Praktikum 1

NIM : 12S14011

Nama : Agri Fina

1. Menulis ulang kode program

Menambang semua frequent itemset tanpa parameter *minlen* dan *maxlen*

```
1  # Load the libraries
2  library("arules")
3
4  # Load the dataset
5  data("Groceries")
6
7  # Mining frequent itemset with frequency of occurence at least 1 in 1000, i.e support=.001
8  itemsets <- apriori(Groceries,
9                      parameter = list(support=.001,
10                                      target='frequent' # to mine for itemsets
11                     ))
12
13 # Summary info of itemsets
14 summary(itemsets)
15
16 # Add lift as a measurement
17 quality(itemsets)$lift <- interestMeasure(itemsets, measure='lift', Groceries)
18
19 # Show top 10 result by lift
20 inspect(sort(itemsets, by ='lift', decreasing = T)[1:10])
```

Line 2: Menggunakan library arules

Line 4: Menggunakan dataset Groceries

Line 8: Mining itemset paling sering dengan jumlah kejadian paling sedikit 1 dalam 1000 dengan support =.001

Line 14: Membuat kesimpulan informasi itemsets

```
Hasil line 14:
most frequent items:
      whole milk other vegetables           yogurt  root vegetables
            3765             3342             2402             1959
  tropical fruit          (Other)
            1797            27835
```

Line 17: Menambahkan lift sebagai pengukur

Line 20: Menampilkan 10 hasil paling atas diurutkan berdasarkan lift

```
Hasil line 20:
     items                     support count     lift
[1]  {tropical fruit,
      root vegetables,
      other vegetables,
      whole milk,
      yogurt,
      oil}                 0.001016777    10 459.3068
[2]  {tropical fruit,
      other vegetables,
      whole milk,
      butter,
      yogurt,
      domestic eggs}       0.001016777    10 399.6002
[3]  {tropical fruit,
      root vegetables,
      other vegetables,
      whole milk,
      butter,
      yogurt}              0.001118454    11 255.8634
[4]  {other vegetables,
```

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```
      curd,
      yogurt,
      whipped/sour cream,
      cream cheese }      0.001016777    10 248.7251
[5]  {root vegetables,
      other vegetables,
      whole milk,
      yogurt,
      rice}               0.001321810    13 230.5682
[6]  {citrus fruit,
      root vegetables,
      other vegetables,
      whole milk,
      yogurt,
      whipped/sour cream} 0.001016777    10 227.9702
[7]  {tropical fruit,
      pip fruit,
      root vegetables,
      other vegetables,
      whole milk,
      yogurt}             0.001321810    13 221.5044
[8]  {citrus fruit,
      tropical fruit,
      root vegetables,
      other vegetables,
      whole milk,
      yogurt}             0.001423488    14 218.0297
[9]  {whole milk,
      curd,
      yogurt,
      whipped/sour cream,
      cream cheese }      0.001118454    11 207.1851
[10] {beef,
      tropical fruit,
      root vegetables,
      other vegetables,
      whole milk,
      rolls/buns}         0.001118454    11 204.9606
```

Menambang semua frequent itemset tanpa parameter *minlen* dan *maxlen (*hanya menampilkan *5 association* mining rule*)*

```
# Load the libraries
library("arules")

# Load the dataset
data("Groceries")

# Mining frequent itemset with frequency of occurence at least 1 in 1000, i.e support=.001
itemsets <- apriori(Groceries,
                    parameter = list(support=.001,
                                     target='frequent' # to mine for itemsets
                    ))

# Summary info of itemsets
summary(itemsets)

# Add lift as a measurement
quality(itemsets)$lift <- interestMeasure(itemsets, measure='lift', Groceries)

# Show top 5 result by lift
inspect(sort(itemsets, by ='lift', decreasing = T)[1:5])
```

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Line 2: Menggunakan library arules

Line 4: Menggunakan dataset Groceries

Line 8: Mining itemset paling sering dengan jumlah kejadian paling sedikit 1 dalam 1000 dengan support =.001

Line 14: Membuat kesimpulan informasi itemsets

Line 17: Menambahkan lift sebagai pengukur

Line 20: Menampilkan 5 hasil paling atas diurutkan berdasarkan lift

```
Hasil line 20:
    items                    support count     lift
[1] {tropical fruit,
     root vegetables,
     other vegetables,
     whole milk,
     yogurt,
     oil}                0.001016777    10 459.3068
[2] {tropical fruit,
     other vegetables,
     whole milk,
     butter,
     yogurt,
     domestic eggs}      0.001016777    10 399.6002
[3] {tropical fruit,
     root vegetables,
     other vegetables,
     whole milk,
     butter,
     yogurt}             0.001118454    11 255.8634
[4] {other vegetables,
     curd,
     yogurt,
     whipped/sour cream,
     cream cheese }      0.001016777    10 248.7251
[5] {root vegetables,
     other vegetables,
     whole milk,
     yogurt,
     rice}               0.001321810    13 230.5682
```

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Menambang semua frequent rule tanpa parameter *minlen* dan *maxlen*

```
1  # Load the libraries
2  library("arules")
3
4  # Load the dataset
5  data("Groceries")
6
7  # Mining rules with minimum support=.001, and minimum confidence=.5
8  rules <- apriori(Groceries,
9                   parameter = list(support=.001,
10                                   confidence=.5,
11                                   target='rules' # to mine for rules
12                  ))
13
14 # Summary info of rules
15 summary(rules)
16
17 # Show top 10 results by lift
18 inspect(sort(rules, by='lift', decreasing = T)[1:10])
```

Line 2: Menggunakan library arules

Line 4: Menggunakan dataset Groceries

Line 8-10: *Mining rules* paling dengan minimun support =.001 dan minimum confidence=.5

Line 15: Membuat kesimpulan informasi *rules*

Line 18: Menampilkan 10 hasil paling atas diurutkan berdasarkan *lift* tertinggi

```
Hasil line 18
[1]  {Instant food products,
      soda} => {hamburger meat} 0.001220132  0.6315789 18.99565    12
[2]  {soda,
      popcorn}=> {salty snack}    0.001220132  0.6315789 16.69779    12
[3]  {flour,
      baking powder}=> {sugar}          0.001016777  0.5555556 16.40807    10
[4]  {ham,
      processed cheese}      => {white bread}    0.001931876  0.6333333 15.04
549    19
[5]  {whole milk,
      Instant food products} => {hamburger meat} 0.001525165  0.5000000 15.03
823    15
[6]  {other vegetables,
      curd,
      yogurt,
      whipped/sour cream}    => {cream cheese }  0.001016777  0.5882353 14.83
409    10
[7]  {processed cheese,
      domestic eggs}         => {white bread}    0.001118454  0.5238095 12.44
364    11
[8]  {tropical fruit,
      other vegetables,
      yogurt,
      white bread}           => {butter}         0.001016777  0.6666667 12.03
058    10
[9]  {hamburger meat,
      Yogurt,
```

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```
      whipped/sour cream}    => {butter}         0.001016777  0.6250000 11.27
867    10
[10] {tropical fruit,
      other vegetables,
      whole milk,
      yogurt,
      domestic eggs}         => {butter}         0.001016777  0.6250000 11.27
867    10
```

Menambang semua frequent rule tanpa parameter *minlen* dan *maxlen (*hanya menampilkan *5 assoc iation* mining rule*)*

```
1  # Load the libraries
2  library("arules")
3
4  # Load the dataset
5  data("Groceries")
6
7  # Mining rules with minimum support=.001, and minimum confidence=.5
8  rules <- apriori(Groceries,
9                   parameter = list(support=.001,
10                                   confidence=.5,
11                                   target='rules' # to mine for rules
12                  ))
13
14 # Summary info of rules
15 summary(rules)
16
17 # Show top 5 results by lift
18 inspect(sort(rules, by='lift', decreasing = T)[1:5])
```

Line 2: Menggunakan library arules

Line 4: Menggunakan dataset Groceries

Line 8-10: *Mining rules* paling dengan minimun support =.001 dan minimum confidence=.5

Line 15: Membuat kesimpulan informasi *rules*

Line 18: Menampilkan 5hasil paling atas diurutkan berdasarkan *lift* tertinggi

```
Hasil line 18 :
[1] {Instant food products,soda}       => {hamburger meat} 0.001220132 0.6315
789  18.99565 12
[2] {soda,popcorn}                     => {salty snack}    0.001220132 0.6315
789  16.69779 12
[3] {flour,baking powder}              => {sugar}          0.001016777 0.5555
556  16.40807 10
[4] {ham,processed cheese}             => {white bread}    0.001931876 0.6333
333  15.04549 19
[5] {whole milk,Instant food products} => {hamburger meat} 0.001525165 0.5000
000  15.03823 15
```

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2. Program mining_rules.R tanpa parameter *minlen* dan *maxlen*, untuk menampilkan 5 *association mining rule* dengan nilai pengukuran ***chiSquared*** tertinggi.

```
# Load the libraries
library("arules")

# Load the dataset
data("Groceries")

# Mining rules With minimum support=.001, and minimum confidence=.5
rules <- apriori(Groceries,
                 parameter = list(support=.001,
                                  confidence=.5,
                                  target='rules' # to mine for rules
                 ))

# Summary info of rules
summary(rules)

# Add rules as a measurement
quality(rules)$chiSquared <- interestMeasure(rules, measure='chiSquared', Groceries)

# Show top 5 result by rules
inspect(sort(rules, by ='chiSquared', decreasing = T)[1:5])
```

```
Hasil line 21:
 [1] {ham,
     processed cheese}      => {white bread}      0.001931876  0.6333333 15.0
45491    19   260.8706
[2] {Instant food products,
     soda}                  => {hamburger meat}   0.001220132  0.6315789 18.9
95654    12   212.0251
[3] {tropical fruit,
     root vegetables}       => {other vegetables} 0.012302999  0.5845411  3.0
20999   121   207.2034
[4] {whole milk,
     Instant food products} => {hamburger meat}   0.001525165  0.5000000 15.0
38226    15   203.9535
[5] {liquor,
     red/blush wine}        => {bottled beer}     0.001931876  0.9047619 11.2
35269    19   193.0896
```