ID2222 DATA MINING

Discovery of Frequent Itemsets and Association Rules

HOMEWORK 2 REPORT

GROUP 25
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Solution for Main Task

In this homework, we attempt to find frequent item sets with support at least *s* using Apriori algorithm. For this, we do the following:

1. find all frequent 1-itemsets
2. for the next k-itemsets we are collecting results recursively
    2.1. filtering out baskets which do not contain frequent items from previous round
    2.2. generating length *k* candidates for each basket using frequent items of basket
    2.3. counting popularity of k item set and filtering out which support is less than *s*

Solution for Bonus Task

In this task, we use the frequent item set to generate association rules of the form (X => Y). For this, we do the following:

1. For each frequent itemset, l of size >1, find all possible non-empty sub-sets

    1.1 For each sub-set a, calculate confidence c, by taking the ratio of support(l) and support (a)

    1.2 Filtering out those rules which has confidence value less than the given minC value.

Instructions to run

1. From the root folder run "sbt".
2. (Optional) In sbt shell run "eclipse" to create an eclipse project that can be imported into eclipse.
3. In sbt shell run "compile".
4. In sbt shell run "run".
5. Choose assignment2 Main class (Main for Main Task, BonusMain for Bonus task)

Results

Frequent items set were searched on a sale transaction dataset provided in canvas (*T10I4D100K.dat*).

In total 760 items sets were found with support more than 1000. Among the frequent item sets, 24 association rules, as shown at the bottom of the output trace, with confidence value greater than zero were identified.

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