Project: Analyzing a Market Test

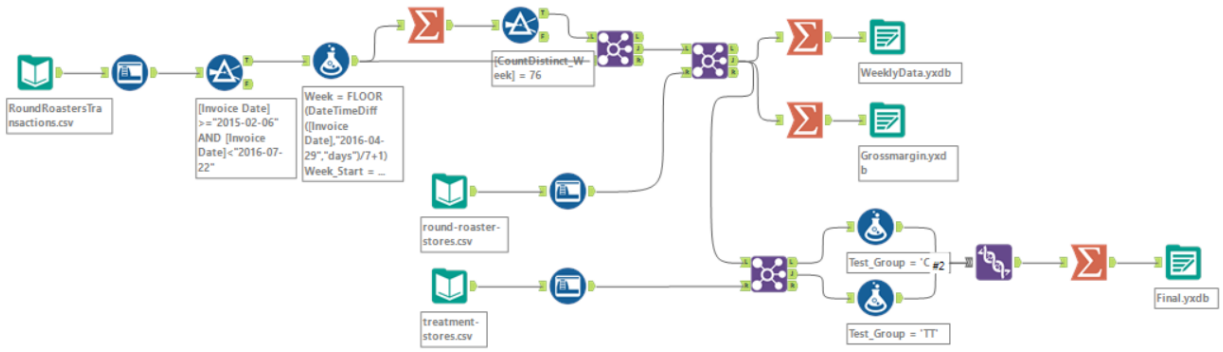
Step 1: Plan Your Analysis

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

2. What is the test period?
   A period of 12 weeks (04/29/2016-07/21/2016).

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

Step 2: Clean Up Your Data



You can see above the workflow I used on Alteryx to create three files used for A/B analysis out of the three raw data files to proceed to the next section.

Step 3: Match Treatment and Control Units

1. What control variables should be considered?
   From RoundRoastersStore file, AvgMonthSales should be considered as control variable apart from trend and seasonality.

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

I used Pearson Correlation Analysis tool to look at the correlation Matrix.

3. What control variables will you use to match treatment and control stores?
Based on the report below, AvgMonthSales will be used as a control variable to match treatment and control stores since it is statistically significant as it has p-value<0.05 along with Trend and Seasonality.

Pearson Correlation Analysis

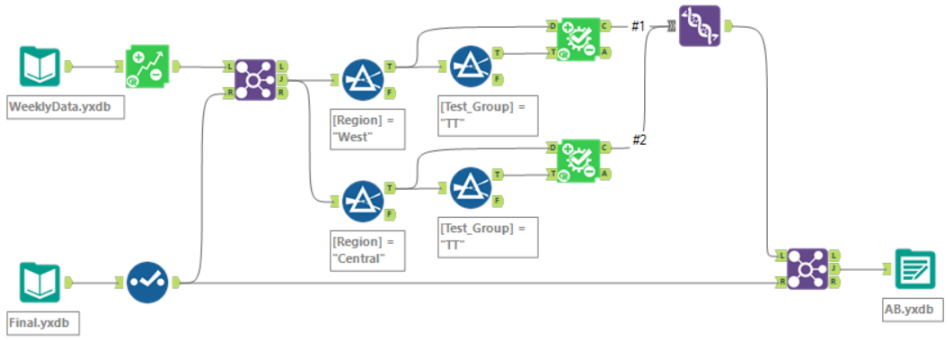
Full Correlation Matrix

	StoreID	Sq_Ft	AvgMonthSales	Postal.Code	Latitude	Longitude
StoreID	1.0000000	0.0573640	0.1862833	0.9843248	0.0575552	-0.4874514
Sq_Ft	0.0573640	1.0000000	-0.0469674	-0.0284286	0.9999986	0.0434978
AvgMonthSales	0.1862833	-0.0469674	1.0000000	0.1587565	-0.0469177	-0.2668778
Postal.Code	0.9843248	-0.0284286	0.1587565	1.0000000	-0.0282852	-0.3862826
Latitude	0.0575552	0.9999986	-0.0469177	-0.0282852	1.0000000	0.0432614
Longitude	-0.4874514	0.0434978	-0.2668778	-0.3862826	0.0432614	1.0000000
Current.Timezone.Offset	-0.4831381	0.0099417	-0.3061048	-0.3846761	0.0097152	0.9629026

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

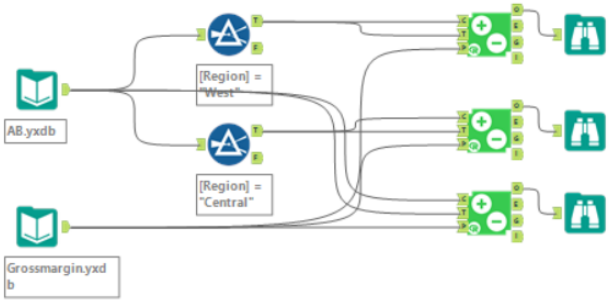
Treatment Store	Control Store 1	Control Store 2
1664	7162	8112
1675	1580	1807
1696	1964	1863
1700	2014	1630
1712	8162	7434
2288	9081	2568
2293	12219	9524
2301	3102	9238
2322	2409	3235
2341	12536	2383

For reference, find below the workflow for A/B Trends and A/B Control:



Step 4: Analysis and Writeup

Conduct our A/B Analysis by using A/B Analysis tool on Alteryx.

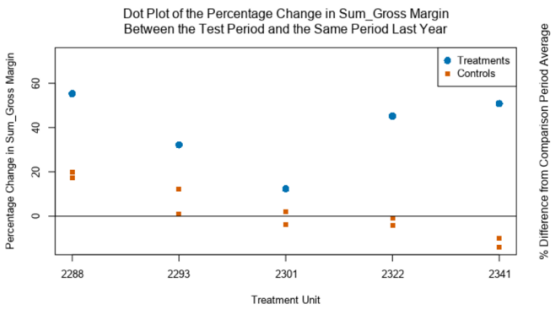


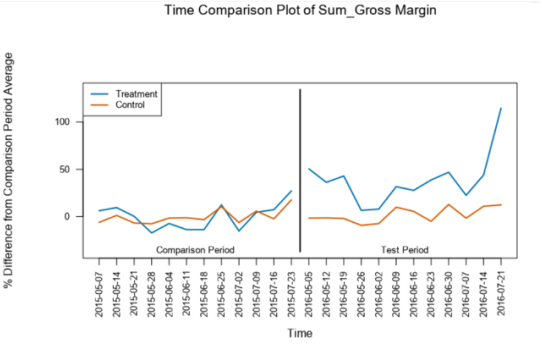
1. What is your recommendation - Should the company roll out the updated menu to all stores?
   After metric and statistical revision, we believe the new menu will raise the profit growth since the predicted impact round between 37.9% and 43.5% so the company should roll out the updated menu to all stores.

2. What is the lift from the new menu for West and Central regions (include statistical significance)?
   West region:
   The average lift for West region is 37.9% at 99.5% significance.

Lift Analysis for Sum_Gross Margin

Lift	Expected Impact	Significance Level
37.9%	527	99.5%

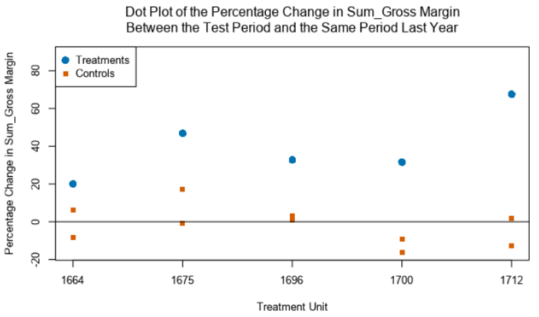


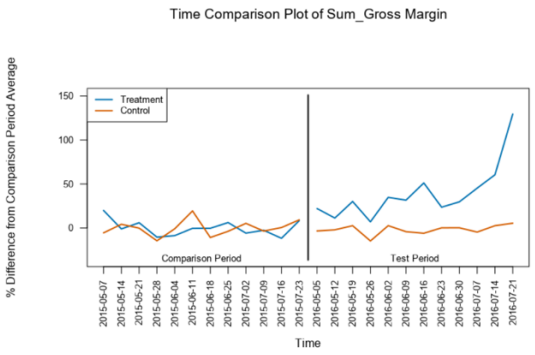


Central region:
The average lift for Central region is 43.5% at 99.6% significance.

Lift Analysis for Sum_Gross Margin

Lift	Expected Impact	Significance Level
43.5%	836	99.6%





3. What is the lift from the new menu overall?
The average lift for the new menu overall is 40.7% at 100% significance.

Lift Analysis for Sum_Gross Margin

Lift	Expected Impact	Significance Level
40.7%	681	100.0%