Module 2: Final Project

Northwind Traders Hypothesis Testing

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OSEMN Methodology

Using the OSEMN methodology gives a strong framework in which we can insure accurate and actionable results.

01 | Obtain Data

02 | Scrub Data

03 | Exploratory Analysis

04 | Hypothesis Test

05 | Interpret Results

Getting Data to Work for Us

1 Set the Hypothesis that we want to test

2 Identify and gather necessary data from the different database table

3 Determine the type of hypothesis test and calculate statistics needed for that particular test

4 Analyze results and determine what questions are left unanswered

Questions We Want Answered

01 | Do discounts affect the quantity of items purchased?

02 | Is there a seasonality to the business?

03 | Which supply regions have lower reorder levels?

04 | Which customers generate higher revenues?

Discount Rates

01

Northwind Traders wanted to know if product discounts affect the quantity of items sold. If so, at what levels were they most successful. We determined that there was an increase in items sold when there was a discount in play but the level of the discount had no statistically significant effect.

Client Implications:
The practice of using discounts to increase sales is still encouraged but to do so at lower discount rates (5% or 10%), increasing the revenue generated from those sales.


Sample Mean Distributions, Control vs. Treatment
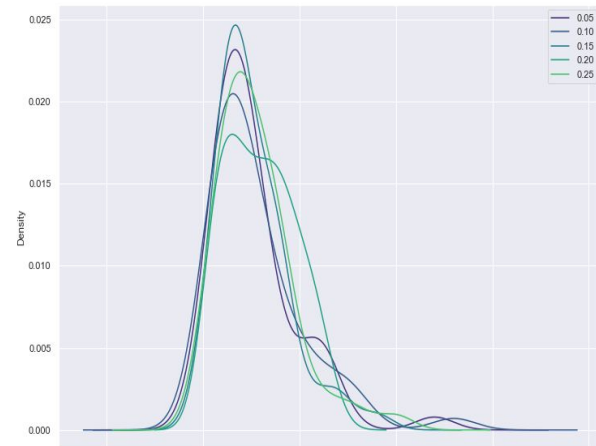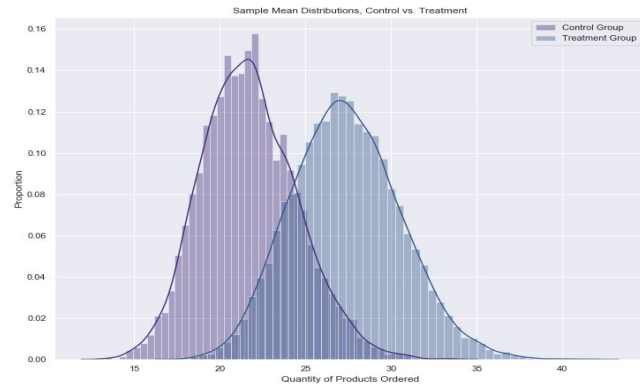
Seasonality

02

Northwind Traders wanted to know if there were seasons where revenues were higher. We determined that there was no statistically significant difference in seasons when adjusted for overall growth..

Client Implications:
Northwind Traders shouldn't adjust income or cash flow projections based on the seasons.


Revenue by Month
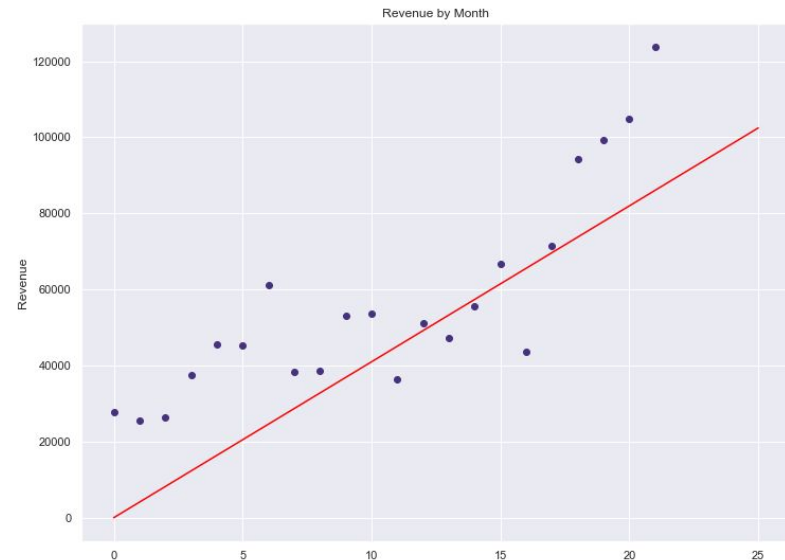
Reorder Level by Region
03

Northwind Traders wanted to know if there are regions with lower reorder levels. We found that only East Asia's reorder levels are statistically significant.

Client Implications:
Look further into the differences between East Asia and other regions to determine the cause of the lower reorder levels.
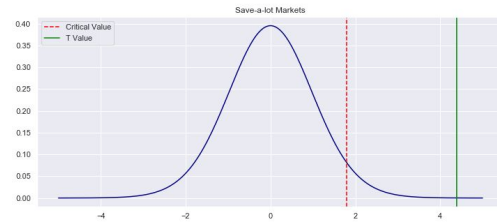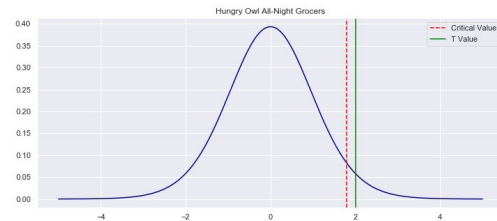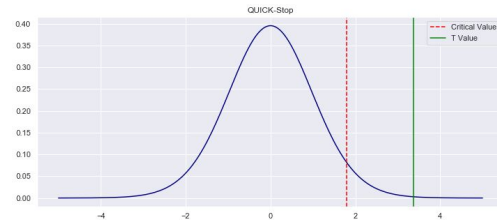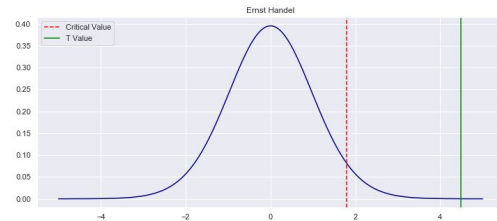

Reorder Level by Region
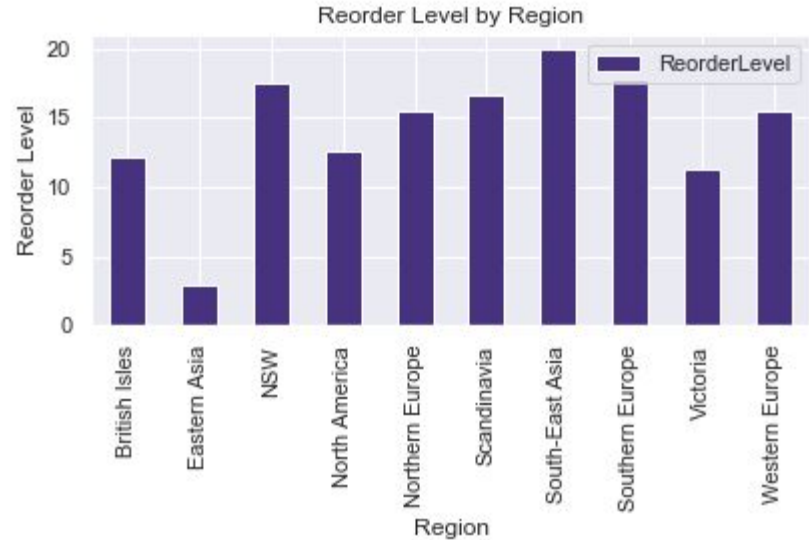
Largest Customers

04

Northwind Traders wanted to know which customers generated the most revenue for the company. We determined that there four customers whose orders generated higher revenues (Ernst Handel, QUICK-Stop, Hungry Owl All-Night Grocers, and Save-a-lot Markets).

Client Implications:
Focus more employee time toward keeping these particular clients happy.

Future Work

- Determine what makes East Asia's reorder levels so different from other regions
- Identify which customers generate the least amount of revenue

Thank you.