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 was chosen as the performance metric, to achieve at least 18% increase in profit growth compared to the previous period and determine whether the menu changes should be applied to all stores.
2. What is the test period?
   The test ran for 12 weeks but we use 76 weeks of previous data.
   from 04/29/2016 to 07/21/2016.
3. At what level (day, week, month, etc.) should the data be aggregated?
   The data should be aggregated on the 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.

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_Ft should be considered as control variables.
2. What is the correlation between your each potential control variable and your performance metric?
   In the previous step when we cleaned our data, then we can use Pearson Correlation Analysis tool of Avg Monthly sales and Sq_ft on gross margin. The Sq_ft has a negative correlation and Average monthly sales has a positive correlation.

Pearson Correlation Analysis

Full Correlation Matrix

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

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3. What control variables will you use to match treatment and control stores?
   Based on the Pearson Correlation Analysis report, AvgMonthSales is control variables, will be used together with Trend and Seasonality when matching treatment and control stores.
4. Please fill out the table below with your treatment and control stores pairs:

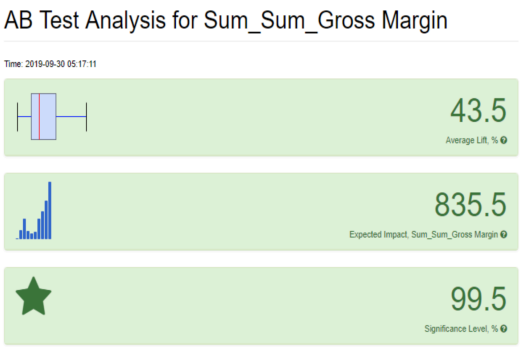
Treatment Store	Control Store 1	Control Store 2
1664	*7162*	*8112*
1675	*1580*	*1807*
1696	*1964*	*1863*
1700	*2014*	*1630*
1712	*8162*	*7434*
2288	*9081*	*2568*
2293	*12219*	*9524*
2301	*3102*	*9238*
2322	*2409*	*3235*
2341	*12536*	*2383*

Step 4: Analysis and Writeup

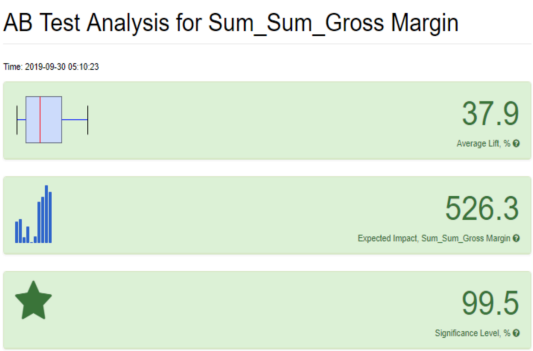
1. What is your recommendation - Should the company roll out the updated menu to all stores?
   Yes, the company should roll out the updated menu to all stores. Because when we look at the result of average lift both regions exceeded our 18% .

2. What is the lift from the new menu for West and Central regions (include statistical significance)?
   both exceeded our 18% . The lift from the new menu for Central Region is 43.5% with a statistical significance of 99.6 , and the lift from the new menu for is 37.9% with a statistical significance of 99.5%.

Central Region



West Region



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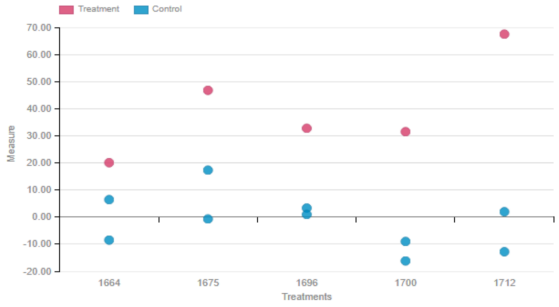
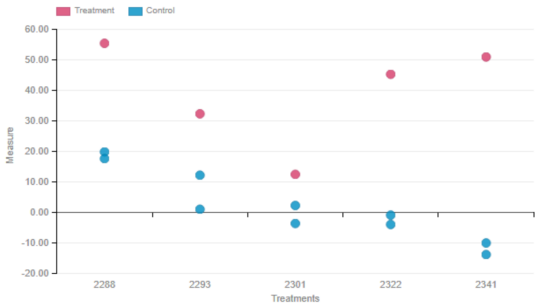
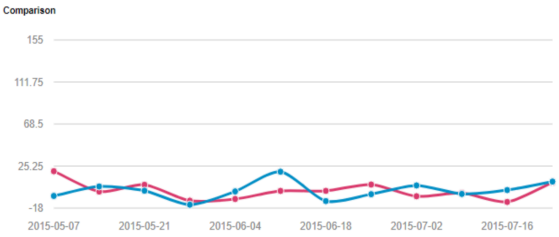
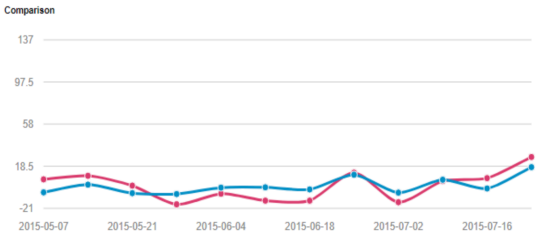
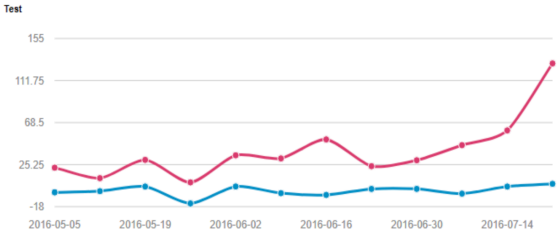
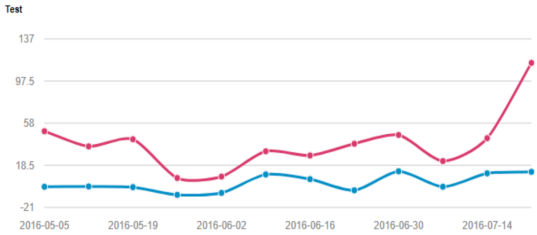






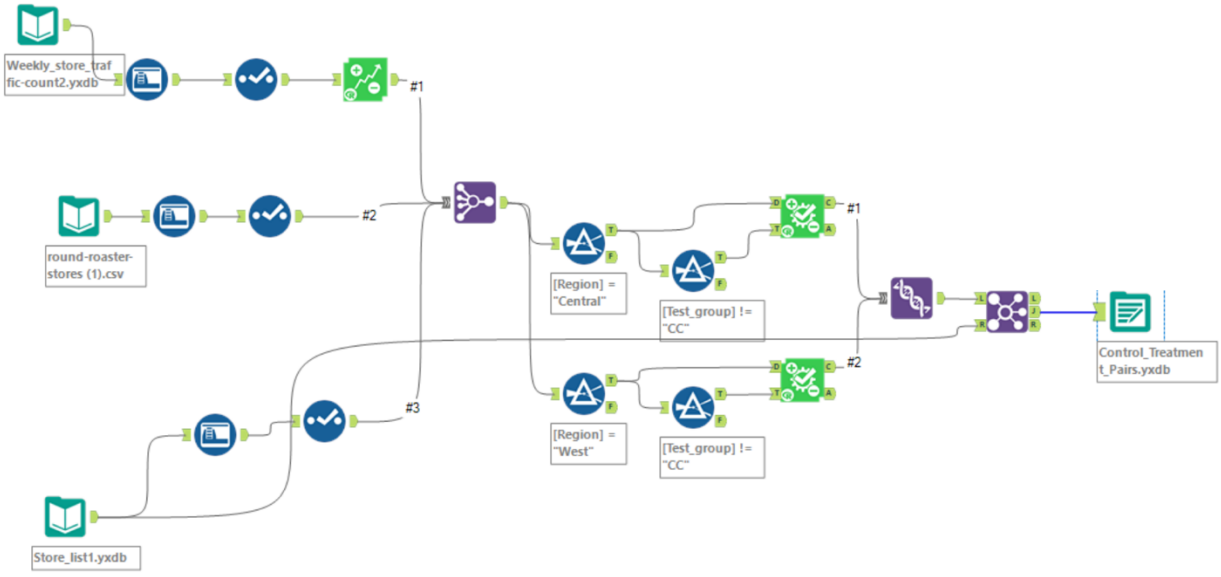






3. What is the lift from the new menu overall?
   Overall, the new menu lift is 40.7% (average of both West and Central lift).

- Alteryx Workflow A/B Testing



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