

# 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 weekly gross margin will be used as performance metrics to evaluate whether to introduce the new menu at Round Roasters stores.

2. What is the test period?

The test period is 12 weeks (29-Apr-16 to 21-Jul-16).

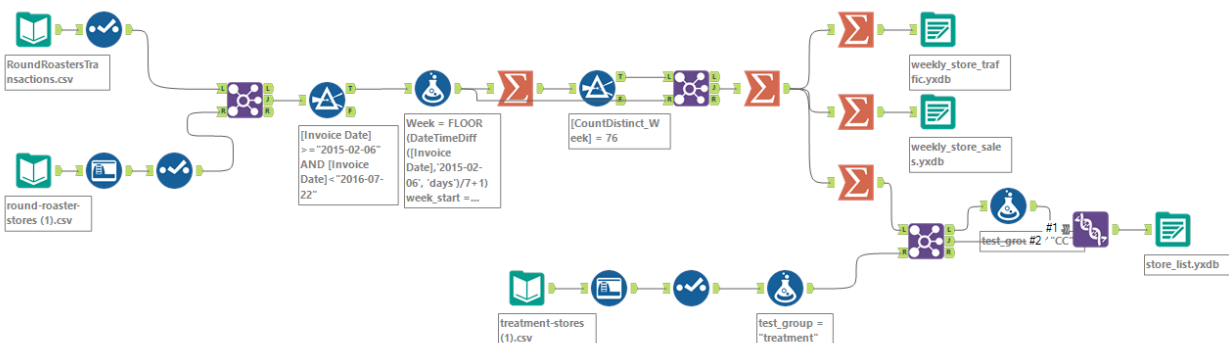
3. At what level (day, week, month, etc.) should the data be aggregated?

The data should be aggregated at weekly level.

## Step 2: Clean Up Your Data

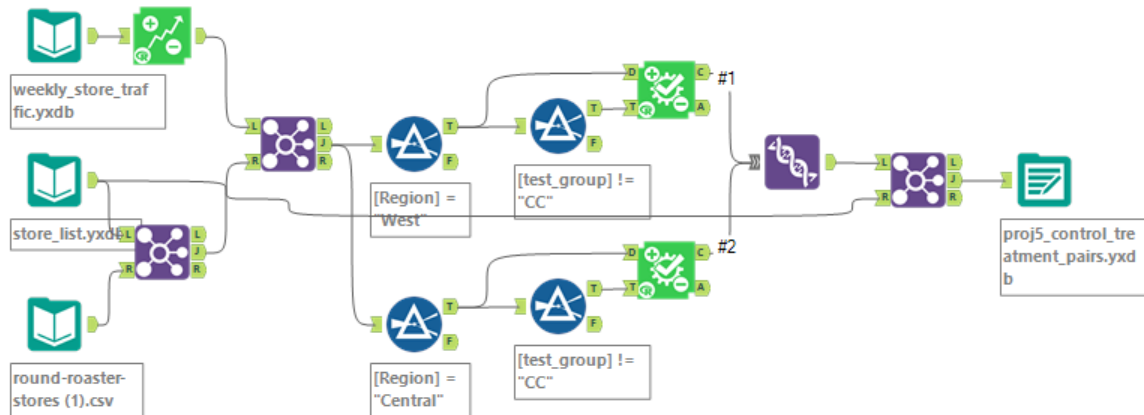
*In this step, you should prepare the data for steps 3 and 4. You should aggregate the transaction data to the appropriate level and filter on the appropriate data ranges. You can assume that there is no missing, incomplete, duplicate, or dirty data. You're ready to move on to the next step when you have weekly transaction data for all stores.*

### Data Preparation Workflow:



## 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.

The control variables that should be considered from the RoundRoastersStore data is AvgMonthSales and Sq\_Ft

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

AvgMonthSales has a high positive correlation of 0.99 with sum\_gross.margin and sq\_ft has a low -.02 correlation with sum\_gross.margin. (see Correlation Matrix below)

### Full Correlation Matrix

	Sq_Ft	AvgMonthSales	Sum_Gross.Margin
Sq_Ft	1.000000	-0.046967	-0.020322
AvgMonthSales	-0.046967	1.000000	0.988216
Sum_Gross.Margin	-0.020322	0.988216	1.000000

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

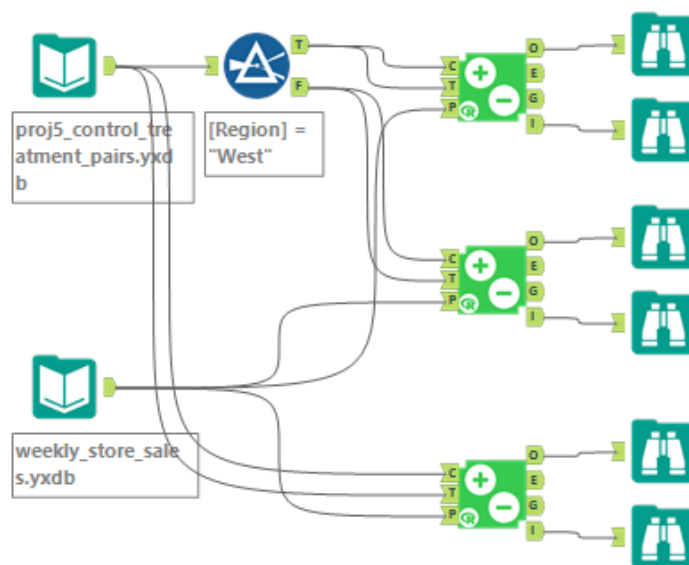
The control variables that will be used to match treatment and control stores are AvgMonthSales due to the high correlation, Seasonality, and Trend.

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	2568	2293
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:

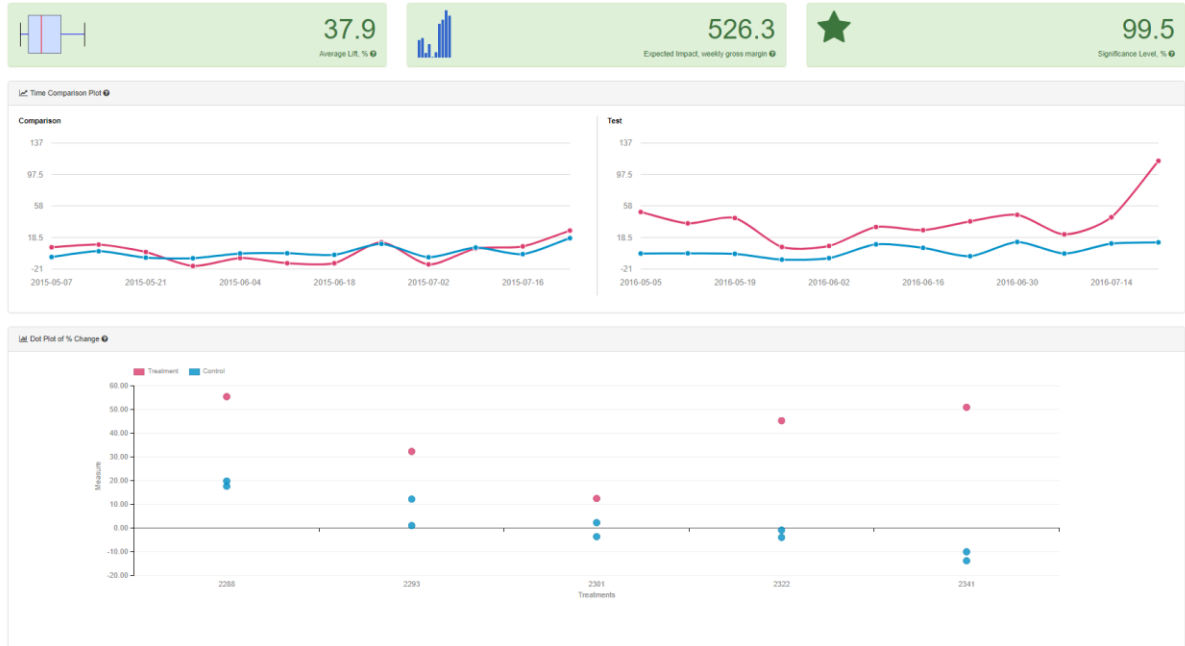
1. What is your recommendation - Should the company roll out the updated menu to all stores?

Yes, the company should roll out the updated menu to all stores because the profit margin has increased by more than the 18% criteria needed to justify the increased marketing budget.

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

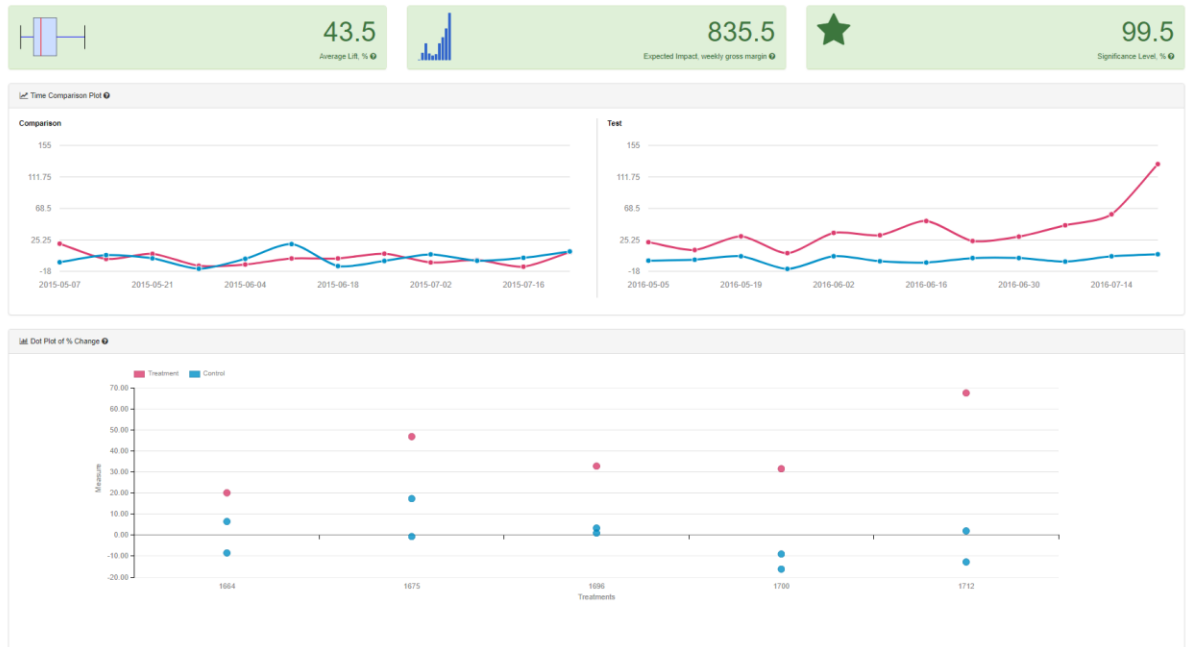
## West:

The lift from the new menu for West is 37.9% with a statistical significance of 99.5% (see below).



## Central:

The lift from the new menu for Central is 43.5% with a statistical significance of 99.5% (see below).



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

The lift from the new menu for overall is 40.7% with a statistical significance of 100% (see below)

