

# 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?

To evaluate the result of the test, the sum of gross\_margin variable is the performance metrics that will be used.

2. What is the test period?

The period of 12 weeks (2016-April-29 to 2016-July-21) will be the test period.

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

Weekly level should be used for data aggregated.

## Step 2: Clean Up Your Data

By joined the round roster transaction data with round roster stores, we create weekly traffic data with sales analysis data based on 76 weeks' data (feb/6/2015 – jul/21/2016) which is 12 weeks' test date, 12 weeks needs for calculate seasonality and 52 weeks needed for A/B test.

Week, start-week, end-week and new category are used to create weekly traffic and sales analysis for each store.

Then, joining the treatment stores to create the control and treatment list for stores.

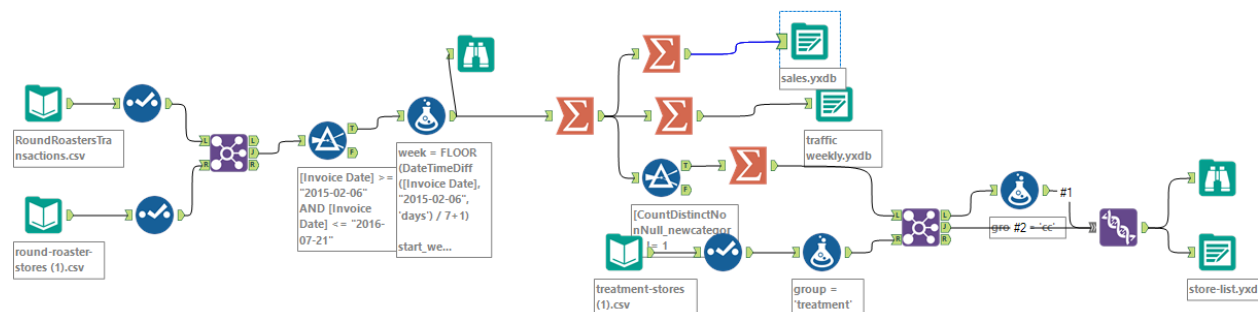


figure (1) alteryx workflow for data cleaning

## Step 3: Match Treatment and Control Units

1. What control variables should be considered? Note: Only consider variables in the RoundRoastersStore file.

AvgMonthSales in RoundRoastersStore can be consider as control variable as well as Sq\_Ft can be possible control variable .

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	0.990494	-0.023494
AvgMonthSales	0.990494	1.000000	-0.046967
Sq_Ft	-0.023494	-0.046967	1.000000

Figure (2) correlation between variables

by using association analysis for, the avgmonthsales has high correlation with performance metrics .99, while the Sq\_Ft has low correlation with -.04. Then the avgmonthsales used as control variable.

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

AvgMonthSales control variable with the A/B trend tools which provide the rend and seasonality variable will be used as control variables.

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

Table (1) Control and Treatment stores

## Step 4: Analysis and Writeup

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

The sum of profit margin increased by more than 18% , the company should roll out the updated menu to all stores .

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

The lift from the new menu for West region 37.9% , while the lift for Central region 43.5% and both are statistically significant by 99.5% and 99.6% respectively .

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

The lift from the new menu overall is 40.7% and statistical significant 100%

### West Region

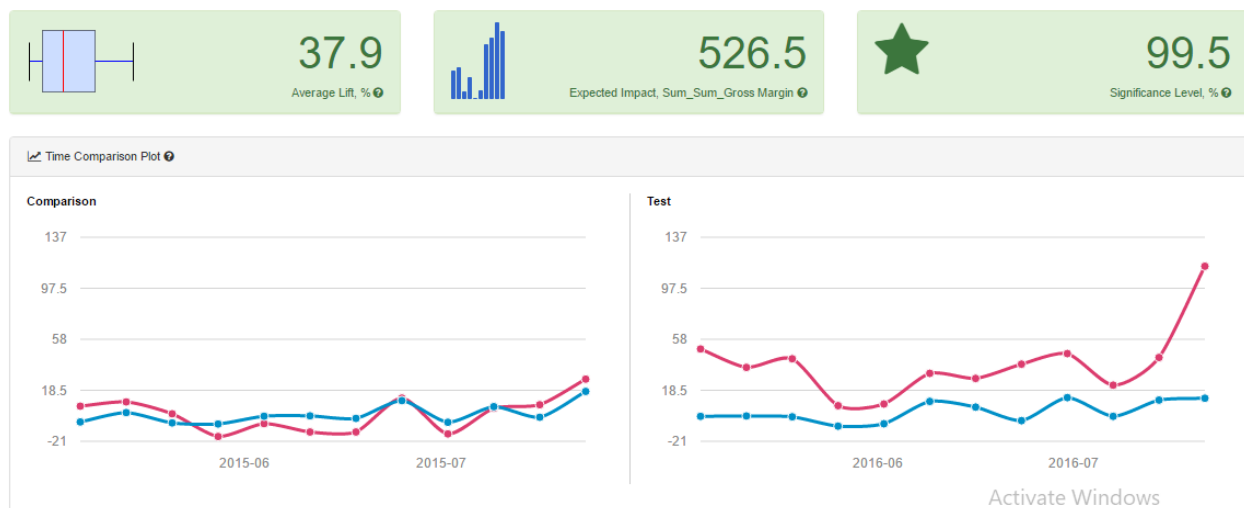


figure (3) A/B analysis for west region

Central Region

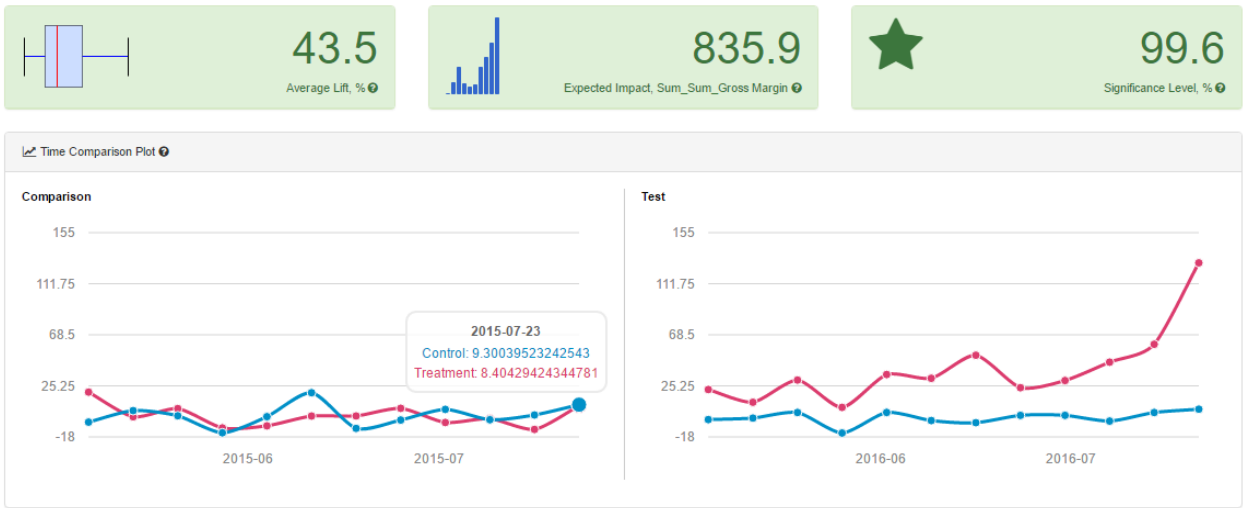


figure (4) A/B analysis for central region

Overall

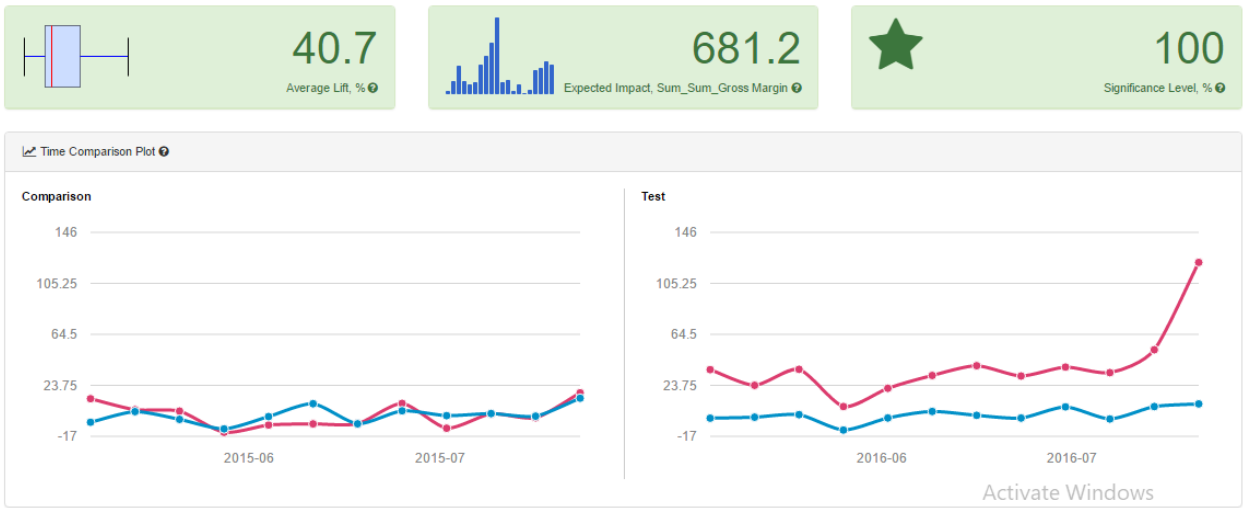


Figure (5) overall A/B analysis

## Alteryx workflow

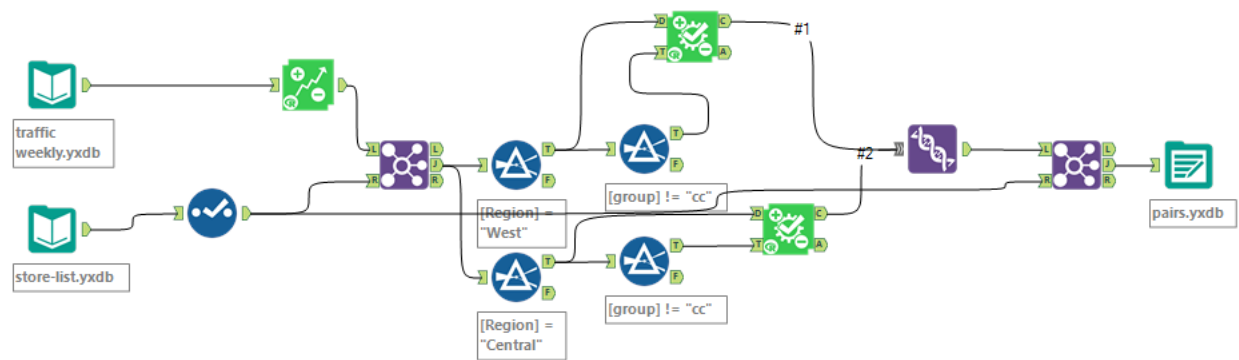


figure (6) treatment and control pairing

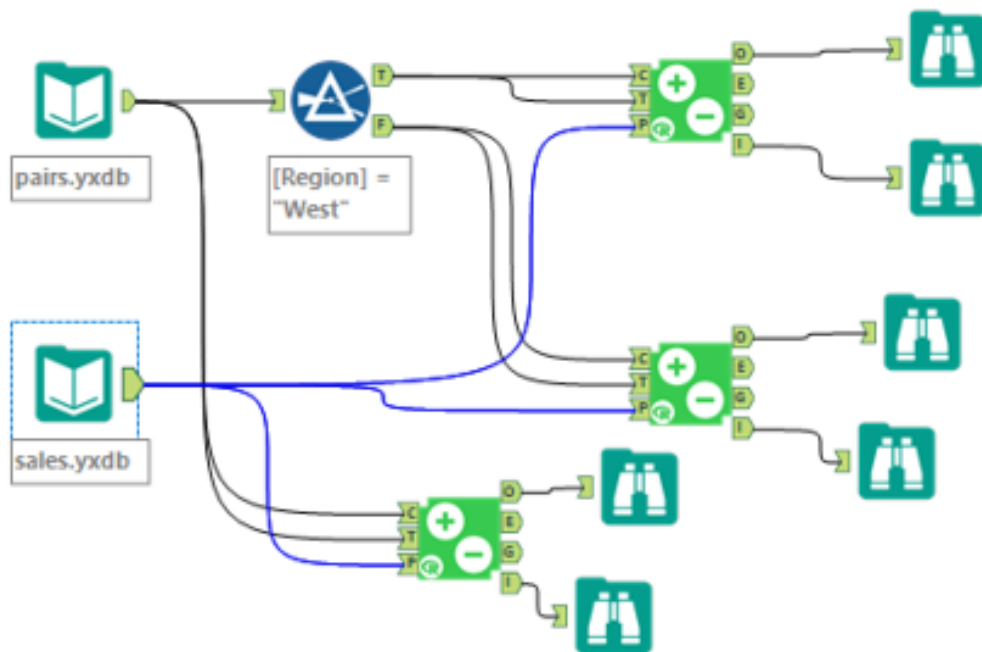


figure (7) AB analysis