STAT UN1201 – Chapter 1

Prof. Joyce Robbins

Waitlist

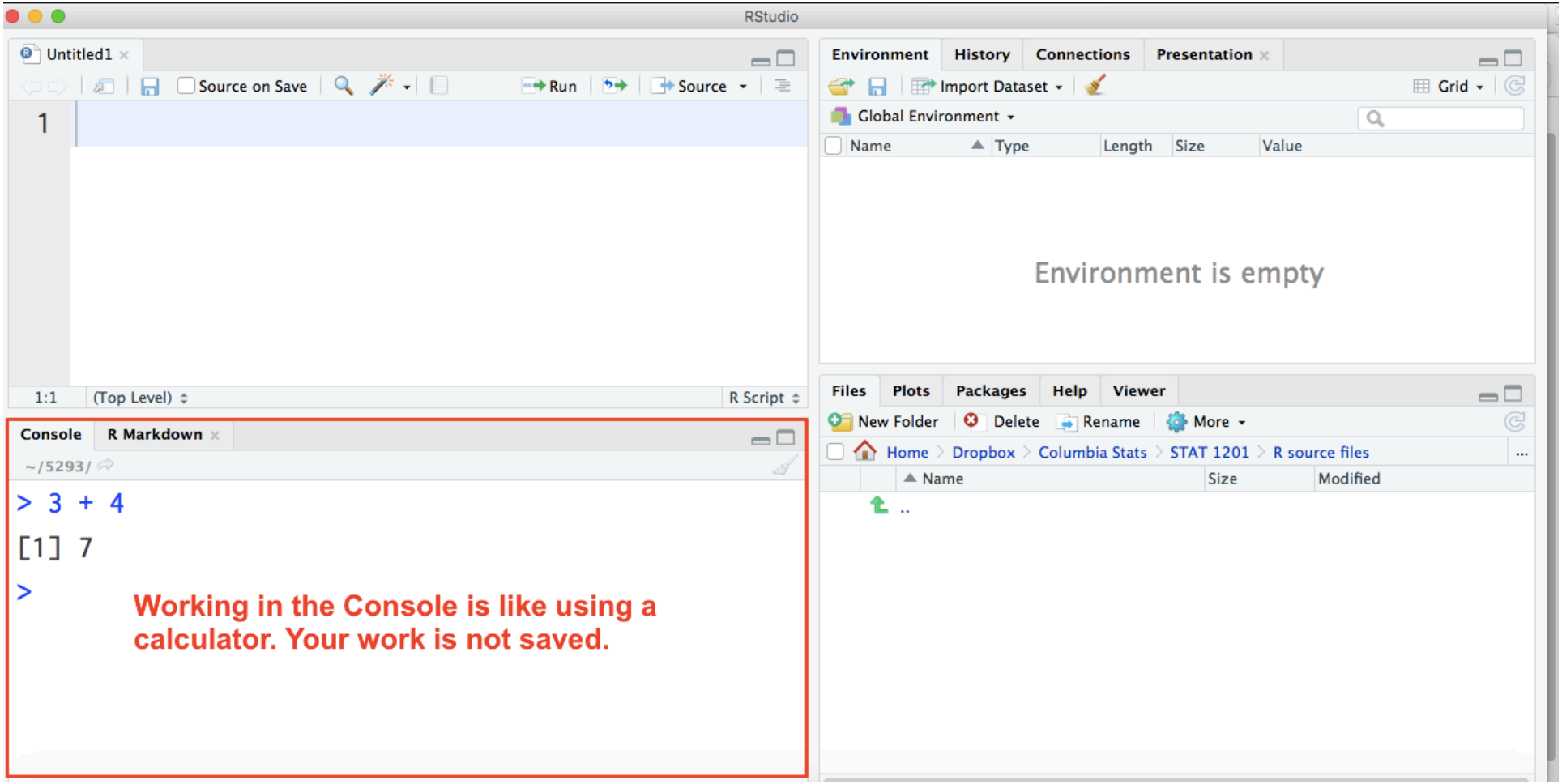
1. The waitlist moves in order as places open up.

2. Course materials are available here during change of program period: http://github.com/jtr13/1201

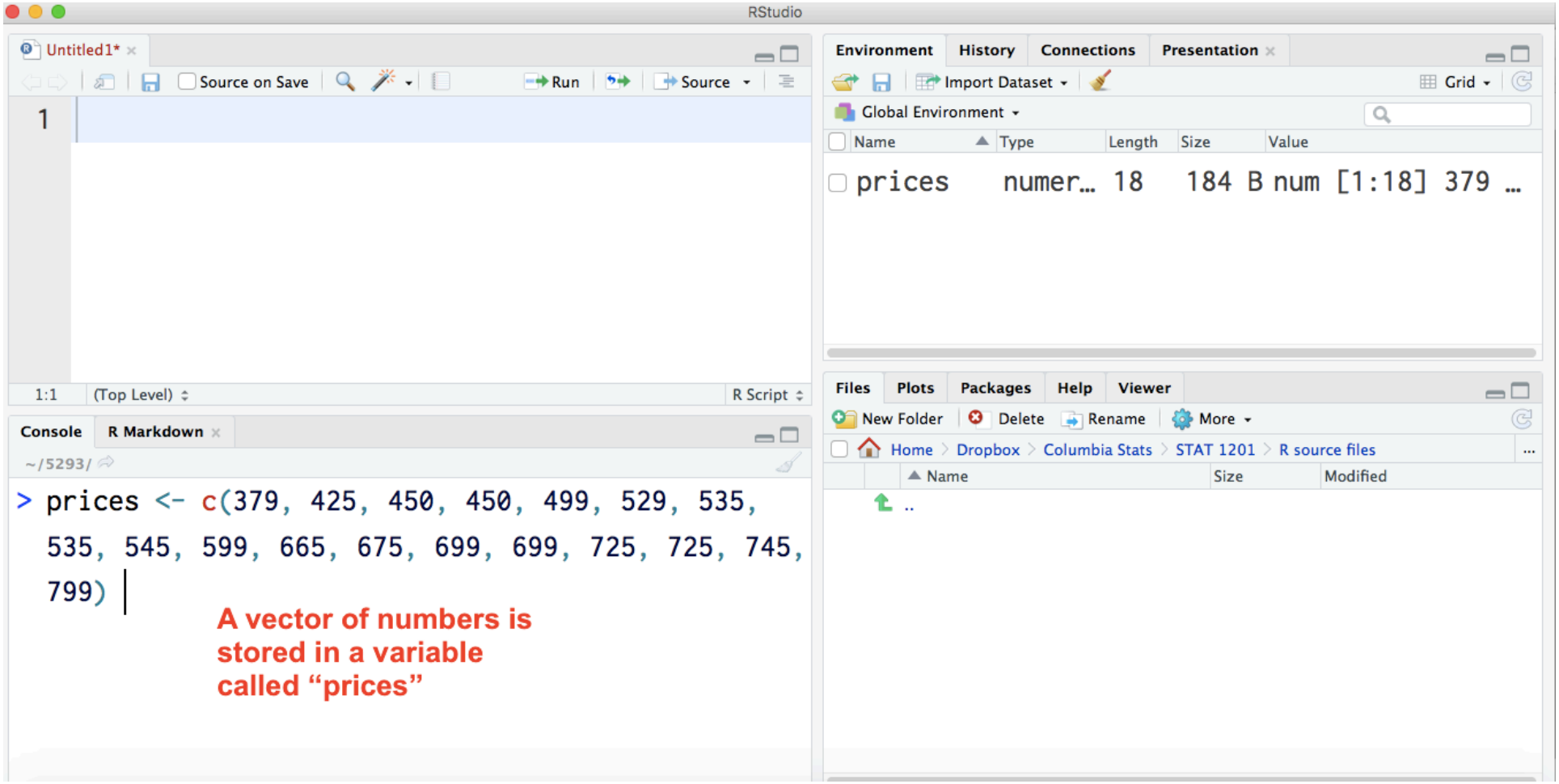
3. It is strongly advised to keep up with the material if you are trying to get in the class.

EVERYONE: Once you've made a decision not to take the class, please be considerate and drop it from your schedule.

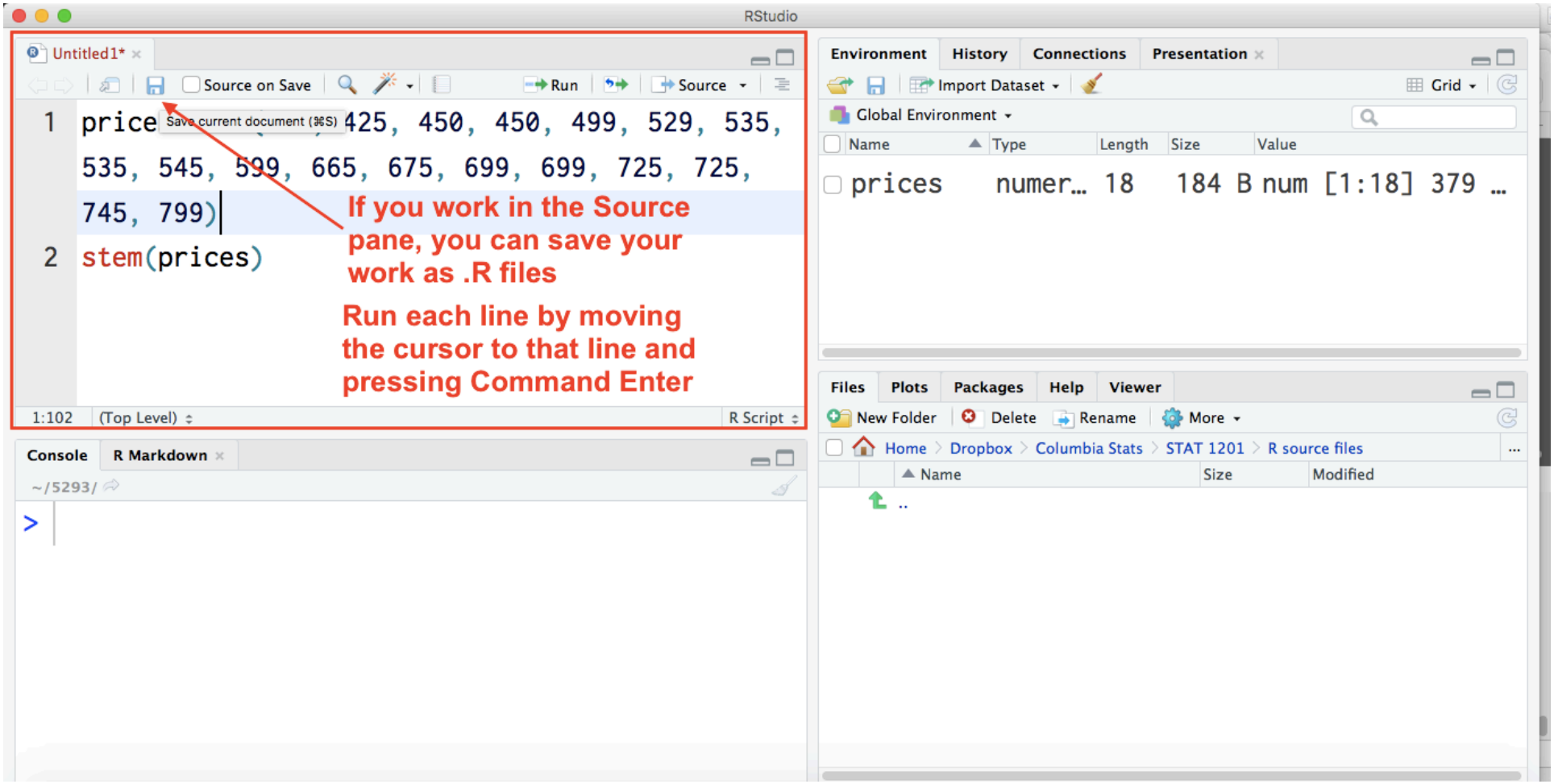
RStudio


RStudio
Untitled1
Source on Save
Run
Source
1
1:1
(Top Level)
R Script
Environment
History
Connections
Presentation
Import Dataset
Grid
Global Environment
Name
Type
Length
Size
Value
Environment is empty
Files
Plots
Packages
Help
Viewer
New Folder
Delete
Rename
More
Home
Dropbox
Columbia Stats
STAT 1201
R source files
Name
Size
Modified
..
Console
R Markdown
~/5293/
> 3 + 4
[1] 7
>
Working in the Console is like using a calculator. Your work is not saved.

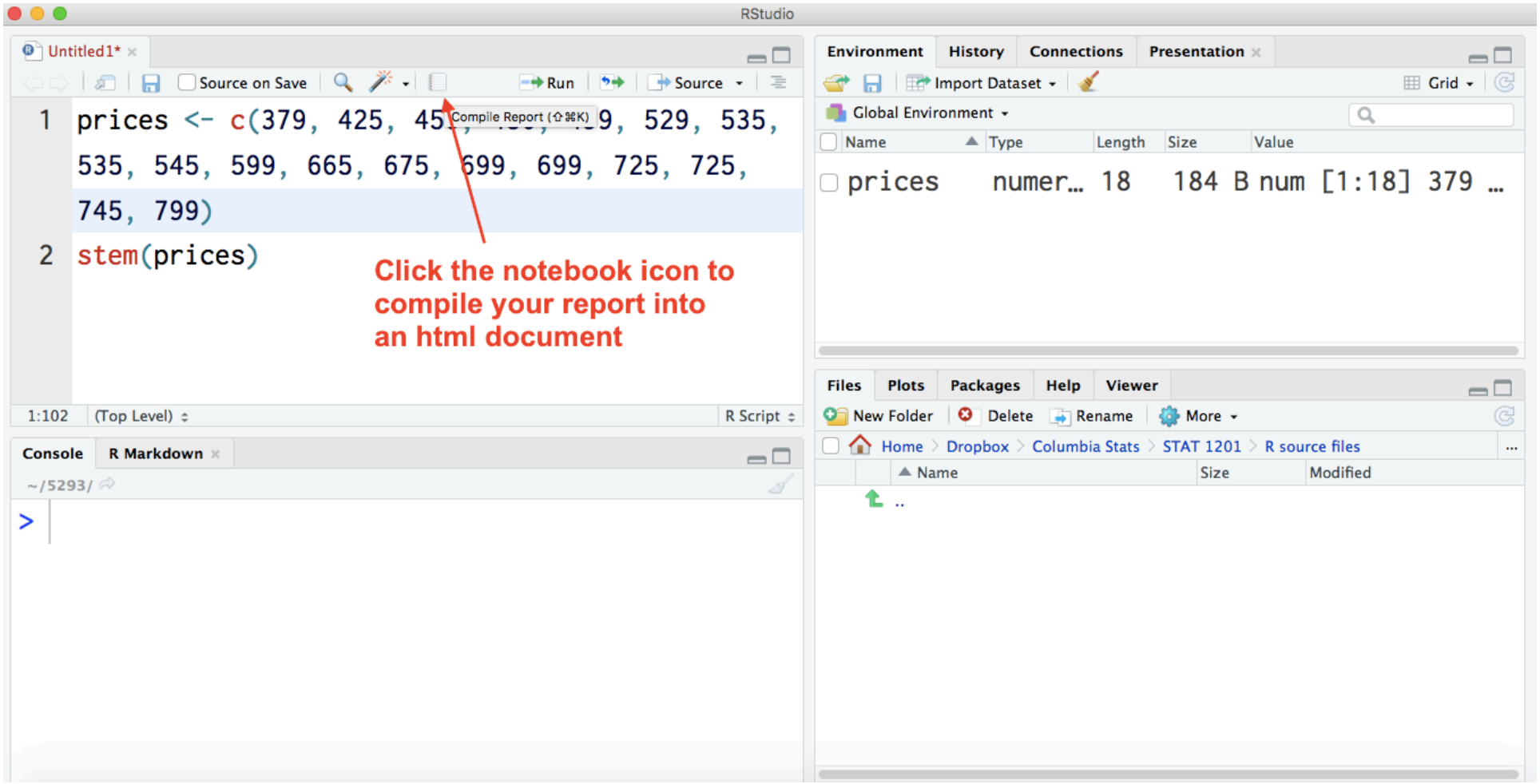
Working in the Console

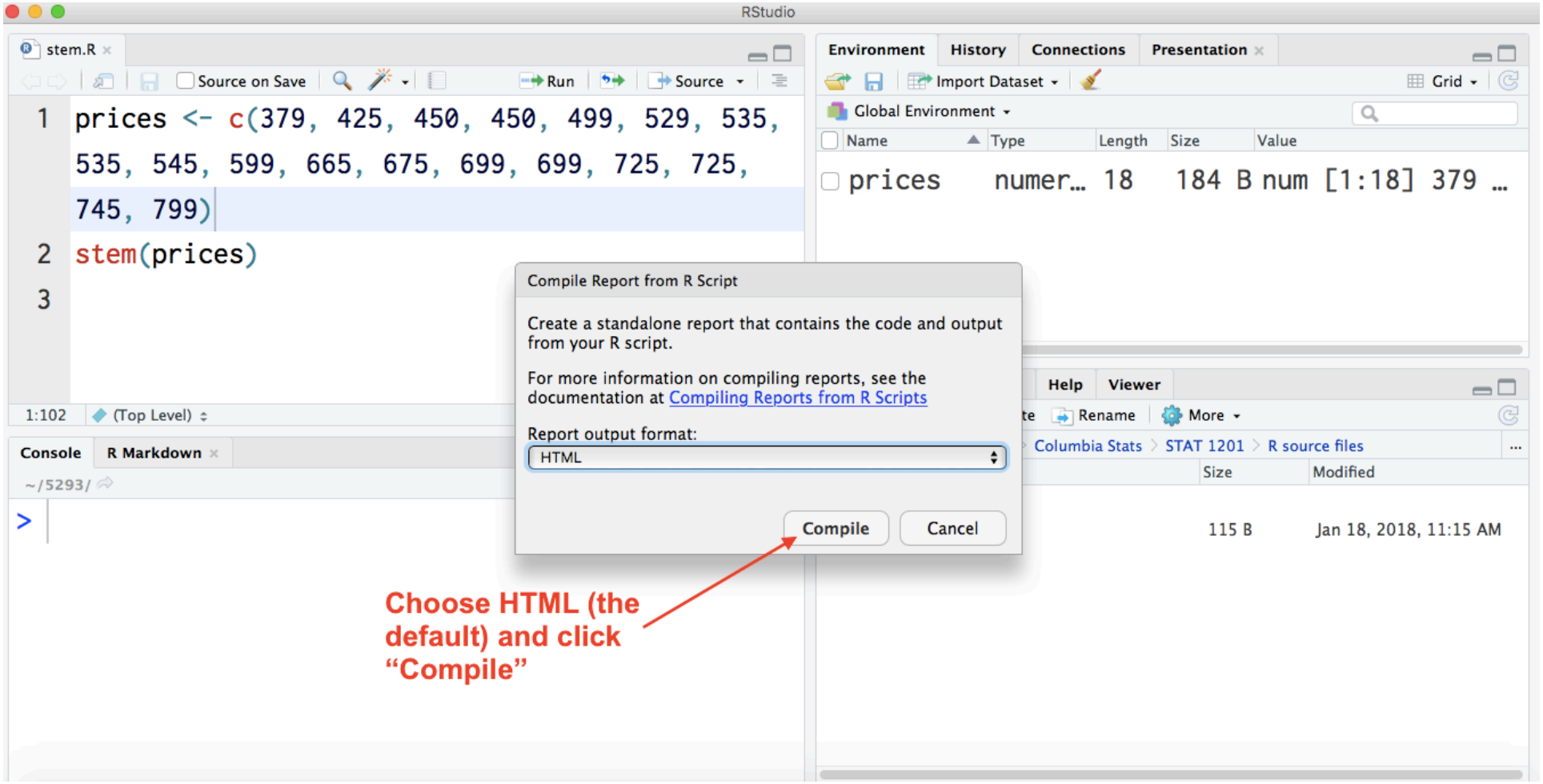


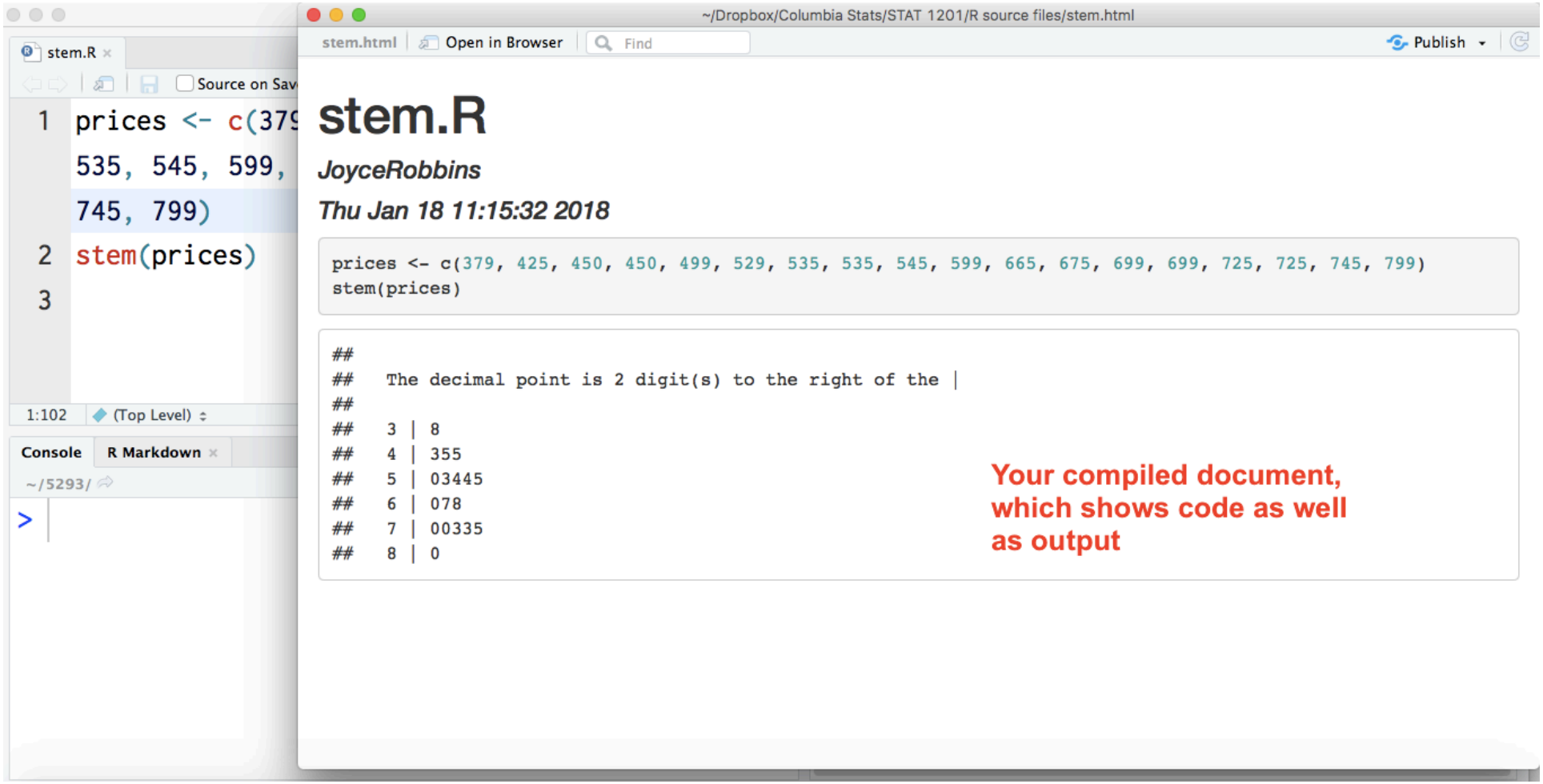
Saving your work as an R script

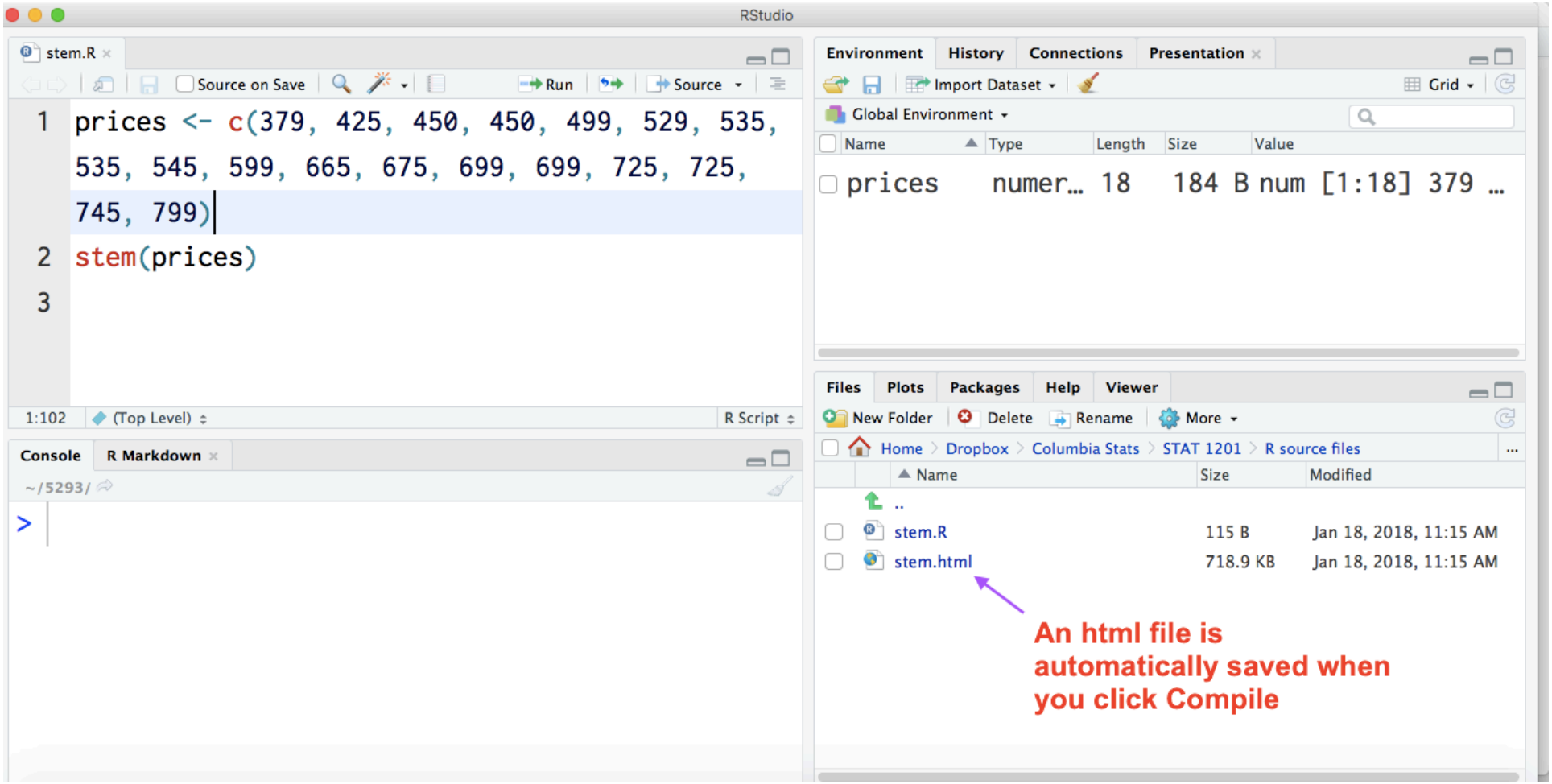


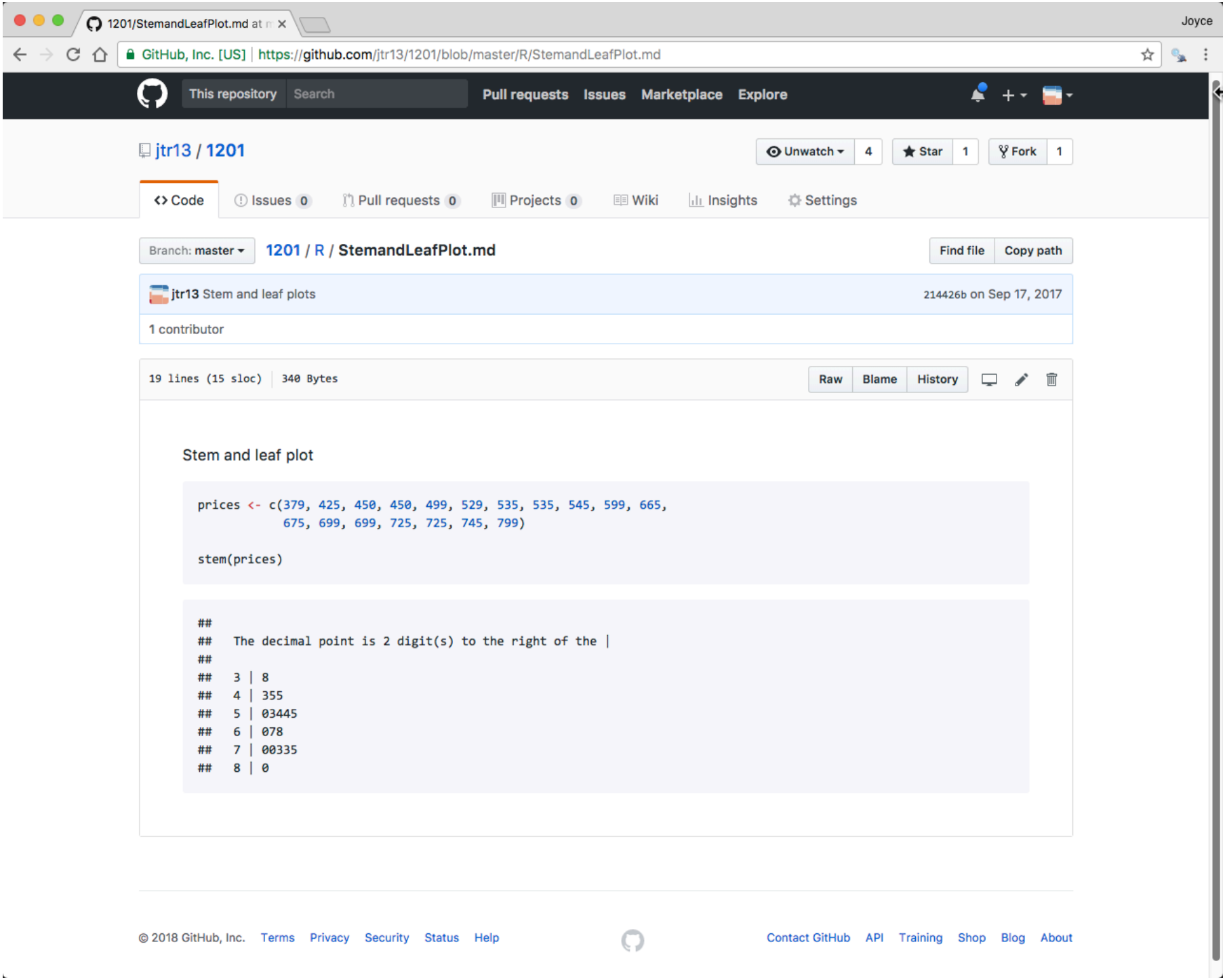
Compiling your work into an .html file




RStudio
stem.R
Source on Save
Run
Source
1 prices <- c(379, 425, 450, 450, 499, 529, 535,
535, 545, 599, 665, 675, 699, 699, 725, 725,
745, 799)
2 stem(prices)
3
1:102
(Top Level)
Console
R Markdown
~/5293/
>
Environment
History
Connections
Presentation
Import Dataset
Grid
Global Environment
Name
Type
Length
Size
Value
prices
numer…
18
184 B
num [1:18] 379 …
Help
Viewer
Rename
More
Columbia Stats
STAT 1201
R source files
Size
Modified
115 B
Jan 18, 2018, 11:15 AM
Compile Report from R Script
Create a standalone report that contains the code and output from your R script.
For more information on compiling reports, see the documentation at Compiling Reports from R Scripts
Report output format:
HTML
Compile
Cancel
Choose HTML (the default) and click "Compile"


stem.R
Source on Sav
1 prices <- c(379
535, 545, 599,
745, 799)
2 stem(prices)
3
1:102
(Top Level)
Console
R Markdown
~/5293/
>
~/Dropbox/Columbia Stats/STAT 1201/R source files/stem.html
stem.html
Open in Browser
Find
Publish
stem.R
JoyceRobbins
Thu Jan 18 11:15:32 2018
prices <- c(379, 425, 450, 450, 499, 529, 535, 535, 545, 599, 665, 675, 699, 699, 725, 725, 745, 799)
stem(prices)
##
The decimal point is 2 digit(s) to the right of the |
##
3 | 8
4 | 355
5 | 03445
6 | 078
7 | 00335
8 | 0
Your compiled document, which shows code as well as output


RStudio
stem.R
Source on Save
Run
Source
1 prices <- c(379, 425, 450, 450, 499, 529, 535,
535, 545, 599, 665, 675, 699, 699, 725, 725,
745, 799)
2 stem(prices)
3
1:102
(Top Level)
R Script
Console
R Markdown
~/5293/
>
Environment
History
Connections
Presentation
Import Dataset
Grid
Global Environment
Name
Type
Length
Size
Value
prices
numer…
18
184 B
num [1:18] 379 …
Files
Plots
Packages
Help
Viewer
New Folder
Delete
Rename
More
Home
Dropbox
Columbia Stats
STAT 1201
R source files
Name
Size
Modified
..
stem.R
115 B
Jan 18, 2018, 11:15 AM
stem.html
718.9 KB
Jan 18, 2018, 11:15 AM
An html file is automatically saved when you click Compile


1201/StemandLeafPlot.md at
Joyce
GitHub, Inc. [US] | https://github.com/jtr13/1201/blob/master/R/StemandLeafPlot.md
This repository
Search
Pull requests
Issues
Marketplace
Explore
jtr13 / 1201
Unwatch
4
Star
1
Fork
1
Code
Issues 0
Pull requests 0
Projects 0
Wiki
Insights
Settings
Branch: master
1201 / R / StemandLeafPlot.md
Find file
Copy path
jtr13 Stem and leaf plots
214426b on Sep 17, 2017
1 contributor
19 lines (15 sloc)
340 Bytes
Raw
Blame
History
Stem and leaf plot
prices <- c(379, 425, 450, 450, 499, 529, 535, 535, 545, 599, 665,
675, 699, 699, 725, 725, 745, 799)
stem(prices)
##
The decimal point is 2 digit(s) to the right of the |
##
3 | 8
4 | 355
5 | 03445
6 | 078
7 | 00335
8 | 0
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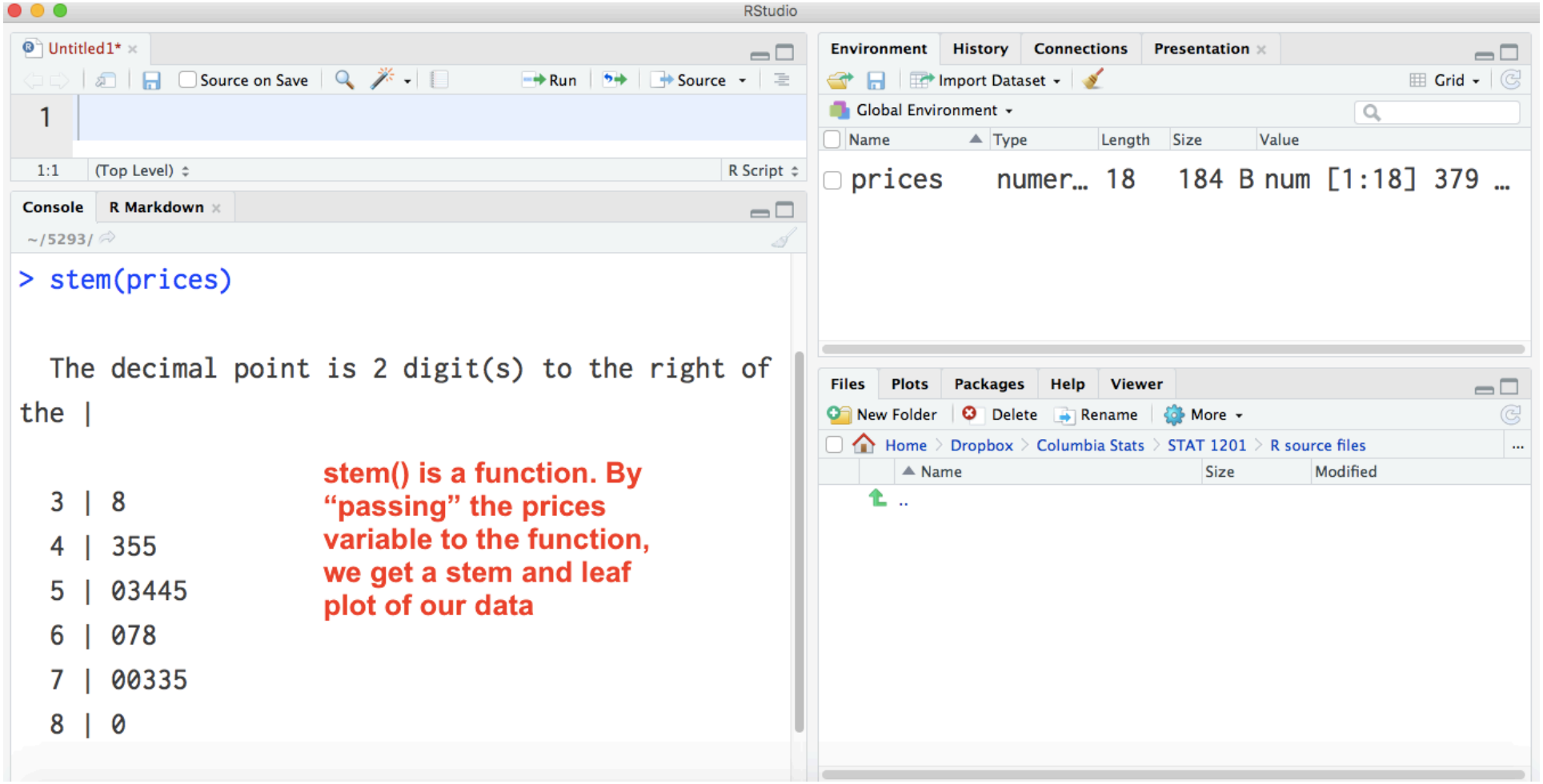
Creating a stem-and-leaf plot

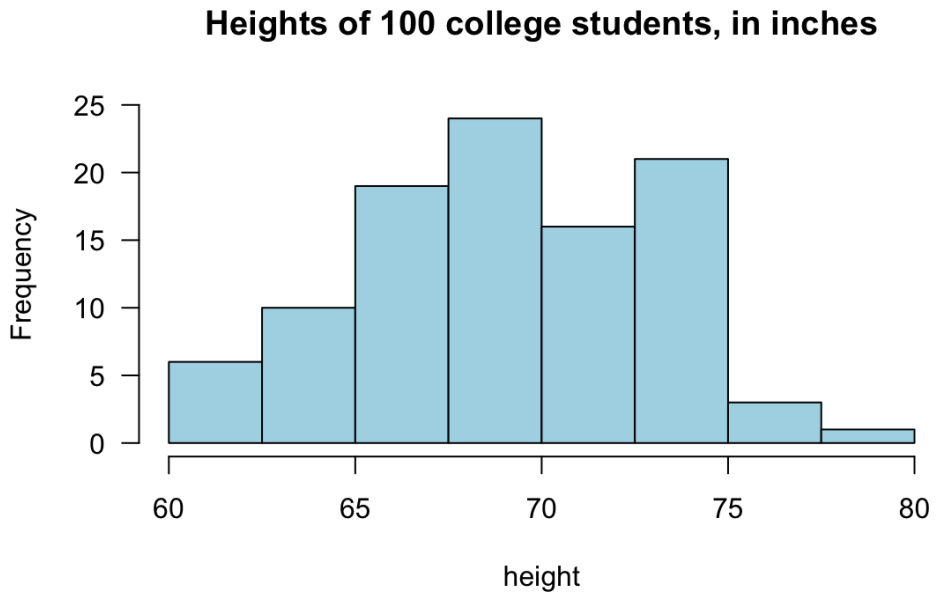


Discrete data

```
## [1] "Heights of 100 college students, in inches"
```

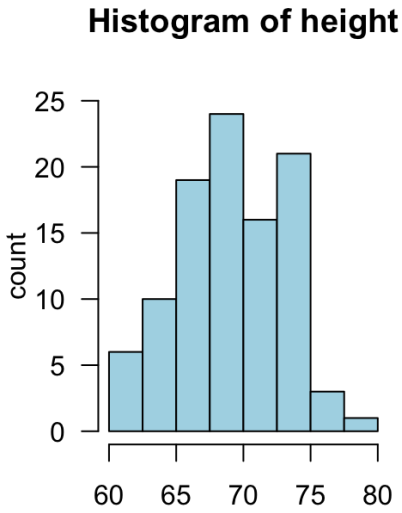
```
##   [1] 60 60 61 61 61 62 63 63 64 64 64 64 65 65 65
##  [16] 65 66 66 66 66 66 66 67 67 67 67 67 67 67 67
##  [31] 67 67 67 67 67 68 68 68 68 68 68 68 69 69 69
##  [46] 69 69 69 69 69 69 70 70 70 70 70 70 70 70 71
##  [61] 71 71 71 71 71 72 72 72 72 72 72 72 72 72 72
##  [76] 73 73 73 74 74 74 74 74 74 74 74 74 74 74 74
##  [91] 74 75 75 75 75 75 76 76 77 79
```

Discrete data

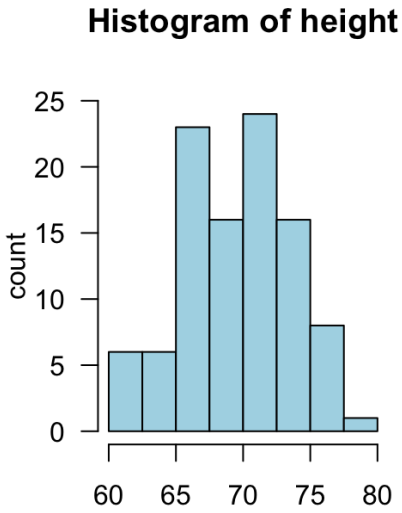



```
##   [1] 60 60 61 61 61 62 63 63 64 64 64 64 65 65 65
##  [16] 65 66 66 66 66 66 66 67 67 67 67 67 67 67 67
##  [31] 67 67 67 67 67 68 68 68 68 68 68 68 69 69 69
##  [46] 69 69 69 69 69 69 70 70 70 70 70 70 70 70 71
##  [61] 71 71 71 71 71 72 72 72 72 72 72 72 72 72 72
##  [76] 73 73 73 74 74 74 74 74 74 74 74 74 74 74 74
##  [91] 74 75 75 75 75 75 76 76 77 79
```

Discrete data histogram



RIGHT CLOSED, LEFT OPEN



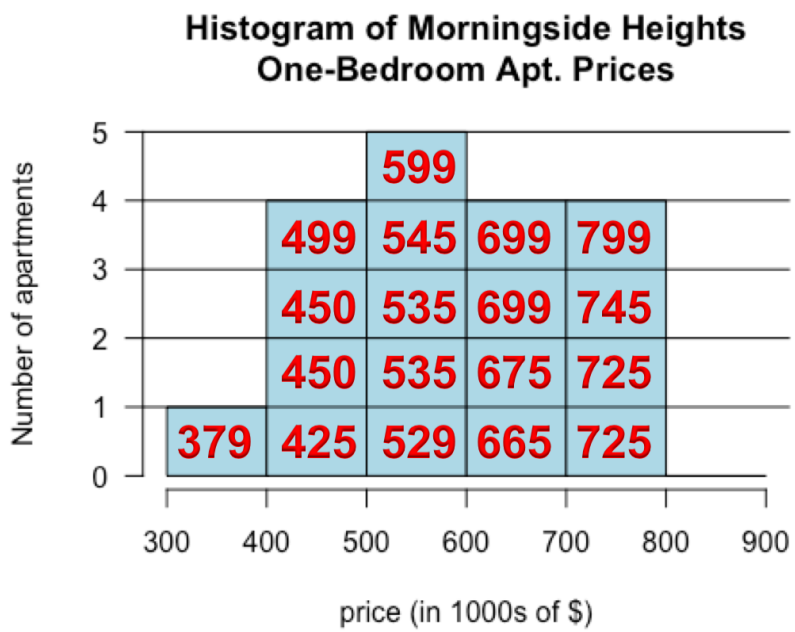
RIGHT OPEN, LEFT CLOSED

```
##   [1] 60 60 61 61 61 62 63 63 64 64 64 64 65 65 65
##  [16] 65 66 66 66 66 66 66 67 67 67 67 67 67 67 67
##  [31] 67 67 67 67 67 68 68 68 68 68 68 68 69 69 69
##  [46] 69 69 69 69 69 69 70 70 70 70 70 70 70 70 71
##  [61] 71 71 71 71 71 72 72 72 72 72 72 72 72 72 72
##  [76] 73 73 73 74 74 74 74 74 74 74 74 74 74 74 74
##  [91] 74 75 75 75 75 75 76 76 77 79
```

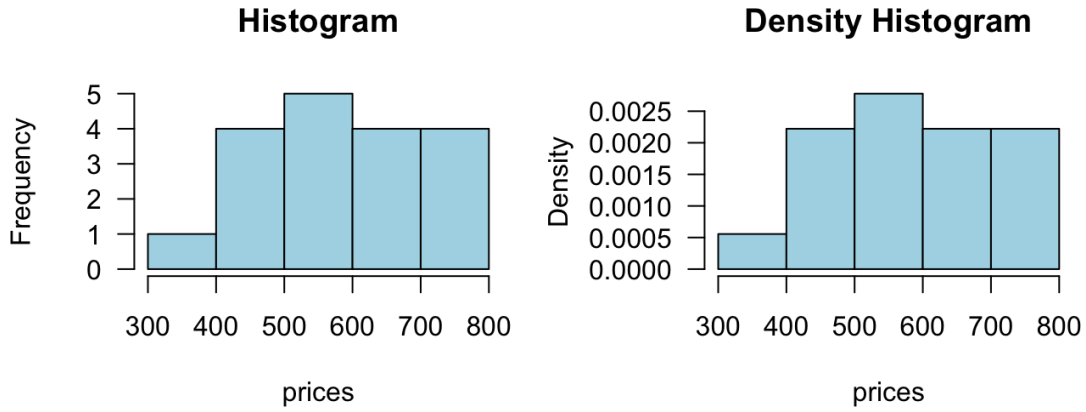
EXERCISE

Draw a histogram of the asking prices for one-bedroom apartments in Morningside Heights (prices in thousands of $)
Data source: cityrealty.com, 9/13/2016

379, 425, 450, 450, 499, 529, 535, 535, 545,
599, 665, 675, 699, 699, 725, 725, 745, 799

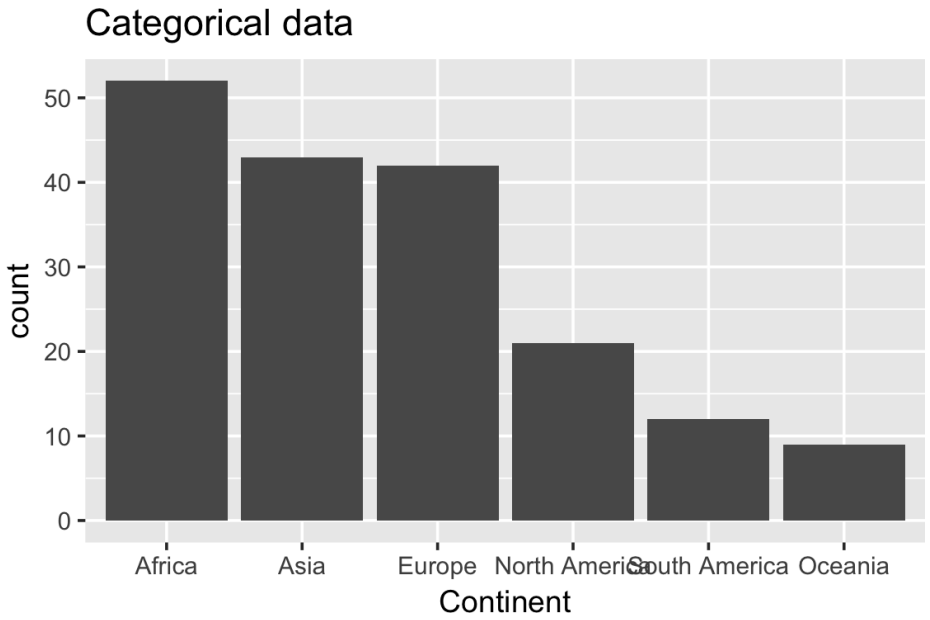

Histogram of Morningside Heights
One-Bedroom Apt. Prices
Number of apartments
0
1
2
3
4
5
379
425
450
450
499
529
535
535
545
599
665
675
699
699
725
725
799
745
300
400
500
600
700
800
900
price (in 1000s of $)

Density histogram

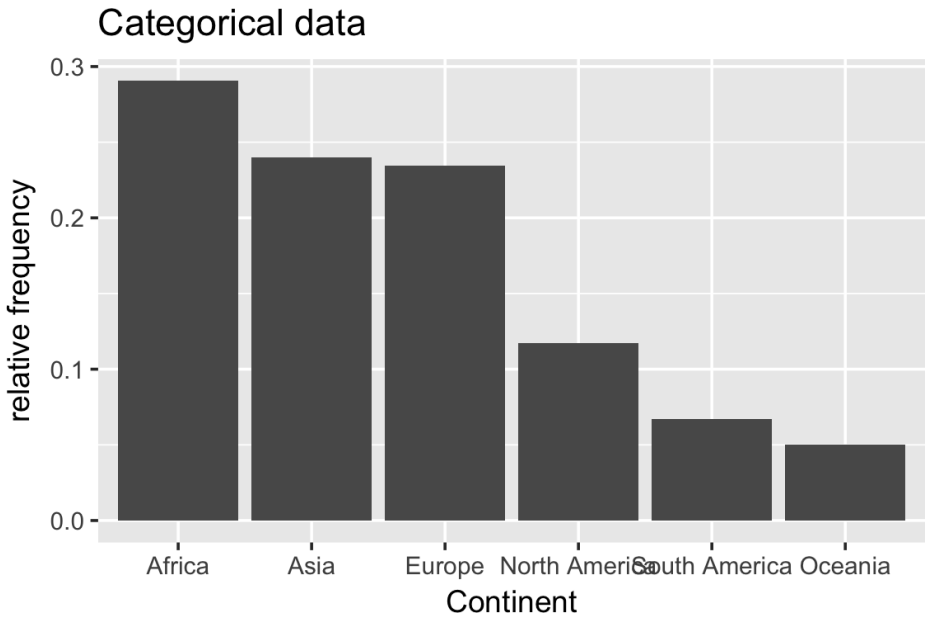


Class	Frequency	Rel. Frequency	Density
(300, 400]	1	.056	.00056
(400, 500]	4	.222	.00222
(500, 600]	5	.278	.00278
(600, 700]	4	.222	.00222
(700, 800]	4	.222	.00222

Frequency bar chart



Relative frequency bar chart



Five number summary

1. min
2. lower fourth
3. median
4. upper fourth
5. max

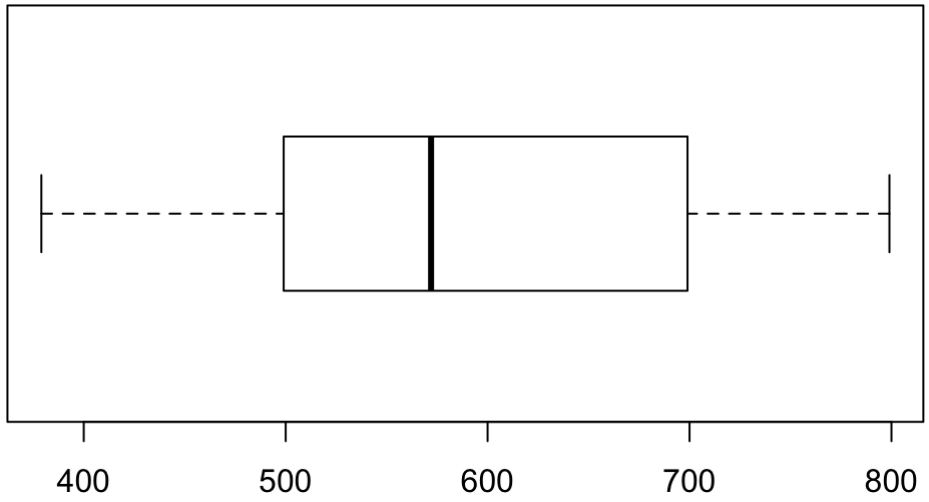
```
fivenum(prices)
```

```
## [1] 379 499 572 699 799
```

Boxplot

379, 425, 450, 450, 499, 529, 535, 535, 545,
599, 665, 675, 699, 699, 725, 725, 745, 799

```
## [1] 379 499 572 699 799
```



Boxplot with outliers