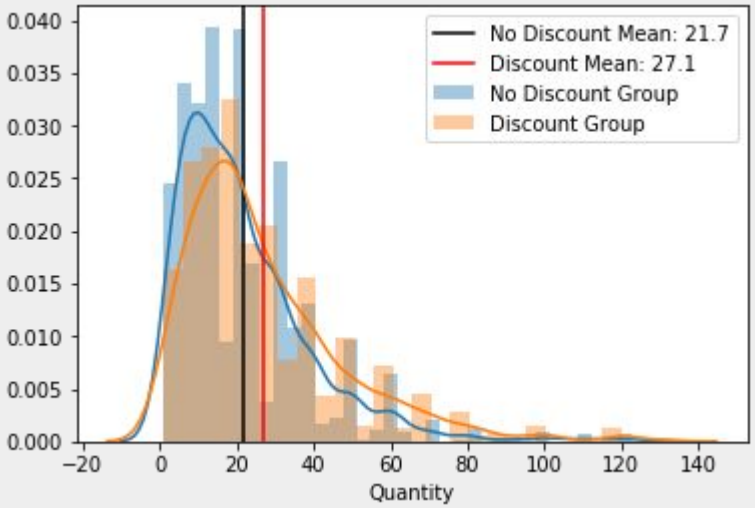
# Context

The Northwind company was interested in understanding the impact discounts have on the number of products a customer orders.

While it was easy to see that the mean number of products ordered was higher for products that received a discount – how do we know if this effect is statistically significant?

Histogram of number of products ordered

(Discount vs No Discount)



# The Challenge

Answer the question:

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

# Additionally, I explored the following questions:

2. Does a product’s price have a statistically significant effect on the number of products customers order?
3. Do discounts have a greater or lesser effect on the number of products customers order when the products being ordered are more expensive?
4. Do discounts have a greater or lesser effect on the number of products customers order when the products being ordered are cheaper?

# Methodology

## Obtain

Import the data & familiarize myself.

## Scrub

Deal with any missing or incorrectly labeled data, and begin organizing.

## Explore

Exploratory analysis of the control group (no discount) and experiment group (discount).

## Test

Determine whether discounts have a stat. significant effect on the number of products ordered and determine the effect size.

## Interpret

Understand the implications and make recos.

# Insight #1

Our tests showed that discounts *do* have a small-to-medium sized effect on the number of products customers order.

This effect is statistically significant with 95% confidence.

# Recommendation

Based on these observations I recommend that the Northwind company continue discounting as a strategy to increase the number of products ordered.

I would also recommend focusing on discounts of ~15% and discounts 1-6%, which provided the most “bang for buck”.

# Insight #2

Our tests showed that the unit price of a product has no statistically significant effect on the number of products customers order.

# Recommendation

I recommend that the Northwind company does not try lowering unit prices in order to increase the number of products ordered. Rather, they should focus on offering discounts at existing prices.

# Insight #3

Our tests showed that discounts have different effects on the number of products ordered depending on the price of that product.

– Discounts have a higher effect on the number of products ordered for products that are in the "medium" price range (~$14-26)
– Discounts are least effective for "low" priced products (under $14) and are slightly more effective for "high" priced products(26+)

# Recommendation

I recommend that the Northwind company focus their discounting strategy on products in the ~$14-26 price range.

However, keep in mind that discounts still have a significant effect on the number of products ordered in all price ranges.

# Thank you!

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