Project: Analyzing a Market Test

Step 1: Plan Your Analysis

To perform the correct analysis, you will need to prepare a data set.

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

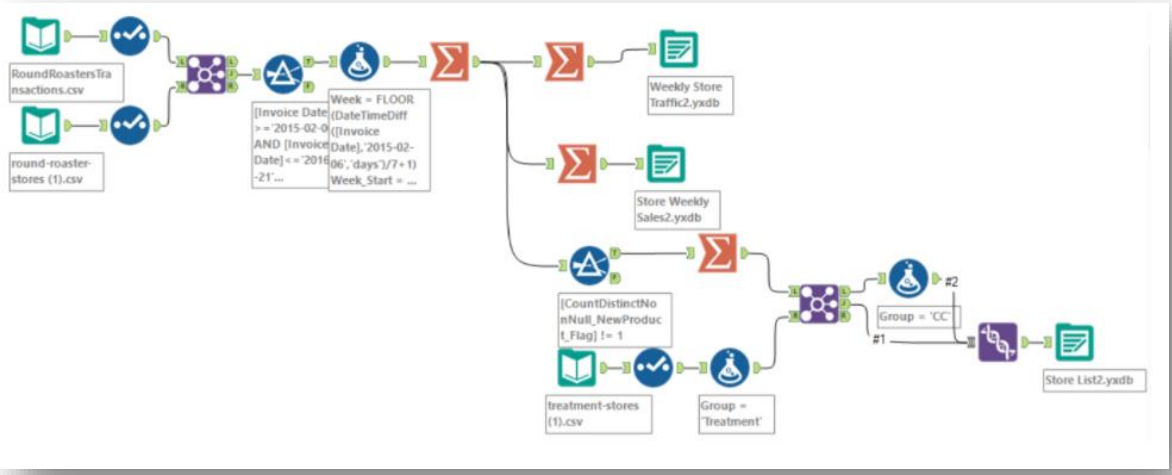
2. What is the test period?
   Test period is 12 weeks: 2016-April-29 to 2016-July-21

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

- **RoundRoasterTransaction** and **Round-Roaster-Store** datasets are first combined.
- 76 weeks data (6-Feb-15 to 21-Jul-16) is used as A/B 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.
- *The week*, _week*begin*, _week*end* and _NewProduct*Flag* are added to calculate the weekly traffic and sales for each store.
- **Treatment_Store** dataset is then introduced to create a list of control and treatment 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 should be considered as constant variables while *Square Feet* should ignored.

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

   From the Pearson Correlation Analysis, *AvgMonthSales* has high correlation of 0.99 with the performance metric, i.e. Sum of Gross Margin. On the other hand, *Square Feet* has a poor correlation of -0.05.

Pearson Correlation Analysis

Full Correlation Matrix

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

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

   AvgMonthSales 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:

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

Step 4: Analysis and Writeup

Conduct your A/B analysis and create a short report outlining your results and recommendations.

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 updated menu to all stores as the sum of profit margin increased by more than 18%, from $17,978.67 per store to $26,687.45 per store during test period.

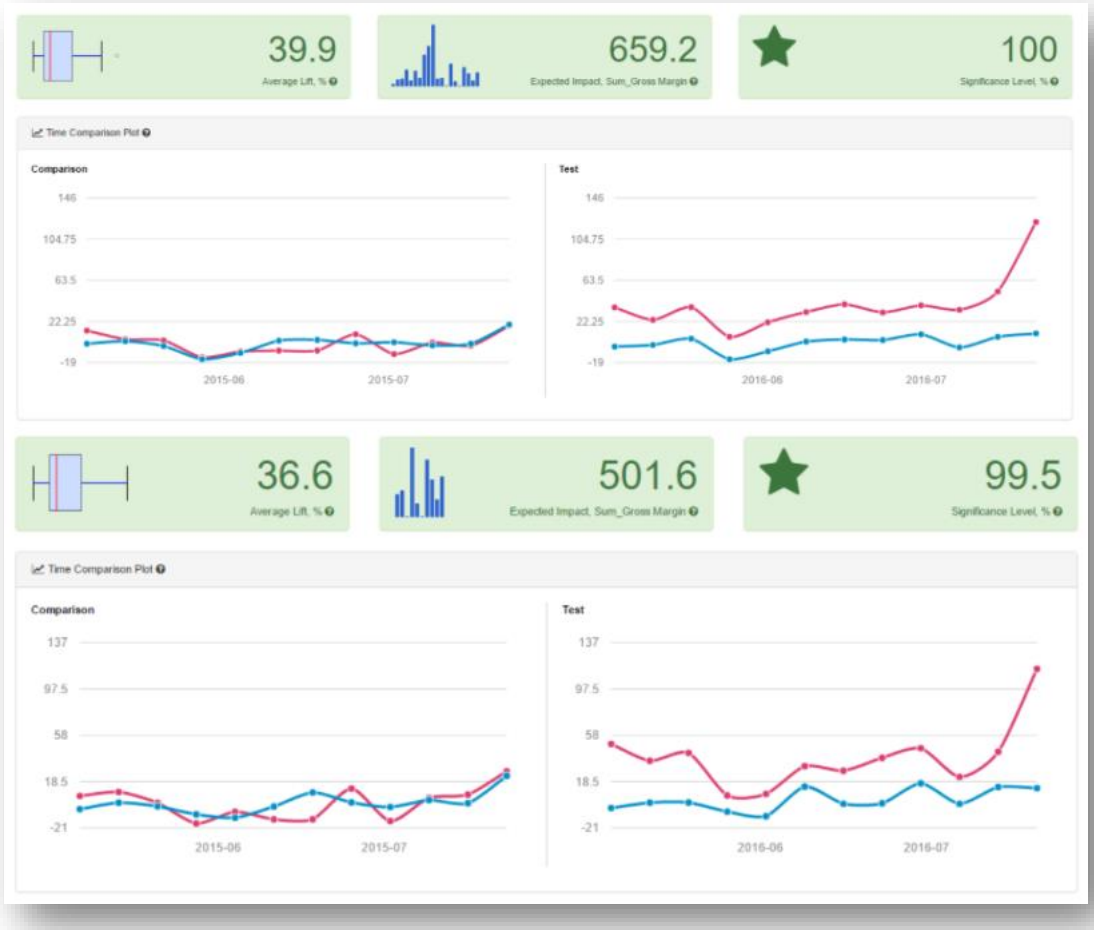
2. What is the lift from the new menu for West and Central regions (include statistical significance)?

   The lift for West region is 36.6% while the lift for Central region is 43.2% and both have a statistical significance of 99.5% and 100% respectively.

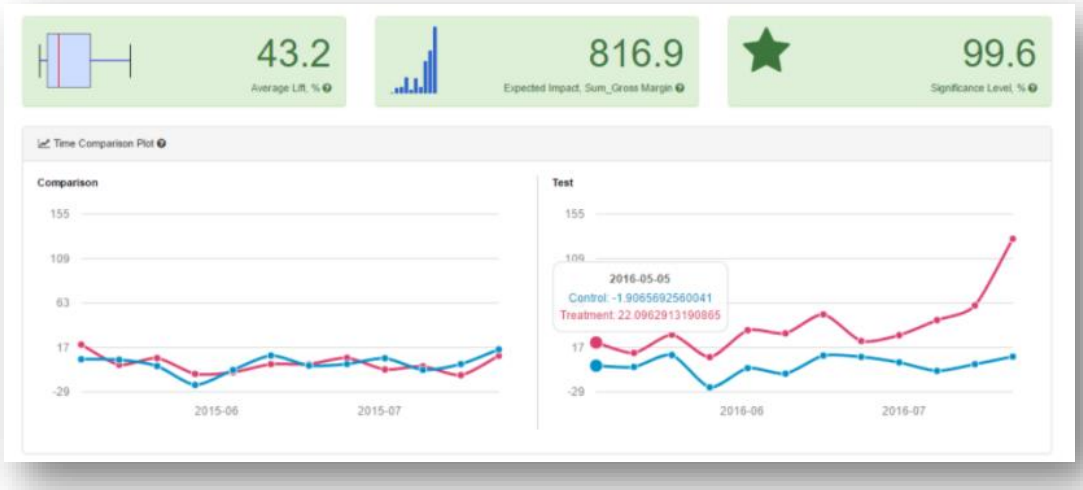
3. What is the lift from the new menu overall?

   The lift for the new menu overall is 43.2% with a statistical significance of 99.6%.

A/B analysis of West Region



A/B Analysis of Central Region



OverAll

Alteryx Flow :