Tarefa 1

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Leia o dataset em http://fimi.ua.ac.be/data/retail.dat que é um dataset real de compras no varejo em uma loja na Bélgica.

Descubra as regras de associação que tenham suporte mínimo de 0.005 e confiança mínima de 0.9

Código:

```r
# Instalar e usar o pacote arules
install.packages("arules")
library("arules")

# Leitura dos dados
data <- read.transactions('retail.dat', format='basket')

# Usando o algoritmo pra gerar regras
data_rules <- apriori(data, parameter = list(support = 0.005, confidence = 0.9))
```

Resultado:

```
> data_rules <- apriori(data, parameter = list(support = 0.005, confidence = 0.9))
Apriori

Parameter specification:
 confidence minval smax arem  aval originalSupport maxtime support minlen maxlen target  ext
        0.9    0.1    1 none FALSE            TRUE       5   0.005      1     10  rules TRUE

Algorithmic control:
 filter tree heap memopt load sort verbose
    0.1 TRUE TRUE  FALSE TRUE    2    TRUE

Absolute minimum support count: 440

set item appearances ...[0 item(s)] done [0.00s].
set transactions ...[16470 item(s), 88162 transaction(s)] done [0.38s].
sorting and recoding items ... [221 item(s)] done [0.01s].
creating transaction tree ... done [0.03s].
checking subsets of size 1 2 3 4 5 done [0.01s].
writing ... [37 rule(s)] done [0.00s].
creating S4 object  ... done [0.01s].
```

Regras:

```
> inspect(data_rules)
     lhs             rhs     support     confidence coverage    lift      count
[1]  {56}         => {38}    0.005830176 0.9607477  0.006068374  5.430972  514
[2]  {55}         => {38}    0.007452190 0.9332386  0.007985300  5.275467  657
[3]  {790}        => {38}    0.005762120 0.9713193  0.005932261  5.490732  508
[4]  {105}        => {38}    0.007293392 0.9786910  0.007452190  5.532403  643
[5]  {371}        => {38}    0.008699893 0.9808184  0.008870035  5.544429  767
[6]  {16011}      => {16010} 0.007384134 0.9730942  0.007588303 65.189915  651
[7]  {37}         => {38}    0.011864522 0.9739292  0.012182119  5.505485 1046
[8]  {286}        => {38}    0.012658515 0.9433643  0.013418480  5.332706 1116
[9]  {110}        => {38}    0.030909008 0.9753042  0.031691659  5.513258 2725
[10] {36}         => {38}    0.031646288 0.9502725  0.033302330  5.371757 2790
[11] {170}        => {38}    0.034379892 0.9780574  0.035151199  5.528821 3031
[12] {105,39}     => {38}    0.005092897 0.9868132  0.005160954  5.578317  449
[13] {371,39}     => {38}    0.005966289 0.9887218  0.006034346  5.589106  526
[14] {37,48}      => {38}    0.006317915 0.9858407  0.006408657  5.572819  557
[15] {37,39}      => {38}    0.007758445 0.9674682  0.008019328  5.468962  684
[16] {286,48}     => {38}    0.006590141 0.9830795  0.006703568  5.557211  581
[17] {286,39}     => {38}    0.008257526 0.9706667  0.008507067  5.487042  728
[18] {110,32}     => {38}    0.005024841 0.9866370  0.005092897  5.577320  443
[19] {110,41}     => {38}    0.007554275 0.9837518  0.007679045  5.561011  666
[20] {110,48}     => {38}    0.015437490 0.9862319  0.015653002  5.575030 1361
[21] {110,39}     => {38}    0.019736394 0.9891984  0.019951907  5.591800 1740
[22] {32,36}      => {38}    0.005353781 0.9554656  0.005603321  5.401113  472
[23] {36,41}      => {38}    0.007610989 0.9585714  0.007939929  5.418670  671
[24] {36,48}      => {38}    0.015426147 0.9604520  0.016061342  5.429300 1360
[25] {36,39}      => {38}    0.022061659 0.9548355  0.023105193  5.397551 1945
[26] {170,32}     => {38}    0.006034346 0.9851852  0.006125088  5.569114  532
[27] {170,41}     => {38}    0.009006148 0.9863354  0.009130918  5.575616  794
[28] {170,48}     => {38}    0.017445158 0.9877970  0.017660670  5.583878 1538
[29] {170,39}     => {38}    0.022901023 0.9805731  0.023354733  5.543042 2019
[30] {286,39,48}  => {38}    0.005194982 0.9870690  0.005263038  5.579762  458
[31] {110,39,41}  => {38}    0.005796148 0.9922330  0.005841519  5.608954  511
[32] {110,39,48}  => {38}    0.011694381 0.9942141  0.011762437  5.620153 1031
[33] {36,39,41}   => {38}    0.006272544 0.9667832  0.006488056  5.465090  553
[34] {36,39,48}   => {38}    0.012250176 0.9677419  0.012658515  5.470509 1080
[35] {170,41,48}  => {38}    0.005489894 0.9837398  0.005580636  5.560943  484
[36] {170,39,41}  => {38}    0.006975795 0.9855769  0.007077879  5.571328  615
[37] {170,39,48}  => {38}    0.013531907 0.9892206  0.013679363  5.591925 1193
```