

Project: Analyzing a Market Test

Complete each section. When you are ready, save your file as a PDF document and submit it [here](#).

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?

Sum of gross margin will be used as performance metrics to evaluate whether to introduce gourmet sandwiches and limited wine offerings to spur sales growth in Round Roasters

2. What is the test period?

12 weeks from 29-APR-16 to 21-JUL-16

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 two datasets RoundRoasterTransaction and Round-Roaster-Store are first combined. I have 76 weeks data is used as A/B test. The test requires 52 weeks of data in addition to a minimum of 12 weeks needed to calculate seasonality and for the period of testing each. 12 weeks is as the test period lasted for 12 weeks.

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 and Sq_feet are the control variables

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

Regarding pearson correlation analysis, AvgMonthSales has a correlation of 0.988 and Sq_ft has -0.02 with sum_gross_margin.

Record
1

Layout

Pearson Correlation Analysis

Focused Analysis on Field Sum_Gross.Margin

	Association Measure	p-value	
AvgMonthSales	0.988219	0.00000	****
Sq_Ft	-0.020353	0.81612	

Full Correlation Matrix

	Sum_Gross.Margin	Sq_Ft	AvgMonthSales
Sum_Gross.Margin	1.000000	-0.020353	0.988219
Sq_Ft	-0.020353	1.000000	-0.046967
AvgMonthSales	0.988219	-0.046967	1.000000

Matrix of Corresponding p-values

	Sum_Gross.Margin	Sq_Ft	AvgMonthSales
Sum_Gross.Margin		0.81612	0.00000
Sq_Ft	0.81612		0.59138
AvgMonthSales	0.00000	0.59138	

3. What control variables will you use to match treatment and control stores?
Based on correlation analysis I will use only AvgMonthSales will use to match treatment and control stores.

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

Treatment Store	Control Store 1	Control Store 2
2288	9081	2568
2293	12219	9524
2301	3102	9238
2322	2409	3235
2341	12536	2483
1664	7162	8112
1675	1580	1807
1696	1964	1863
1700	2014	1630
1712	8162	7434

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:

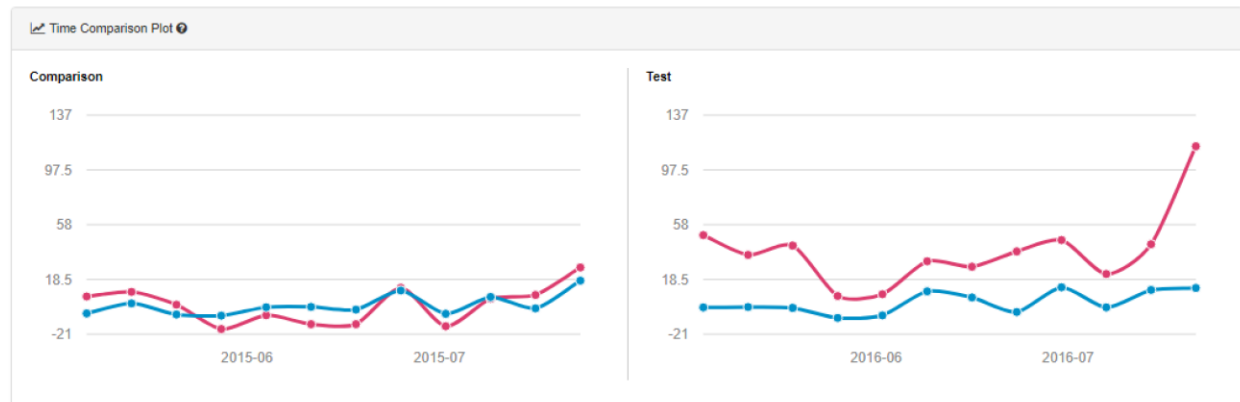
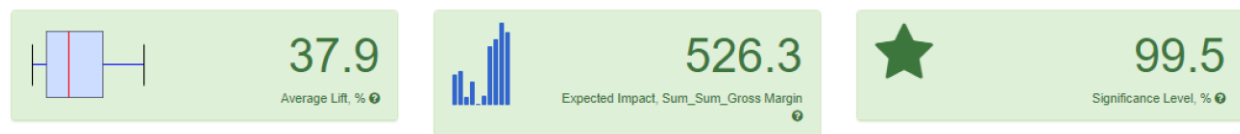
1. What is your recommendation - Should the company roll out the updated menu to all stores?

The company should roll out the update menu to all stores as the profit margin increased by more than 18%.

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

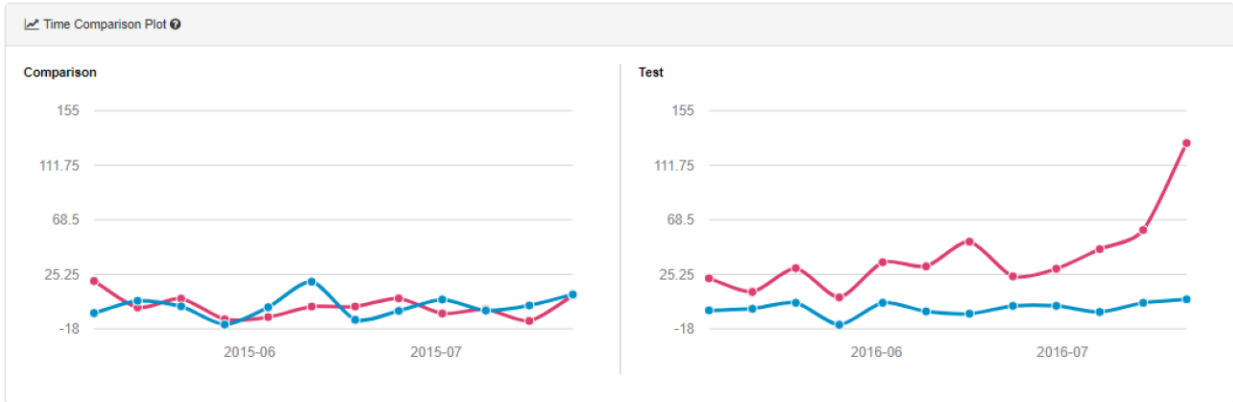
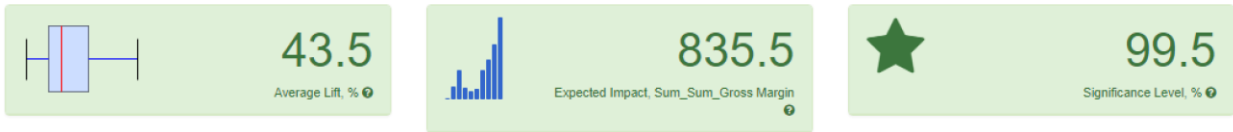
The left for west region is 37.9% with statistical significance of 99.5%.

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The left for central region is 43.5% with statistical significance of 99.5%.

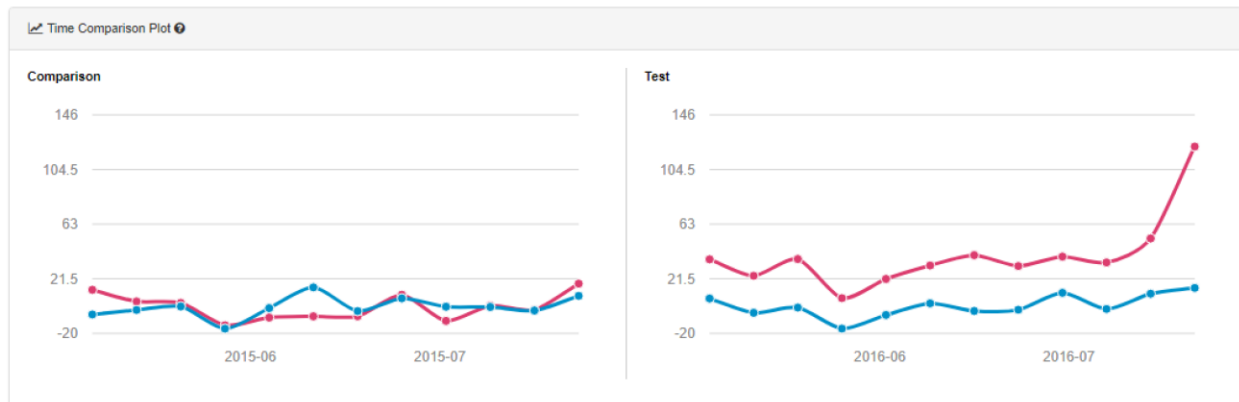
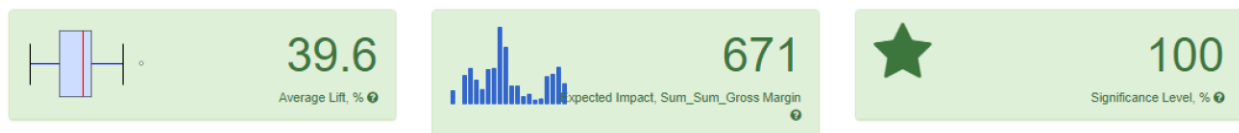
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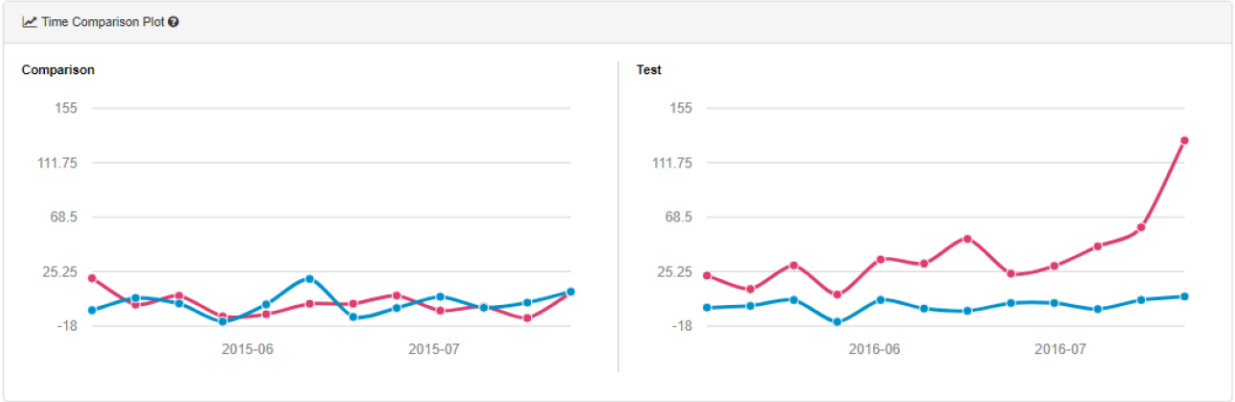
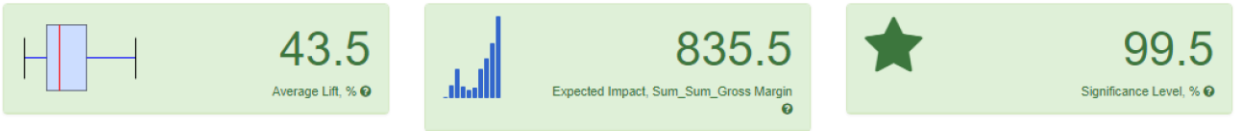
3. What is the lift from the new menu overall?

The left overall is 39.6% with statistical significance of 100%.

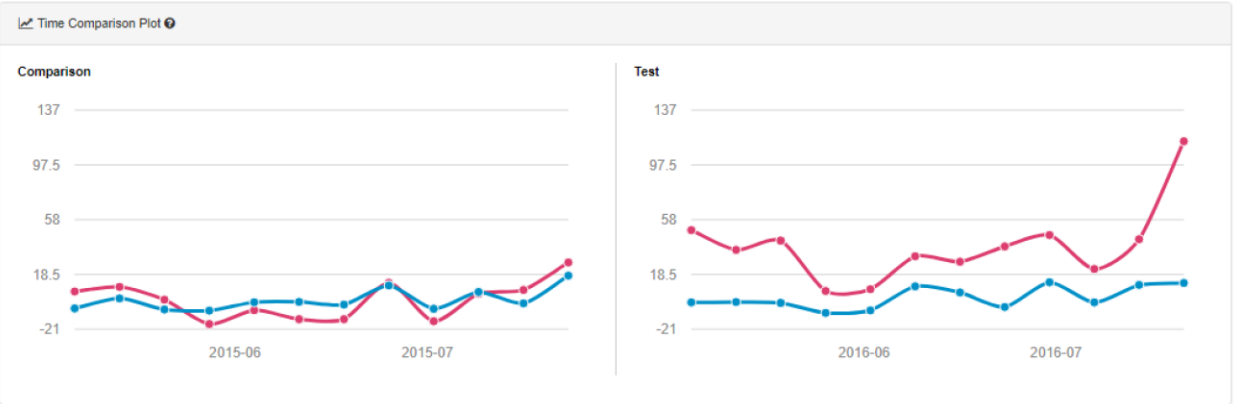
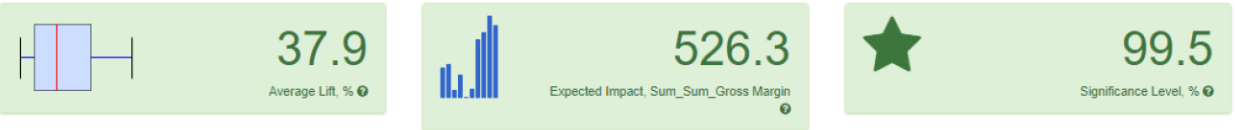
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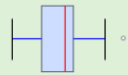
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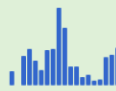


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39.6

Average Lift, %



671

Expected Impact, Sum_Sum_Gross Margin

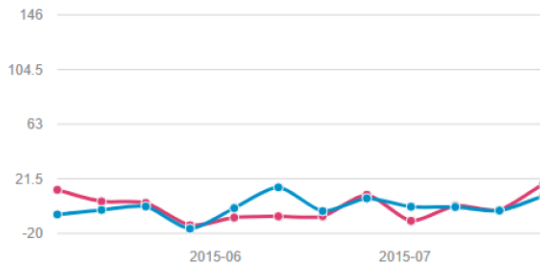


100

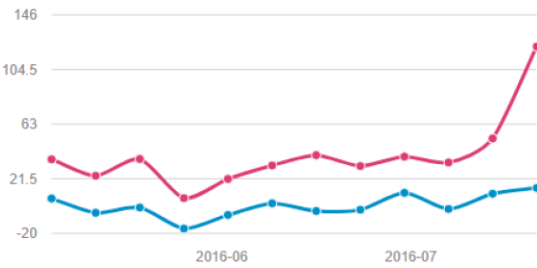
Significance Level, %

Time Comparison Plot

Comparison



Test



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.