Experiment 3

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Branch: CSE (Lateral Entry)
Section/Group: 616/A
Semester: 6th
Date of Performance: 02/03/2023
Subject Name: Data Mining Lab
Subject Code: 20CSP-376

1. **Aim:**
   Demonstration of association rule mining using Apriory algorithm on supermarket data.

2. **Apparatus / Simulation Used:**
   - Windows 7 or above
   - R Studio

3. **Objective:**
   - Represent the reading of file using R Studio.
   - Displaying the pattern on Weka Tool.
   - Demonstration of association rule mining using Apriory algorithm.

4. **Script and Output:**

```
library(arules)
library(arulesViz)
library(RColorBrewer)
data("Groceries")
rules <- apriori(Groceries,
                 parameter=list(supp=0.01, conf=0.2))
inspect(rules[1:10])
arules::itemFrequencyPlot(Groceries, topN=20,
                          col=brewer.pal(8,'Pastel2'),
                          main='Relative Item Frequency Plot',
                          type = "relative",
                          ylab = " Item Frequency Relative")
```

```
[1] 10
>
> sum(Avg.sleep_hours)
[1] 66
>
> mean(Avg.sleep_hours)
[1] 16.5
>
> sd(Avg.sleep_hours)
[1] 4.654747
>
> summary(N)
     Rating        Animal            Country          Avg.sleep_hours
 Min.   :1.00   Length:4           Length:4           Min.   :10.00
 1st Qu.:1.75   Class :character   Class :character   1st Qu.:15.25
 Median :2.50   Mode  :character   Mode  :character   Median :17.50
 Mean   :2.50                                         Mean   :16.50
 3rd Qu.:3.25                                         3rd Qu.:18.75
 Max.   :4.00                                         Max.   :21.00
> library(arules)
Loading required package: Matrix

Attaching package: 'arules'

The following objects are masked from 'package:base':

    abbreviate, write

> library(arulesViz)
> library(RColorBrewer)
>
> data("Groceries")
>
> rules <- apriori(Groceries,
+                  parameter=list(supp=0.01, conf=0.2))
Apriori

Parameter specification:
 confidence minval smax arem  aval originalSupport maxtime support minlen maxlen target  ext
        0.2    0.1    1 none FALSE            TRUE       5    0.01      1     10  rules TRUE
```

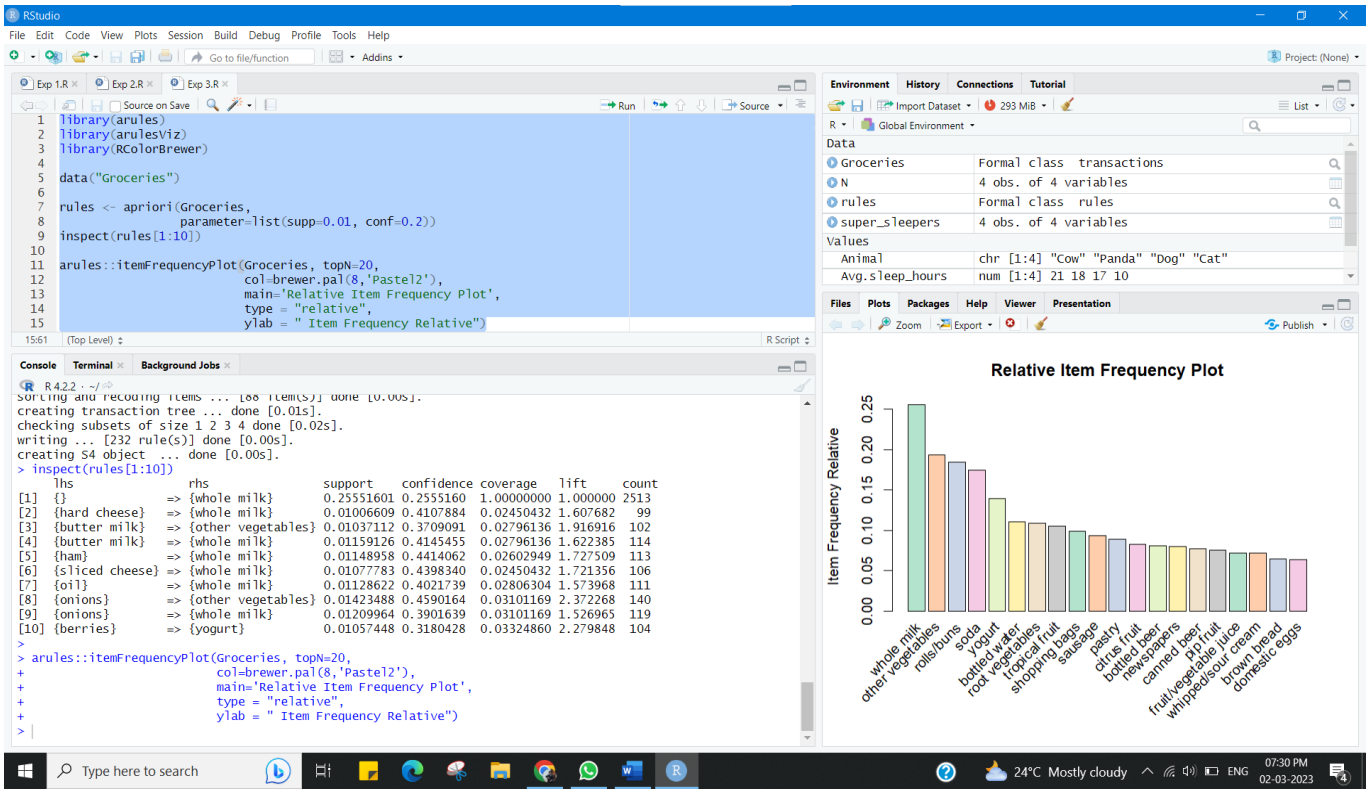
```
> rules <- apriori(Groceries,
+                  parameter=list(supp=0.01, conf=0.2))
Apriori

Parameter specification:
 confidence minval smax arem  aval originalSupport maxtime support minlen maxlen target  ext
        0.2    0.1    1 none FALSE            TRUE       5    0.01      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: 98

set item appearances ...[0 item(s)] done [0.01s].
set transactions ...[169 item(s), 9835 transaction(s)] done [0.01s].
sorting and recoding items ... [88 item(s)] done [0.00s].
creating transaction tree ... done [0.01s].
checking subsets of size 1 2 3 4 done [0.02s].
writing ... [232 rule(s)] done [0.00s].
creating S4 object  ... done [0.00s].
> inspect(rules[1:10])
     lhs                rhs                support    confidence coverage   lift     count
[1]  {}              => {whole milk}       0.25551601 0.2555160  1.00000000 1.000000 2513
[2]  {hard cheese}   => {whole milk}       0.01006609 0.4107884  0.02450432 1.607682   99
[3]  {butter milk}   => {other vegetables} 0.01037112 0.3709091  0.02796136 1.916916  102
[4]  {butter milk}   => {whole milk}       0.01159126 0.4145455  0.02796136 1.622385  114
[5]  {ham}           => {whole milk}       0.01148958 0.4414062  0.02602949 1.727509  113
[6]  {sliced cheese} => {whole milk}       0.01077783 0.4398340  0.02450432 1.721356  106
[7]  {oil}           => {whole milk}       0.01128622 0.4021739  0.02806304 1.573968  111
[8]  {onions}        => {other vegetables} 0.01423488 0.4590164  0.03101169 2.372268  140
[9]  {onions}        => {whole milk}       0.01209964 0.3901639  0.03101169 1.526965  119
[10] {berries}       => {yogurt}           0.01057448 0.3180428  0.03324860 2.279848  104
>
> arules::itemFrequencyPlot(Groceries, topN=20,
+                           col=brewer.pal(8,'Pastel2'),
+                           main='Relative Item Frequency Plot',
+                           type = "relative",
+                           ylab = " Item Frequency Relative")
```



Learning outcomes (What I have learnt):

- Represent the reading of file using R Studio.
- Displaying the pattern on Weka Tool.
- Demonstration of association rule mining using Apriory algorithm.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			