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?
   By viewing the data and seeing the business problem, the gross margin seems to be the perfect metric.
2. What is the test period?
   The test period is 12 weeks, according to project details. (2016-April-29 to 2016-July-21).

3. At what level (day, week, month, etc.) should the data be aggregated?
   Since we are working with periods given in weeks, our data shall be aggregated in weeks.

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.

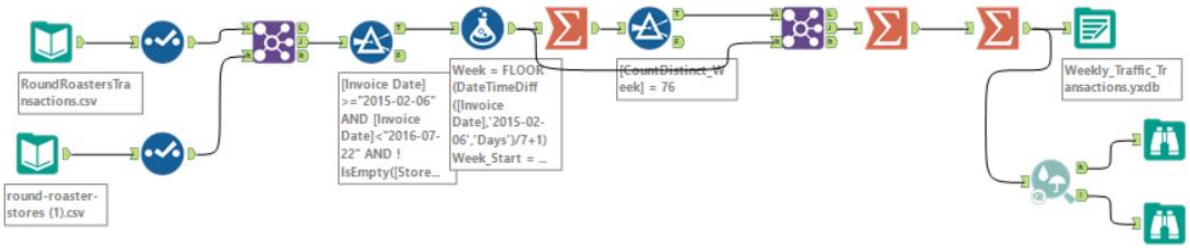

Figure 1: Alteryx Workflow for Data Preparation for A/B Testing
Source: Alteryx Tool + Lots of Effort (2018)

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.

It is clear that Average Month Sales and Gross Margin have a correlation. Square feet is going to be discarded. Average Month Sales is our control variable.

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

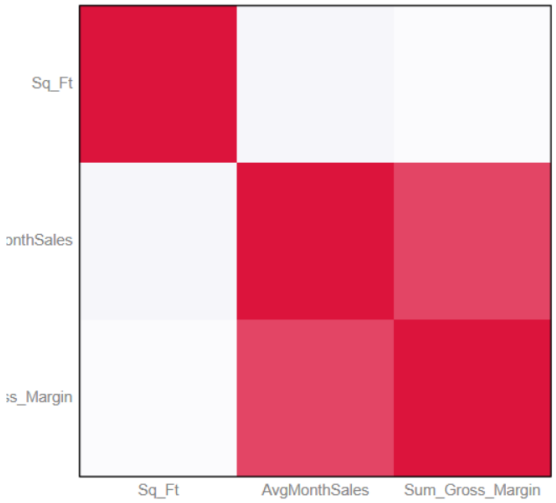

Figure 2: Correlation Matrix Graph Between Control Variables and Performance Metric
Source: Source: Alteryx Tool + Lots of Effort (2018)

The following matrix shows the correlation in numbers:

Full Correlation Matrix

	Sum_Gross_Margin	AvgMonthSales	Sq_Ft
Sum_Gross_Margin	1.000000	0.790358	-0.019345
AvgMonthSales	0.790358	1.000000	-0.046967
Sq_Ft	-0.019345	-0.046967	1.000000

Figure 3: Correlation Matrix in Numbers
Source: Source: Alteryx Tool + Lots of Effort (2018)

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

As previously stated, average month sales variable is ideal to relate the control stores to the treatment stores, because of the correlation between the metric performance and the fact that it is a numeric value. The other control variables are the trend and seasonality.

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

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

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?

   It is highly recommended to roll out the updated menu, the performance in the tests are completely aligned to the company's interest. The following visuals allow us to understand why this is highly recommended:

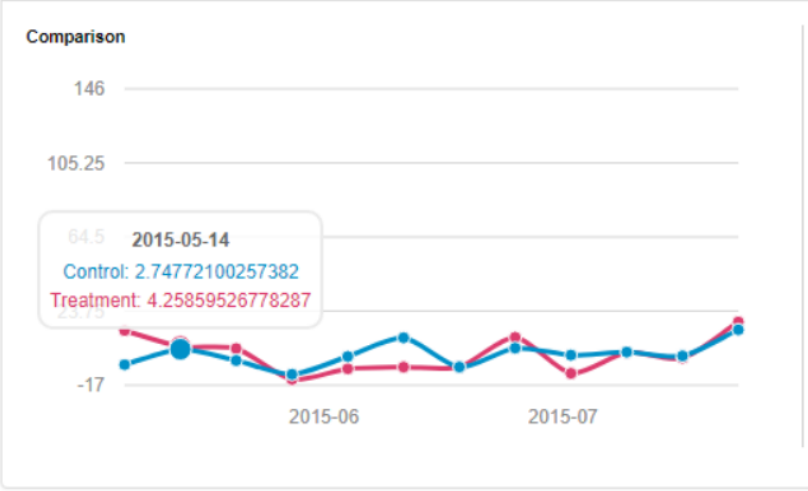

Figure 4: Comparison Graph Before Test
Source: Source: Alteryx Tool + Lots of Effort (2018)

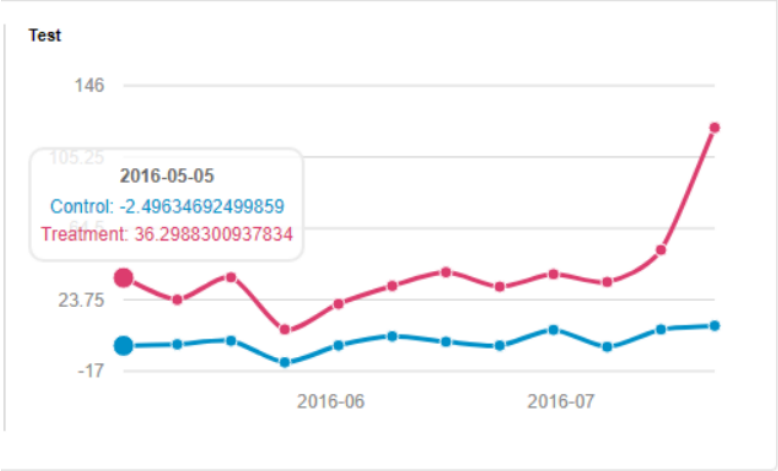

Figure 5: Comparison Graph After performing the Test
Source: Source: Alteryx Tool + Lots of Effort (2018)

The results are solid indicators that the company must launch the new menu to the market.

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

Figure 6: Lift, Expected Impact and Significance Level in Central region
Source: Source: Alteryx Tool + Lots of Effort (2018)

The lift in central region is 43.5%, which means that the average costumer spend 43.5% more per week in the treatment stores, which is good news. A 99.6% of signifance level reveals a relevant and a solid model was built.

Figure 7: Lift, Expected Impact and Significance Level in Westregion
Source: Source: Alteryx Tool + Lots of Effort (2018)

The lift in west region is 33.4%, which represents an important average increase

per week, but central clearly performed better, yet it also reflects good impact. A 99.6% reveals a solid model.

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

The lift of the overall menu is 40.7%, which reveals a very promising new menu proposal, backed up with a 100% significance level.

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.