Eclat

This notebook includes:

* Applying Eclat to determine the purchasing relationship between grocery items

* Visualizing Eclat relationships

```
# Preprocess data
#install.packages('arules')
library(arules)
```

```
## Loading required package: Matrix

##
## Attaching package: 'arules'

## The following objects are masked from 'package:base':
##
##     abbreviate, write
```

```
dataset = read.csv('Market_Basket_Optimisation.csv')
dataset = read.transactions('Market_Basket_Optimisation.csv', sep = ',', rm.duplicates = TRUE)
```

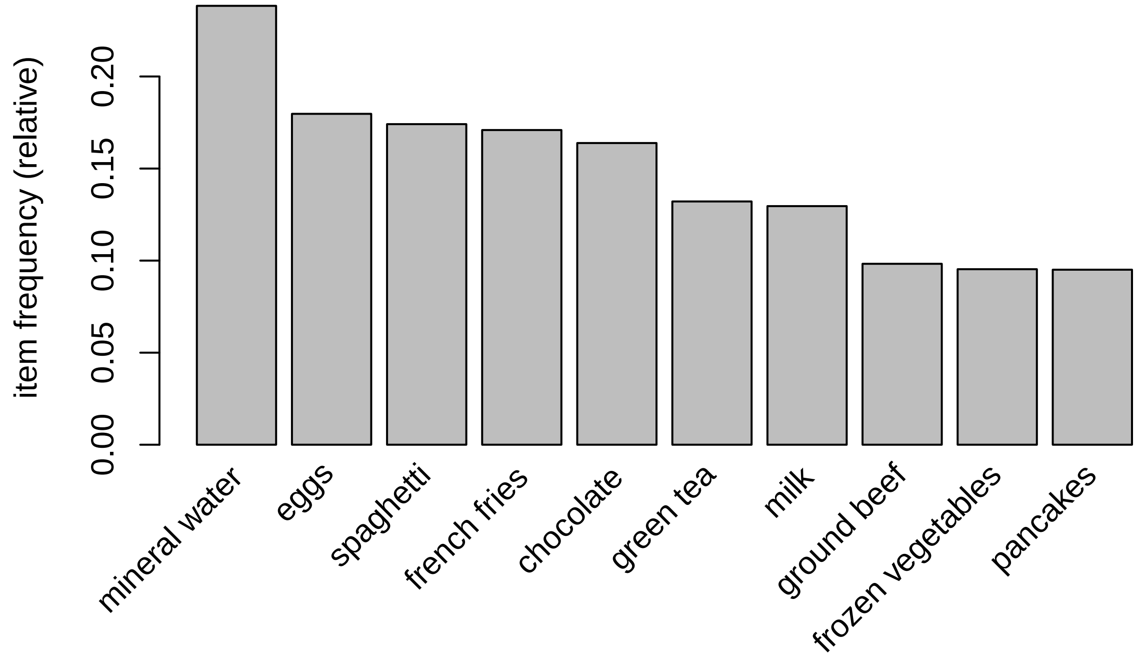
```
## distribution of transactions with duplicates:
## 1
## 5
```

```
# Explore dataset
summary(dataset)
```

```
## transactions as itemMatrix in sparse format with
##  7501 rows (elements/itemsets/transactions) and
##  119 columns (items) and a density of 0.03288973
##
## most frequent items:
## mineral water          eggs     spaghetti  french fries     chocolate
##          1788          1348          1306          1282          1229
##       (Other)
##         22405
##
## element (itemset/transaction) length distribution:
## sizes
##    1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16
## 1754 1358 1044  816  667  493  391  324  259  139  102   67   40   22   17    4
##   18   19   20
##    1    2    1
##
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   1.000   2.000   3.000   3.914   5.000  20.000
##
## includes extended item information - examples:
##              labels
## 1           almonds
## 2 antioxydant juice
## 3         asparagus
```

```r
itemFrequencyPlot(dataset, topN = 10)
```



```r
# Train Eclat on dataset
rules = eclat(data = dataset, parameter = list(support = 0.003, minlen = 2))
```

```
## Eclat
##
## parameter specification:
##  tidLists support minlen maxlen            target   ext
##     FALSE   0.003      2     10 frequent itemsets FALSE
##
## algorithmic control:
##  sparse sort verbose
##       7   -2    TRUE
##
## Absolute minimum support count: 22
##
## create itemset ...
## set transactions ...[119 item(s), 7501 transaction(s)] done [0.01s].
## sorting and recoding items ... [115 item(s)] done [0.00s].
## creating sparse bit matrix ... [115 row(s), 7501 column(s)] done [0.00s].
## writing  ... [1328 set(s)] done [0.01s].
## Creating S4 object  ... done [0.00s].
```

```r
# Visualize results
inspect(sort(rules, by = 'support')[1:10])
```

```
##      items                             support    count
## [1]  {mineral water,spaghetti}         0.05972537 448
## [2]  {chocolate,mineral water}         0.05265965 395
## [3]  {eggs,mineral water}              0.05092654 382
## [4]  {milk,mineral water}              0.04799360 360
## [5]  {ground beef,mineral water}       0.04092788 307
## [6]  {ground beef,spaghetti}           0.03919477 294
## [7]  {chocolate,spaghetti}             0.03919477 294
## [8]  {eggs,spaghetti}                  0.03652846 274
## [9]  {eggs,french fries}               0.03639515 273
## [10] {frozen vegetables,mineral water} 0.03572857 268
```