Project: Analyzing a Market Test

Step 1: Plan Your Analysis

1. What is the performance metric you'll use to evaluate the results of your test?

Gross Margin is the metric that will determine if Round Roasters will finally introduce gourmet sandwiches along with limited wine offerings

2. What is the test period?

The test ran for a period of 12 weeks (2016-April-29 to 2016-July-21) and the comparative period is the test period, but for last year (2015-April-29 to 2015-July-21).

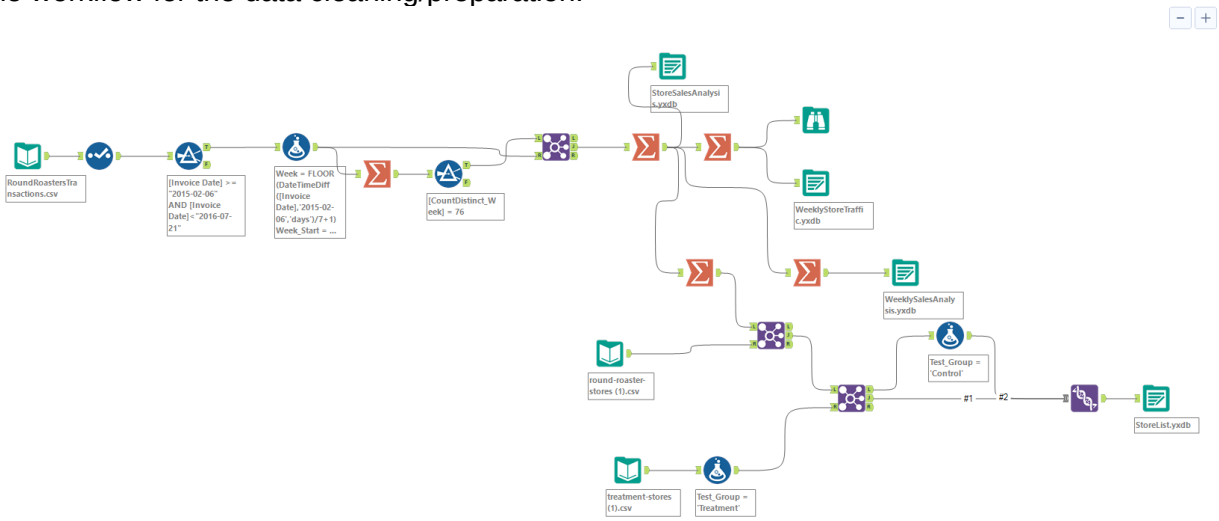
3. At what level (day, week, month, etc.) should the data be aggregated?

The data should be aggregated at weekly level

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.

The workflow for the data cleaning/preparation:



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.

Apart from trend and seasonality we should use AvgMonthSales and Sq_Ft.

2. What is the correlation between your each potential control variable and your performance metric?

Pearson Correlation Analysis

Full Correlation Matrix

	Sq_Ft	AvgMonthSales	Sum_Sum_Sum_Gross.Margin
Sq_Ft	1.000000	-0.046967	-0.024729
AvgMonthSales	-0.046967	1.000000	0.991166
Sum_Sum_Sum_Gross.Margin	-0.024729	0.991166	1.000000

3. What control variables will you use to match treatment and control stores?

   We will use AvgMonthSales which shows high correlation with the performance metric Gross Margin instead of Sq_Ft which shows weak correlation.

4. Please fill out the table below with your treatment and control stores pairs:

Treatment Store	Control Store 1	Control Store 2
1664	8112	1542
1675	1807	1580
1696	1964	7334
1700	2014	1508
1712	8162	7434
2288	2568	3185
2293	9589	9639
2301	9238	11268
2322	2409	8817
2341	12286	9524

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?

Since the requirement for the new menu to roll out to all stores is an incremental lift of 18%, and since the the results of the experiment showed a lift of 45.5% in the West regions, a lift

of 40.8 in the Central Regions and a combined lift of 43.2 which is well above the 18% threshold we should recommend that the new menu should roll out to all stores.

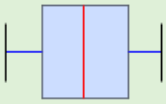
2. What is the lift from the new menu for West and Central regions (include statistical significance)?

	West	Central
Lift %	4550,00%	40,8
Significance %	99,7	99,4

More specific the analysis for West:

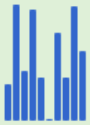
AB Test Analysis for Sum_Sum_Gross Margin

Time: 2021-09-27 12:36:36



45.5

Average Lift, %



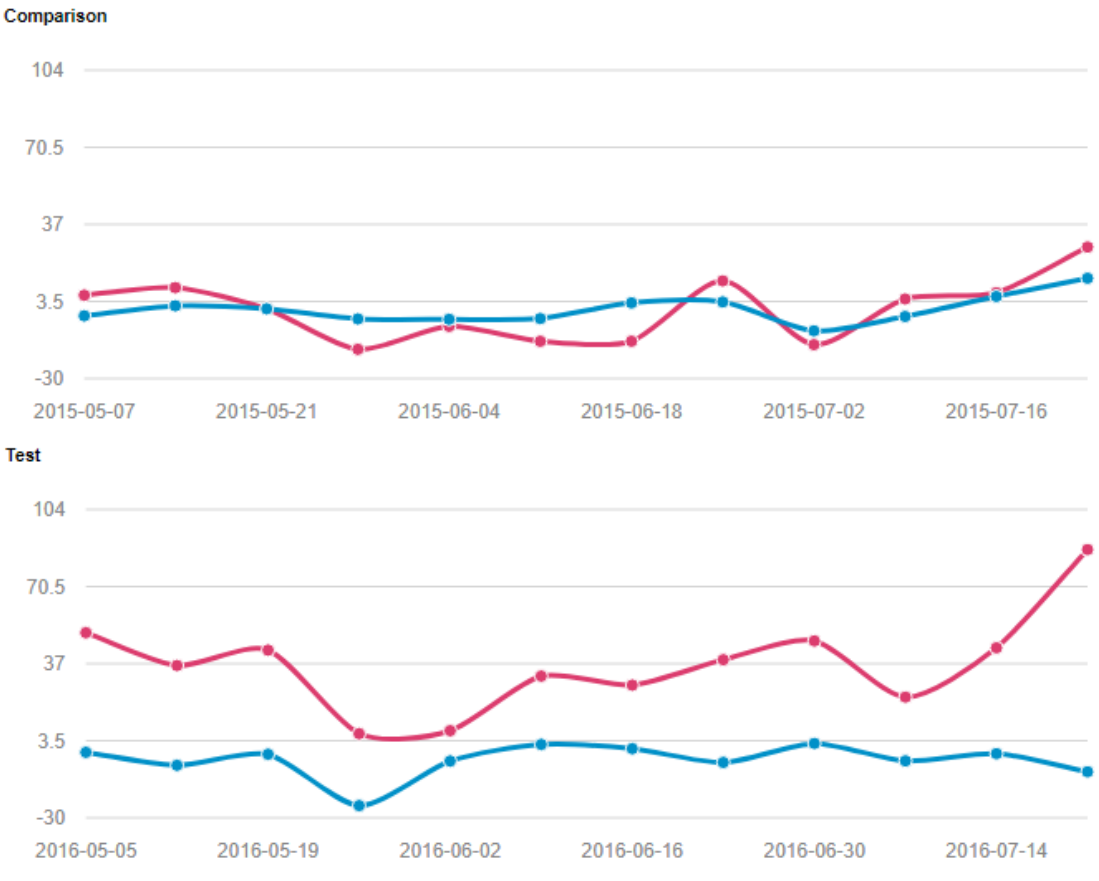
616.2

Expected Impact, Sum_Sum_Gross Margin

99.7

Significance Level, %

Time Comparison Plot



And the analysis for Central:

AB Test Analysis for Sum_Sum_Gross Margin

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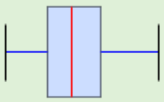


40.8

Average Lift, %

776.7

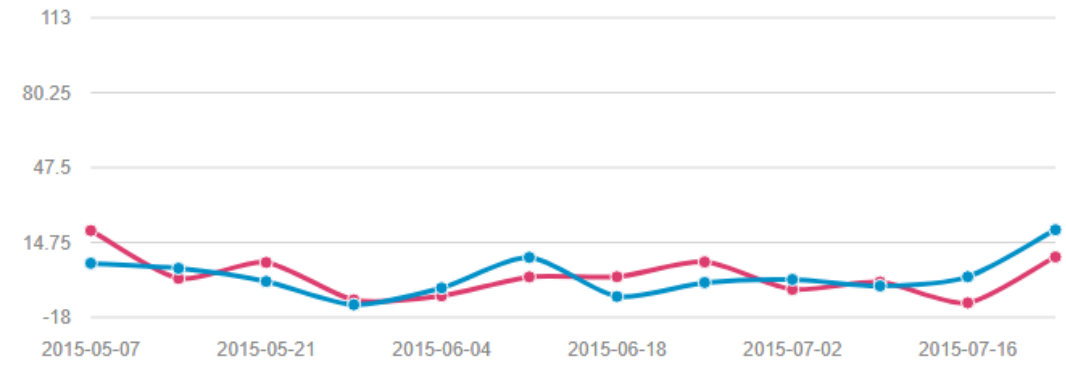
Expected Impact, Sum_Sum_Gross Margin

99.4

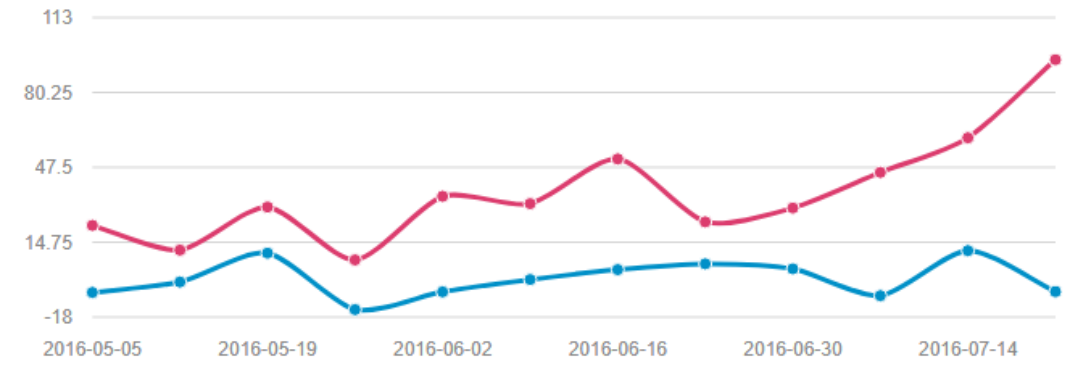
Significance Level, %

Time Comparison Plot

Comparison



Test



3. What is the lift from the new menu overall?

The overall lift is 43.2% with a significance level of 100%

AB Test Analysis for Sum_Sum_Gross Margin

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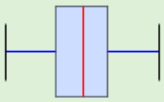
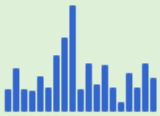


43.2

Average Lift, %



696.4

Expected Impact, Sum_Sum_Gross Margin

100

Significance Level, %

Time Comparison Plot