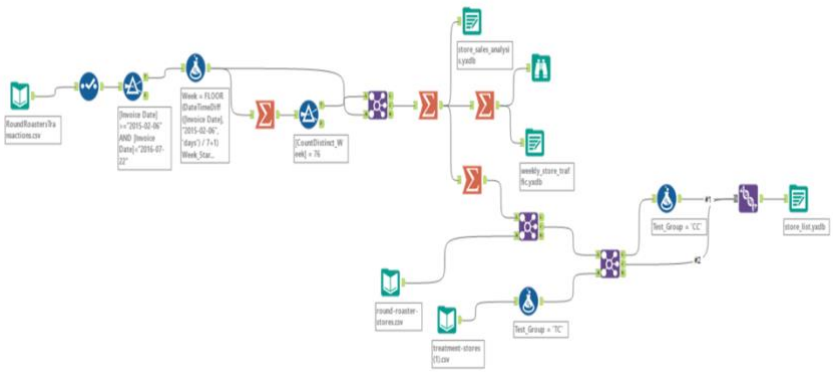
Project: Analyzing a Market Test

Step 1: Plan Your Analysis

1. What is the performance metric you'll use to evaluate the results of your test?
   The performance metric I will use to evaluate the test results is gross margin sales.
2. What is the test period?
   The test ran for a period of 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 on the weekly level.

Step 2: Clean Up Your Data

Transaction data have been aggregated on a weekly level. After aggregation, we get the store list and the weekly store traffic data sets to be used to match the control stores to the treatment store list.



Step 3: Match Treatment and Control Units

1. What control variables should be considered? Note: Only consider variables in the RoundRoastersStore file.
   The control variables should be considered RoundRoastersStore file are Sq_ft and Avg Monthly Sales.

2. What is the correlation between your each potential control variable and your performance metric?
   The correlation between Sq_ft and the gross margin (the performance metric) is -0.0203 which means that it is negative weak correlation with a value below 0.05 that make it not relevant.

   The correlation between the Avg Monthly Sales and the gross margin (the performance metric) is 0.9882 which indicates a strong positive correlation between them.

Pearson Correlation Analysis

Full Correlation Matrix

	Sq_Ft	Sum_Gross.Margin
Sq_Ft	1.000000	-0.020353
Sum_Gross.Margin	-0.020353	1.000000

Pearson Correlation Analysis

Full Correlation Matrix

	AvgMonthSales	Sum_Gross.Margin
AvgMonthSales	1.00000	0.98822
Sum_Gross.Margin	0.98822	1.00000

3. What control variables will you use to match treatment and control stores?
   The Avg Monthly Sales will be used as a control variables to match treatment and control stores due to the positive strong correlation with the performance metric.

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

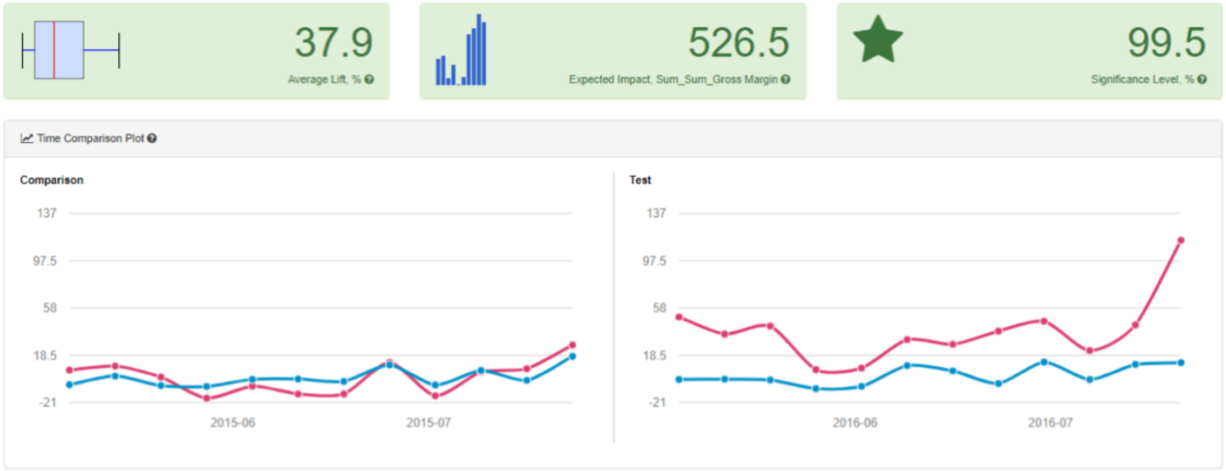
Treatment Store	Control Store 1	Control Store 2
1664	1664	1664
7162	7162	7162
8112	8112	8112
1675	1675	1675
1580	1580	1580
1807	1807	1807
1696	1696	1696
1964	1964	1964
1863	1863	1863
1700	1700	1700

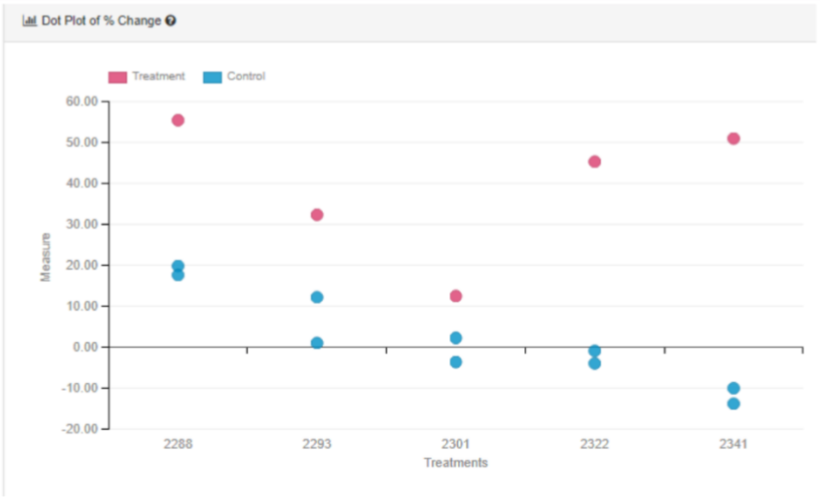
Step 4: Analysis and Writeup

1. What is your recommendation - Should the company roll out the updated menu to all stores?
   It is recommended that the company should roll out the updated menu to all stores since the gross margin will increase when using the new menu according to the predictive test.

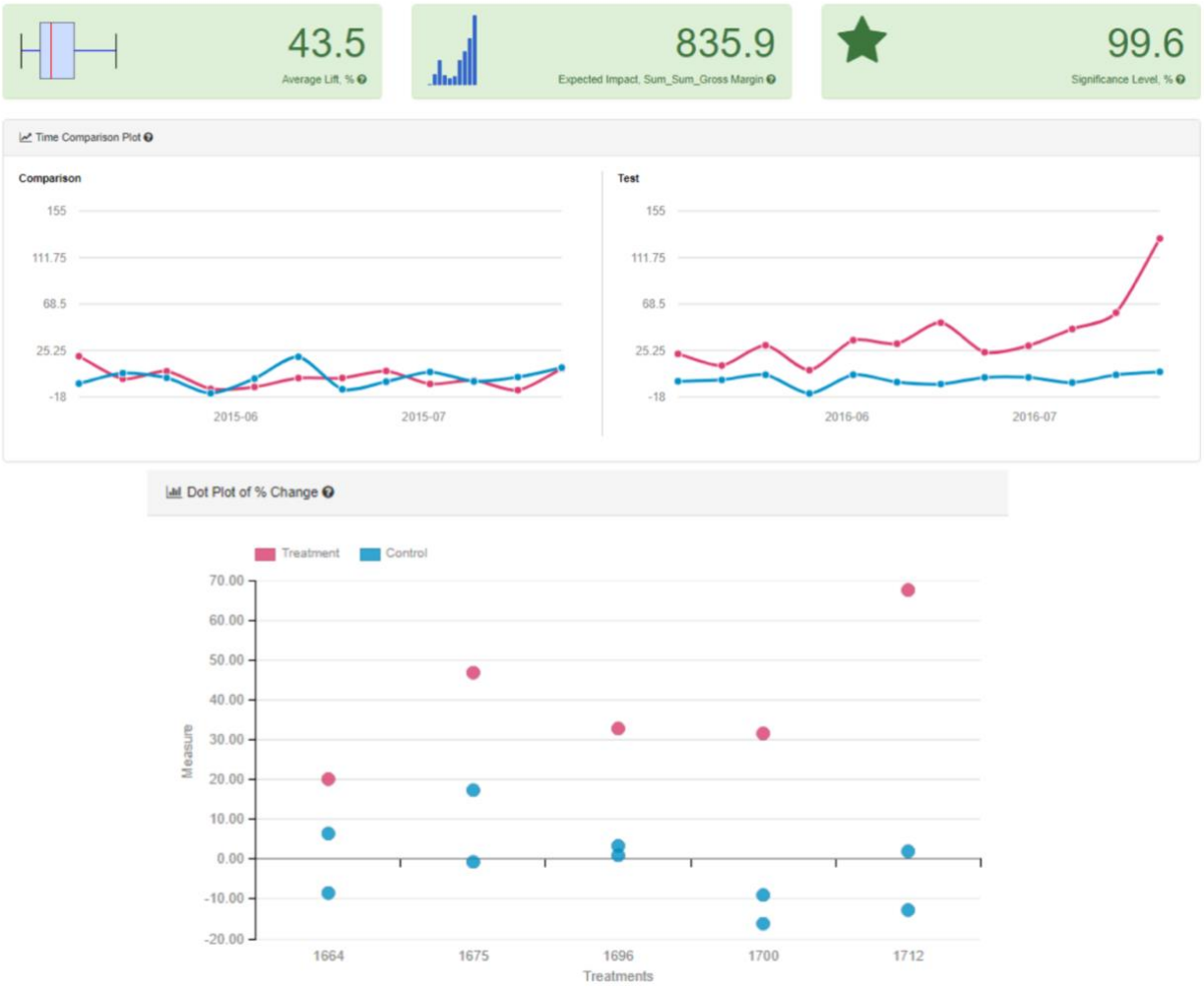
2. What is the lift from the new menu for West and Central regions (include statistical significance)?

   - For West regions, the average lift from the new menu is 37.9% and the significance level is 99.5%.





- For Central regions, the average lift from the new menu is 43.5% and the significance level is 99.6%.



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

    - For the overall, the average lift from the new menu is 40.7% and the significance level is 100%.