

Basic R commands

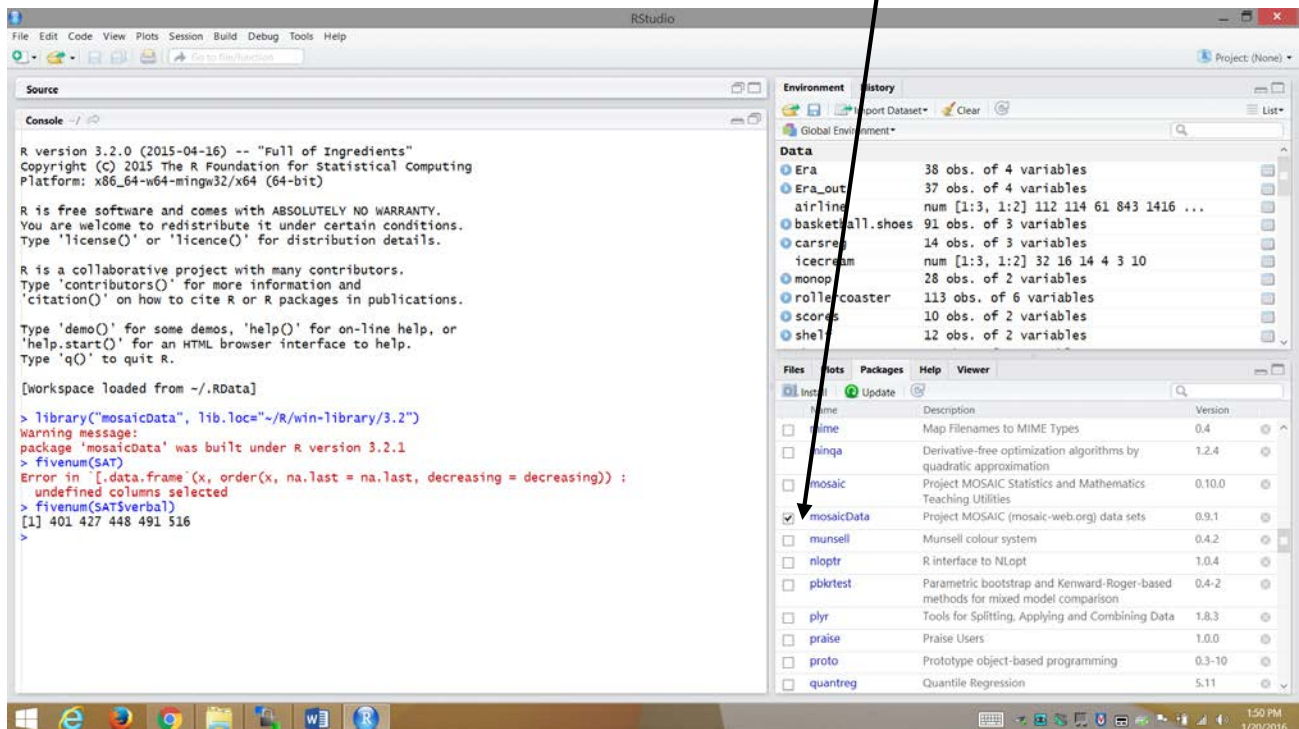
To input data:

`your_variable_name=c(list of values separated by commas)`

Example

```
Steers=c(174, 142, 131, 145, 175, 150, 176, 151, 110, 162, 133, 163, 135, 178, 178, 154, 166, 146, 156, 167)
```

For preloaded datasets make sure **MosaicData** is checked in the packages list.



The screenshot shows the RStudio interface. The console window on the left displays the R startup message and the execution of the following commands:

```
> library("mosaicData", lib.loc="/R/win-library/3.2")
Warning message:
package 'mosaicData' was built under R version 3.2.1
> fivenum(SAT)
Error in [.data.frame`(x, order(x, na.last = na.last, decreasing = decreasing)) :
  undefined columns selected
> fivenum(SAT$verbal)
[1] 401 427 448 491 516
```

The Environment window on the right shows a list of preloaded datasets:

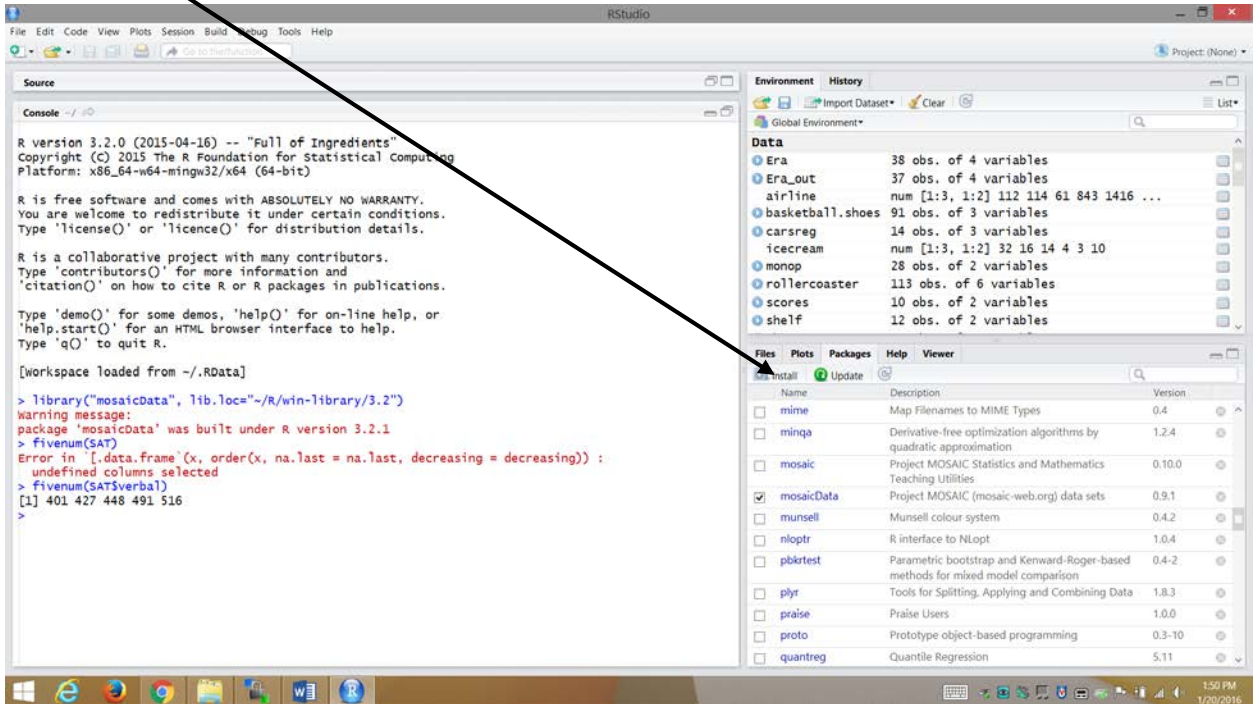
Dataset	Observations	Variables
Era	38 obs.	4 variables
Era_out	37 obs.	4 variables
airline	num [1:3, 1:2]	112 114 61 843 1416 ...
basketball.shoes	91 obs.	3 variables
carsreg	14 obs.	3 variables
icecream	num [1:3, 1:2]	32 16 14 4 3 10
monop	28 obs.	2 variables
rollercoaster	113 obs.	6 variables
scores	10 obs.	2 variables
shell	12 obs.	2 variables

The Packages window at the bottom right shows a list of installed packages. The **mosaicData** package is checked, indicating it is loaded. A black arrow points from the text above to the checked box next to **mosaicData** in the Packages window.

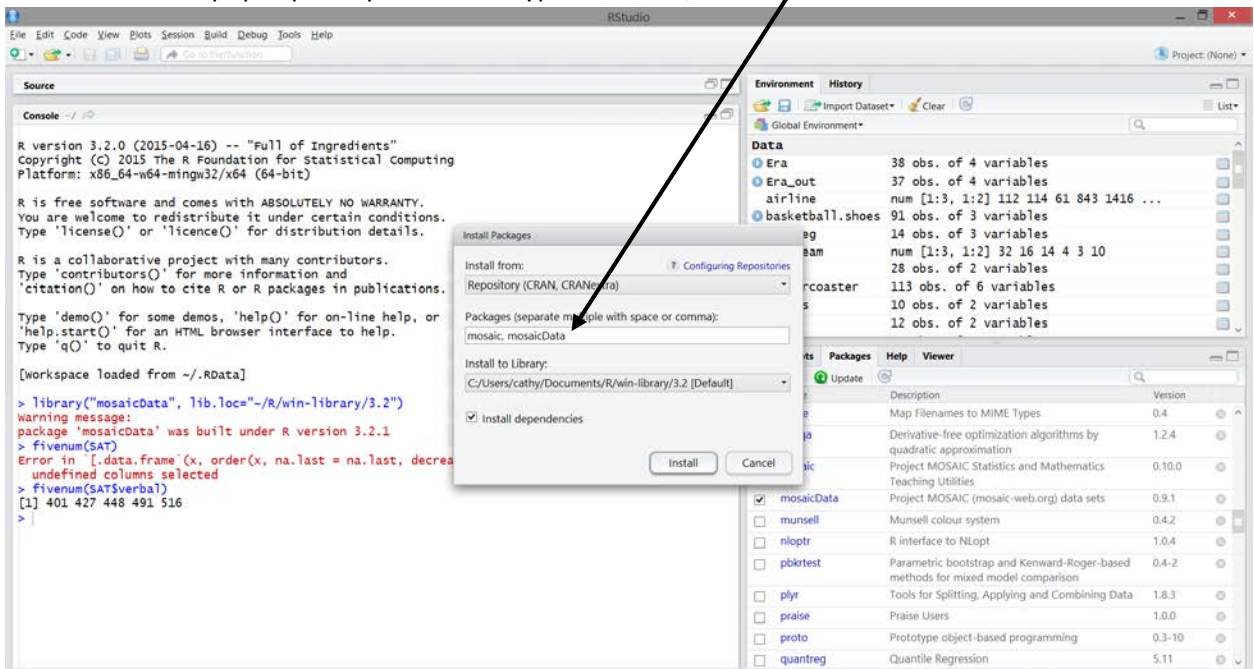
Package	Description	Version
mime	Map Filenames to MIME Types	0.4
minqa	Derivative-free optimization algorithms by quadratic approximation	1.2.4
mosaic	Project MOSAIC Statistics and Mathematics Teaching Utilities	0.10.0
<input checked="" type="checkbox"/> mosaicData	Project MOSAIC (mosaic-web.org) data sets	0.9.1
munsell	Munsell colour system	0.4.2
nloptr	R interface to Nloptr	1.0.4
pbkrtest	Parametric bootstrap and Kenward-Roger-based methods for mixed model comparison	0.4-2
plyr	Tools for Splitting, Applying and Combining Data	1.8.3
praise	Praise Users	1.0.0
proto	Prototype object-based programming	0.3-10
quantreg	Quantile Regression	5.11

If you do not see MoosaicData in your packages list then you need to install this package.

1. Click on "Install" in the Packages window.



2. Another window pops up and you want to type in mosaic, MosaicData in the blank line.



3. Click on "Install." This will install some of the data set we will use in this course. This installation may take a couple of minutes.

Once we have the MosaicData Checkmarked we can calculate a couple of things

For basic statistics:

`mean(dataset_name$variable_name)` for mean

`median(dataset_name$variable_name)` for median

`sd(dataset_name$variable_name)` for standard deviation

`quantile(dataset_name$variable_name,type=2)` for quartiles

IF there is no dataset name just you will not need the dollar symbol.

Example:

To find the mean, median, standard deviation, Q_1 , and Q_3 for the variable **verbal** in the **SAT** data set.

```
> mean(SAT$verbal)
[1] 457.14
> median(SAT$verbal)
[1] 448
> sd(SAT$verbal)
[1] 35.17595
> fivenum(SAT$verbal)
[1] 401 427 448 491 516
```

Mean = 457.14, Median = Q_2 = 448, Q_1 = 427, Q_3 = 491

For graphs:

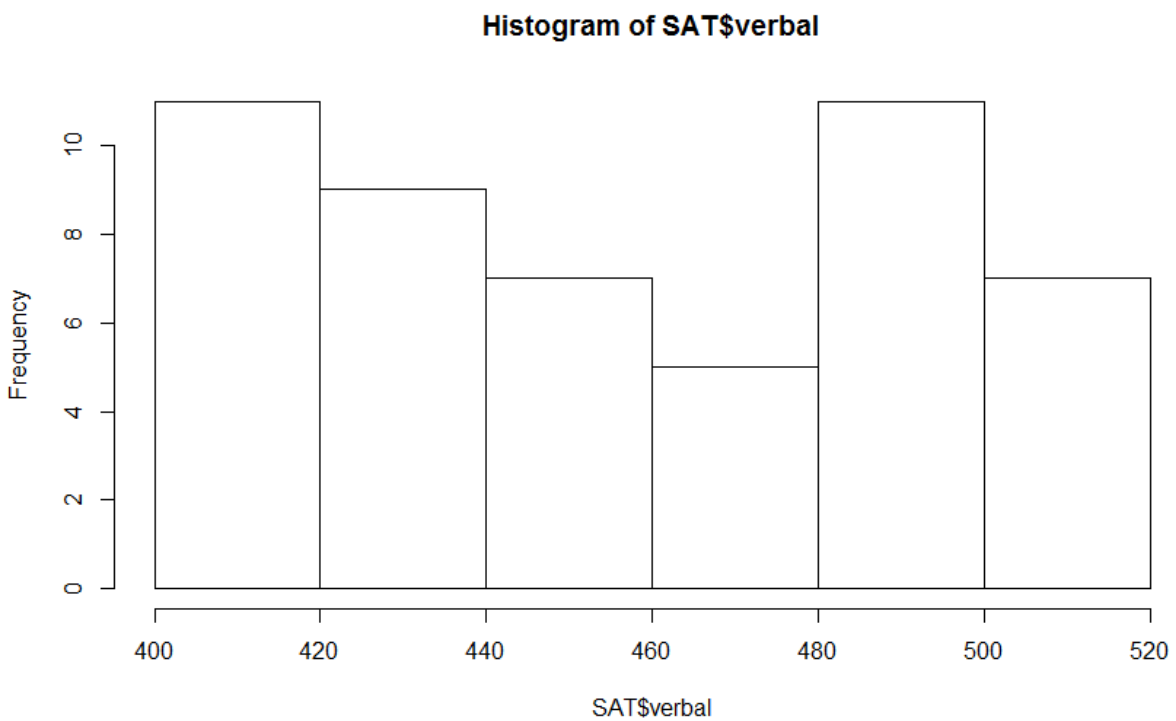
`hist(dataset_name$variable_name)` for histogram

`boxplot(data_name$variable_name)` for boxplot

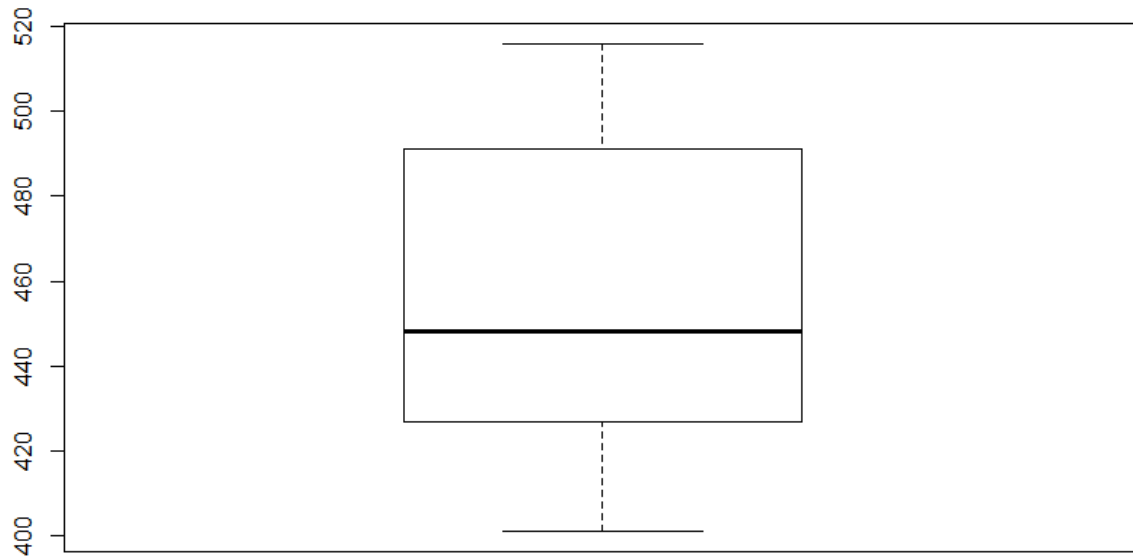
`stem(data_name$variable_name)` for stemplot

Example: Creating histogram, boxplot and stemplot for the variable **verbal** from the data set **SAT**.

```
> hist(SAT$verbal)
```



```
> boxplot(SAT$verbal)
```



```
> stem(SAT$verbal)
```

The decimal point is 1 digit(s) to the right of the |

```
40 | 167157999
42 | 00578990014
44 | 345888
46 | 028367
48 | 24568114567
50 | 1356356
```