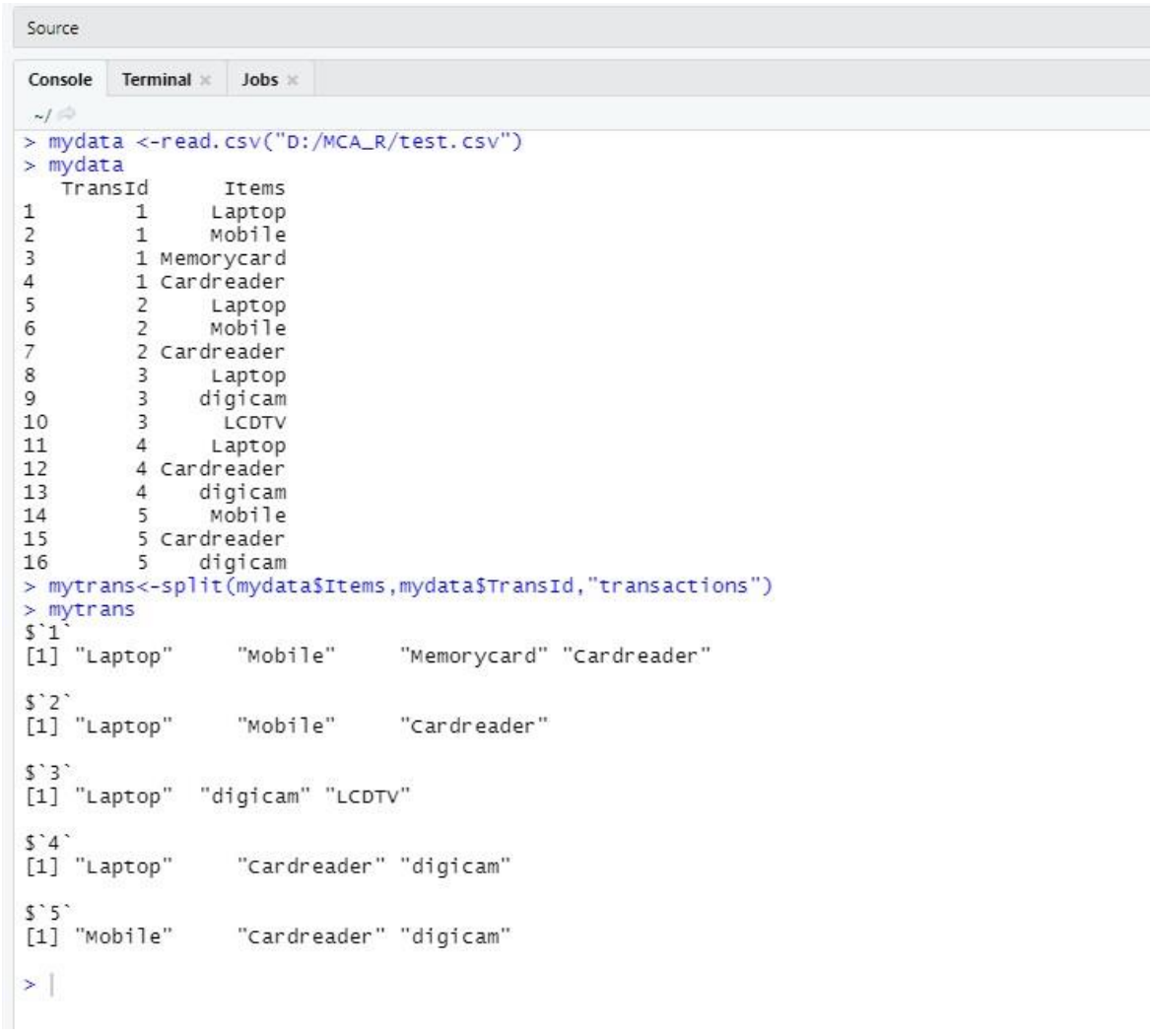
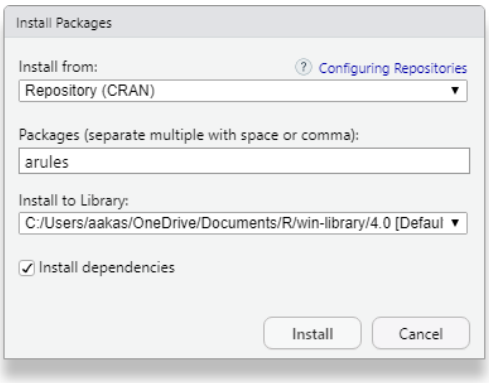
Lab 6: **Association Apriori**

1. Find association rule using apriory algorithm with 50% support and 75% confidence for the following data.

TransId	Items
1	Laptop, Mobile, Memory card, Card reader
2	Laptop, Mobile, Card reader
3	Laptop, digi cam, LCD TV
4	Laptop, Card reader, digi cam
5	Mobile, Card reader, digi cam






```
> install.packages("arules")
WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/
Installing package into 'C:/Users/aakas/OneDrive/Documents/R/win-library/4.0'
(as 'lib' is unspecified)
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.0/arules_1.7-3.zip'
Content type 'application/zip' length 2667911 bytes (2.5 MB)
downloaded 2.5 MB

package 'arules' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
        C:\Users\aakas\AppData\Local\Temp\RtmpIJt25g\downloaded_packages
> library("arule")
Error in library("arule") : there is no package called 'arule'
> library("arules")
Loading required package: Matrix

Attaching package: 'arules'

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

    abbreviate, write

Warning message:
package 'arules' was built under R version 4.0.5
>
```

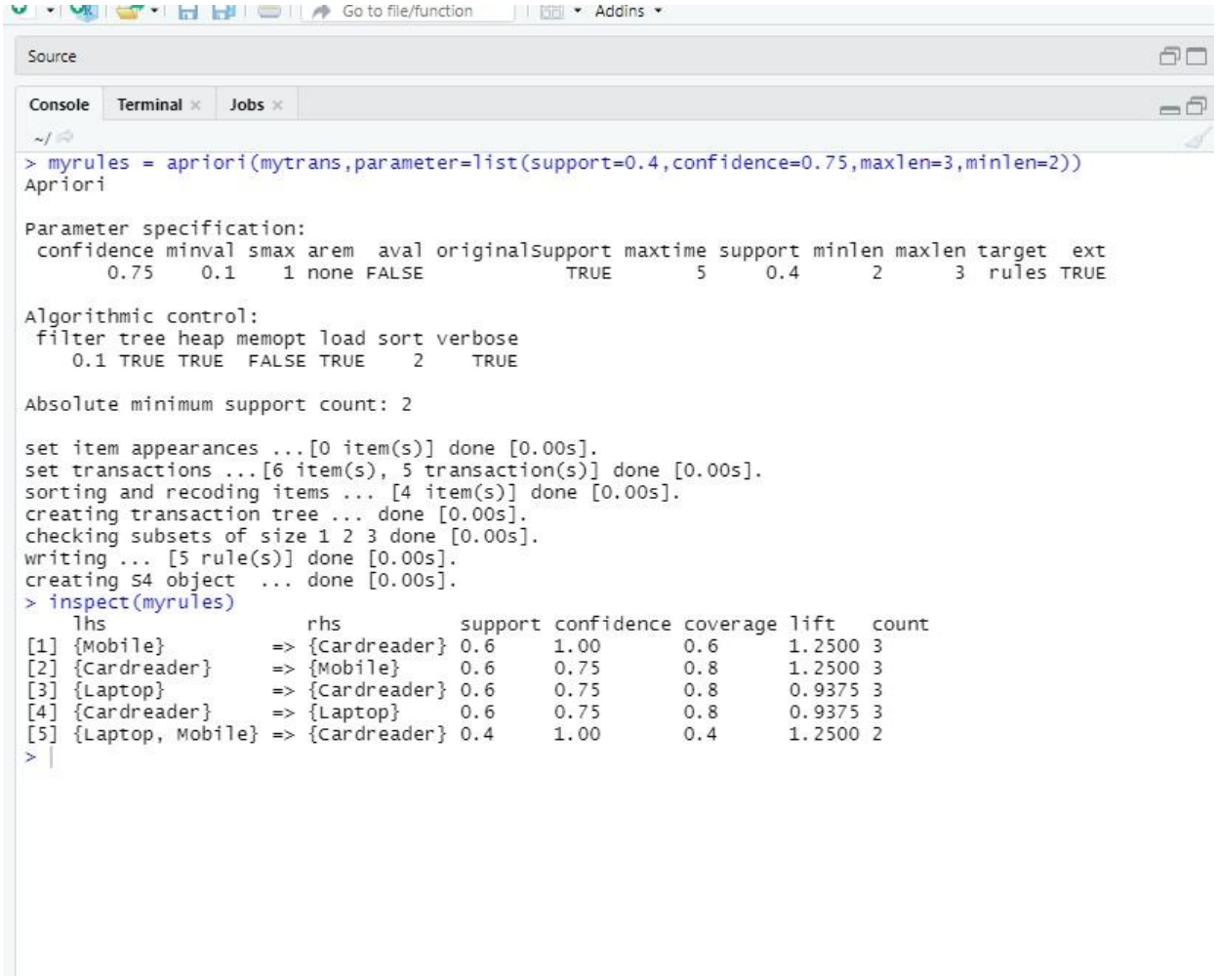
Source

Console | Terminal | Jobs

~/

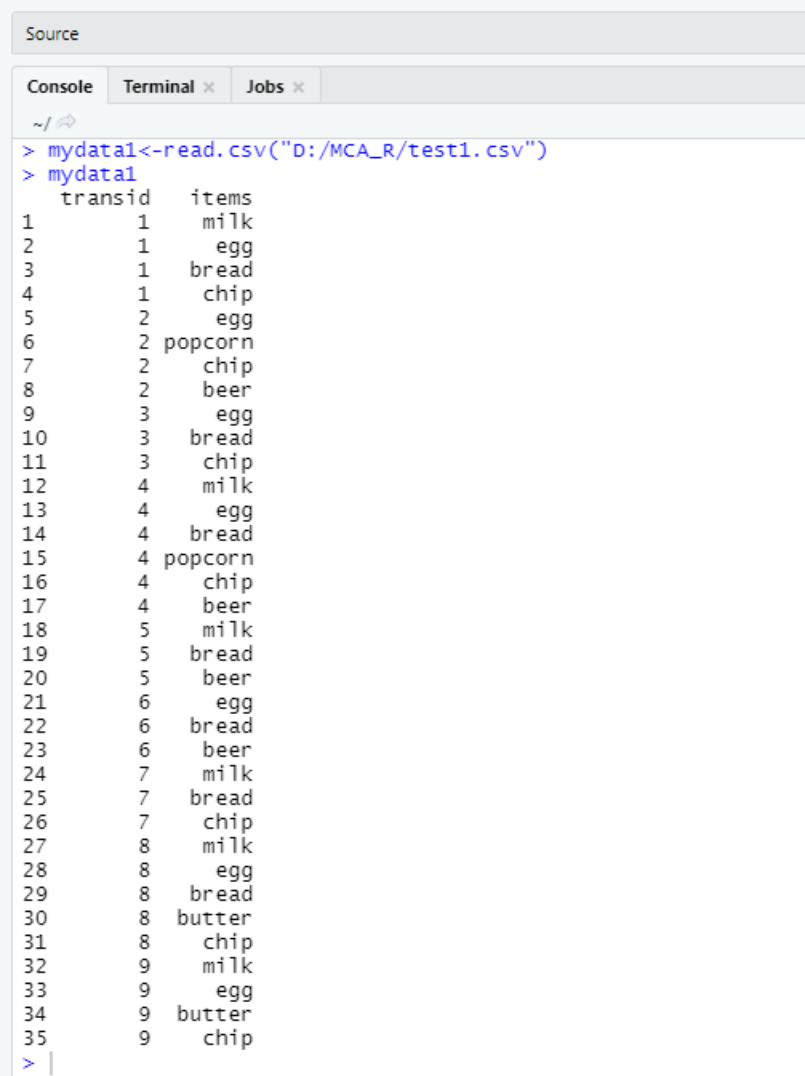
```
> myrules = apriori(mytrans,parameter=list(support=0.5,confidence=0.75,maxlen=3,minlen=2))
Apriori

Parameter specification:
 confidence minval smax arem  aval originalSupport maxtime support minlen maxlen target  ext
       0.75    0.1    1 none FALSE            TRUE       5     0.5      2      3  rules TRUE

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

Absolute minimum support count: 2

set item appearances ...[0 item(s)] done [0.00s].
set transactions ...[6 item(s), 5 transaction(s)] done [0.00s].
sorting and recoding items ... [4 item(s)] done [0.00s].
creating transaction tree ... done [0.00s].
checking subsets of size 1 2 done [0.00s].
writing ... [4 rule(s)] done [0.00s].
creating S4 object  ... done [0.00s].
> inspect(myrules)
    lhs             rhs          support confidence coverage lift   count
[1] {Mobile}     => {Cardreader} 0.6     1.00       0.6      1.2500 3
[2] {Cardreader} => {Mobile}     0.6     0.75       0.8      1.2500 3
[3] {Laptop}     => {Cardreader} 0.6     0.75       0.8      0.9375 3
[4] {Cardreader} => {Laptop}     0.6     0.75       0.8      0.9375 3
>
```

2.For the above dataset find association rule using apriory algorithm with support =40% and confidence=75%.



3.Find association rule with 30% support and 80% confidence for the following data:

TransId	Items
1	milk, egg, bread, chip
2	egg, popcorn, chip, beer
3	egg, bread, chip
4	milk, egg, bread, popcorn, chip, beer
5	milk, bread, beer
6	egg, bread, beer
7	milk, bread, chip
8	milk, egg, bread, butter, chip
9	milk, egg, butter, chip



```
> mytrans1<-split(mydata1$items,mydata1$transid,"transactions")
> mytrans1
$`1`
[1] "milk"  "egg"   "bread" "chip"

$`2`
[1] "egg"     "popcorn" "chip"    "beer"

$`3`
[1] "egg"   "bread" "chip"

$`4`
[1] "milk"    "egg"     "bread"   "popcorn" "chip"    "beer"

$`5`
[1] "milk"  "bread" "beer"

$`6`
[1] "egg"   "bread" "beer"

$`7`
[1] "milk"  "bread" "chip"

$`8`
[1] "milk"   "egg"    "bread"  "butter" "chip"

$`9`
[1] "milk"   "egg"    "butter" "chip"

> myrules = apriori(mytrans1,parameter=list(support=0.3,confidence=0.60,maxlen=4,minlen=2))
Apriori

Parameter specification:
 confidence minval smax arem  aval originalSupport maxtime support minlen maxlen target  ext
        0.6    0.1    1 none FALSE            TRUE       5     0.3      2      4  rules TRUE

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

Absolute minimum support count: 2

set item appearances ...[0 item(s)] done [0.00s].
set transactions ...[7 item(s), 9 transaction(s)] done [0.00s].
sorting and recoding items ... [5 item(s)] done [0.00s].
creating transaction tree ... done [0.00s].
checking subsets of size 1 2 3 4 done [0.00s].
writing ... [29 rule(s)] done [0.00s].
creating S4 object  ... done [0.00s].
```

```
> inspect(myrules)
     lhs                    rhs     support   confidence coverage  lift     count
[1]  {milk}              => {bread} 0.5555556 0.8333333  0.6666667 1.071429 5
[2]  {milk}              => {chip}  0.5555556 0.8333333  0.6666667 1.071429 5
[3]  {chip}              => {egg}   0.6666667 0.8571429  0.7777778 1.102041 6
[4]  {egg}               => {chip}  0.6666667 0.8571429  0.7777778 1.102041 6
[5]  {bread, milk}       => {chip}  0.4444444 0.8000000  0.5555556 1.028571 4
[6]  {chip, milk}        => {bread} 0.4444444 0.8000000  0.5555556 1.028571 4
[7]  {bread, chip}       => {milk}  0.4444444 0.8000000  0.5555556 1.200000 4
[8]  {chip, milk}        => {egg}   0.4444444 0.8000000  0.5555556 1.028571 4
[9]  {egg, milk}         => {chip}  0.4444444 1.0000000  0.4444444 1.285714 4
[10] {bread, chip}       => {egg}   0.4444444 0.8000000  0.5555556 1.028571 4
[11] {bread, egg}        => {chip}  0.4444444 0.8000000  0.5555556 1.028571 4
[12] {bread, egg, milk} => {chip}  0.3333333 1.0000000  0.3333333 1.285714 3
>
```

4.For the above dataset find association rule with support =30% and confidence=60%.