Project: Analyzing a Market Test

Step 1: Plan Your Analysis

To perform the correct analysis, you will need to prepare a data set. (500 word limit)
Answer the following questions to help you plan out your analysis:
1. What is the performance metric you'll use to evaluate the results of your test?
    Our performance metric is Gross Margin. Sales should be greater than the cost.
2. What is the test period?
    12 weeks (2016-April-29 to 2016-July-21)
3. At what level (day, week, month, etc.) should the data be aggregated?
    Weekly

Step 2: Clean Up Your Data

In this step, you should prepare the data for steps 3 and 4. You should aggregate the transaction data to the appropriate level and filter on the appropriate data ranges. You can assume that there is no missing, incomplete, duplicate, or dirty data. You're ready to move on to the next step when you have weekly transaction data for all stores.

Step 3: Match Treatment and Control Units

In this step, you should create the trend and seasonality variables, and use them along with you other control variable(s) to match two control units to each treatment unit. Note: Calculate the number of transactions per store per week to calculate trend and seasonality.

Apart from trend and seasonality...
1. What control variables should be considered? Note: Only consider variables in the RoundRoastersStore file.
    AvgMonthSales, Sq_ft
2. What is the correlation between your each potential control variable and your performance metric?

Full Correlation Matrix

	Weekly_Gross.Margin	Sq_Ft	AvgMonthSales
Weekly_Gross.Margin	1.000000	-0.019345	0.790358
Sq_Ft	-0.019345	1.000000	-0.046967
AvgMonthSales	0.790358	-0.046967	1.000000

3. What control variables will you use to match treatment and control stores?
    AvgMonthSales because it has much higher correlation with gross margin than the sq_ft
4. Please fill out the table below with your treatment and control stores pairs:

Treatment Store	Control Store 1	Control Store 2
1664	7162	8112

1675	1580	1807
1696	1964	1863
1700	2014	1630
1712	8162	7434
2288	9081	2568
2293	12219	9524
2301	3102	9238
2322	2409	3235
2341	12536	2383

Step 4: Analysis and Writeup

Conduct your A/B analysis and create a short report outlining your results and recommendations. (250 words limit)

Answer these questions. Be sure to include visualizations from your analysis:

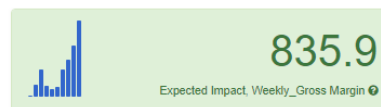1. What is your recommendation - Should the company roll out the updated menu to all stores?
   Yes, the expected gross margin has showed an increase. The company roll out the updated menu to all stores
2. What is the lift from the new menu for West and Central regions (include statistical significance)?
   Average lift for West region: 43.5%
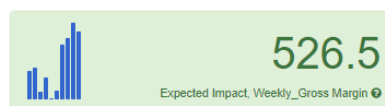
   AB Test Analysis for Weekly_Gross Margin

   Average lift for Central region: 43.5%
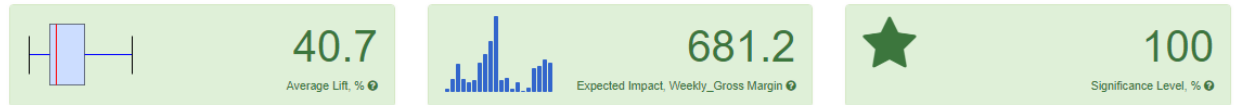   AB Test Analysis for Weekly_Gross Margin

3. What is the lift from the new menu overall?
   Overall menu lift/ avg of West and Central region lifts: 40.7%

AB Test Analysis for Weekly_Gross Margin

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40.7	Average Lift, %

681.2	Expected Impact, Weekly_Gross Margin

100	Significance Level, %

Before you Submit

Please check your answers against the requirements of the project dictated by the rubric here. Reviewers will use this rubric to grade your project.