**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Association Rules Lab**

The data for this lab is in the file BreadBasket\_DMS.csv (download this from the Canvas module on Unsupervised Learning). Here are the first few lines of this file.



Each item in a transaction is in a separate row, but every distinct transaction has been assigned a number. So, in item list format, Transaction 1 would be {Bread}, Transaction 2 would be {Scandinavian, Scandinavian}, and Transaction 3 would be {Hot Chocolate, Jam, Cookies}.

The data needs to be in an appropriate format. We will use only two variables in this lab – Transaction and Item. If you have a CSV file with just two variables – Transaction and Item – then the following command will read the data into an appropriate transactions format:   
  
tr <- read.transactions(file = "file", format = "single", header = TRUE, sep = ",", cols = c("Transaction","Item"))

1. With the pre-processing above you should be able to run the *apriori* algorithm.
   * Experiment with a few different values of the support and confidence thresholds to get a sense for the dataset. In the space below, write one rule and its support, confidence and lift:   
       
     \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
       
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2. You are interested in promoting Tea by cross-selling. What are some good rules (and their properties) where the consequent is Tea?  
     
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   * It may help in searching among rules to first plot the rules …
   * What is the difficulty you face in finding good rules?
3. What are some good rules where antecedent is Coffee?  
     
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