

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

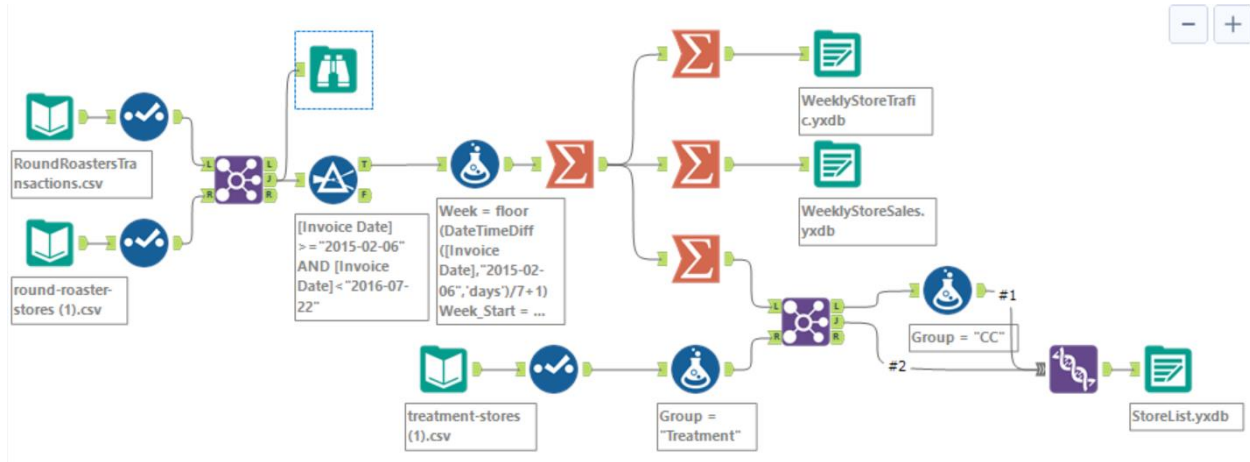
To perform the correct analysis, you will need to prepare a data set. (500 word limit)

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?
The sum of gross margin (profit) will be used for the performance metrics to evaluate whether to put Gourmet Sandwiches and limited Wine in the menu to outgrowth sales in Round Roasters, at least 18% in profit growth is required.
2. What is the test period?
2016-April-29 to 2016-July-21
3. At what level (day, week, month, etc.) should the data be aggregated?
WEEK

Step 2: Clean Up Your Data

As given that the experiment start date, so we have 52 + 12 weeks for the analysis week start, and week end are added to calculate the weekly traffic and sales for each store. Treatment store data then used to create a list of Treatment and Control 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.

Sq_Ft should be ignored, AvgMonthSales should be considered as constant variables

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

Pearson Correlation Analysis

Full Correlation Matrix

	AvgMonthSales	Sq_Ft	Sum_Sum_Gross.Margin
AvgMonthSales	1.000000	-0.046967	0.990978
Sq_Ft	-0.046967	1.000000	-0.024224
Sum_Sum_Gross.Margin	0.990978	-0.024224	1.000000

From the Pearson Correlation Analysis, Square Feet has low correlation of -0.05 with Sum of Gross Margin, where Average Month Sales has high correlation of 0.99 with Sum of Gross Margin

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

Trend and Seasonality along with the Average Month Sales.

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?

The average percentage change in Gross Margin was 39.4% for the treatment units in the test period relative to the comparison period which is more than 18%.

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

The lift for West region is 37.9% while the lift for Central region is 43.5% and both have a statistical significance of 99.5%.

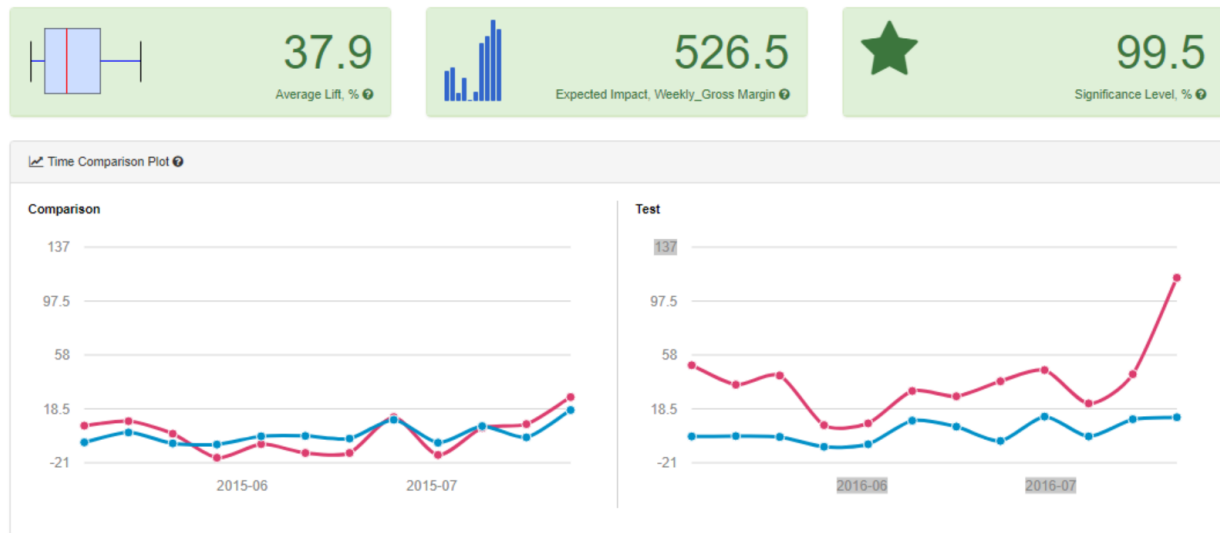
3. What is the lift from the new menu overall?

The lift for the new menu overall is 40.7% with a statistical significance of 100%.

WEST

AB Test Analysis for Weekly_Gross Margin

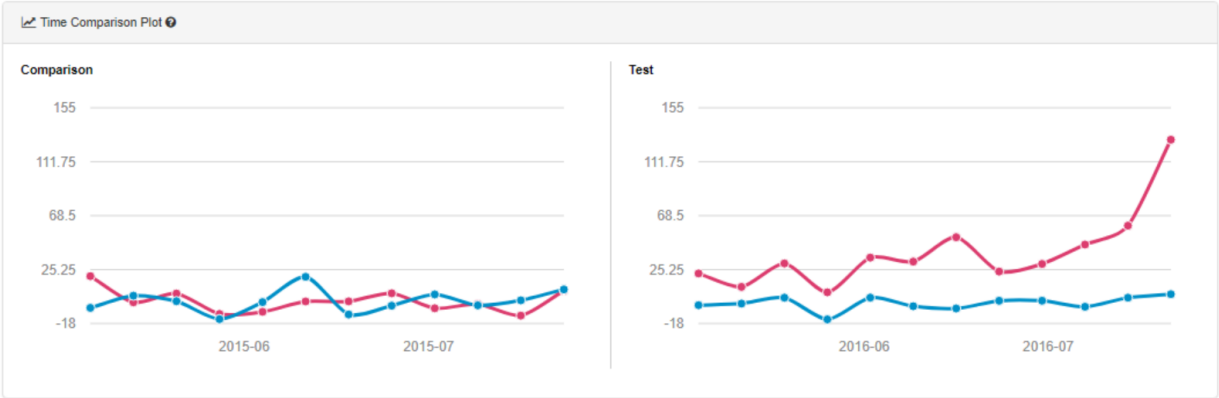
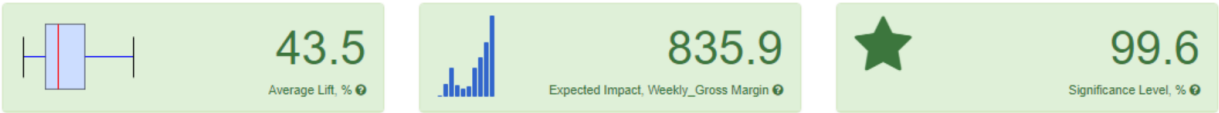
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CENTRAL

AB Test Analysis for Weekly_Gross Margin

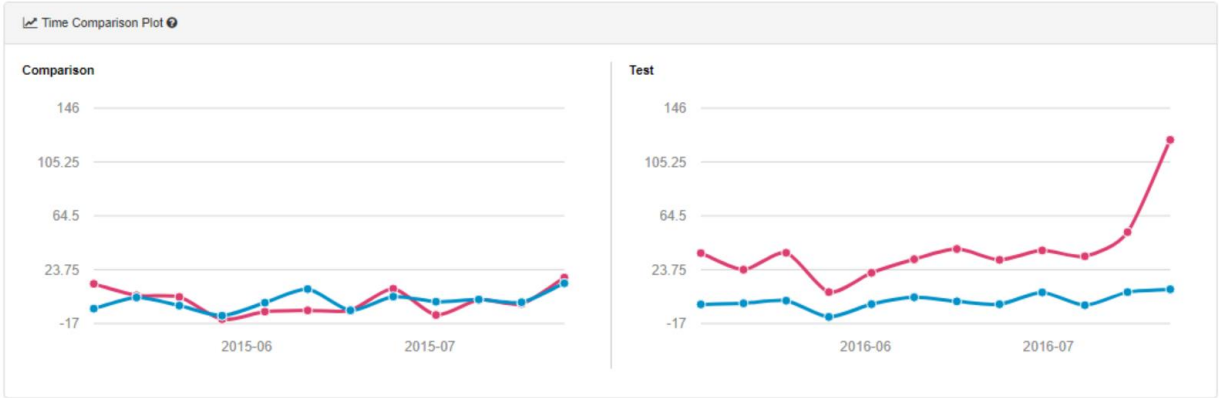
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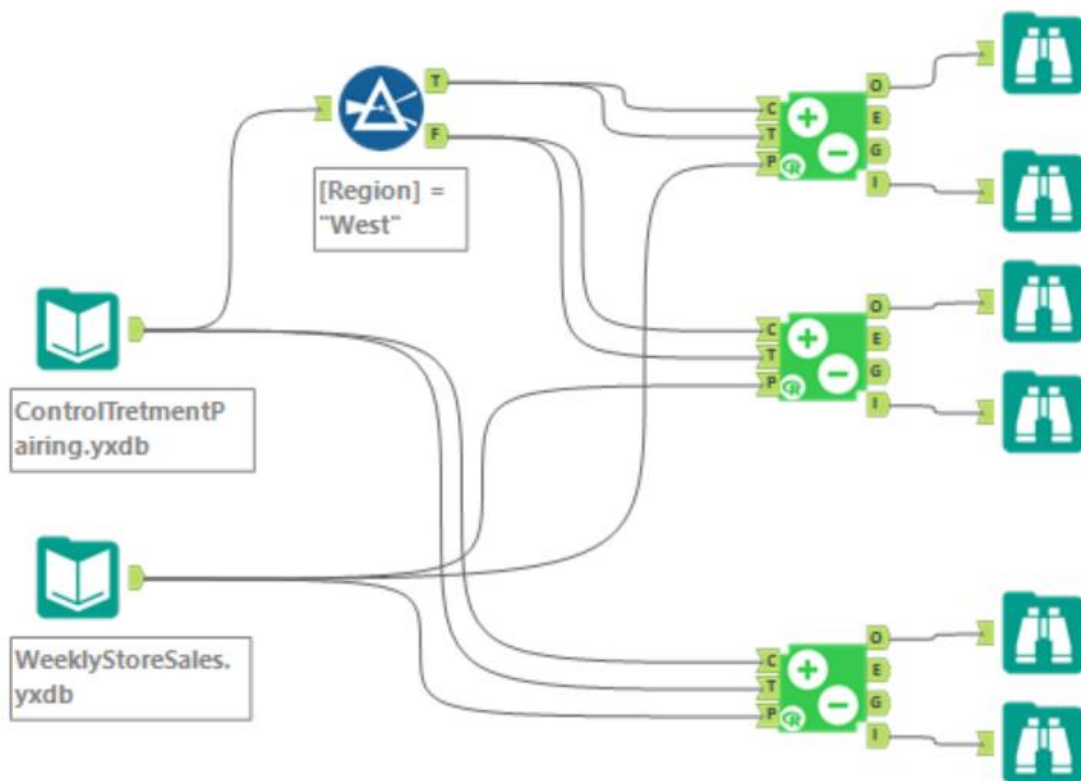
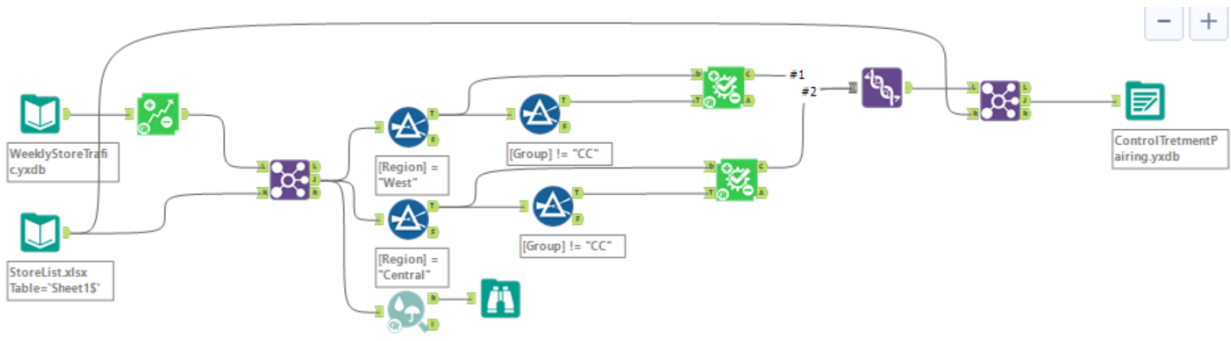
OVARALL

AB Test Analysis for Weekly_Gross Margin

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WORKFLOWS



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.