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Project: Analyzing a Market Test

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?

= For this case to measure the impact of Menu changes we'll use the gross margin sales, due to the goal is achieve at least 18% % increase in profit growth compared to the previous period.

2. What is the test period?

= From 04/29/2016 to 07/21/2016, for 12 weeks

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

= We'll use the data by 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.

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.

=As potential variables non- categorical within the RoundRoastersStore file could be the average month sales and squared feet; as a categorical variable the location might be useful, as well.

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

= We tested the Average monthly sales, Squared Feet, and Postal Code through Association Analysis Tool. Obtained a relevant correlation between the Postal Code and Average month sales 0.158757; contrary among Squared feet and Average month Sales -0.046967. Thus, we discarded the Squared feet variable because the value is less than 0.05, it's not relevant. Finally, we selected just the Average month sales on account our goal is measuring the profit growth.

Pearson Correlation Analysis

Full Correlation Matrix

	Sq_Ft	AvgMonthSales	Postal.Code
Sq_Ft	1.000000	-0.046967	-0.028429
AvgMonthSales	-0.046967	1.000000	0.158757
Postal.Code	-0.028429	0.158757	1.000000

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

= According to the Pearson Correlation results the average monthly sales variable will be used for AB control tool. Further, the manager suggested using the trend and seasonality variables.

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:

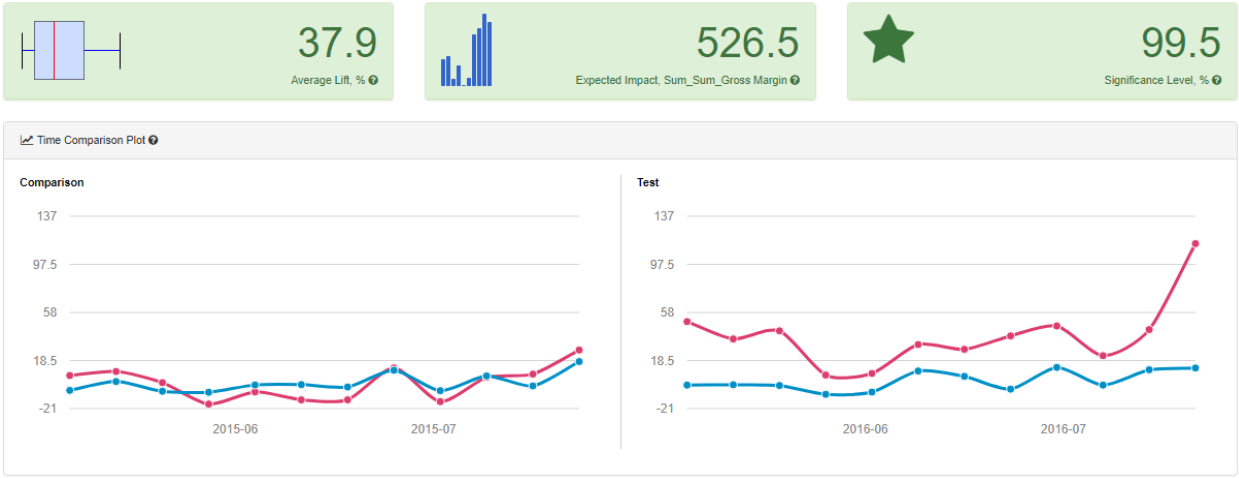
1. What is your recommendation - Should the company roll out the updated menu to all stores?

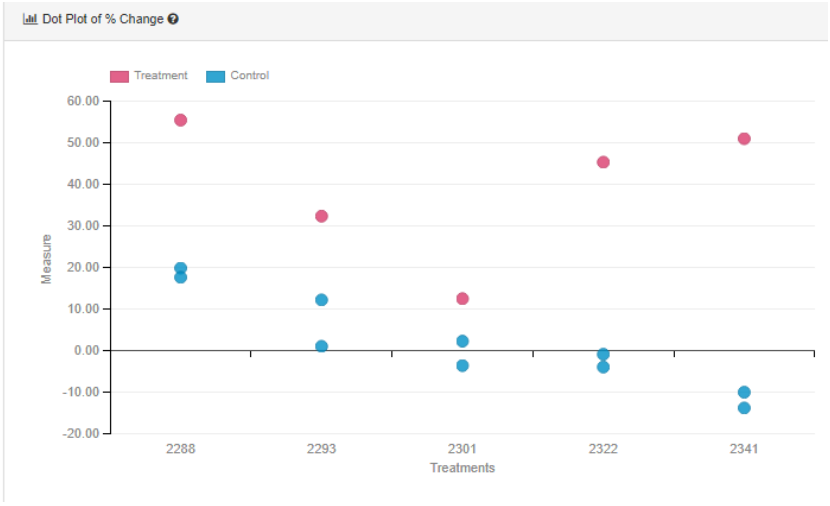
= The manager required that “the predicted impact to profitability should be enough to justify the increased marketing budget: at least 18% increase in profit growth compared to the comparative period while compared to the control stores.” Thus, after metric and statistical revision, we believe the new menu will raise the profit growth, because of the predicted impact round between 37.9 and 43.5 %.

2. What is the lift from the new menu for West and Central regions?

= A) **West region:**

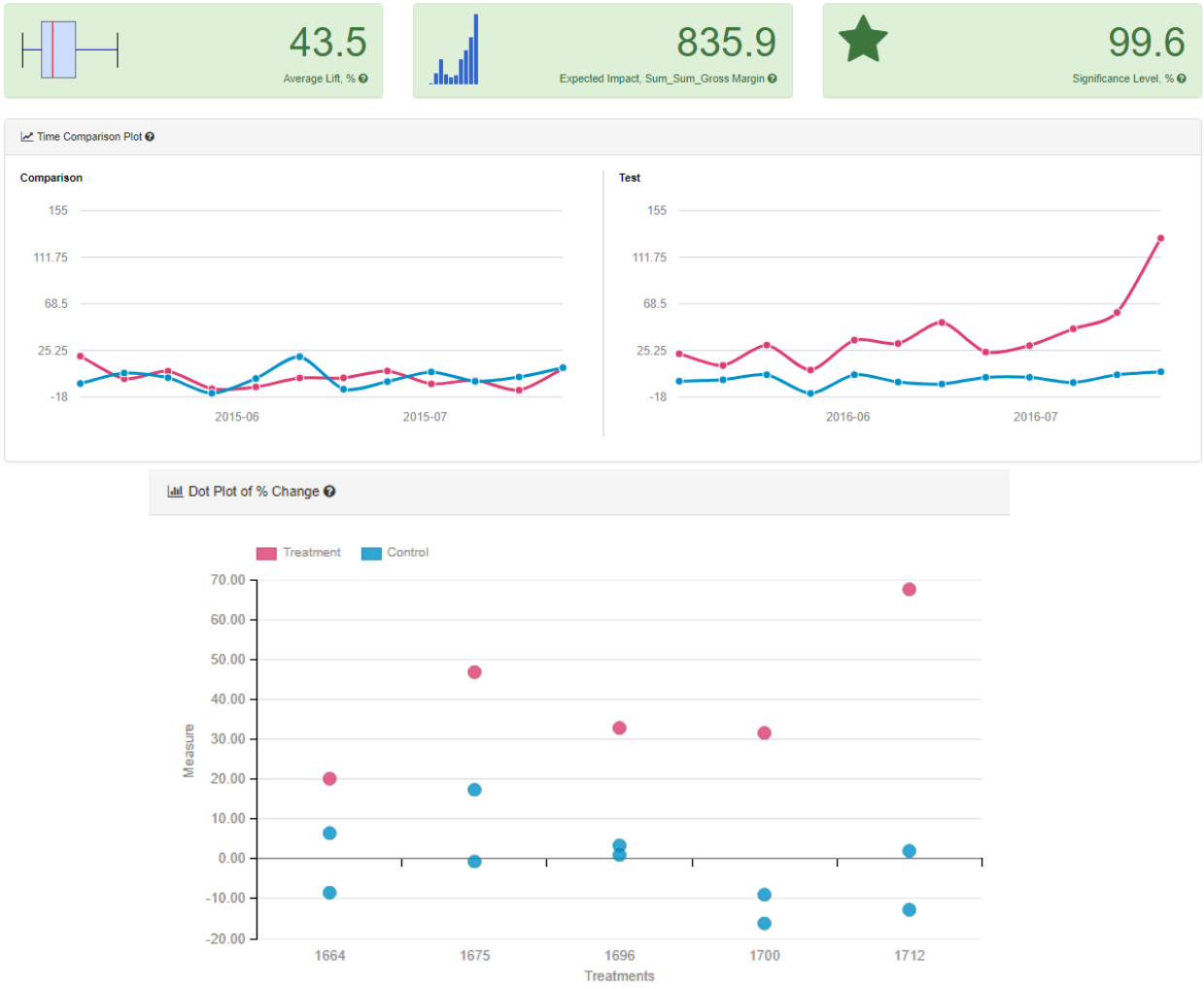
The average lift depicts the average of summation of gross margin per week, in the treatment stores, increasing by 37.9 %.
The expected impact during the test period will be $526.5 per week per store on average.
The significance level 99.5 is extremely significant to increase the profit.
Further, the graphs below show the difference in profit between treatment and control stores within the test period. In overall for West region, the tendency is raising the profits.





B) **Central region**:

The average lift in the treatment stores will increase by 43.5 %.
The expected impact during the test period will be $835.9 per week per store on average.
The significance level 99.6 is highly significant.
The same pattern as the previous graphs, the red signs depict Central region treatment stores will have an increase in sales.



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

= The average lift of gross margin per week will increase by 40.7 %.

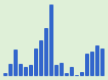
The expected impact during the test period will be $681.2 per week per store on average.

The significance level 100 is vastly significant, being a positive impact to the profit.

In conclusion, all regions have the tendency to raise the profits.

40.7

Average Lift, %



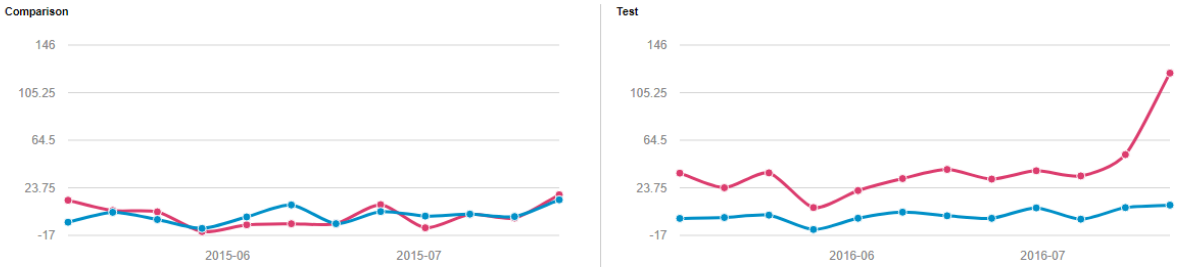
681.2

Expected Impact, Sum_Sum_Gross Margin

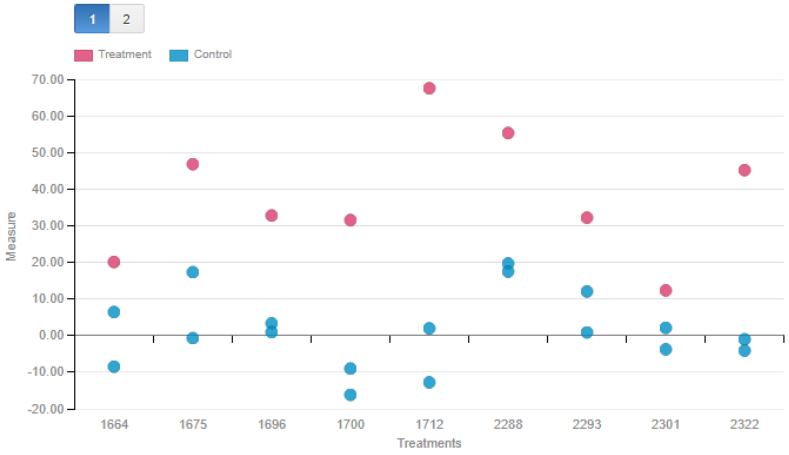
100

Significance Level, %

Time Comparison Plot



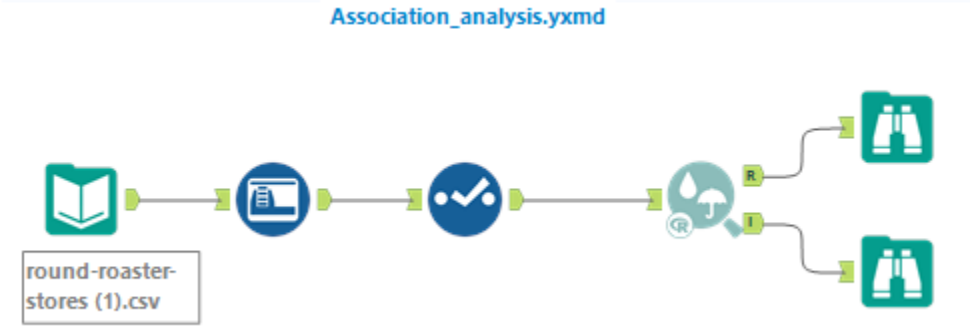
Dot Plot of % Change



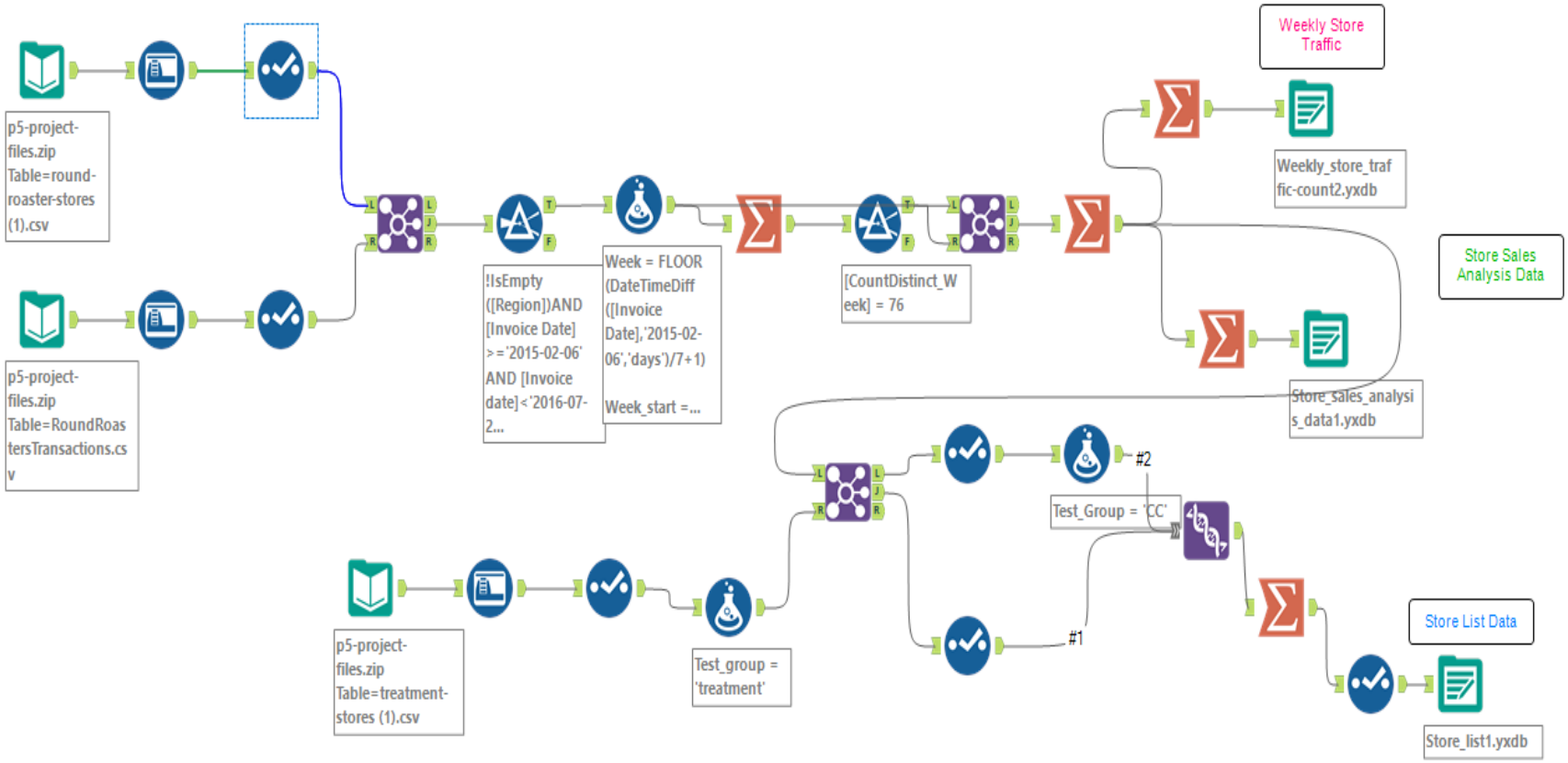
Works Cited

A/B Test a New Menu Launch
https://study-hall.udacity.com

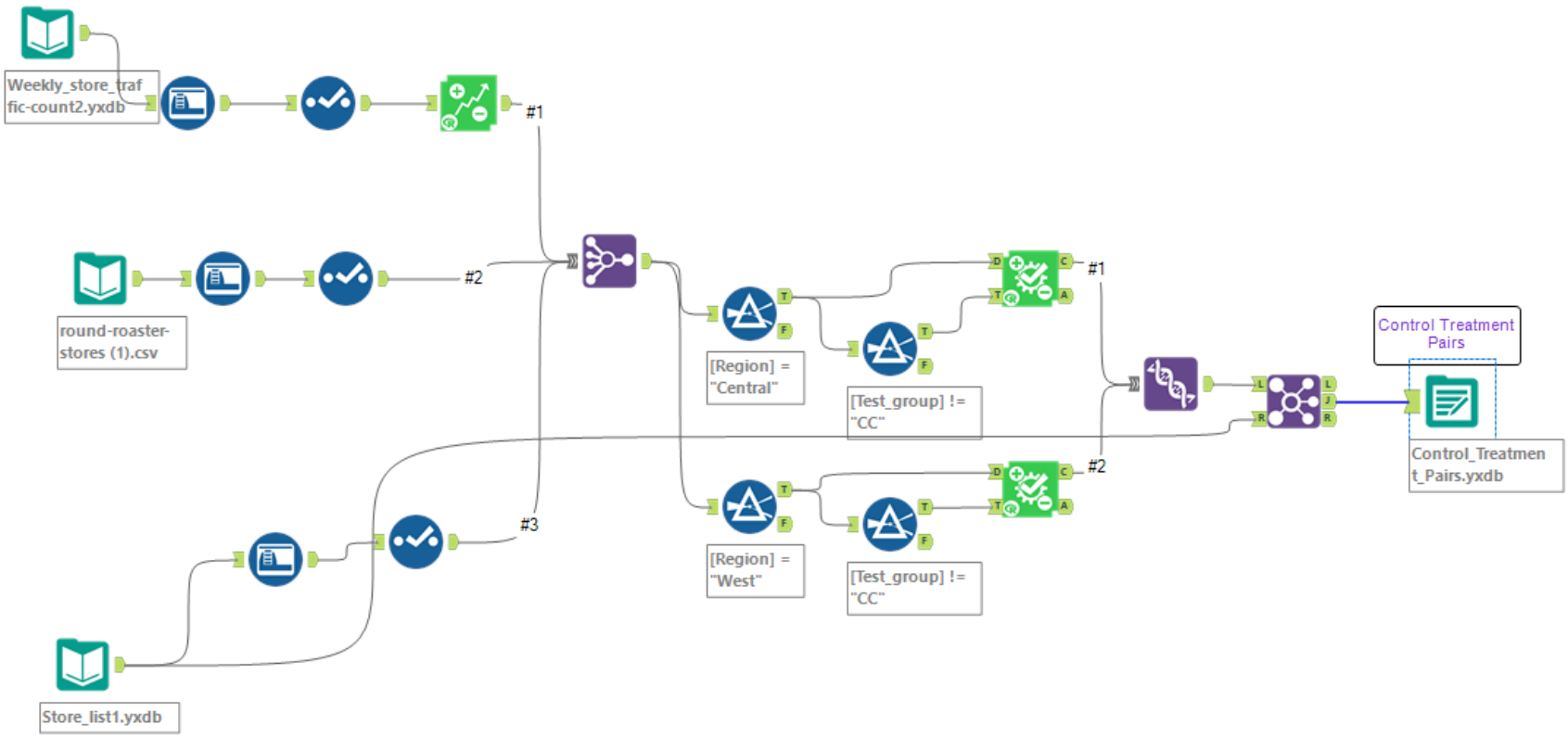
Annexes



Weekly_store_traffic_to_use2.yxmd



AB_Control_to_use1.yxmd



Performing_analysis_to_use1.yxmd*