ar_lab.R

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```
library(arules)
```

```
## Warning: package 'arules' was built under R version 3.4.4
```

```
## Loading required package: Matrix
```

```
##
## Attaching package: 'arules'
```

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

```
data = read.transactions("groceries.csv", format="basket", sep=",")

rules <- apriori(data, parameter = list(supp = 0.001, conf=0.8))
```

```
## Apriori
##
## Parameter specification:
##  confidence minval smax arem  aval originalSupport maxtime support minlen
##         0.8    0.1    1 none FALSE            TRUE       5   0.001      1
##  maxlen target   ext
##      10  rules FALSE
##
## Algorithmic control:
##  filter tree heap memopt load sort verbose
##     0.1 TRUE TRUE  FALSE TRUE    2    TRUE
##
## Absolute minimum support count: 9
##
## set item appearances ...[0 item(s)] done [0.00s].
## set transactions ...[169 item(s), 9835 transaction(s)] done [0.00s].
## sorting and recoding items ... [157 item(s)] done [0.00s].
## creating transaction tree ... done [0.00s].
## checking subsets of size 1 2 3 4 5 6 done [0.01s].
## writing ... [410 rule(s)] done [0.00s].
## creating S4 object  ... done [0.00s].
```

```
summary(rules)
```

```
## set of 410 rules
##
## rule length distribution (lhs + rhs):sizes
##   3   4   5   6
##  29 229 140  12
##
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   3.000   4.000   4.000   4.329   5.000   6.000
##
## summary of quality measures:
##     support           confidence          lift            count
##  Min.   :0.001017   Min.   :0.8000   Min.   : 3.131   Min.   :10.00
##  1st Qu.:0.001017   1st Qu.:0.8333   1st Qu.: 3.312   1st Qu.:10.00
##  Median :0.001220   Median :0.8462   Median : 3.588   Median :12.00
##  Mean   :0.001247   Mean   :0.8663   Mean   : 3.951   Mean   :12.27
##  3rd Qu.:0.001322   3rd Qu.:0.9091   3rd Qu.: 4.341   3rd Qu.:13.00
##  Max.   :0.003152   Max.   :1.0000   Max.   :11.235   Max.   :31.00
##
## mining info:
##  data ntransactions support confidence
##  data          9835   0.001        0.8
```

```
options(digits=2)
inspect(rules[1:5])
```

```
##     lhs                          rhs            support confidence lift
## [1] {liquor,red/blush wine} => {bottled beer} 0.0019  0.90       11.2
## [2] {cereals,curd}          => {whole milk}   0.0010  0.91        3.6
## [3] {cereals,yogurt}        => {whole milk}   0.0017  0.81        3.2
## [4] {butter,jam}            => {whole milk}   0.0010  0.83        3.3
## [5] {bottled beer,soups}    => {whole milk}   0.0011  0.92        3.6
##     count
## [1] 19
## [2] 10
## [3] 17
## [4] 10
## [5] 11
```

```
rules <- sort(rules, by="confidence", decreasing=TRUE)

rules <- apriori(data=data, parameter = list(supp=0.001, conf=0.08, minlen=3),
                 appearance = list(default="lhs", rhs="whole milk"), control=list(verbos
e=F))
rules <- sort(rules, decreasing=TRUE, by="confidence")
inspect(rules[1:5])
```

```
##     lhs                     rhs          support confidence lift count
## [1] {rice,
##      sugar}              => {whole milk}  0.0012          1  3.9    12
## [2] {canned fish,
##      hygiene articles}   => {whole milk}  0.0011          1  3.9    11
## [3] {butter,
##      rice,
##      root vegetables}    => {whole milk}  0.0010          1  3.9    10
## [4] {flour,
##      root vegetables,
##      whipped/sour cream} => {whole milk}  0.0017          1  3.9    17
## [5] {butter,
##      domestic eggs,
##      soft cheese}        => {whole milk}  0.0010          1  3.9    10
```

```
rules <- apriori(data=data, parameter=list(supp=0.001, conf=0.15, minlen=3),
                 appearance=list(default="rhs", lhs=c("butter","sugar")),
                 control = list(verbose=F))
rules <- sort(rules, decreasing=TRUE, by="confidence")
inspect(rules)
```

```
##     lhs               rhs                   support confidence lift count
## [1] {butter,sugar} => {whole milk}          0.0021  0.68       2.7  21
## [2] {butter,sugar} => {other vegetables}    0.0014  0.45       2.3  14
## [3] {butter,sugar} => {whipped/sour cream}  0.0012  0.39       5.4  12
## [4] {butter,sugar} => {root vegetables}     0.0010  0.32       3.0  10
```

```
rules <- sort(rules, decreasing=TRUE, by="lift")
inspect(rules)
```

```
##     lhs               rhs                   support confidence lift count
## [1] {butter,sugar} => {whipped/sour cream}  0.0012  0.39       5.4  12
## [2] {butter,sugar} => {root vegetables}     0.0010  0.32       3.0  10
## [3] {butter,sugar} => {whole milk}          0.0021  0.68       2.7  21
## [4] {butter,sugar} => {other vegetables}    0.0014  0.45       2.3  14
```