AD699: Data Mining for Business Analytics
Individual Assignment #3

You will submit two files:

(1) **a PDF with your write-up**, along with
(2) **the script you used** to generate your results.

Association rules

For this portion of the assignment, we will be using data from Groceries, a dataset that can be found with the arules package. Each row in the file represents one buyer's purchases. This link provides some helpful templated examples for generating association rules:

http://r-statistics.co/Association-Mining-With-R.html

1. Describe "Groceries" by answering following questions:
   - What is the class of "Groceries"?
   - How many rows and columns does Groceries contain?

2. Generate an item frequency barplot for the grocery items with support rate greater than 0.05. Include a screenshot of your results, along with the code you used to do this.

3. Now, create a subset of rules that contain **your grocery item** (you can find your item in the spreadsheet in Blackboard, in Class Discussions > From Your Instructor). Select 4 different rules, (2 lhs and 2 rhs), and explain them in the way you would explain them to your roommate (I'm assuming your roommate is a smart person who is unfamiliar with data mining). *Remember, every rule has three components: support, confidence, and lift.*

   For each group of rules (grocery item on left-hand side, and grocery item on right-hand side), include a screenshot of your rules, along with the code you used to generate the rules.

In a sentence or two, explain what meaning these rules might have for a supermarket retailer, such as Star Market. What could it do with this information?

4. Using the plot() function in the arulesViz package, generate a scatter plot of any three rules involving your grocery item. Include a screenshot of your plot, along with the code you used to generate the plot. Describe your results in a sentence or two.

5. Again using the plot() function in the arulesViz package, generate a plot for any three of your rules. This time, add two more arguments to the function: method="graph", engine="htmlwidget". What do you see now? Include a screenshot of your plot, along with the code you used to generate the plot. Describe your results in a sentence or two.