# 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. (250 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 sum of the gross margin is the metric for checking if it makes sense to offer wine and the sandwich in all stores.*
2. What is the test period?
   *Date: 2016-29-04 up to 2016-07-16*
3. At what level (day, week, month, etc.) should the data be aggregated?
   *Weekly based.*

## 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.
   *The average monthly sales should be considered and the square feet can be ignored.*
2. What is the correlation between your each potential control variable and your performance metric?

**Pearson Correlation Analysis**

*Full Correlation Matrix*

| | Sum_Sum_Gross.Margin | AvgMonthSales | Sq_Ft |
|---|---|---|---|
| Sum_Sum_Gross.Margin | 1.000000 | 0.990978 | -0.024224 |
| AvgMonthSales | 0.990978 | 1.000000 | -0.046967 |
| Sq_Ft | -0.024224 | -0.046967 | 1.000000 |

Gross margin has a the highest correlation 0.99 with the sum of gross margin. Square feet for example has no correlation.

3. What control variables will you use to match treatment and control stores?
   *The average sales per month in combination with the trend and the seasonality when matching AB.*

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

| Treatment Store | Control Store 1 | Control Store 2 |
|---|---|---|
| *1664* | *1964* | *8562* |
| *1675* | *1807* | *7584* |
| *1696* | *1863* | *7334* |
| *1700* | *7037* | *1508* |
| *1712* | *8162* | *7434* |
| *2288* | *2568* | *9081* |
| *2293* | *12219* | *9639* |
| *2301* | *11668* | *12019* |
| *2322* | *9238* | *9388* |
| *2241* | *2572* | *3102* |

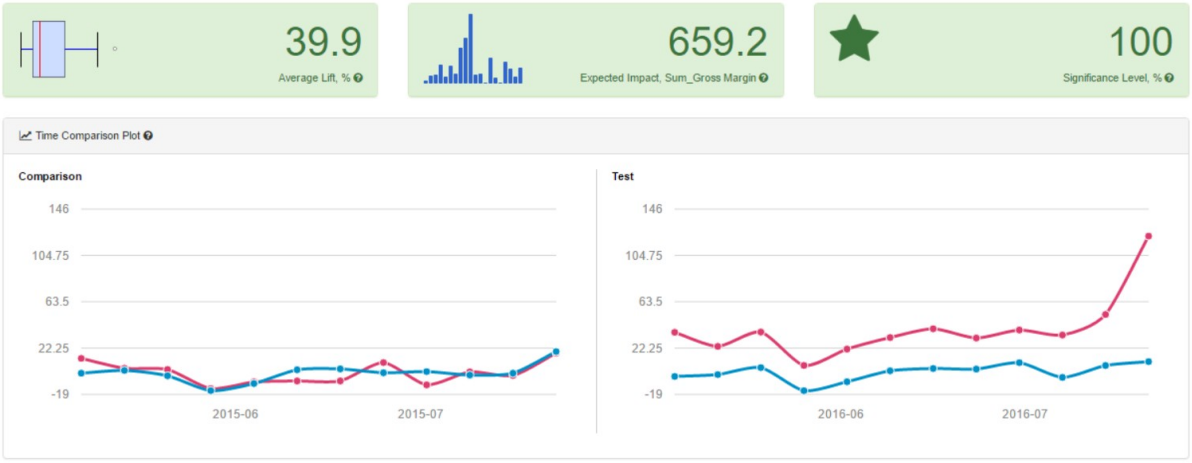
## Step 4: Analysis and Writeup

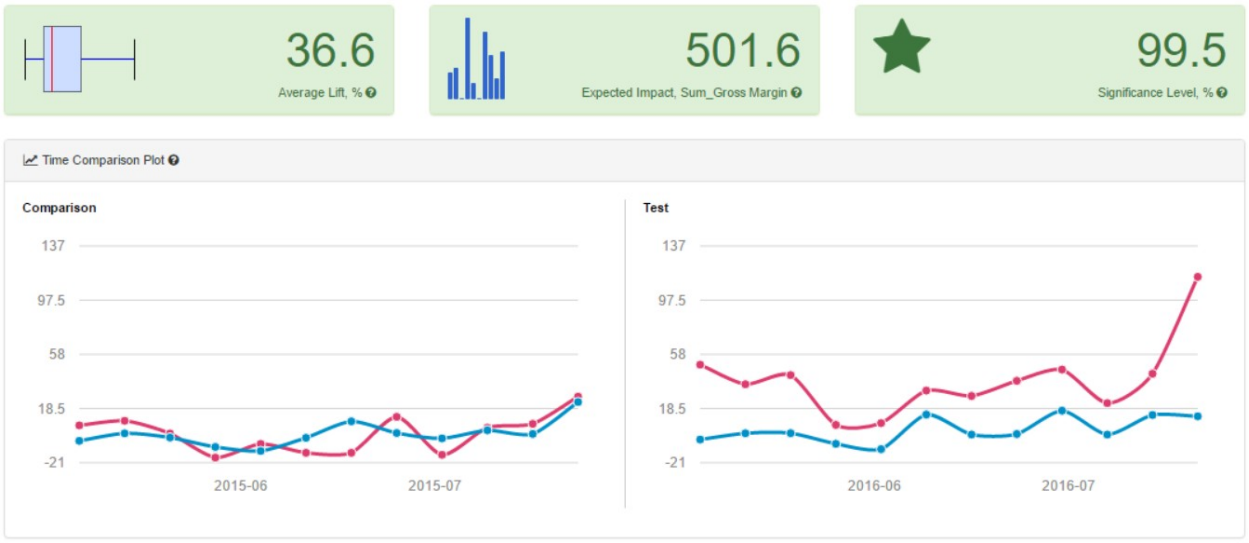
*Conduct your A/B analysis and create a short report outlining your results and recommendations. (250 words limit)*

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

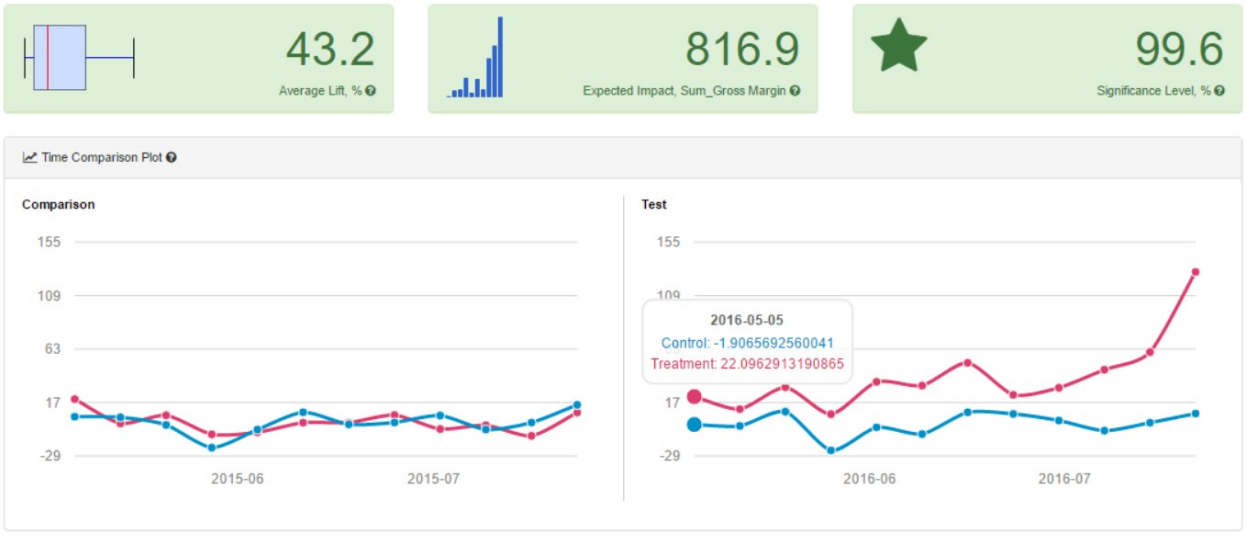
1. What is your recommendation - Should the company roll out the updated menu to all stores?
   *The company should offer the new products in all stores because of profit margin increase of 18% ($17,978.67 normal per store to $26,687.45 test period per store).*
2. What is the lift from the new menu for West and Central regions (include statistical significance)?
   Lift for the west region: 36.6%, central region: 43,2% and the level of significance > 99,4%.
3. What is the lift from the new menu overall?
   An overal lift of 43.2% with a significance > 99,5%

West

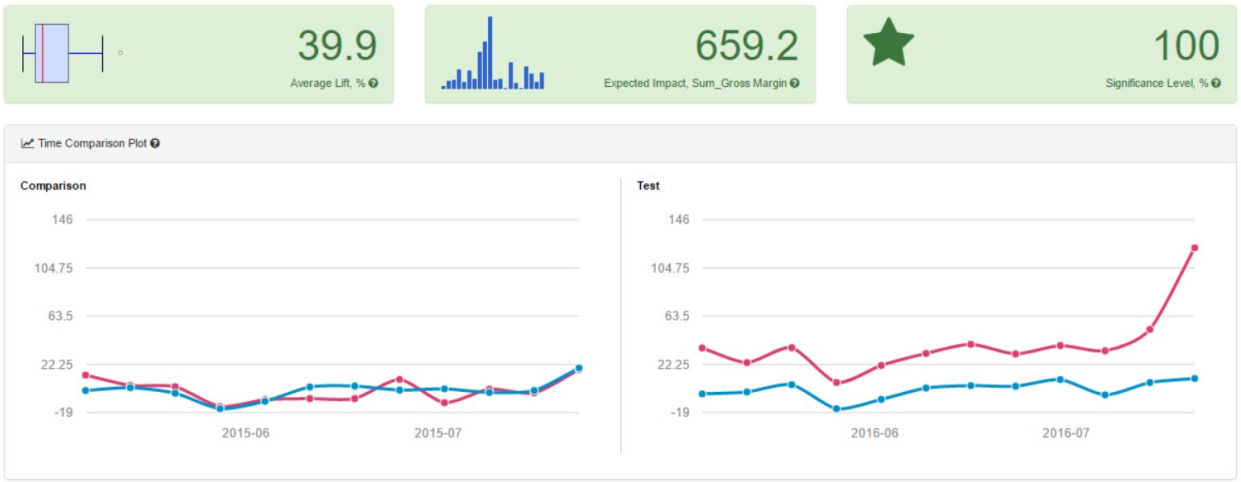

39.9
Average Lift, %
659.2
Expected Impact, Sum_Gross Margin
100
Significance Level, %
Time Comparison Plot
Comparison
Test
146
104.75
63.5
22.25
-19
2015-06
2015-07
2016-06
2016-07


36.6
Average Lift, %
501.6
Expected Impact, Sum_Gross Margin
99.5
Significance Level, %
Time Comparison Plot
Comparison
Test
137
97.5
58
18.5
-21
2015-06
2015-07
2016-06
2016-07

Central




Overal



## 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.