

Eric Pitman Summer Workshop in Computational Science

Intro to 
RStudio Tips

Jeanette Sperhac

hpc2 My Tools: R Studio Tool

Jeanette Sperhac ▶ Dashboard

My Sessions

- [Workspace](#)
- Storage ([manage](#))
- 0% of 0GB

My Groups

- [Center for Computational Research](#) approved
- [CCR Test Group](#) manager
- [jmsperhac group](#) manager

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My Tools

Recent	Favorites	All Tools
Interactive Quantum Espresso		
Jmol: 3D viewer for chemical structures in 3D	♥	
Large-scale Atomic/Molecular Massively Parallel Simulator	♥	
NAMD Scalable Molecular Dynamics	♥	
Quantum ESPRESSO	♥	
R Studio Tool	♥	

Add a tool to your favorites by clicking a heart. Click the heart again to remove it.

My Contributions

Tools

✓ arith2	0	0	0
Status: updated			
✓ arith	0	0	0
Status: published			
✓ rstudiotool	0	0	0
Status: published			

Other Contributions in Progress

- [Another test document](#) Type: Download

RStudio environment

1. Editor

The screenshot displays the RStudio interface with four main panels:

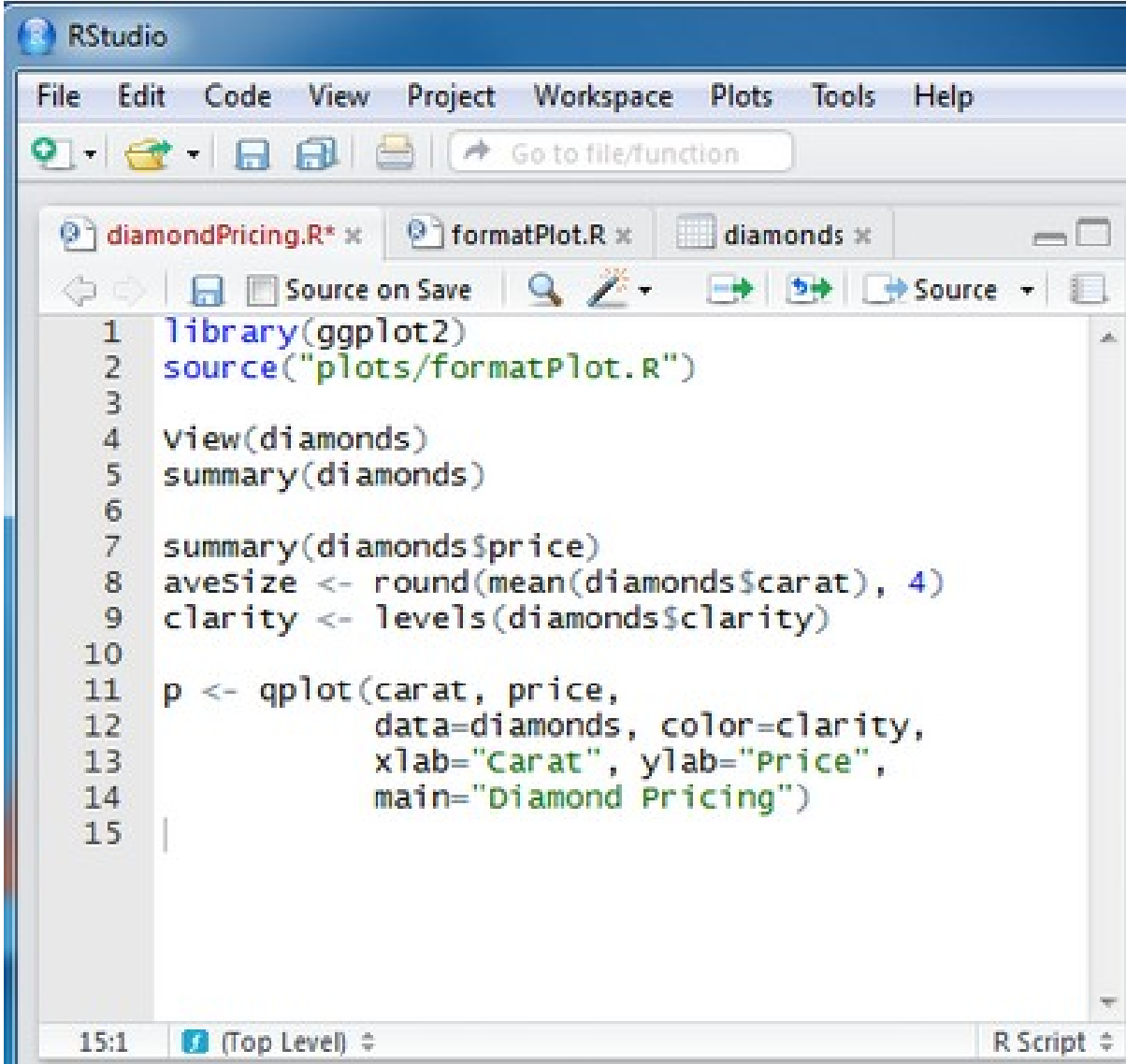
- Editor:** Contains R code for loading ggplot2, summarizing the 'diamonds' dataset, and creating a faceted plot 'p' of Price vs. Carat, colored by Clarity.
- Workspace:** Shows the 'diamonds' data frame (53940 obs. of 10 variables) and the 'p' ggplot object.
- Console:** Displays the output of the R commands, including summary statistics for 'x', 'y', and 'z' (likely carat, price, and depth), and the execution of the plot creation commands.
- Plots:** Shows a faceted scatter plot titled 'Diamond Pricing' with 'Price' on the y-axis (0 to 15000) and 'Carat' on the x-axis (0.0 to 3.5). The plot is faceted by 'Clarity' with a legend on the right showing categories: I1, SI2, SI1, VS2, VS1, VVS2, VVS1, and IF.

2. Workspace (Variables) and History

3. Plots, etc.

4. Console

Editor window



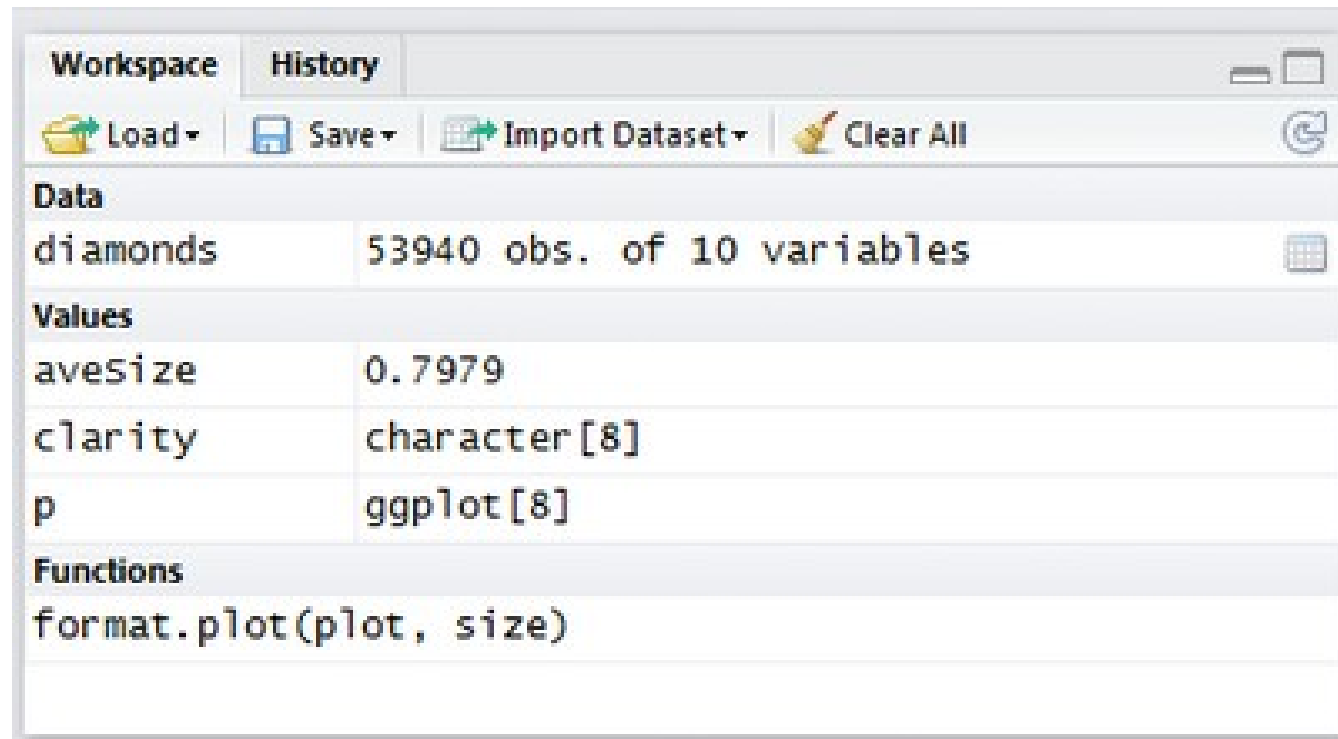
The image shows the RStudio editor window. The title bar reads "RStudio". The menu bar includes "File", "Edit", "Code", "View", "Project", "Workspace", "Plots", "Tools", and "Help". Below the menu bar is a toolbar with icons for file operations and a search bar labeled "Go to file/function". The editor pane shows three open files: "diamondPricing.R*", "formatPlot.R", and "diamonds". The "diamondPricing.R" file is active and contains the following R code:

```
1 library(ggplot2)
2 source("plots/formatPlot.R")
3
4 view(diamonds)
5 summary(diamonds)
6
7 summary(diamonds$price)
8 aveSize <- round(mean(diamonds$carat), 4)
9 clarity <- levels(diamonds$clarity)
10
11 p <- qplot(carat, price,
12            data=diamonds, color=clarity,
13            xlab="Carat", ylab="Price",
14            main="Diamond Pricing")
15 |
```

The status bar at the bottom shows "15:1" and "(Top Level)". The file type is identified as "R Script".

Edit and save scripts.

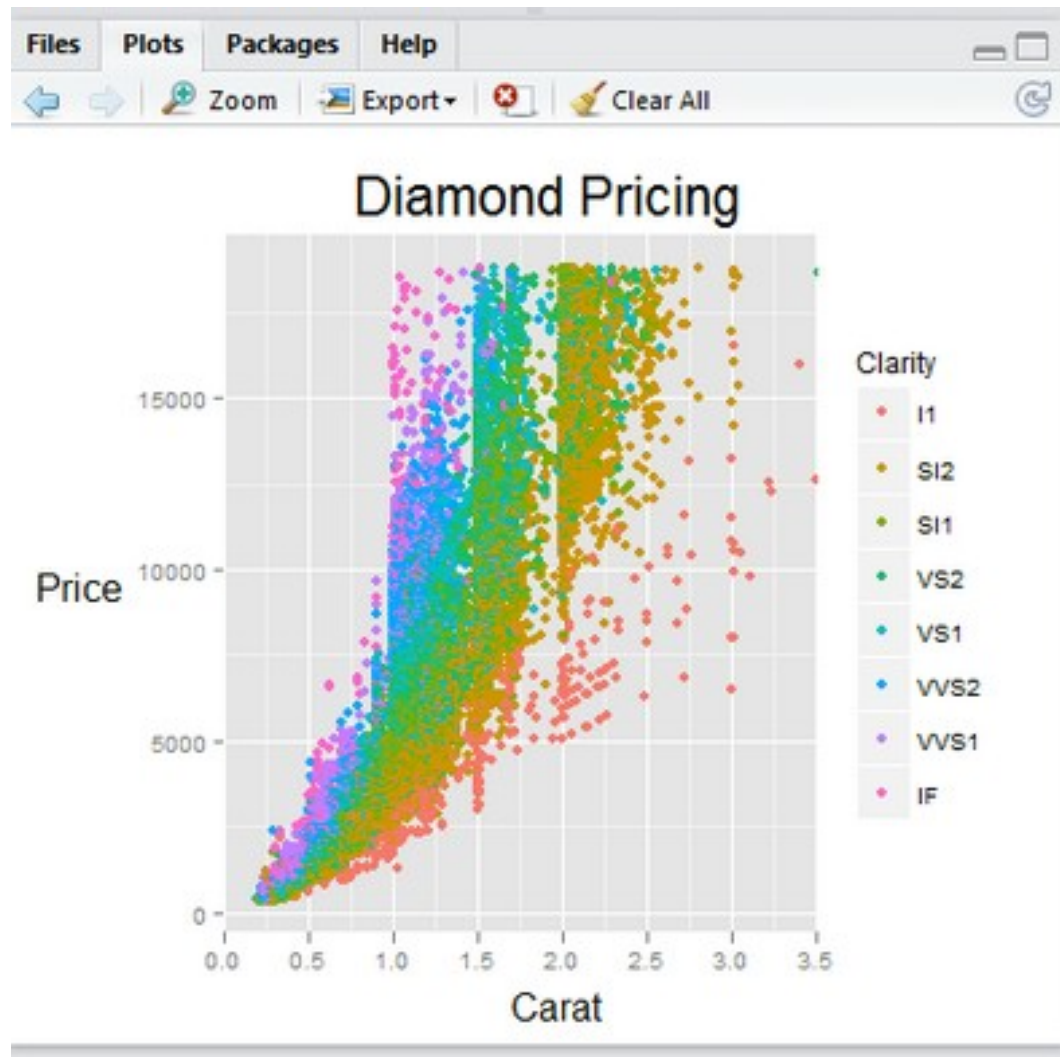
Workspace and History window



Pick a tab to:

- View current variables
- View historical commands





Plot window



Pick a tab to:

- View current Files and Directories
- View current Plots
- Review loaded Packages
- Read Help and Documentation

Console window

```
Console ~/      
  
      x              y              z  
Min.   : 0.000      Min.   : 0.000      Min.   : 0.000  
1st Qu.: 4.710      1st Qu.: 4.720      1st Qu.: 2.910  
Median : 5.700      Median : 5.710      Median : 3.530  
Mean   : 5.731      Mean   : 5.735      Mean   : 3.539  
3rd Qu.: 6.540      3rd Qu.: 6.540      3rd Qu.: 4.040  
Max.   :10.740      Max.   :58.900      Max.   :31.800  
> summary(diamonds$price)  
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.   
   326   950   2401   3933   5324   18820   
> aveSize <- round(mean(diamonds$carat), 4)  
> clarity <- levels(diamonds$clarity)  
> p <- qplot(carat, price,  
+           data=diamonds, color=clarity,  
+           xlab="carat", ylab="Price",  
+           main="Diamond Pricing")  
>  
> format.plot(p, size=24)  
> |
```

The command line:

- Issue commands
- See the results
- Get error messages

RStudio environment: summary

1. Editor

The screenshot displays the RStudio interface with four main panels:

- Editor:** Contains R code for loading data, summarizing it, and creating a plot.
- Workspace:** Shows the 'diamonds' data frame with 53,940 observations and 10 variables, along with the 'ggplot2' package.
- Console:** Displays the output of the R commands, including summary statistics for 'x', 'y', and 'z' variables, and the execution of the plot function.
- Plots:** Shows a scatter plot titled 'Diamond Pricing' with 'Carat' on the x-axis and 'Price' on the y-axis. Points are colored by clarity, with a legend on the right.

```
1 library(ggplot2)
2 source("plots/formatPlot.R")
3
4 view(diamonds)
5 summary(diamonds)
6
7 summary(diamonds$price)
8 aveSize <- round(mean(diamonds$carat), 4)
9 clarity <- levels(diamonds$clarity)
10
11 p <- qplot(carat, price,
12           data=diamonds, color=clarity,
13           xlab="Carat", ylab="Price",
14           main="Diamond Pricing")
15
```

	x	y	z
Min.	0.000	0.000	0.000
1st Qu.	4.710	4.720	2.910
Median	5.700	5.710	3.530
Mean	5.731	5.735	3.539
3rd Qu.	6.540	6.540	4.040
Max.	10.740	58.900	31.800

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
price	326	950	2401	3933	5324	18820

2. Workspace (Variables) and History

3. Plots, etc.

4. Console

R Practical Matters



- R is case sensitive (R != r)
- Command line prompt is >
- To run R code: use command line, or save script and `source("script_name")`
- To separate commands, use ; or a newline
- The # character marks a non-executed *comment*
- To display help files:
`?<command-name>` or `??<command-name>`



RStudio basics and tips

- Up-arrow and history pane: access and edit previous commands
- You can change window size in the IDE by dragging window borders
- Ctrl-L clears the console window
- Broom icon clears Workspace or Plots
- Is your Project loaded? Check upper right.



...is free

If you want to experiment further with R and RStudio, you can install them on your favorite operating system at home.

First, install R:

<http://cran.r-project.org/>

Then, install the Rstudio IDE:

<http://www.rstudio.com/ide/>