

# Project: Analyzing a Market Test

## Step 1: Plan Your Analysis

1. What is the performance metric you'll use to evaluate the results of your test?  
Total sales as the performance metric.
2. What is the test period?  
Started on 2016-April-29 and ended on 2016-July-21 (last for 12 weeks).
3. At what level (day, week, month, etc.) should the data be aggregated?  
at the week level.

## Step 2: Clean Up Your Data

Done.

## Step 3: Match Treatment and Control Units

*Apart from trend and seasonality...*

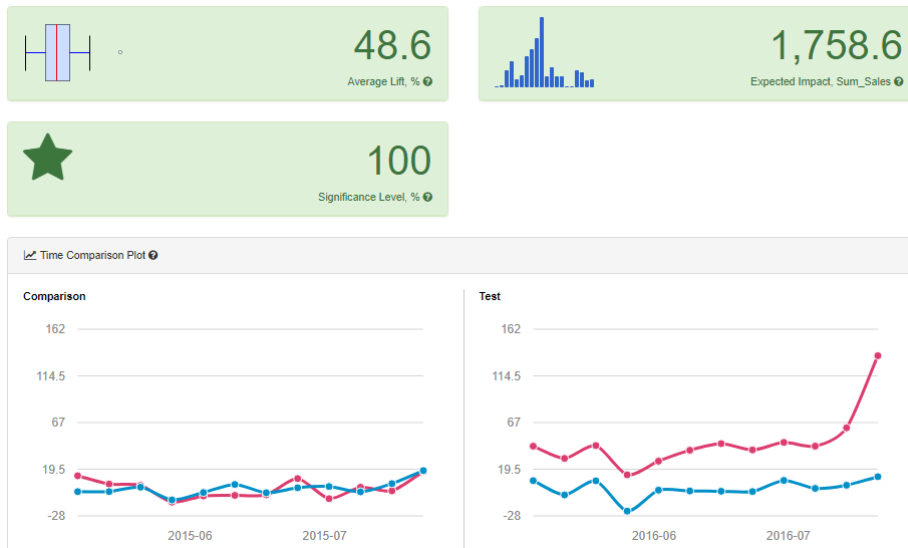
1. What control variables should be considered?  
Region, Sq\_ft, invoice number and avgMonthSales.
2. What is the correlation between your each potential control variable and your performance metric?  
For each store, number of invoices and average monthly sales are strongly related to each other as number of invoices can help calculating the average monthly sales (increasing).  
Sq\_ft for each store can help us know what is the store's volume and help us to know what's store's threshold for weekly sales.
3. What control variables will you use to match treatment and control stores?  
avgMonthSales.
4. Please fill out the table below with your treatment and control stores pairs:

Treatment Store	Control Store 1	Control Store 2
1664	1857	7162
1675	2114	1508
1696	1863	7284
1700	1662	7037
1712	7434	8162
2288	9188	2752
2293	11468	9918
2301	9238	12019
2322	10468	9388
2341	11368	2572

## Step 4: Analysis and Writeup

1. What is your recommendation - Should the company roll out the updated menu to all stores?  
The company should roll out the new menu for all stores as the results of A/B testing

(treatment group) shows high sales increment compared to original stores (control group) with good average lift of 48.6%, the following visualization illustrate this:



- What is the lift from the new menu for West and Central regions (include statistical significance)?  
 For West: Average Lift is 41.6% and Significance of 99.6%.  
 For Central: Average Lift is 55.7% and Significance of 99.8%.
- What is the lift from the new menu overall?  
 Overall Average Lift is 48.6%.