Project: Analyzing a Market Test

Complete each section. When you are ready, save your file as a PDF document and submit it here.

Step 1: Plan Your Analysis

To perform the correct analysis, you will need to prepare a data set. (500 word limit)
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 performance metric to be used to evaluate the results of my test is the weekly gross margin

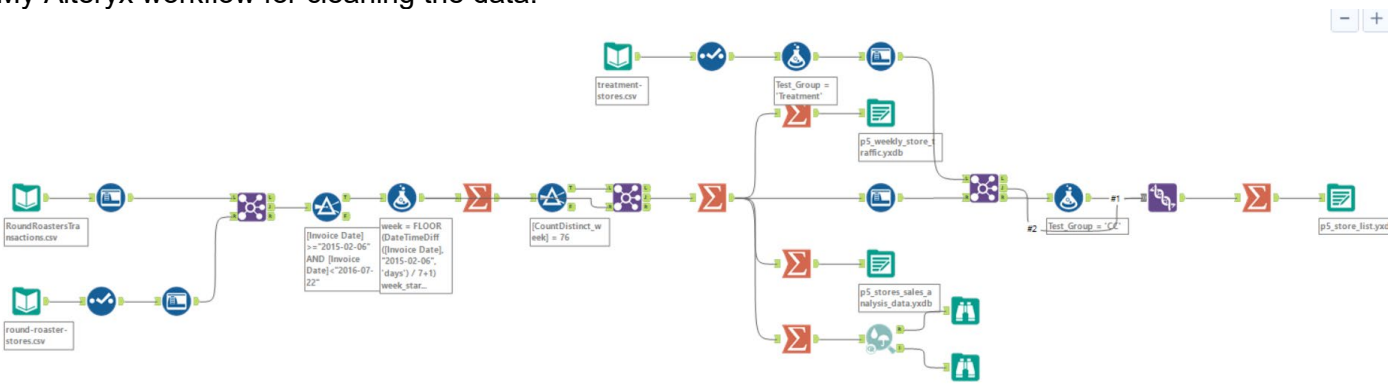
2. What is the test period?
   The test period is from April 29, 2016 to June 21, 2016

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

My Alteryx workflow for cleaning the data:



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 apart from trend and seasonality

2. What is the correlation between each potential control variable and your performance metric?
   The correlation matrix (Fig. 1 below) shows astrong correlation of 0.99 between AvgMonthSales and Gross Margin with a p-value of less that 0.05 and a 4-star significance. Sq_Ft, on the other hand, shows a correlation of -0.02 and a p-value of 0.78 indicating that it is not statistically significant. The correlations between the potential control variables and the performance metric are summarized below:

   Fig. 1: Full Correlation Matrix

Pearson Correlation Analysis

Focused Analysis on Field Sum_Sum_Gross.Margin

	Association Measure	p-value
AvgMonthSales	0.990982	0.00000 ***
Sq_Ft	-0.024255	0.78168

   Fig. 2: Correlation between AvgMonthSales and Gross Margin

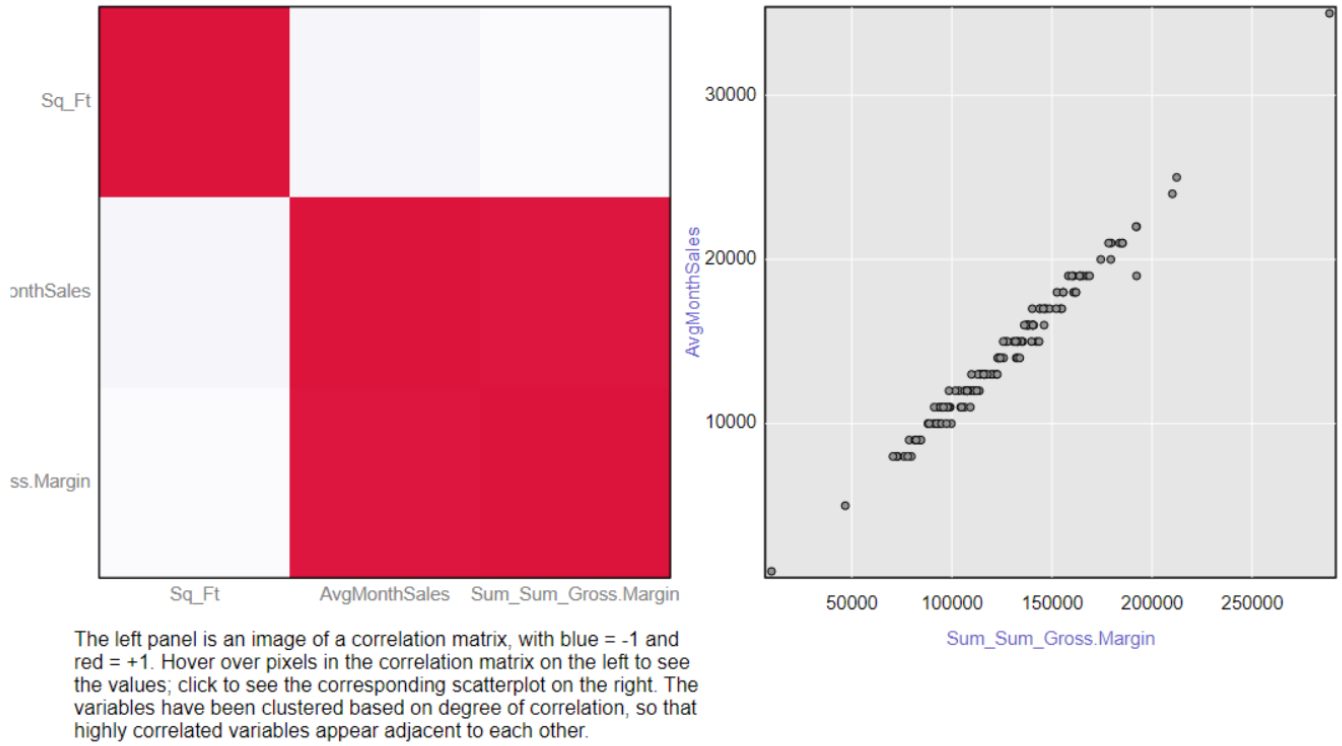
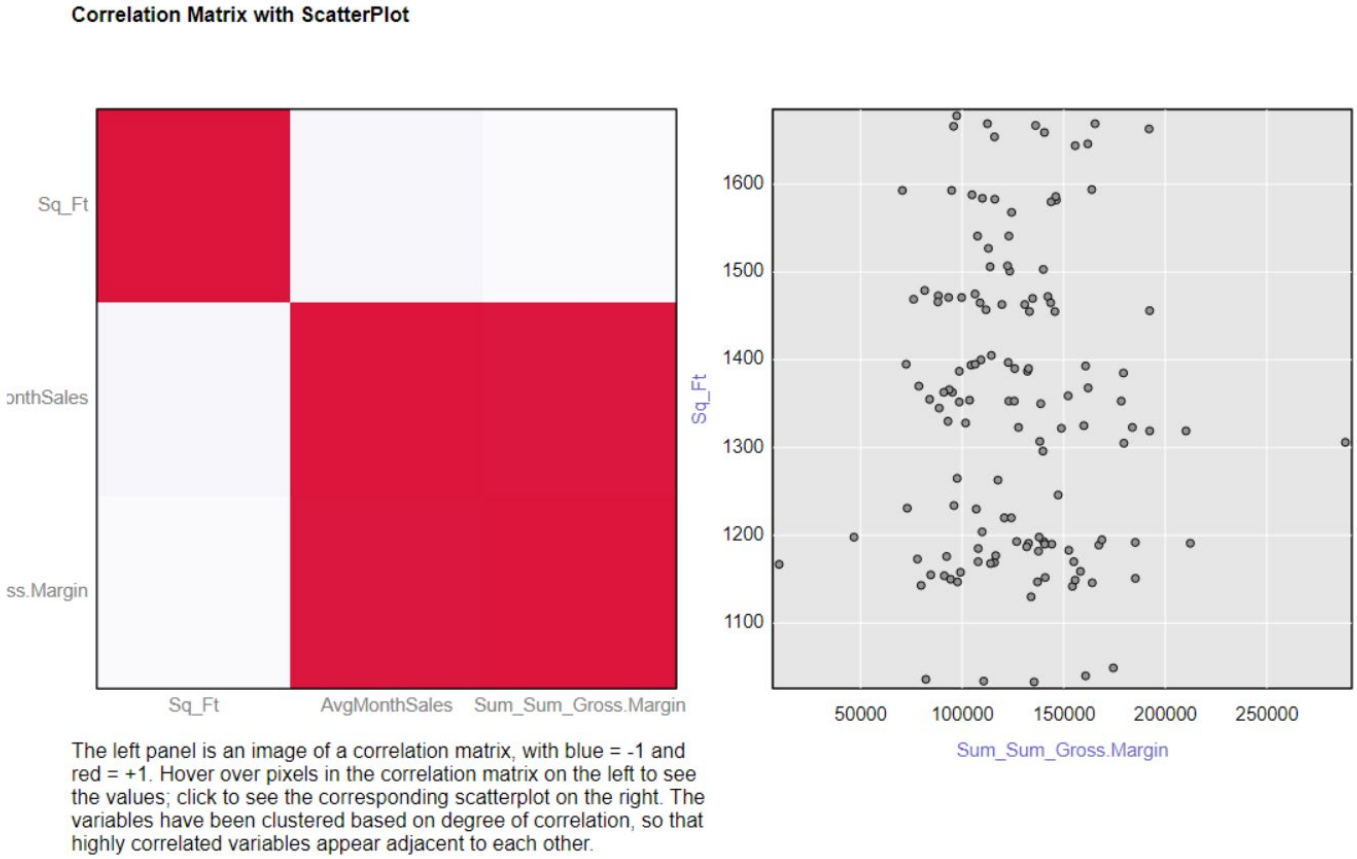


Fig. 3: Correlation between Sq_Ft and Gross Margin



3. What control variables will you use to match treatment and control stores?
   With reference to (2) above, AvgSalesMonth will be used as the control variable for this analysis.

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

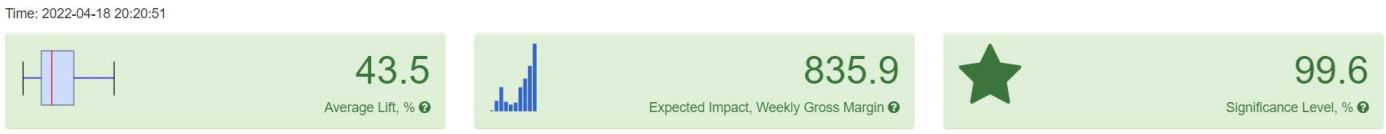
Step 4: Analysis and Writeup

Conduct your A/B analysis and create a short report outlining your results and recommendations. (250 words limit)

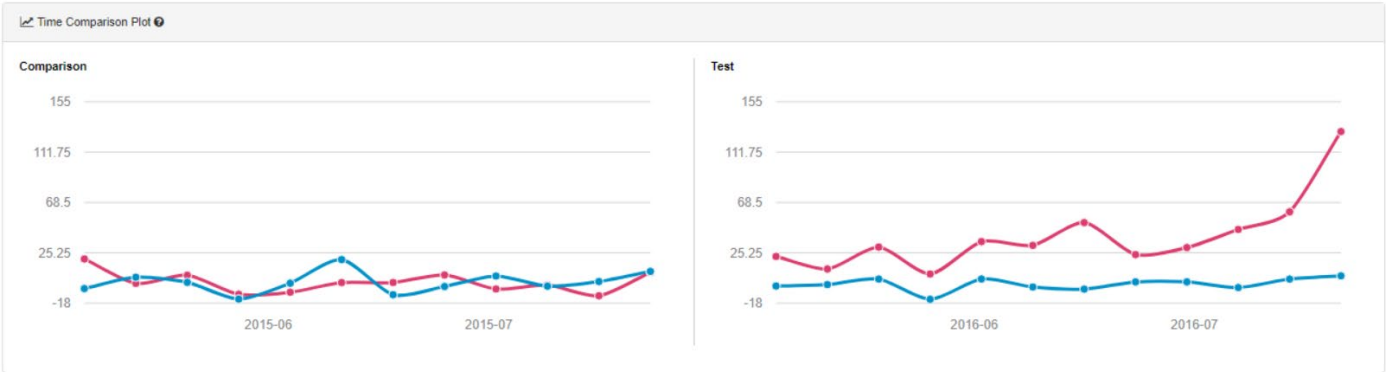
Answer these questions. Be sure to include visualizations from your analysis:

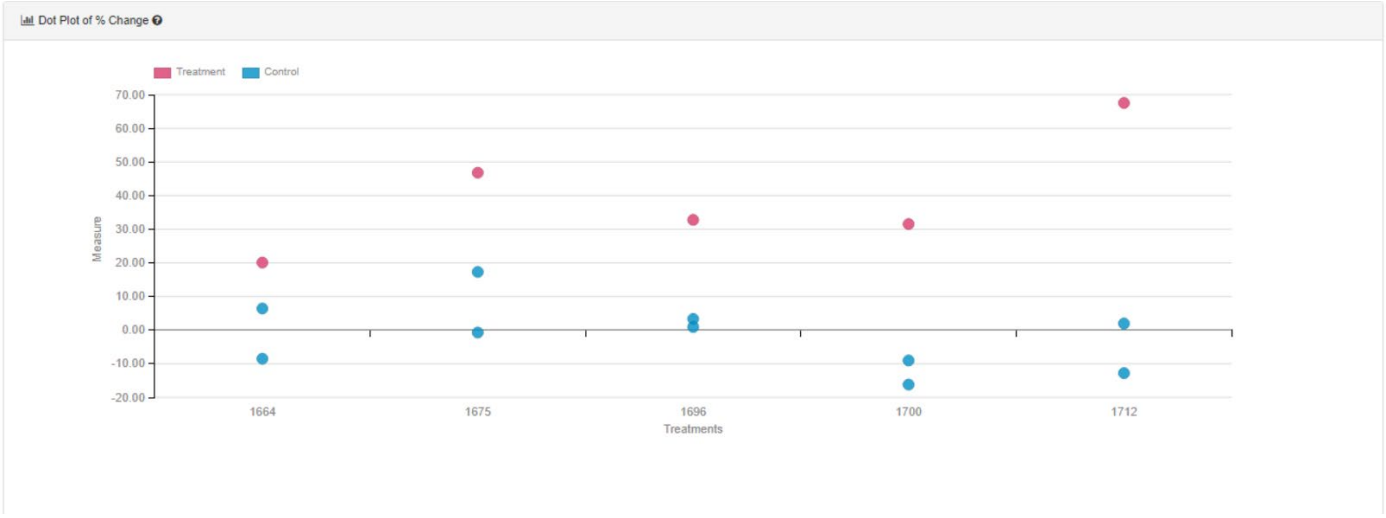
1. What is your recommendation - Should the company roll out the updated menu to all stores?
   Yes, the company should roll out the updated menu to all stores, given that the potential return on investment (40.7%) will be much larger than the required returns of 18%

2. What is the lift from the new menu for West and Central regions (include statistical significance)?
   a. Central Region
   With reference to the image below, the Central region will get a 43.5% lift in Weekly Gross Margins if the new menu is rolled out to all stores. The chances of this are highlighted with the 99.6% significance level



The potential impacts are further illustrated in the diagrams below which show significant increases in the Gross Margin for all the paired shops:





b. ***West Region***
The West region had an average lift of 37.9% backed by a significance level of 99.5%.

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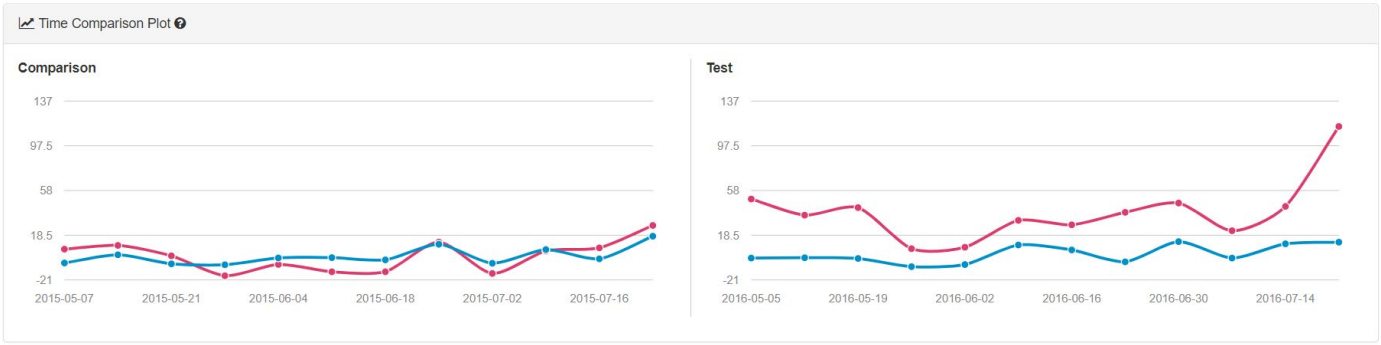
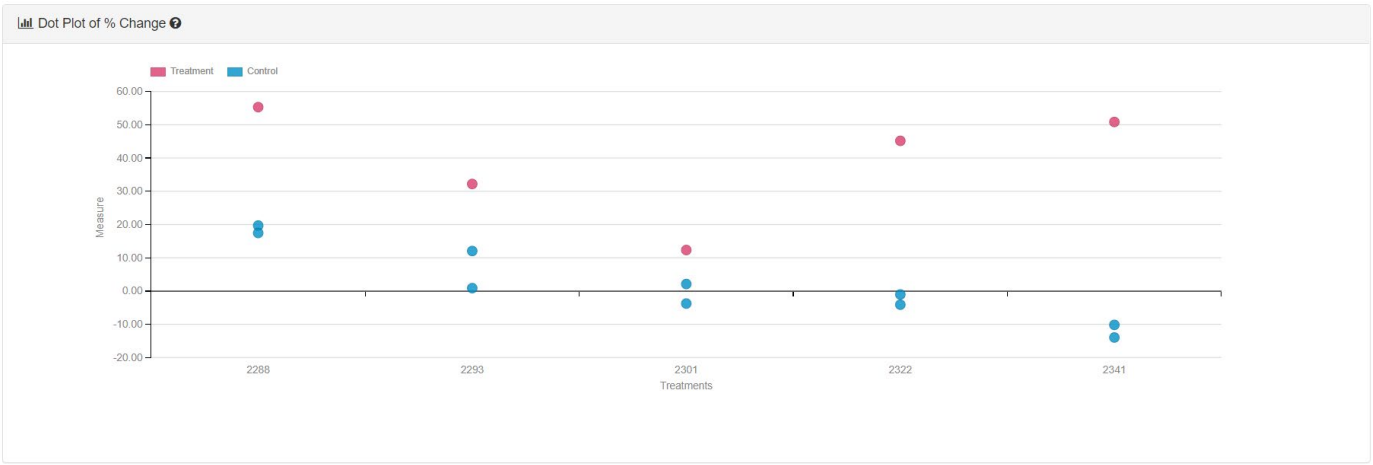
37.9
Average Lift, %

526.5
Expected Impact, Weekly Gross Margin

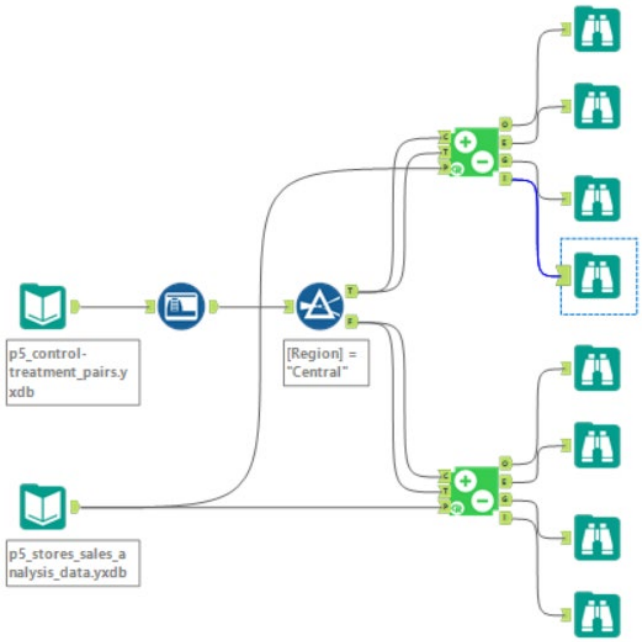
99.5
Significance Level, %

The changes are spread across the stores as shown in the report (extracts) below:



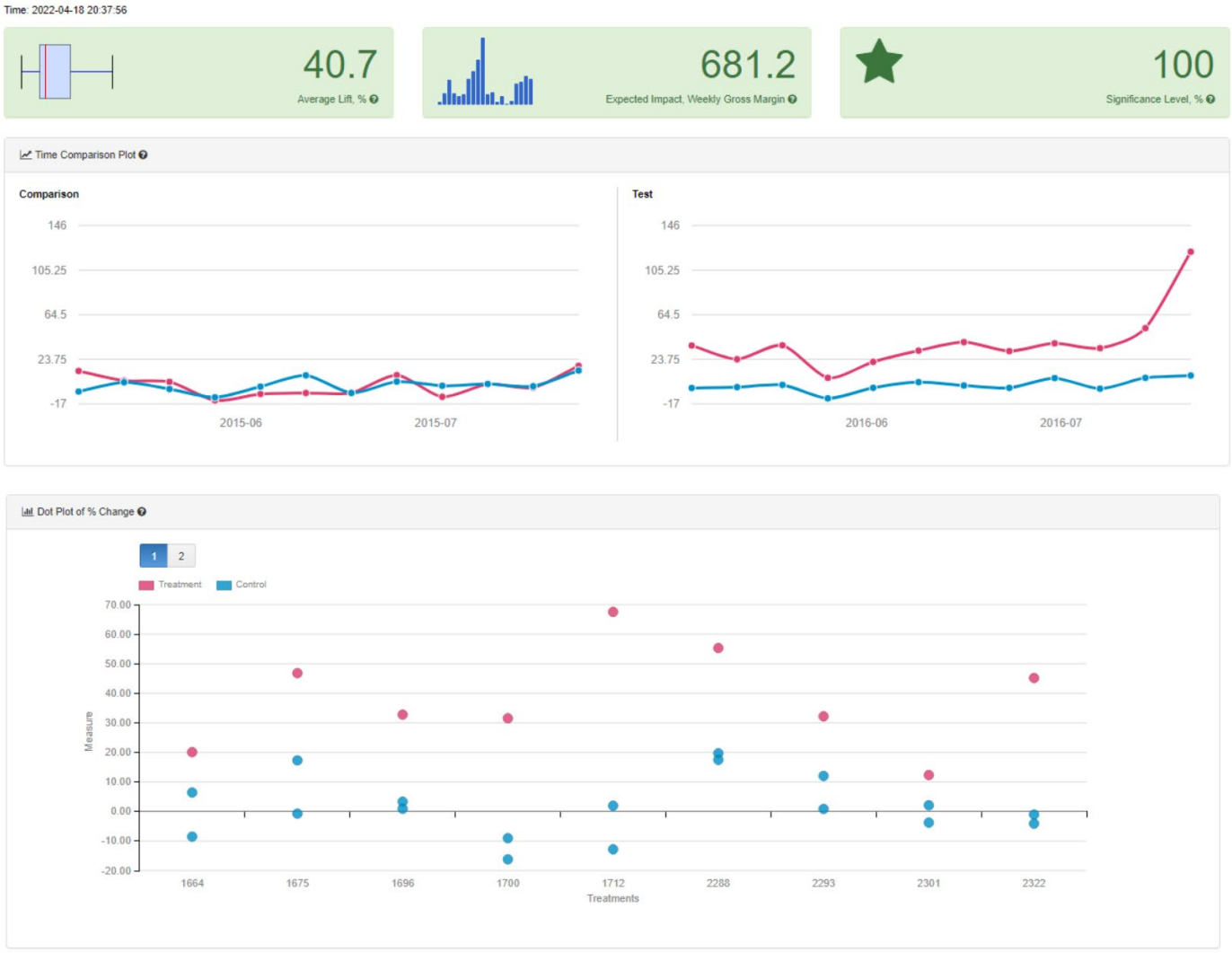


The above were the results of this workflow in Alteryx:



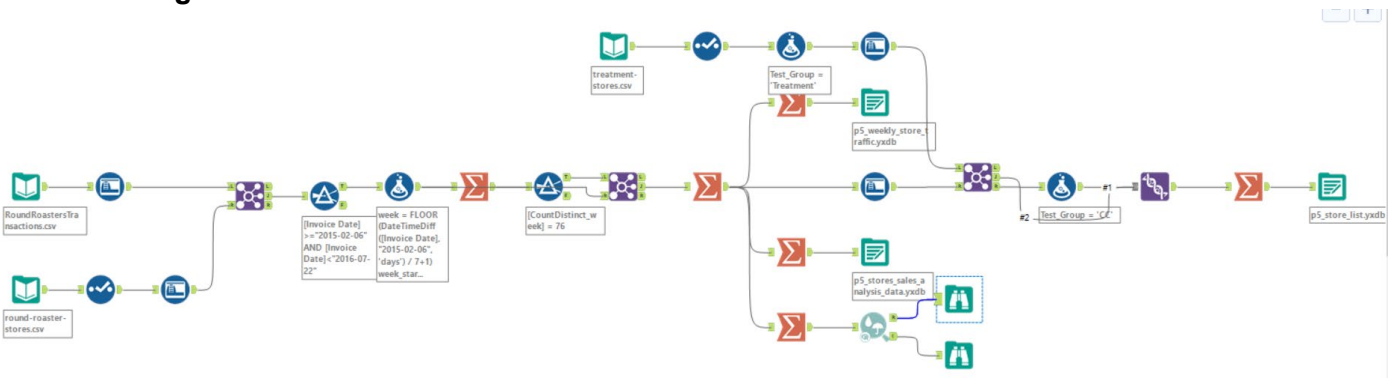
3. What is the lift from the new menu overall?

The new menu had a 40.7% overall lift with a 100% significance level. This is presented in the visual reports below:

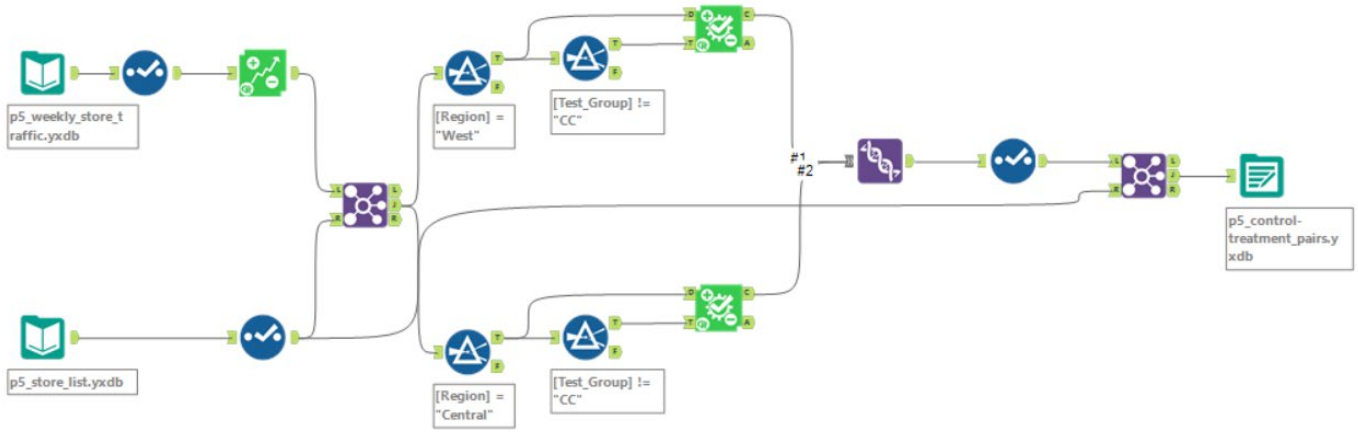


My Workflows are summarized below:

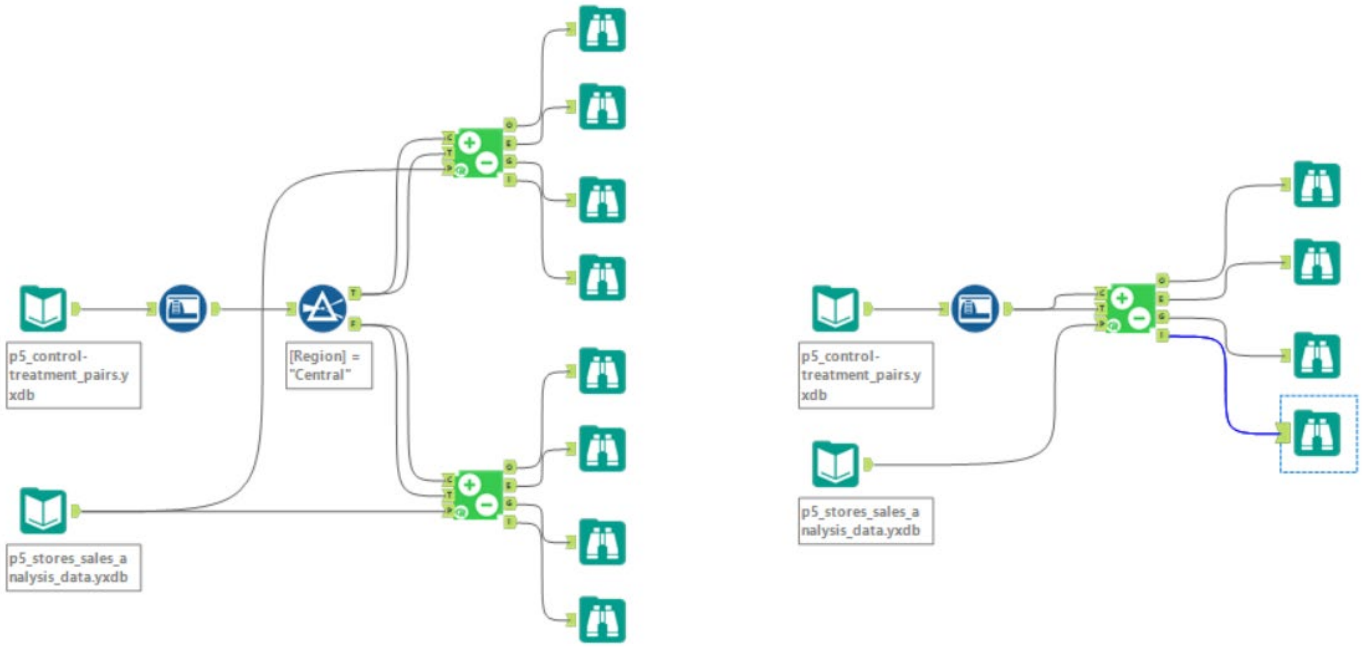
Data Cleaning



Match Treatment and Control Units



Analysis and Recommendations



Before you Submit

Please check your answers against the requirements of the project dictated by the rubric here. Reviewers will use this rubric to grade your project.