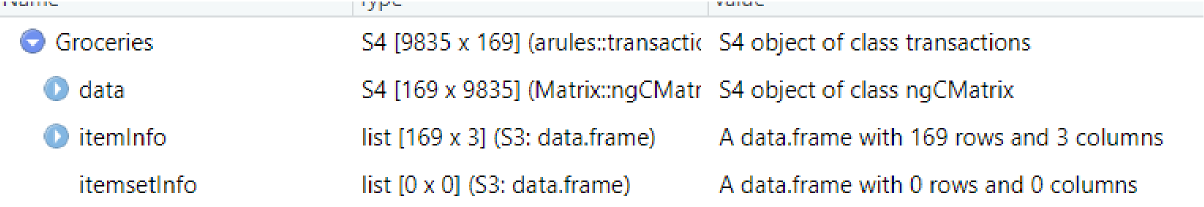
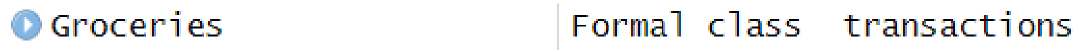
```
library(arules)
library(arulesViz)
library(RColorBrewer)

data("Groceries")
> View(Groceries)
```

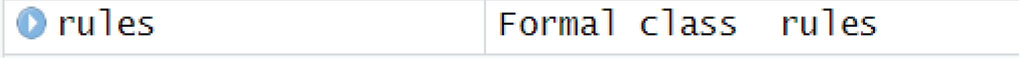


Groceries	S4 [9835 x 169] (arules::transactic	S4 object of class transactions
data	S4 [169 x 9835] (Matrix::ngCMatr	S4 object of class ngCMatrix
itemInfo	list [169 x 3] (S3: data.frame)	A data.frame with 169 rows and 3 columns
itemsetInfo	list [0 x 0] (S3: data.frame)	A data.frame with 0 rows and 0 columns

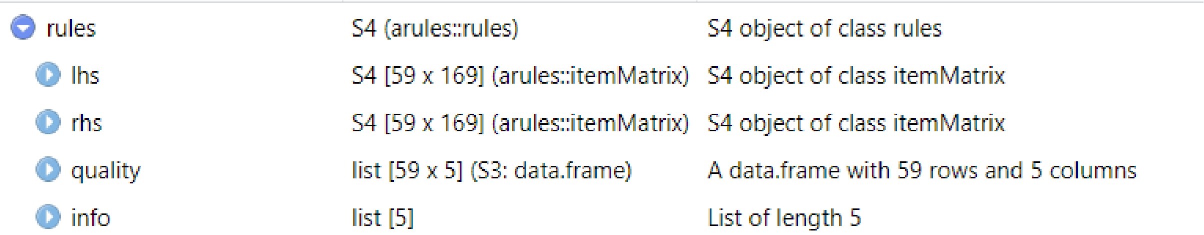


```
Groceries                Formal class  transactions
```

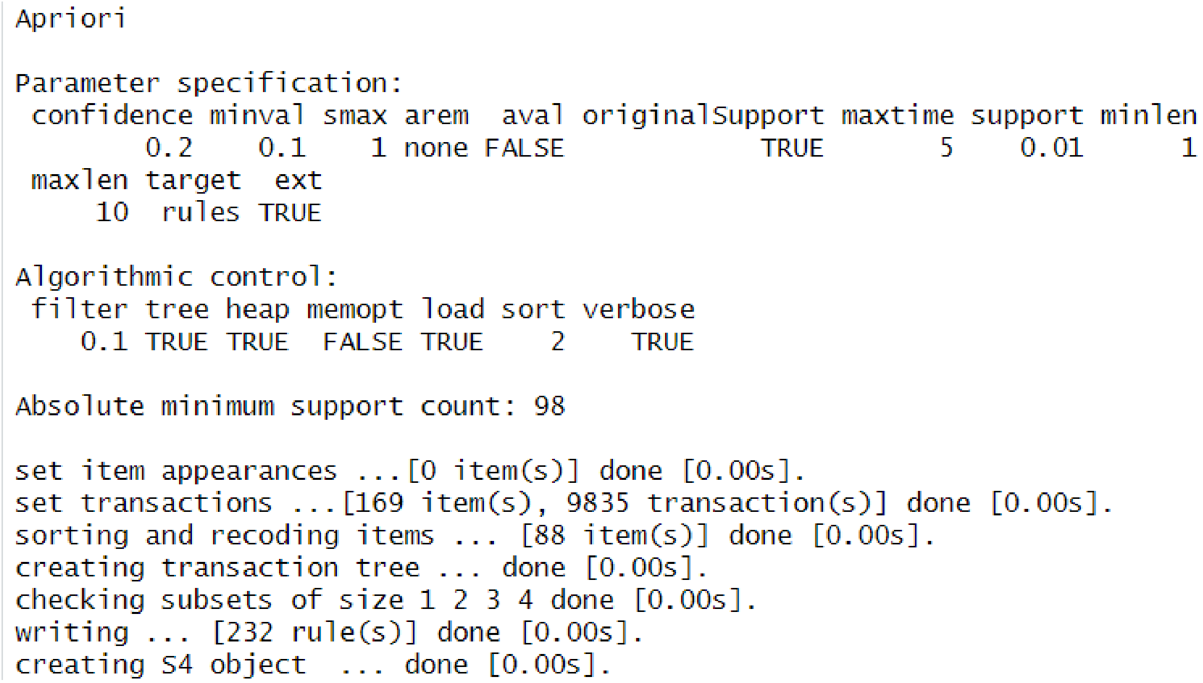
```
rules<-apriori(Groceries,parameter = list(supp=0.01,conf=0.2))
```



```
rules                Formal class  rules
```

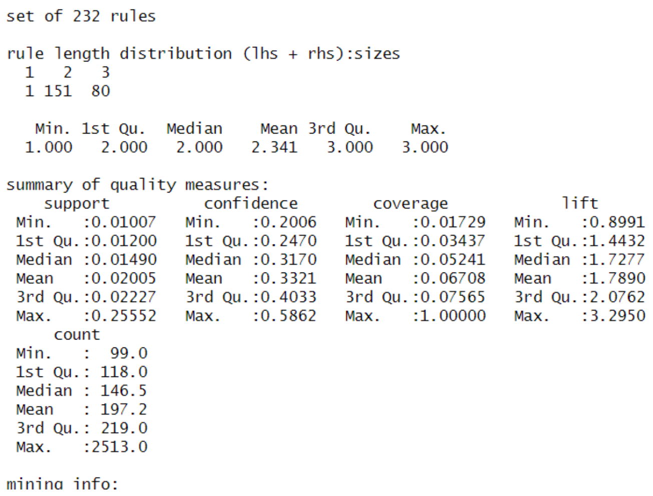


rules	S4 (arules::rules)	S4 object of class rules
lhs	S4 [59 x 169] (arules::itemMatrix)	S4 object of class itemMatrix
rhs	S4 [59 x 169] (arules::itemMatrix)	S4 object of class itemMatrix
quality	list [59 x 5] (S3: data.frame)	A data.frame with 59 rows and 5 columns
info	list [5]	List of length 5



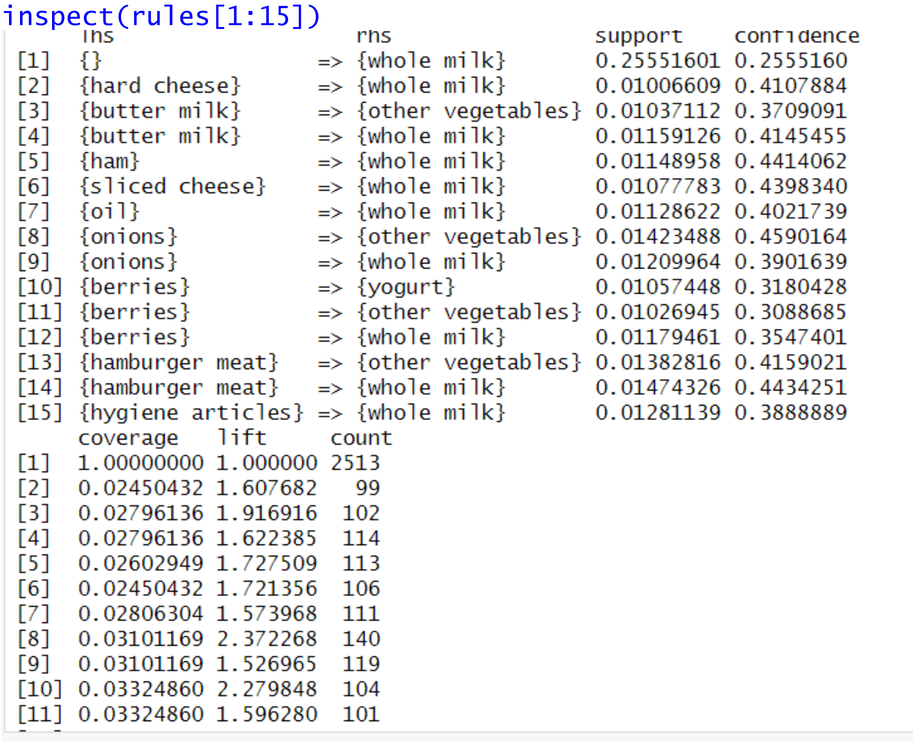
```
Apriori

Parameter specification:
 confidence minval smax arem  aval originalSupport maxtime support minlen
        0.2    0.1    1 none FALSE            TRUE       5    0.01      1
 maxlen target  ext
     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 [0.00s].
set transactions ...[169 item(s), 9835 transaction(s)] done [0.00s].
sorting and recoding items ... [88 item(s)] done [0.00s].
creating transaction tree ... done [0.00s].
checking subsets of size 1 2 3 4 done [0.00s].
writing ... [232 rule(s)] done [0.00s].
creating S4 object  ... done [0.00s].
```

```
summary(rules)
```



```
set of 232 rules

rule length distribution (lhs + rhs):sizes
  1   2   3 
  1 151  80 

   Min. 1st Qu.  Median    Mean 3rd Qu.    Max. 
  1.000   2.000   2.000   2.341   3.000   3.000 

summary of quality measures:
    support          confidence        coverage             lift       
 Min.   :0.01007   Min.   :0.2006   Min.   :0.01729   Min.   :0.8991  
 1st Qu.:0.01200   1st Qu.:0.2470   1st Qu.:0.03437   1st Qu.:1.4432  
 Median :0.01490   Median :0.3170   Median :0.05241   Median :1.7277  
 Mean   :0.02005   Mean   :0.3321   Mean   :0.06708   Mean   :1.7890  
 3rd Qu.:0.02227   3rd Qu.:0.4033   3rd Qu.:0.07565   3rd Qu.:2.0762  
 Max.   :0.25552   Max.   :0.5862   Max.   :1.00000   Max.   :3.2950  
     count       
 Min.   :  99.0  
 1st Qu.: 118.0  
 Median : 146.5  
 Mean   : 197.2  
 3rd Qu.: 219.0  
 Max.   :2513.0  

mining info:
```

```
inspect(rules[1:15])
```

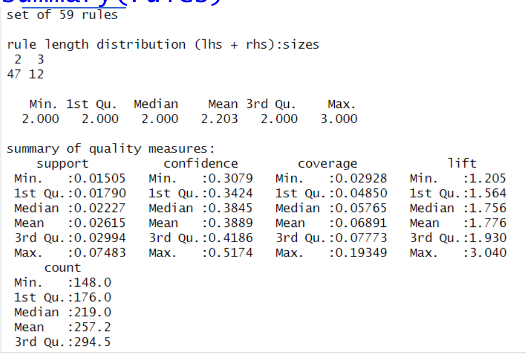


```
     lhs                    rhs                support    confidence
[1]  {}                  => {whole milk}       0.25551601 0.2555160 
[2]  {hard cheese}       => {whole milk}       0.01006609 0.4107884 
[3]  {butter milk}       => {other vegetables} 0.01037112 0.3709091 
[4]  {butter milk}       => {whole milk}       0.01159126 0.4145455 
[5]  {ham}               => {whole milk}       0.01148958 0.4414062 
[6]  {sliced cheese}     => {whole milk}       0.01077783 0.4398340 
[7]  {oil}               => {whole milk}       0.01128622 0.4021739 
[8]  {onions}            => {other vegetables} 0.01423488 0.4590164 
[9]  {onions}            => {whole milk}       0.01209964 0.3901639 
[10] {berries}           => {yogurt}           0.01057448 0.3180428 
[11] {berries}           => {other vegetables} 0.01026945 0.3088685 
[12] {berries}           => {whole milk}       0.01179461 0.3547401 
[13] {hamburger meat}    => {other vegetables} 0.01382816 0.4159021 
[14] {hamburger meat}    => {whole milk}       0.01474326 0.4434251 
[15] {hygiene articles}  => {whole milk}       0.01281139 0.3888889 
     coverage   lift     count
[1]  1.00000000 1.000000 2513 
[2]  0.02450432 1.607682   99 
[3]  0.02796136 1.916916  102 
[4]  0.02796136 1.622385  114 
[5]  0.02602949 1.727509  113 
[6]  0.02450432 1.721356  106 
[7]  0.02806304 1.573968  111 
[8]  0.03101169 2.372268  140 
[9]  0.03101169 1.526965  119 
[10] 0.03324860 2.279848  104 
[11] 0.03324860 1.596280  101 
```

```
rules<-apriori(Groceries,parameter = list(supp=0.015,conf=0.3))
```

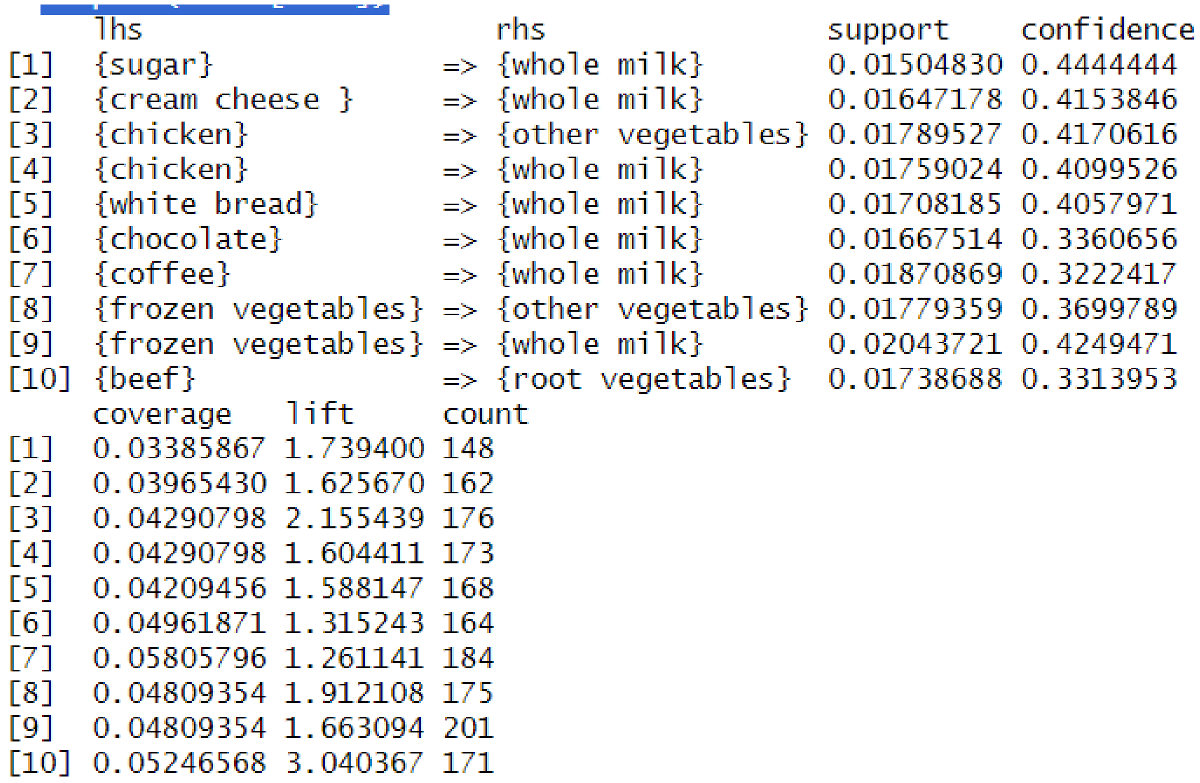
```
Apriori

Parameter specification:
 confidence minval smax arem  aval originalSupport maxtime support minlen
        0.3    0.1    1 none FALSE            TRUE       5   0.015      1
 maxlen target  ext
     10  rules TRUE

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

Absolute minimum support count: 147

set item appearances ...[0 item(s)] done [0.00s].
set transactions ...[169 item(s), 9835 transaction(s)] done [0.00s].
sorting and recoding items ... [73 item(s)] done [0.00s].
creating transaction tree ... done [0.00s].
checking subsets of size 1 2 3 done [0.00s].
writing ... [59 rule(s)] done [0.00s].
creating S4 object  ... done [0.00s].
```

```
summary(rules)
```



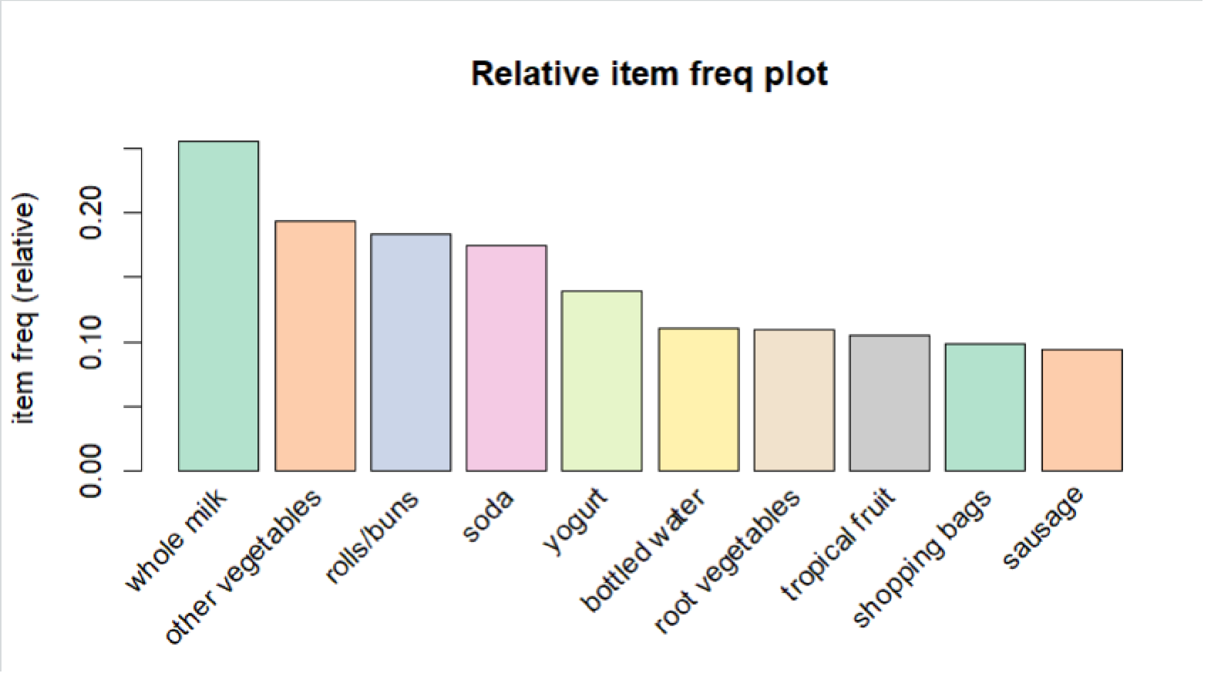
```
set of 59 rules

rule length distribution (lhs + rhs):sizes
 2  3 
47 12 

   Min. 1st Qu.  Median    Mean 3rd Qu.    Max. 
  2.000   2.000   2.000   2.203   2.000   3.000 

summary of quality measures:
    support           confidence        coverage            lift      
 Min.   :0.01505   Min.   :0.3079   Min.   :0.02928   Min.   :1.205  
 1st Qu.:0.01790   1st Qu.:0.3424   1st Qu.:0.04850   1st Qu.:1.564  
 Median :0.02227   Median :0.3845   Median :0.05765   Median :1.756  
 Mean   :0.02615   Mean   :0.3889   Mean   :0.06891   Mean   :1.776  
 3rd Qu.:0.02994   3rd Qu.:0.4186   3rd Qu.:0.07773   3rd Qu.:1.930  
 Max.   :0.07483   Max.   :0.5174   Max.   :0.19349   Max.   :3.040  
     count      
 Min.   :148.0  
 1st Qu.:176.0  
 Median :219.0  
 Mean   :257.2  
 3rd Qu.:294.5  
```

```
inspect(rules[1:10])
```

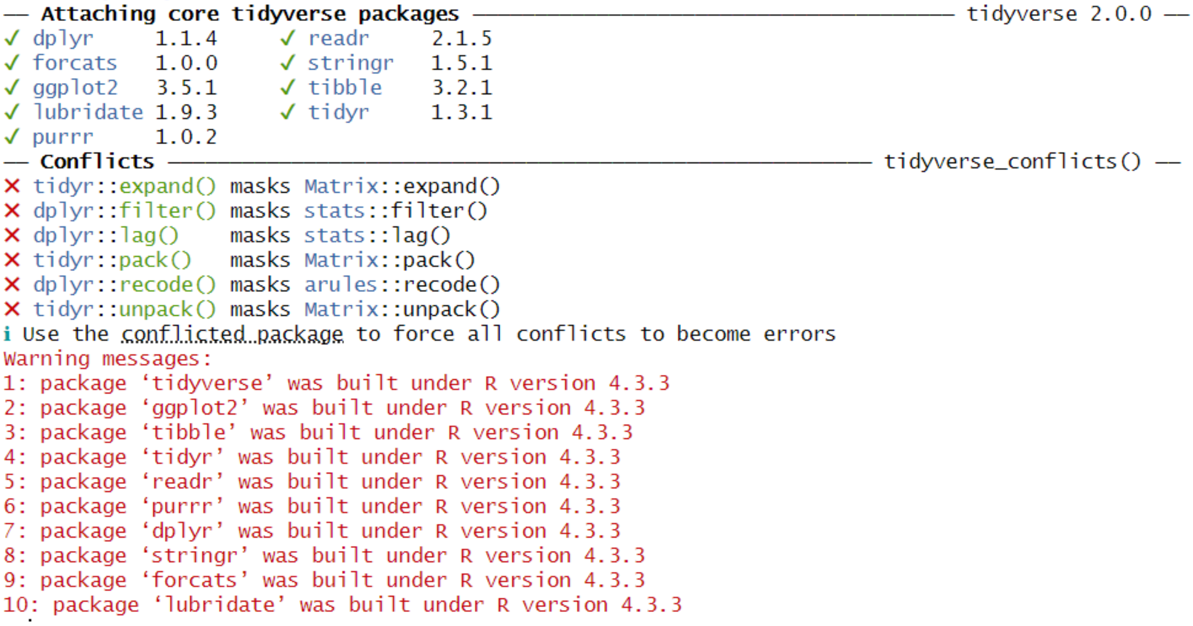


```
     lhs                     rhs                  support    confidence
[1]  {sugar}              => {whole milk}         0.01504830 0.4444444
[2]  {cream cheese }      => {whole milk}         0.01647178 0.4153846
[3]  {chicken}            => {other vegetables} 0.01789527 0.4170616
[4]  {chicken}            => {whole milk}         0.01759024 0.4099526
[5]  {white bread}        => {whole milk}         0.01708185 0.4057971
[6]  {chocolate}          => {whole milk}         0.01667514 0.3360656
[7]  {coffee}             => {whole milk}         0.01870869 0.3222417
[8]  {frozen vegetables} => {other vegetables} 0.01779359 0.3699789
[9]  {frozen vegetables} => {whole milk}         0.02043721 0.4249471
[10] {beef}               => {root vegetables}  0.01738688 0.3313953
     coverage   lift     count
[1]  0.03385867 1.739400 148
[2]  0.03965430 1.625670 162
[3]  0.04290798 2.155439 176
[4]  0.04290798 1.604411 173
[5]  0.04209456 1.588147 168
[6]  0.04961871 1.315243 164
[7]  0.05805796 1.261141 184
[8]  0.04809354 1.912108 175
[9]  0.04809354 1.663094 201
[10] 0.05246568 3.040367 171
```

```
arules::itemFrequencyPlot(Groceries,topN=10,col=brewer.pal(8,'Pastel2'),ma
in='Relative item freq plot',type="relative",ylab="item freq (relative)")
```

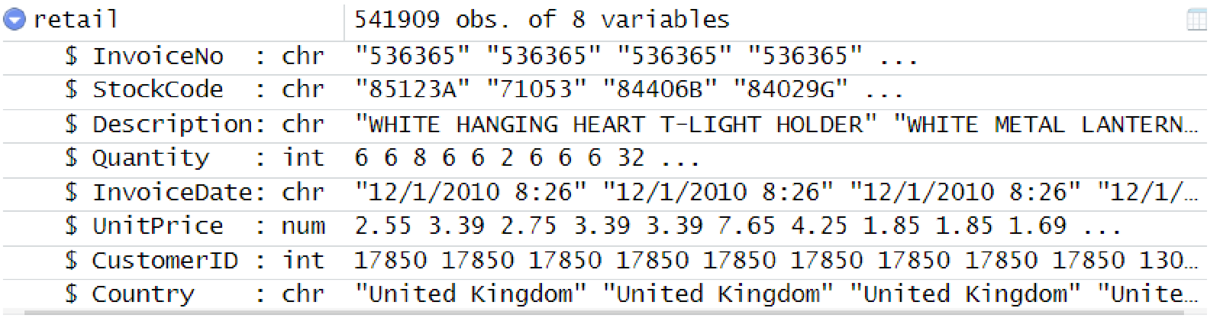


```
library(tidyverse)
```

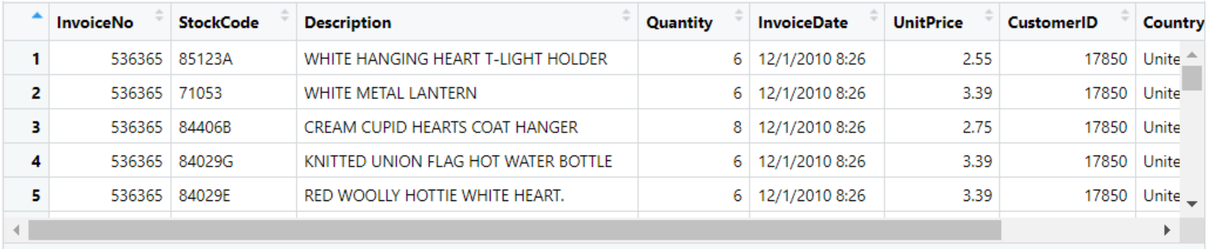


```
── Attaching core tidyverse packages ──────────────────────────── tidyverse 2.0.0 ──
✓ dplyr     1.1.4     ✓ readr     2.1.5
✓ forcats   1.0.0     ✓ stringr   1.5.1
✓ ggplot2   3.5.1     ✓ tibble    3.2.1
✓ lubridate 1.9.3     ✓ tidyr     1.3.1
✓ purrr     1.0.2
── Conflicts ──────────────────────────────────────────────── tidyverse_conflicts() ──
✕ tidyr::expand() masks Matrix::expand()
✕ dplyr::filter() masks stats::filter()
✕ dplyr::lag()    masks stats::lag()
✕ tidyr::pack()   masks Matrix::pack()
✕ dplyr::recode() masks arules::recode()
✕ tidyr::unpack() masks Matrix::unpack()
i Use the conflicted package to force all conflicts to become errors
Warning messages:
1: package ‘tidyverse’ was built under R version 4.3.3
2: package ‘ggplot2’ was built under R version 4.3.3
3: package ‘tibble’ was built under R version 4.3.3
4: package ‘tidyr’ was built under R version 4.3.3
5: package ‘readr’ was built under R version 4.3.3
6: package ‘purrr’ was built under R version 4.3.3
7: package ‘dplyr’ was built under R version 4.3.3
8: package ‘stringr’ was built under R version 4.3.3
9: package ‘forcats’ was built under R version 4.3.3
10: package ‘lubridate’ was built under R version 4.3.3
```

```
library(readxl)
library(kintr)
library(ggplot2)
library(lubridate)
library(plyr)
library(dplyr)

retail <-read.csv('online-retail-dataset.csv')
(or)
retail <-read.csv(file='online-retail-dataset.csv')
View(retail)
```

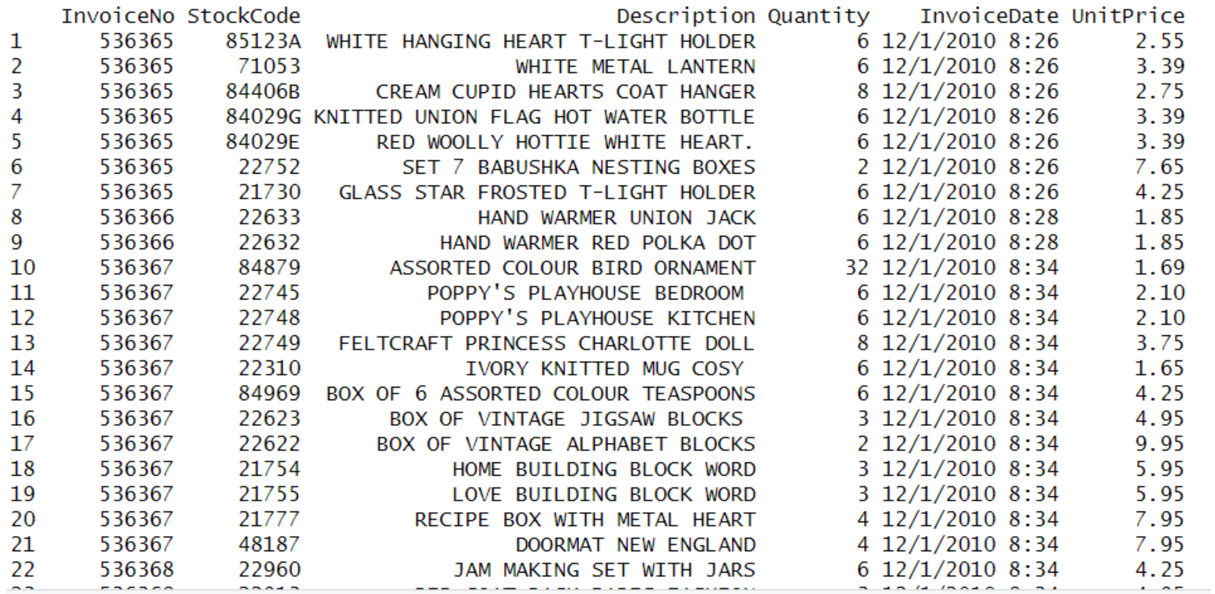


```
retail                   541909 obs. of 8 variables
   $ InvoiceNo  : chr  "536365" "536365" "536365" "536365" ...
   $ StockCode  : chr  "85123A" "71053" "84406B" "84029G" ...
   $ Description: chr  "WHITE HANGING HEART T-LIGHT HOLDER" "WHITE METAL LANTERN...
   $ Quantity   : int  6 6 8 6 6 2 6 6 6 32 ...
   $ InvoiceDate: chr  "12/1/2010 8:26" "12/1/2010 8:26" "12/1/2010 8:26" "12/1/...
   $ UnitPrice  : num  2.55 3.39 2.75 3.39 3.39 7.65 4.25 1.85 1.85 1.69 ...
   $ CustomerID : int  17850 17850 17850 17850 17850 17850 17850 17850 17850 130...
   $ Country    : chr  "United Kingdom" "United Kingdom" "United Kingdom" "Unite...
```

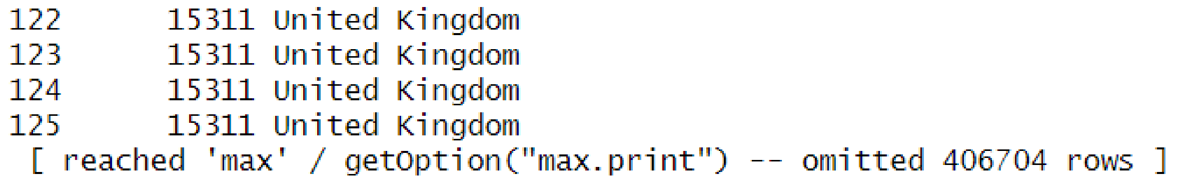


	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Country
1	536365	85123A	WHITE HANGING HEART T-LIGHT HOLDER	6	12/1/2010 8:26	2.55	17850	Unite
2	536365	71053	WHITE METAL LANTERN	6	12/1/2010 8:26	3.39	17850	Unite
3	536365	84406B	CREAM CUPID HEARTS COAT HANGER	8	12/1/2010 8:26	2.75	17850	Unite
4	536365	84029G	KNITTED UNION FLAG HOT WATER BOTTLE	6	12/1/2010 8:26	3.39	17850	Unite
5	536365	84029E	RED WOOLLY HOTTIE WHITE HEART.	6	12/1/2010 8:26	3.39	17850	Unite

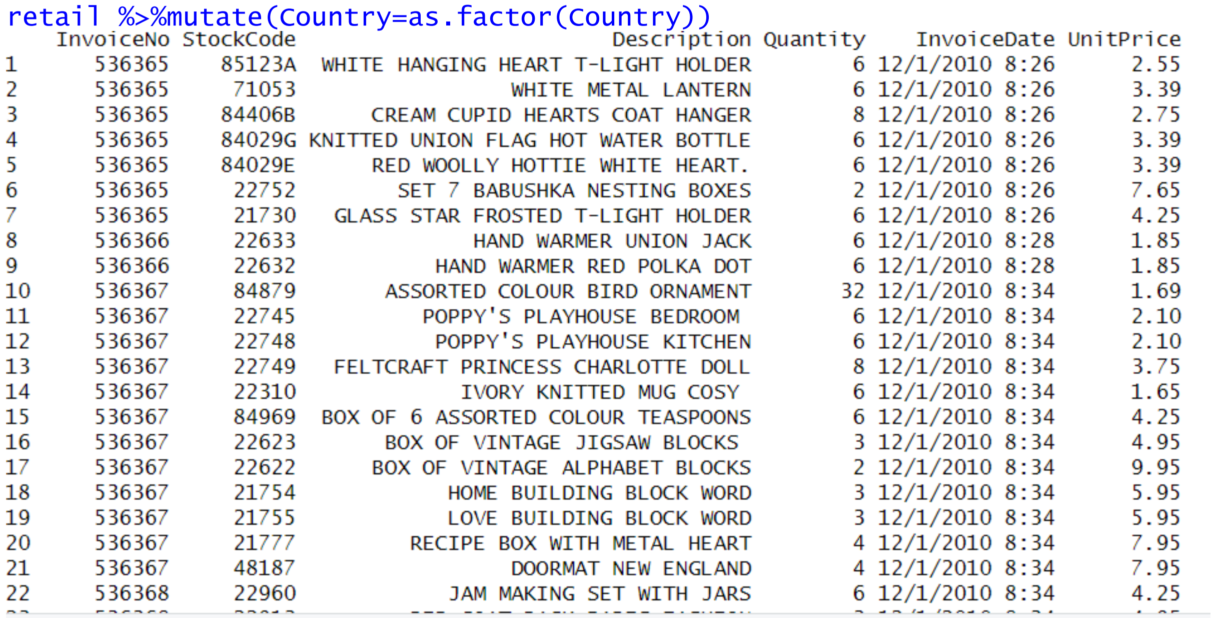
```
retail <-retail[complete.cases(retail),]
retail %>%mutate(Description=as.factor(Description))
```



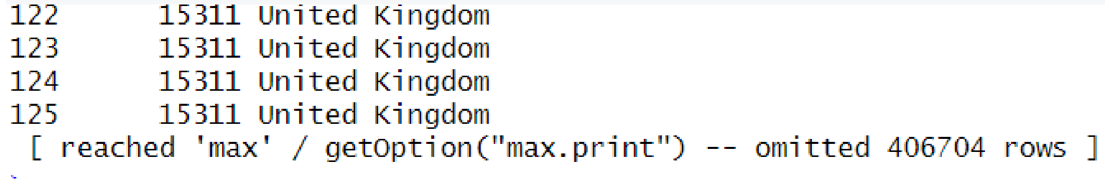
```
   InvoiceNo StockCode                         Description Quantity     InvoiceDate UnitPrice
1     536365    85123A  WHITE HANGING HEART T-LIGHT HOLDER        6 12/1/2010 8:26      2.55
2     536365     71053                 WHITE METAL LANTERN        6 12/1/2010 8:26      3.39
3     536365    84406B      CREAM CUPID HEARTS COAT HANGER        8 12/1/2010 8:26      2.75
4     536365    84029G KNITTED UNION FLAG HOT WATER BOTTLE        6 12/1/2010 8:26      3.39
5     536365    84029E      RED WOOLLY HOTTIE WHITE HEART.        6 12/1/2010 8:26      3.39
6     536365     22752        SET 7 BABUSHKA NESTING BOXES        2 12/1/2010 8:26      7.65
7     536365     21730   GLASS STAR FROSTED T-LIGHT HOLDER        6 12/1/2010 8:26      4.25
8     536366     22633              HAND WARMER UNION JACK        6 12/1/2010 8:28      1.85
9     536366     22632           HAND WARMER RED POLKA DOT        6 12/1/2010 8:28      1.85
10    536367     84879       ASSORTED COLOUR BIRD ORNAMENT       32 12/1/2010 8:34      1.69
11    536367     22745          POPPY'S PLAYHOUSE BEDROOM         6 12/1/2010 8:34      2.10
12    536367     22748           POPPY'S PLAYHOUSE KITCHEN        6 12/1/2010 8:34      2.10
13    536367     22749   FELTCRAFT PRINCESS CHARLOTTE DOLL        8 12/1/2010 8:34      3.75
14    536367     22310             IVORY KNITTED MUG COSY         6 12/1/2010 8:34      1.65
15    536367     84969  BOX OF 6 ASSORTED COLOUR TEASPOONS        6 12/1/2010 8:34      4.25
16    536367     22623       BOX OF VINTAGE JIGSAW BLOCKS         3 12/1/2010 8:34      4.95
17    536367     22622       BOX OF VINTAGE ALPHABET BLOCKS       2 12/1/2010 8:34      9.95
18    536367     21754            HOME BUILDING BLOCK WORD        3 12/1/2010 8:34      5.95
19    536367     21755            LOVE BUILDING BLOCK WORD        3 12/1/2010 8:34      5.95
20    536367     21777          RECIPE BOX WITH METAL HEART       4 12/1/2010 8:34      7.95
21    536367     48187                 DOORMAT NEW ENGLAND        4 12/1/2010 8:34      7.95
22    536368     22960            JAM MAKING SET WITH JARS        6 12/1/2010 8:34      4.25
```



```
122        15311 United Kingdom
123        15311 United Kingdom
124        15311 United Kingdom
125        15311 United Kingdom
 [ reached 'max' / getOption("max.print") -- omitted 406704 rows ]
```

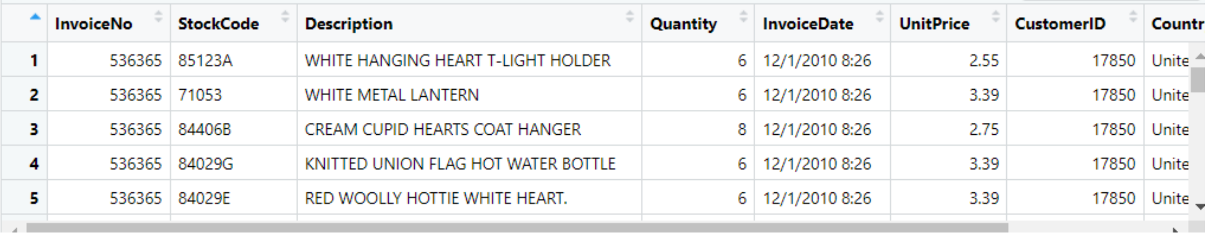


```
retail %>%mutate(Country=as.factor(Country))
   InvoiceNo StockCode                         Description Quantity     InvoiceDate UnitPrice
1     536365    85123A  WHITE HANGING HEART T-LIGHT HOLDER        6 12/1/2010 8:26      2.55
2     536365     71053                 WHITE METAL LANTERN        6 12/1/2010 8:26      3.39
3     536365    84406B      CREAM CUPID HEARTS COAT HANGER        8 12/1/2010 8:26      2.75
4     536365    84029G KNITTED UNION FLAG HOT WATER BOTTLE        6 12/1/2010 8:26      3.39
5     536365    84029E      RED WOOLLY HOTTIE WHITE HEART.        6 12/1/2010 8:26      3.39
6     536365     22752        SET 7 BABUSHKA NESTING BOXES        2 12/1/2010 8:26      7.65
7     536365     21730   GLASS STAR FROSTED T-LIGHT HOLDER        6 12/1/2010 8:26      4.25
8     536366     22633              HAND WARMER UNION JACK        6 12/1/2010 8:28      1.85
9     536366     22632           HAND WARMER RED POLKA DOT        6 12/1/2010 8:28      1.85
10    536367     84879       ASSORTED COLOUR BIRD ORNAMENT       32 12/1/2010 8:34      1.69
11    536367     22745          POPPY'S PLAYHOUSE BEDROOM         6 12/1/2010 8:34      2.10
12    536367     22748           POPPY'S PLAYHOUSE KITCHEN        6 12/1/2010 8:34      2.10
13    536367     22749   FELTCRAFT PRINCESS CHARLOTTE DOLL        8 12/1/2010 8:34      3.75
14    536367     22310             IVORY KNITTED MUG COSY         6 12/1/2010 8:34      1.65
15    536367     84969  BOX OF 6 ASSORTED COLOUR TEASPOONS        6 12/1/2010 8:34      4.25
16    536367     22623       BOX OF VINTAGE JIGSAW BLOCKS         3 12/1/2010 8:34      4.95
17    536367     22622       BOX OF VINTAGE ALPHABET BLOCKS       2 12/1/2010 8:34      9.95
18    536367     21754            HOME BUILDING BLOCK WORD        3 12/1/2010 8:34      5.95
19    536367     21755            LOVE BUILDING BLOCK WORD        3 12/1/2010 8:34      5.95
20    536367     21777          RECIPE BOX WITH METAL HEART       4 12/1/2010 8:34      7.95
21    536367     48187                 DOORMAT NEW ENGLAND        4 12/1/2010 8:34      7.95
22    536368     22960            JAM MAKING SET WITH JARS        6 12/1/2010 8:34      4.25
```



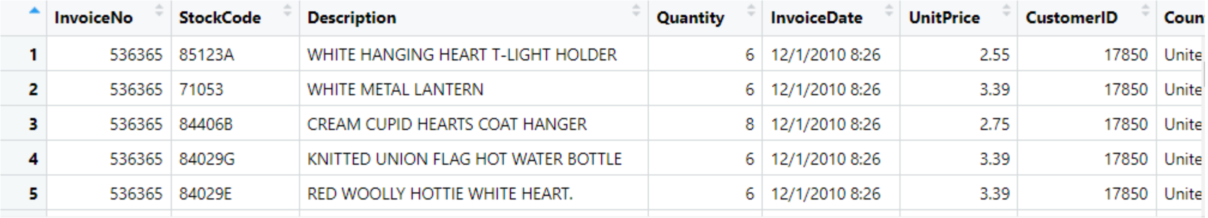
```
122        15311 United Kingdom
123        15311 United Kingdom
124        15311 United Kingdom
125        15311 United Kingdom
 [ reached 'max' / getOption("max.print") -- omitted 406704 rows ]
```

```
retail$Date<-as.Date(retail$InvoiceDate)
```



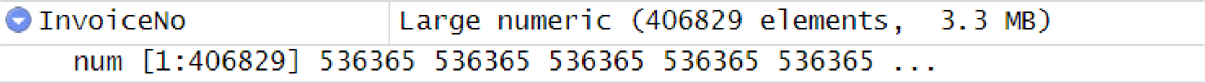
	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Countr
1	536365	85123A	WHITE HANGING HEART T-LIGHT HOLDER	6	12/1/2010 8:26	2.55	17850	Unite
2	536365	71053	WHITE METAL LANTERN	6	12/1/2010 8:26	3.39	17850	Unite
3	536365	84406B	CREAM CUPID HEARTS COAT HANGER	8	12/1/2010 8:26	2.75	17850	Unite
4	536365	84029G	KNITTED UNION FLAG HOT WATER BOTTLE	6	12/1/2010 8:26	3.39	17850	Unite
5	536365	84029E	RED WOOLLY HOTTIE WHITE HEART.	6	12/1/2010 8:26	3.39	17850	Unite

```
retail$InvoiceDate <- as.POSIXct(retail$InvoiceDate, format = "%Y-%m-%d %H:%M:%S")

retail$TransTime <- format(retail$InvoiceDate, "%H:%M:%S")
```



	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Coun
1	536365	85123A	WHITE HANGING HEART T-LIGHT HOLDER	6	12/1/2010 8:26	2.55	17850	Unite
2	536365	71053	WHITE METAL LANTERN	6	12/1/2010 8:26	3.39	17850	Unite
3	536365	84406B	CREAM CUPID HEARTS COAT HANGER	8	12/1/2010 8:26	2.75	17850	Unite
4	536365	84029G	KNITTED UNION FLAG HOT WATER BOTTLE	6	12/1/2010 8:26	3.39	17850	Unite
5	536365	84029E	RED WOOLLY HOTTIE WHITE HEART.	6	12/1/2010 8:26	3.39	17850	Unite

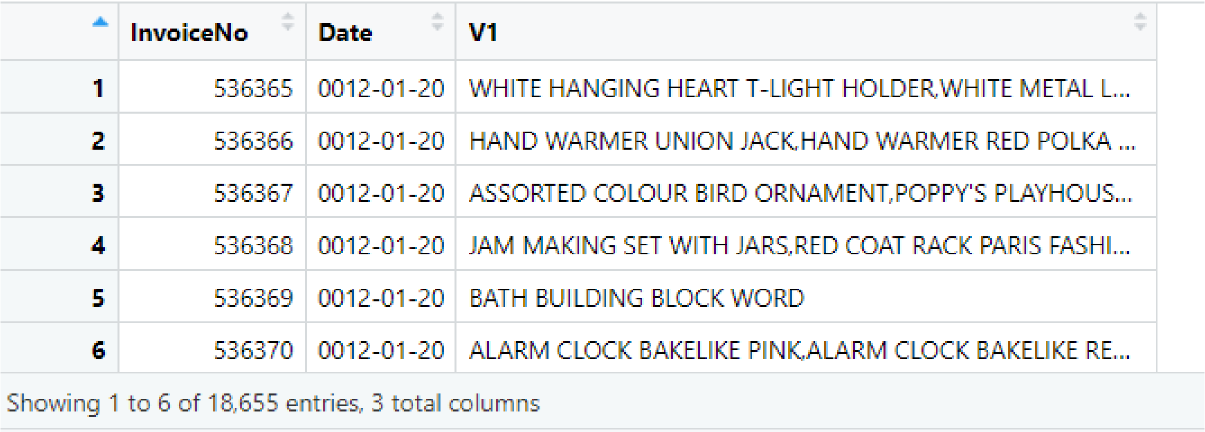
```
InvoiceNo<- as.numeric(as.character(retail$InvoiceNo))
```



```
InvoiceNo            Large numeric (406829 elements,  3.3 MB)
   num [1:406829] 536365 536365 536365 536365 536365 ...
```

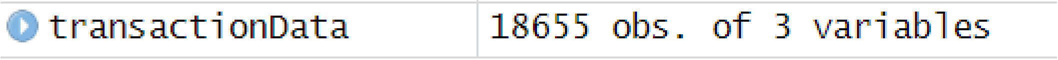
```
class(retail$InvoiceNo)
 [1] "numeric"

retail$InvoiceNo<- as.numeric(as.character(retail$InvoiceNo))
class(retail$InvoiceNo)
 [1] "numeric"

glimpse(retail)
Rows: 406,829
Columns: 10
$ InvoiceNo   <chr> "536365", "536365", "536365", "536365", "536365", "536365", "536365", "53…
$ StockCode   <chr> "85123A", "71053", "84406B", "84029G", "84029E", "22752", "21730", "22633…
$ Description <chr> "WHITE HANGING HEART T-LIGHT HOLDER", "WHITE METAL LANTERN", "CREAM CUPID…
$ Quantity    <int> 6, 6, 8, 6, 6, 2, 6, 6, 6, 32, 6, 6, 8, 6, 6, 3, 2, 3, 3, 4, 4, 6, 3, 3, …
$ InvoiceDate <dttm> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, …
$ UnitPrice   <dbl> 2.55, 3.39, 2.75, 3.39, 3.39, 7.65, 4.25, 1.85, 1.85, 1.69, 2.10, 2.10, 3…
$ CustomerID  <int> 17850, 17850, 17850, 17850, 17850, 17850, 17850, 17850, 17850, 13047, 130…
$ Country     <chr> "United Kingdom", "United Kingdom", "United Kingdom", "United Kingdom", "…
$ Date        <date> 0012-01-20, 0012-01-20, 0012-01-20, 0012-01-20, 0012-01-20, 0012-01-20, …
$ TransTime   <chr> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, N…
```

```
transactionData<-ddply(retail,c("InvoiceNo","Date"),function(df1)paste(df1
$Description,collapse =","))
```



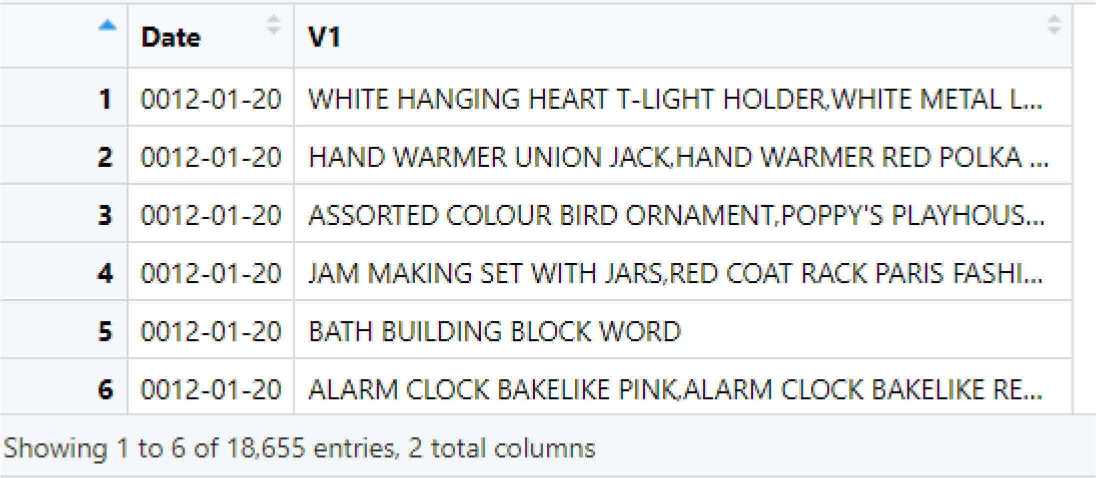
	InvoiceNo	Date	V1
1	536365	0012-01-20	WHITE HANGING HEART T-LIGHT HOLDER,WHITE METAL L...
2	536366	0012-01-20	HAND WARMER UNION JACK,HAND WARMER RED POLKA ...
3	536367	0012-01-20	ASSORTED COLOUR BIRD ORNAMENT,POPPY'S PLAYHOUS...
4	536368	0012-01-20	JAM MAKING SET WITH JARS,RED COAT RACK PARIS FASHI...
5	536369	0012-01-20	BATH BUILDING BLOCK WORD
6	536370	0012-01-20	ALARM CLOCK BAKELIKE PINK,ALARM CLOCK BAKELIKE RE...

Showing 1 to 6 of 18,655 entries, 3 total columns



```
transactionData    18655 obs. of 3 variables
```

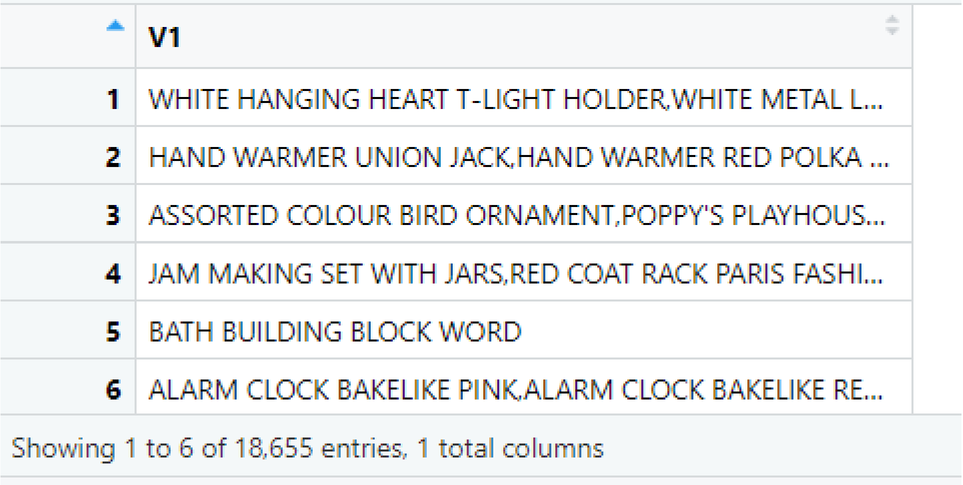
```
transactionData$InvoiceNo<-NULL
```



	Date	V1
1	0012-01-20	WHITE HANGING HEART T-LIGHT HOLDER,WHITE METAL L...
2	0012-01-20	HAND WARMER UNION JACK,HAND WARMER RED POLKA ...
3	0012-01-20	ASSORTED COLOUR BIRD ORNAMENT,POPPY'S PLAYHOUS...
4	0012-01-20	JAM MAKING SET WITH JARS,RED COAT RACK PARIS FASHI...
5	0012-01-20	BATH BUILDING BLOCK WORD
6	0012-01-20	ALARM CLOCK BAKELIKE PINK,ALARM CLOCK BAKELIKE RE...

Showing 1 to 6 of 18,655 entries, 2 total columns

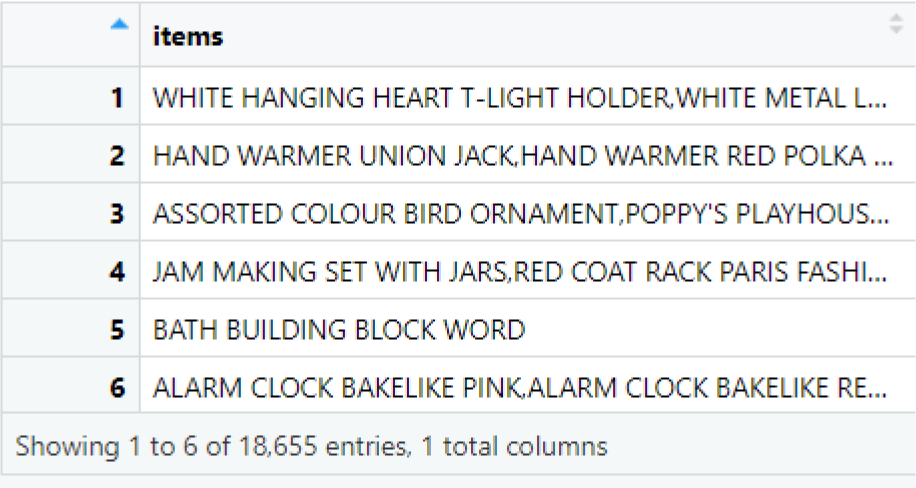
transactionData$Date=NULL



	V1
1	WHITE HANGING HEART T-LIGHT HOLDER,WHITE METAL L...
2	HAND WARMER UNION JACK,HAND WARMER RED POLKA ...
3	ASSORTED COLOUR BIRD ORNAMENT,POPPY'S PLAYHOUS...
4	JAM MAKING SET WITH JARS,RED COAT RACK PARIS FASHI...
5	BATH BUILDING BLOCK WORD
6	ALARM CLOCK BAKELIKE PINK,ALARM CLOCK BAKELIKE RE...

Showing 1 to 6 of 18,655 entries, 1 total columns

colnames(transactionData)=c("items")

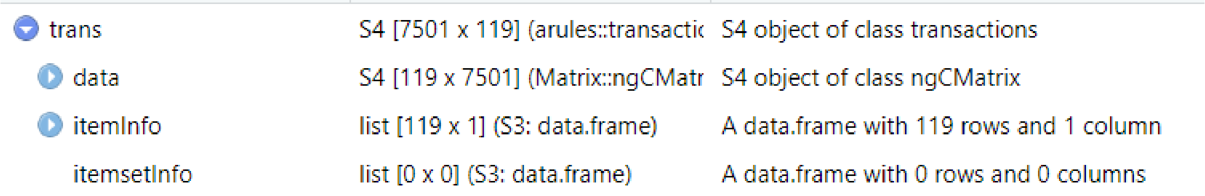


	items
1	WHITE HANGING HEART T-LIGHT HOLDER,WHITE METAL L...
2	HAND WARMER UNION JACK,HAND WARMER RED POLKA ...
3	ASSORTED COLOUR BIRD ORNAMENT,POPPY'S PLAYHOUS...
4	JAM MAKING SET WITH JARS,RED COAT RACK PARIS FASHI...
5	BATH BUILDING BLOCK WORD
6	ALARM CLOCK BAKELIKE PINK,ALARM CLOCK BAKELIKE RE...

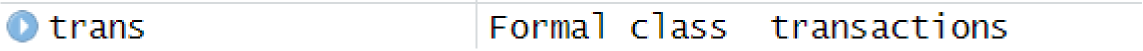
Showing 1 to 6 of 18,655 entries, 1 total columns

write.csv(transactionData,"market_basket.csv",quote=FALSE,row.names=FALSE)

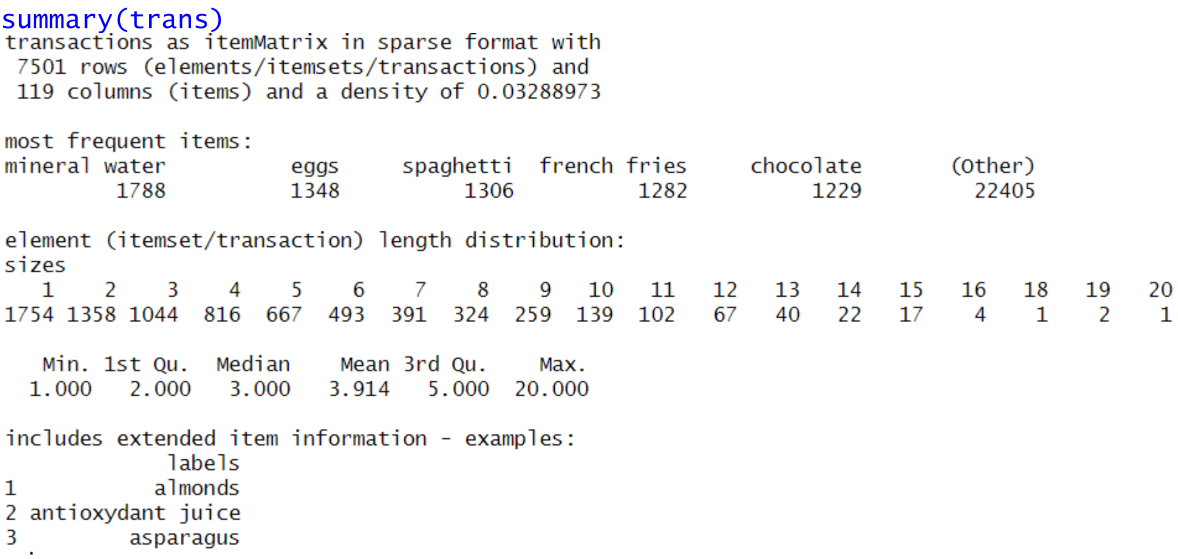
trans<- read.transactions(file='market_basket_dataset.csv',format = 'basket',sep=',')



trans	S4 [7501 x 119] (arules::transactic	S4 object of class transactions
data	S4 [119 x 7501] (Matrix::ngCMatr	S4 object of class ngCMatrix
itemInfo	list [119 x 1] (S3: data.frame)	A data.frame with 119 rows and 1 column
itemsetInfo	list [0 x 0] (S3: data.frame)	A data.frame with 0 rows and 0 columns



```
trans          Formal class  transactions
```



```
summary(trans)
transactions as itemMatrix in sparse format with
 7501 rows (elements/itemsets/transactions) and
 119 columns (items) and a density of 0.03288973

most frequent items:
mineral water          eggs     spaghetti   french fries      chocolate        (Other)
         1788          1348          1306           1282           1229          22405

element (itemset/transaction) length distribution:
sizes
   1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   18   19   20
1754 1358 1044  816  667  493  391  324  259  139  102   67   40   22   17    4    1    2    1

   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  1.000   2.000   3.000   3.914   5.000  20.000

includes extended item information - examples:
             labels
1           almonds
2 antioxydant juice
3         asparagus
```