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School of Computing Science and Engineering

Lab exercise

Code/Course	**:**	**CSE3020 – Data Visualization**	**Date**	**:**	**12/10/2021**
Lab Experiment		Install and use “arules" and "arulesViz" package for Association rule	**Slot**	**:**	**L9+L10**

Pre-requisite: We will assume you are moderately familiar with basic concepts in R, including variables and functions, and with RStudio, the integrated development environment for programming in R.

Apriori algorithm: is given by R. Agrawal and R. Srikant for finding frequent itemsets in a dataset for boolean association rule. Name of the algorithm is Apriori because it uses prior knowledge of frequent itemset properties. We apply an iterative approach or level-wise search where k-frequent itemsets are used to find itemsets. To improve the efficiency of level-wise generation of frequent itemsets, an important property is used called Apriori property which helps by reducing the search space. Apriori Property – All non-empty subset of frequent itemset must be frequent. The key concept of Apriori algorithm is its anti-monotonicity of support measure. Parameters 1Support This measure gives an idea of how frequent an itemset is in all the transactions. 2. Confidence This measure defines the likeliness of occurrence of consequent on the cart given that the cart already has the antecedents. 3. Lift Lift controls for the support (frequency) of consequent while calculating the conditional probability of occurrence of {Y} given {X}.

Note: Install and import the **library**(arulesViz) and Show the Visual output of Association Rules for your data. Assume your own dataset (may be downloaded) unsing below link wherever necessary.

Association Rule dataset link

https://www.kaggle.com/datatheque/association-rules-mining-market-basket-analysis
https://chih-ling-hsu.github.io/2018/01/01/association-rule-mining
https://www.kaggle.com/pavansubhasht/ibm-hr-analytics-attrition-dataset
https://github.com/rohanag/ADB-AssocRuleMining/blob/master/Dataset.csv
http://www.socr.umich.edu/people/dinov/courses/DSPA_notes/11_Apriory_AssocRuleLearning.html#72_Step_2_-_exploring_and_preparing_the_data