```
library(dplyr)

rladies_global %>%
  filter(city == 'Orlando')
```


# R-Ladies Orlando

## Intro to R and Rstudio + Data Visualization with ggplot2

# *A Very Special Thank You*

TEEPS

MOBILE APP DEVELOPMENT

# Hello!

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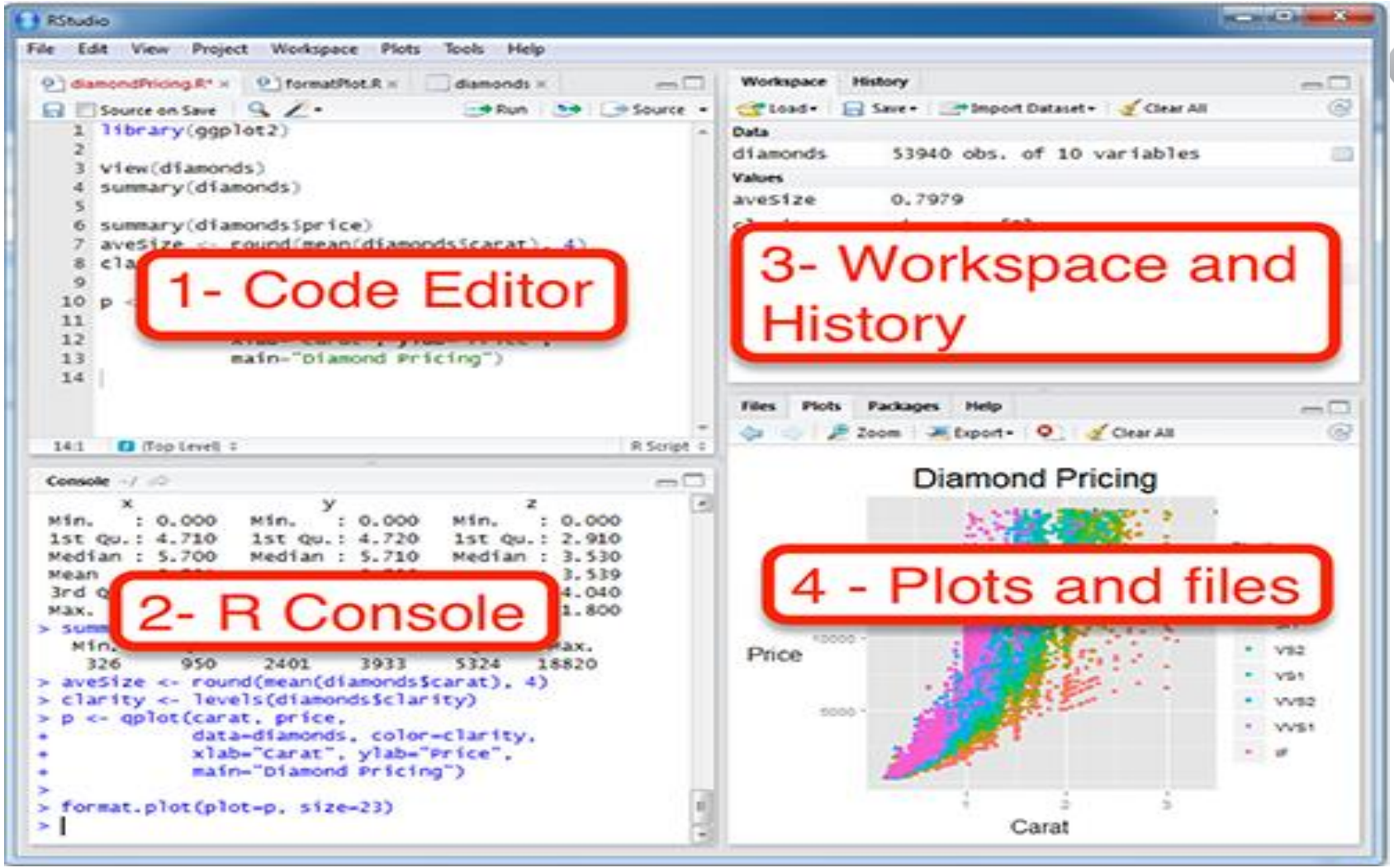
RStudio
File Edit View Project Workspace Plots Tools Help
diamondPricing.R* formatPlot.R diamonds
Source on Save Run Source
1 library(ggplot2)
3 View(diamonds)
4 summary(diamonds)
6 summary(diamonds$price)
7 aveSize <- round(mean(diamonds$carat), 4)
10 p <
13 main="Diamond Pricing")
14:1 (Top Level) R Script
1- Code Editor
Workspace History
Load Save Import Dataset Clear All
Data
diamonds 53940 obs. of 10 variables
Values
aveSize 0.7979
3- Workspace and History
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 3.539
3rd Qu. 4.040
Max. 1.800
> summary(diamonds$price)
Min. Max.
326 950 2401 3933 5324 18820
> aveSize <- round(mean(diamonds$carat), 4)
> clarity <- levels(diamonds$clarity)
> p <- qplot(carat, price,
+ data=diamonds, color=clarity,
+ xlab="Carat", ylab="Price",
+ main="Diamond Pricing")
> format.plot(plot=p, size=23)
2- R Console
Files Plots Packages Help
Zoom Export Clear All
Diamond Pricing
Price
Carat
VS2
VS1
VVS2
VVS1
IF
4 - Plots and files

# Variables: characters & integers

```r
# Create a new script: File -> New file -> R Script
# Now let's create a variable!
a <- 2

# Look at the Environment section to see variables you've made and their current values.
# Change the value of a, then look at the Environment section to see the updated value.
a <- 3 + 5

# c() creates a vector: a sequence of data points of the same type
b <- c(1,3,5,7,9)
b <- 1:12

# Now try this: what happens?
c <- c(4,3,"5",4)

# Let's explore. Try this:
c <- "5"

# Now try this:
c <- 5
a <- "RStudio"                    # quotation marks make character variables
a <- as.character(5)    # this is another way to make the character variable type
```

# Variables: Boolean Data

```
# Boolean or logical variables only have true and false options.
# Computers see "true" as 1 and "false" as 0.

# Make this variable and then look at the Environment section to look at the variable type.
a <- TRUE
a <- c(TRUE, FALSE, FALSE, TRUE)


# There are also questions you can ask R that will give boolean answers.
# Ask R whether a is a numeric (non-character) variable.
is.numeric(a)

## [1] FALSE

# a is a boolean variable, not a numeric variable

# Even though the computer sees true as 1 and false as 0, it can tell that you made a boolean
# variable because you typed TRUE and FALSE when you created it.


# Now try these questions:

is.logical(a)


is.character(a)
```

# Functions

```r
# We have been using functions to ask R questions and to give it tasks.
# The functions we have used so far are:
c()
as.character(5)
is.numeric(a)
is.logical(a)
is.character(a)

# Functions have a function name (c, as.character, is.numeric etc)
# The function name is followed by curved brackets:()
# Functions always have these brackets, even if there's nothing inside.
# The area inside the brackets can be used to give the function information
as.character(5)

# Here we are giving the function as.character() the information 5.
# This means that it checks whether 5 is a character


# If we wanted to store the result that the function gives us, we can make the answer into a
# stored variable like this:

b <- as.character(5)


# What variable type would b be, and what would its value be?
```

# Data Frames and Tibbles

```
# The data.frame() function makes data frames out of your data
# A data frame is like a table: it stores your data neatly
# The data frame structure is used in most applications of R.


# Create three vectors: a, b, c.
# (Reminder: a vector is a sequence of data that has the same variable type)
a <- c(1,2,3,4,10,11,12)
b <- c(5,6,7,8,13,14,15)
c <- c("yes","no","no","yes","no","yes","yes”)

 # Combine these vectors to make and store a data frame called myData
 # (or call it something else if you want!)
 myData <- data.frame(a,b,c)

 # Now run this function:
 head(myData,3)

 # In Tidyverse will be using the term tibble. Tibbles are data frames, but they tweak some older
 # behaviors to make life a little easier.

 as.tibble()
```

# Data Frames and Tibbles

```
# Data frames use the [row, column] access structure.
# To access the element in the 4th row, 2nd column of the data frame:
myData[4,2]


# To access a whole column of the data frame, use the operator $.
# This allows you to find information by name: let's find all the values with column name a.
myData$a


# To access a whole column of the data frame, use the column number in the [row,column] format.
myData[,1]


# To access a whole row of the data frame, use the row number in the [row,column] format.
myData[1,]
```


Phote credit: https://blog.musicteachershelper.com/wp-content/images/90.jpg

# Recap Basic Functions

- Load tidyverse, how do we do that??
- Create a new project or new script
- Load a dataset , today will work on the “diamonds” dataset already part of tidyverse
- getwd()
- setwd()
- head()
- tail()
- str()
- View()
- summary()

# Why we should always visualize our data:

- https://www.autodeskresearch.com/publications/samestats

- https://fivethirtyeight.com/features/al-gores-new-movie-exposes-the-big-flaw-in-online-movie-ratings/

# Diamonds dataset

A tibble with 53940 rows and 10 variables:

| | |
|---|---|
| **price** | price in US dollars (\$326--\$18,823) |
| **carat** | weight of the diamond (0.2--5.01) |
| **cut** | quality of the cut (Fair,Good,Very,Good,Premium,Ideal) |
| **color** | diamond color, from J (worst) to D (best) |
| **clarity** | a measurement of how clear the diamond is (I1 (worst), SI2, SI1, VS2, VS1, VVS2, VVS1, IF (best)) |
| **x** | length in mm (0--10.74) |
| **y** | width in mm (0--58.9) |
| **z** | depth in mm (0--31.8) |
| **depth** | total depth percentage = z / mean(x, y) = 2 * z / (x + y) (43--79) |
| **table** | width of top of diamond relative to widest point (43--95) |

# Let’s go to Rstudio:




thank you
merci
danke
謝謝
gracias
ngiyabonga
teşekkür ederim
рахмат
спасибо
obrigado
dziękuję
bedankt
go raibh maith agat
sukriya
kop khun krap
terima kasih
grazie
arigatô
dakujem
tapadh leat
mochchakkeram
dank je
maururu
hvala
sagolun
takk
taiku
Баярлалаа
faafetai lava
kiitos
dankie
dhanyavad
nanni
nandri
köszönöm
bayarlalaa
grâcie
enkosi
vinaka
blagodaram
спасибі
kia ora
barka
welalin
tack
spas
mersi
misaotra
matondo
paldies
grazzi
mahalo
хвала
asante
manana
obrigada
tenki
murakoze
chokrane
djiere dieuf
tau
дякую
mamnun
akun
dankon
aciu
chnorakaloutioun
gratias ago
gràcies
sulpáy
sobodi
děkuji
mèsi
didi madloba
najis tuke
kam sah hamnida
rahmat
তোমাকে ধন্যবাদ
ありがとう
감사합니다
tanemirt
rahmet
xièxie
ευχαριστώ
diolch
dhanyavadagalu
shukriya
merci
мерси
trugarez