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

analyze the results of the experiment to determine whether the menu changes should be applied to all stores. The predicted impact to profitability should be enough to justify the increased marketing budget: at least 18% increase in profit growth compared to the comparative period while compared to the control stores; otherwise known as incremental lift. In the data, profit is represented in the gross_margin variable.

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

The sum of gross_margin variable as performance metric .

- What is the test period?

12 weeks(92-04-2016 to 21-07-2016).

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

At week level the data will be aggregated.

Step 2: Clean Up Your Data

RoundRoastersTransactions file :

- use select tool to change datatypes and deselect unnecessary fields(SKU,Size,Category,Product)
- use filter tool to filter invoice date from 2015-02-06 to 2016-07-21 to creates measures of trend and seasonal patterns
- Use the Formula tool to create three new fields: week, week_end , week_start
- Use the Summarize tool to count how many weeks of data each store has
- Group by store, and count the distinct number of weeks related to each store
- Use the Filter tool to filter for stores that have 76 weeks of data available
- Use the Join tool to add transaction data for the stores identified as having 76 weeks of data - join on the store field, and remove any fields that are not needed (all store have 76 weeks)
- Use the Summarize tool to aggregate data (count distinct invoice) per week
- save store_traffic

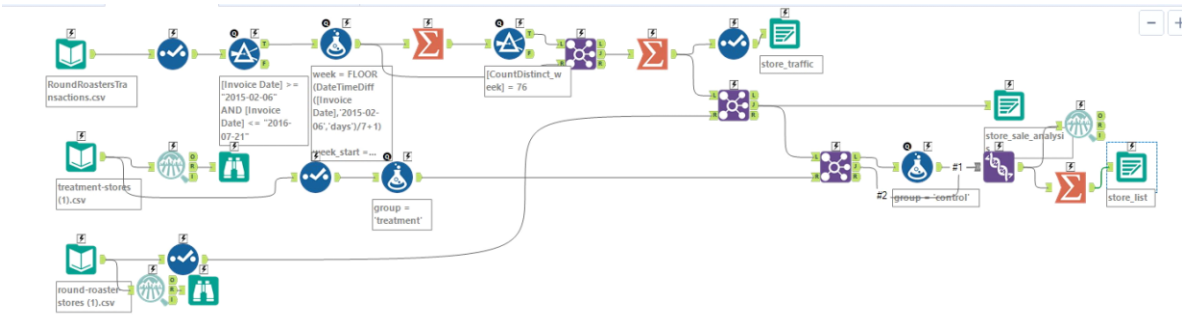
round-roaster-stores (1):

- select tool to remove unnecessary fields.
- use join tool to join round-roaster-stores (1) store_traffic to assign region and AvgMonthSales to each store
- save store_sale_analysis as csv file

treatment-stores (1):

- use form Use the Formula tool to add new field group = 'treatment'
- use join tool to join it with store_sale_analysis dataset
- use the Formula tool on the L output of the join to identify control candidate stores
- after dragging and connecting the Formula tool, create a new field with the same name and type as the test group field above group='control'

- Use the Union tool to combine the two output tables of the join **J** and **L**
- save store_sale_analysis as csv file



Step 3: Match Treatment and Control Units

from store_traffic file we can find trend and seasonality as the numeric measure to match control units to treatment units from AB trend tool Select count_per_week as the performance measure

Apart from trend and seasonality...

- What control variables should be considered? Note: Only consider variables in the RoundRoastersStore file.
  AvgMonthSales , sq_ft
- What is the correlation between your each potential control variable and your performance metric?

Pearson Correlation Analysis

Full Correlation Matrix

	Sum_Gross.Margin	Sq_Ft	AvgMonthSales
Sum_Gross.Margin	1.000000	-0.019345	0.790358
Sq_Ft	-0.019345	1.000000	-0.046967
AvgMonthSales	0.790358	-0.046967	1.000000

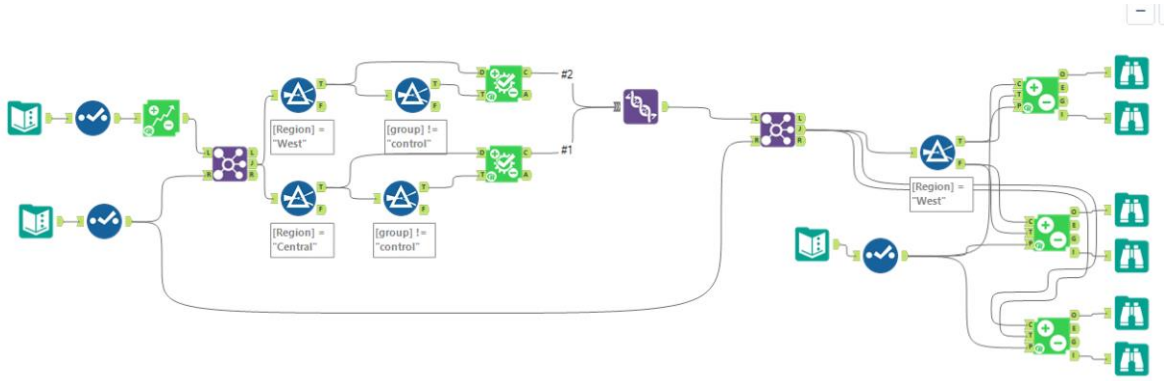
Matrix of Corresponding p-values

	Sum_Gross.Margin	Sq_Ft	AvgMonthSales
Sum_Gross.Margin		5.1796e-02	0.0000e+00
Sq_Ft	5.1796e-02		2.3119e-06
AvgMonthSales	0.0000e+00	2.3119e-06	

- What control variables will you use to match treatment and control stores?
  AvgMonthSales with correlatin 0.790358 and p_value <0.05 statically significant ,Trend and seasonality
  excloud Sq_Ft had poor correlation with -0.019345
- Please fill out the table below with your treatment and control stores pairs:

Treatment Store	Control Store 1	Control Store 2
2288	9081	12069
2293	11568	12219

2301	10018	10468
2322	2409	3102
2341	2333	11368
1664	1857	7484
1675	2114	8562
1696	1964	7584
1700	1508	7384
1712	7284	8212



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:

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

Comparing the results between both test groups,show that there is increase in profit growth over 18%, the menu changes should be applied to all stores.

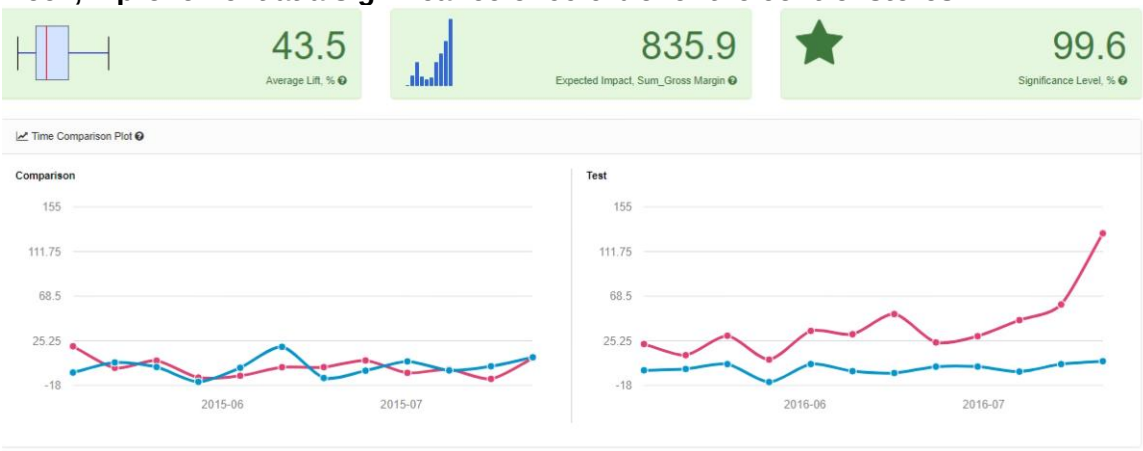
- What is the lift from the new menu for West and Central regions (include statistical significance)?

West Region:

The report shows that the stores with new menu in west region showed 37.9% improvement at a significance of 99.5% over the control stores.

Central Region:

the average lift as a result from the menu change would be 43.5% per store per week,improvement at a significance of 99.6% over the control stores.



- What is the lift from the new menu overall?

40.7% **improvement at a significance of 100% over the control stores.**

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.