Project: Analyzing a Market Test

Planning the Analysis

1. What is the performance metric you'll use to evaluate the results of your test?

   Sum of Gross Margin was chosen as the performance metric and it would most likely reflect the profit levels due to changes in the menu.

2. What is the test period?

   The test ran for 12 weeks but we use 76 weeks of previous data, starting from 06/02/2015 to create the weekly store traffic to get a general trend. The tes period is between 29/04/2016 and 21/07/2016.

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

   The data was aggregated to weekly data as people generally would go to restaurants 2-3 times a week or weekly rather than daily.

Match Treatment and Control Units

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

   From the RoundRoastersStore file, average monthly sales, region and city were used as the control variables.
   However, invoice count was also created from RoundRoastersTransactions as this will stores to be paired up by their transactional similarities.

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

Pearson Correlation Analysis

Full Correlation Matrix

	Week	Count.of.Transaction	Sum.of.Gross.Margin	Sum.of.Sales
Week	1.000000	-0.022914	-0.026179	-0.025414
Count.of.Transaction	-0.022914	1.000000	0.974316	0.973359
Sum.of.Gross.Margin	-0.026179	0.974316	1.000000	0.998666
Sum.of.Sales	-0.025414	0.973359	0.998666	1.000000

Matrix of Corresponding p-values

	Week	Count.of.Transaction	Sum.of.Gross.Margin	Sum.of.Sales
Week		0.0212355	0.0084861	0.0106124
Count.of.Transaction	0.0212355		0.0000000	0.0000000
Sum.of.Gross.Margin	0.0084861	0.0000000		0.0000000
Sum.of.Sales	0.0106124	0.0000000	0.0000000	

   The Pearson correlation analysis shows that there are positive correlations between Sum of Gross Margin, sum of sales and count of transactions

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

The control variables used to match the treatment and control stores is the count of transactions. It is used to calculate trend and seasonality. The data is then filtered into 'Region' to create control/treatment pairs.

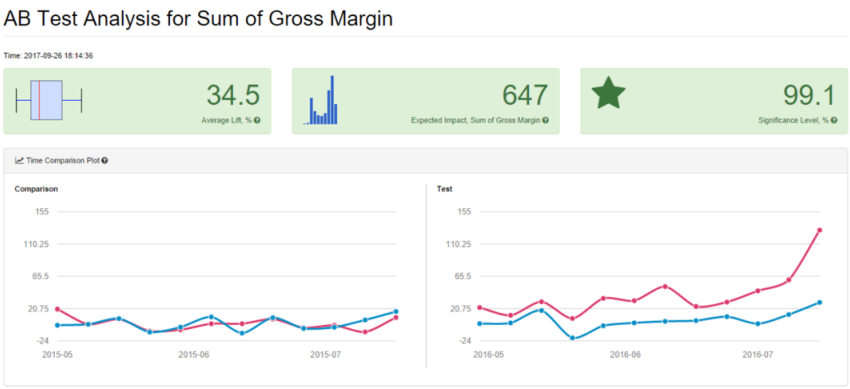
4. Please fill out the table below with your treatment and control stores pairs:

Treatment Store	Control Store 1	Control Store 2
1664	2214	1857
1675	2114	7770
1696	1964	7434
1700	1508	2014
1712	8212	6992
2288	2568	12536
2293	11568	10618
2301	10018	3002
2322	10468	9524
2341	8817	12286

Analysis Write-up and Results

1. What is your recommendation - Should the company 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)?
3. What is the lift from the new menu overall?

Yes. Rolling out the new menu will result in a 34.5 lift in gross margin with 99.1% significance level in the Central region and a 43.2 lift in gross with 99.5% significance level in the West region.



AB Test Analysis for Sum of Gross Margin

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43.2
Average Lift, %

598.7
Expected Impact, Sum of Gross Margin

99.7
Significance Level, %

Time Comparison Plot