

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?

The total 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?

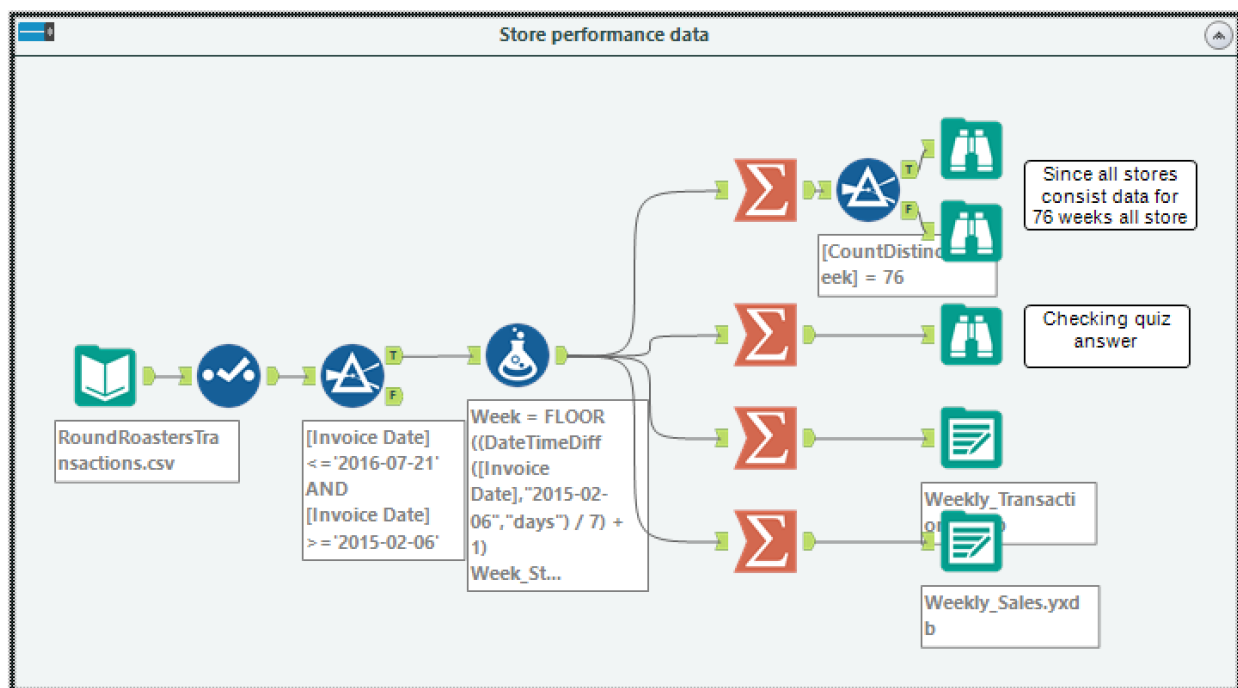
29-Apr-16 to 21-Jul-16 a period of 12 weeks is used as test period

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

A/B test requires 52 weeks of data in addition consider period of 12 weeks needed to calculate seasonality and for the period of 12 weeks when the test took place. Hence considering data only from 6-Feb-2015 to 21-Jul-2016 and filtering out the rest. And creating files for store transitional data and gross margin data.



Step 3: Match Treatment and Control Units

Apart from trend and seasonality...

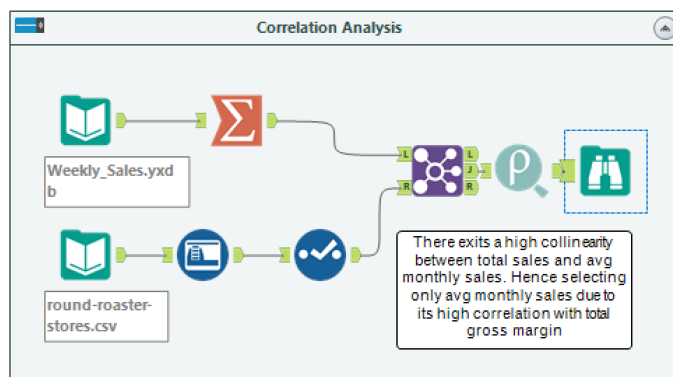
1. What control variables should be considered? Note: Only consider variables in the RoundRoastersStore file.

Categorical variable region should be considered since generally it has impact. And Only numerical variable AvgMonthSales should be considered due to its high correlation with the performance variable. Refer the confusion matrix below.

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

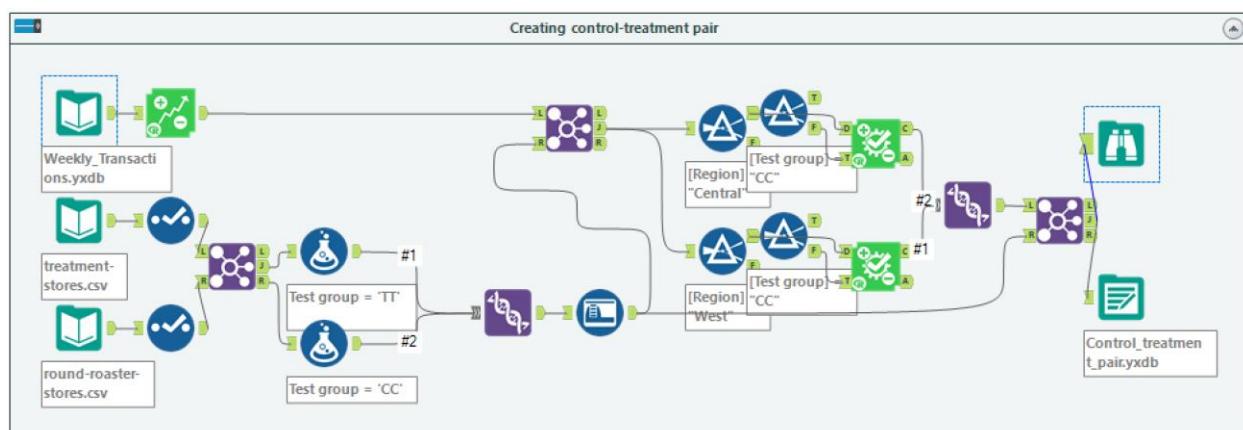
Please refer the below confusion matrix

FieldName	Total Gross Margin	Total Sales	Sq_Ft	AvgMonthSales
Total Gross Margin	1	0.999356	-0.024255	0.990982
Total Sales	0.999356	1	-0.0277	0.990917
Sq_Ft	-0.024255	-0.0277	1	-0.046967
AvgMonthSales	0.990982	0.990917	-0.046967	1



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

Trend and Seasonality along with *AvgMonthSales* should be used for matching treatment and control stores



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

Treatments	Control 1	Control 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

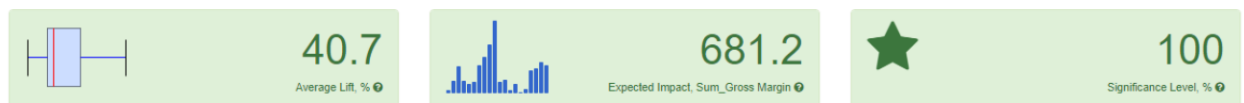
Step 4: Analysis and Writeup

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 company should roll out the new menus. The analysis shows that rolling out new menus has a 40.7% lift and 100% significance and will increase the gross margin by \$681.2 per store. Refer the report for all stores.

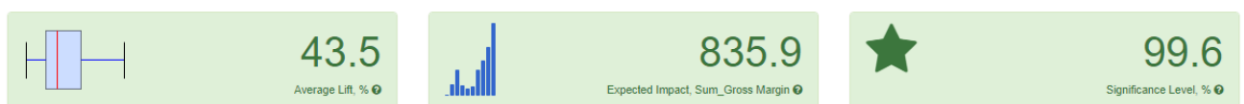
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2. What is the lift from the new menu for West and Central regions (include statistical significance)?

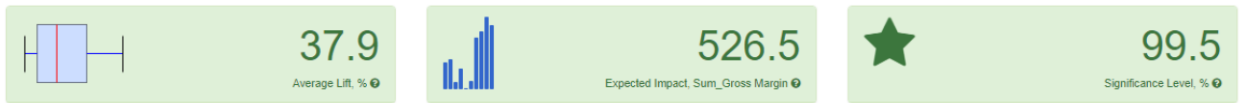
- Central:** Rolling out new menus in central region shows a 43.5% lift and 99.6% significance and will increase the gross margin by \$835.9 per store. Refer the report for stores in central.

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- **West:** Rolling out new menus in west region shows a 37.9% lift and 99.5% significance and will increase the gross margin by \$526.5 per store. Refer the report for stores in west.

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

The overall lift for rolling out new menus is 40.7% lift and 100% significance and will increase the gross margin by \$681.2 per store. Refer the report for all stores.

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