

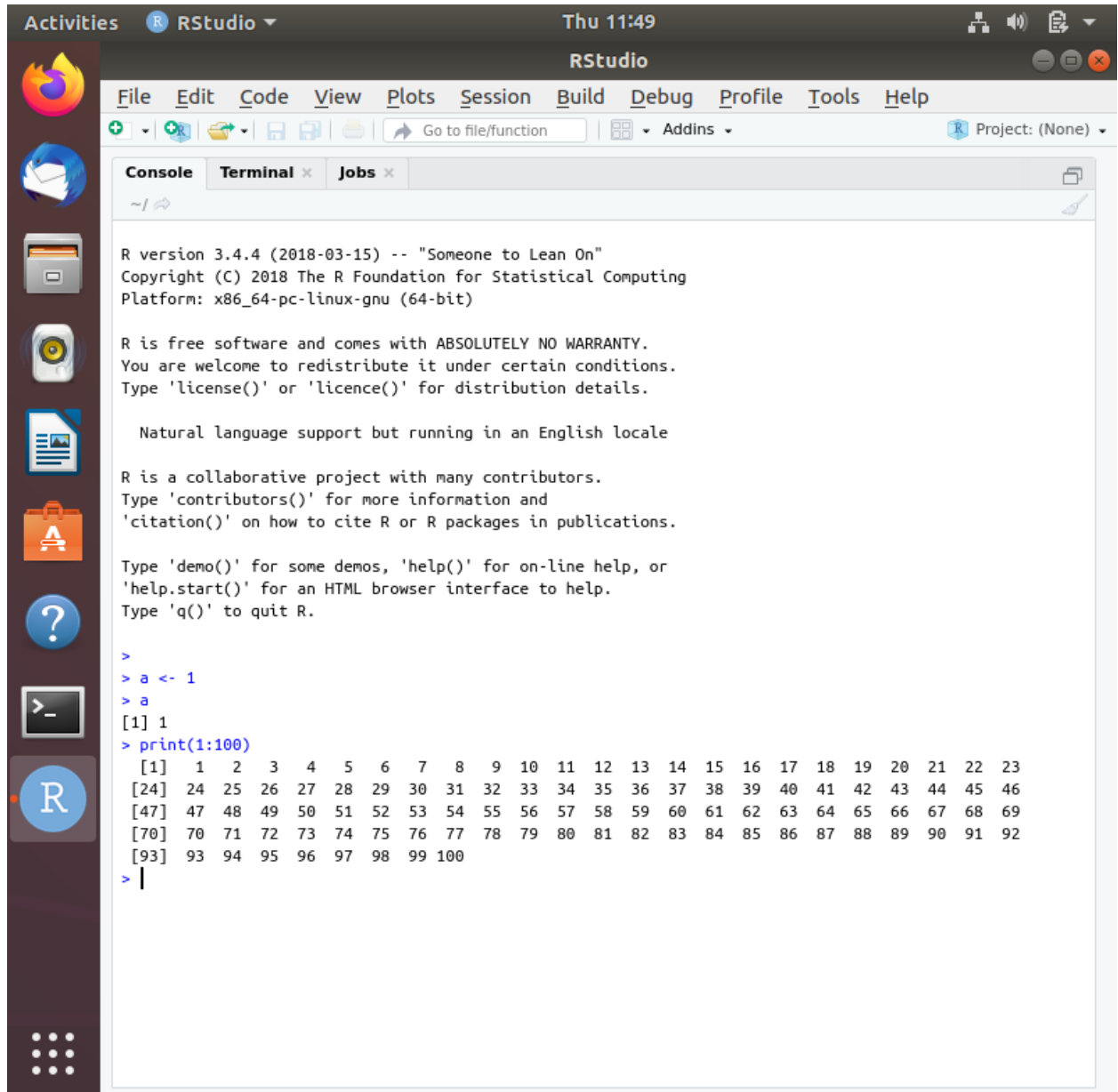
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February 18<sup>th</sup>, 2020

CSC 583

## Homework

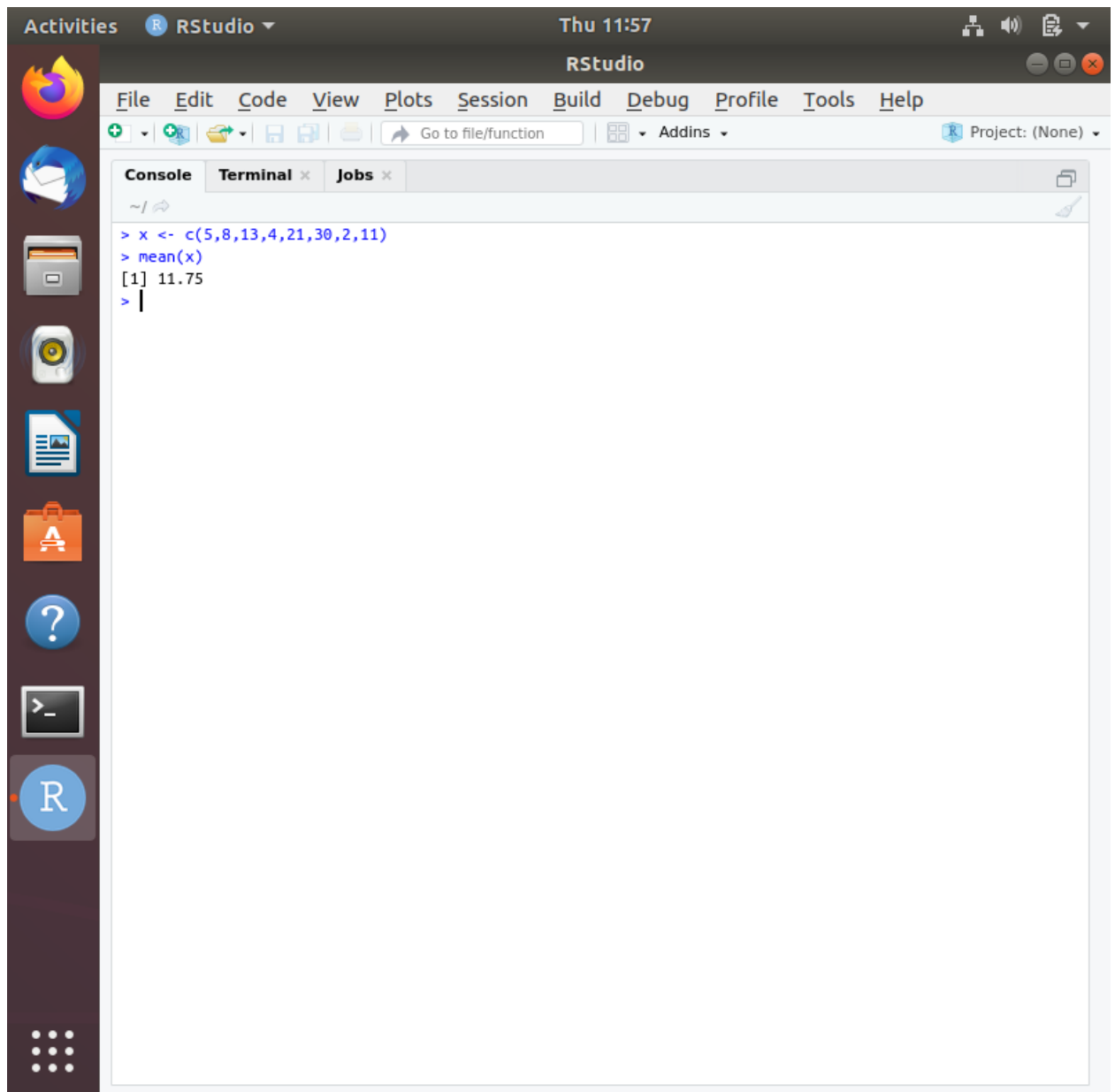
1)



The screenshot shows the RStudio interface with the console window active. The console displays the R startup message and the following commands and outputs:

```
>
> a <- 1
> a
[1] 1
> print(1:100)
[1] 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
[24] 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
[47] 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69
[70] 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92
[93] 93 94 95 96 97 98 99 100
> |
```

2)



3)

Activities RStudio Tue 22:06 RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

mtcars x

Filter

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Lotus Europa	30.4	4	95.1	113	3.77	1.513	16.90	1	1	5	2

Showing 1 to 2 of 32 entries, 11 total columns

Console Terminal x Jobs x

~/Documents/

```
> height <- c(1.75,1.80,1.90)
> mass <- c(70,73,83)
> bmi <- mass/(height^2)
> bmi
[1] 22.85714 22.53086 22.99169
>
```

4) Both are numeric class

5)

The screenshot shows the RStudio environment. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. The top status bar shows 'Tue 22:13' and 'RStudio'. The left sidebar contains icons for Activities, RStudio, and various system utilities.

The main window displays the `mtcars` dataset. The top toolbar includes icons for file operations and a search bar. The dataset is shown in a table format with columns: `mpg`, `cyl`, `disp`, `hp`, `drat`, `wt`, `qsec`, `vs`, `am`, `gear`, and `carb`. The first row is highlighted, showing values for `Lotus Europa`.

The console window shows the following R code and output:

```
> data(OrchardSprays)
> df_ten = head(OrchardSprays, n=10)
> df_ten
  decrease rowpos colpos treatment
1      57      1      1          D
2      95      2      1          E
3       8      3      1          B
4      69      4      1          H
5      92      5      1          G
6      90      6      1          F
7      15      7      1          C
8       2      8      1          A
9      84      1      2          C
10     6      2      2          B
> |
```

The right sidebar contains the Environment pane, which lists the objects `df_ten` and `mtcars` with their respective data types (numeric). Below the Environment pane are the Files and Plots panes, which are currently empty.

6)

Activities RStudio Tue 19:52 RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Source

Console Terminal Jobs

```
> gears <- factor(mtcars$gear, labels = c("3 gears", "4 gears", "5 gears"))
> print(gears)
 [1] 4 gears 4 gears 4 gears 3 gears 3 gears 3 gears 3 gears 3 gears 4 gears 4 gears 4 gears 4 gears 3 gears 3 gears
[14] 3 gears 3 gears 3 gears 3 gears 3 gears 4 gears 4 gears 4 gears 4 gears 3 gears 3 gears 3 gears 3 gears 4 gears
[27] 5 gears 5 gears 5 gears 5 gears 5 gears 5 gears 4 gears
Levels: 3 gears 4 gears 5 gears
> cyl <- factor(mtcars$cyl, labels = c("4cyl", "6cyl", "8cyl"))
> print(cyl)
 [1] 6cyl 6cyl 4cyl 6cyl 8cyl 6cyl 8cyl 4cyl 4cyl 6cyl 6cyl 8cyl 8cyl 8cyl 8cyl 8cyl 4cyl 4cyl 4cyl 8cyl
[23] 8cyl 8cyl 8cyl 4cyl 4cyl 4cyl 8cyl 6cyl 8cyl 4cyl
Levels: 4cyl 6cyl 8cyl
> am <- factor(mtcars$am, labels = c("manual", "automatic"))
> print(am)
 [1] automatic automatic automatic manual manual manual manual manual manual manual manual
[12] manual manual manual manual manual manual manual automatic automatic automatic manual manual
[23] manual manual manual automatic automatic automatic automatic automatic automatic automatic
Levels: manual automatic
>
```

Environment

Global Environment

qsec: num 16

vs : num 0 0

am : num 1 1

gear: Factor

carb: num 4

Values

am

cyl

gears

Files Plots

R: Factors Find

is.factor, is.

for these classe

Usage

factor(x = ch

exclud

ordered(x, ..

is.factor(x)

is.ordered(x)

as.factor(x)

as.ordered(x)

addNA(x, ifan

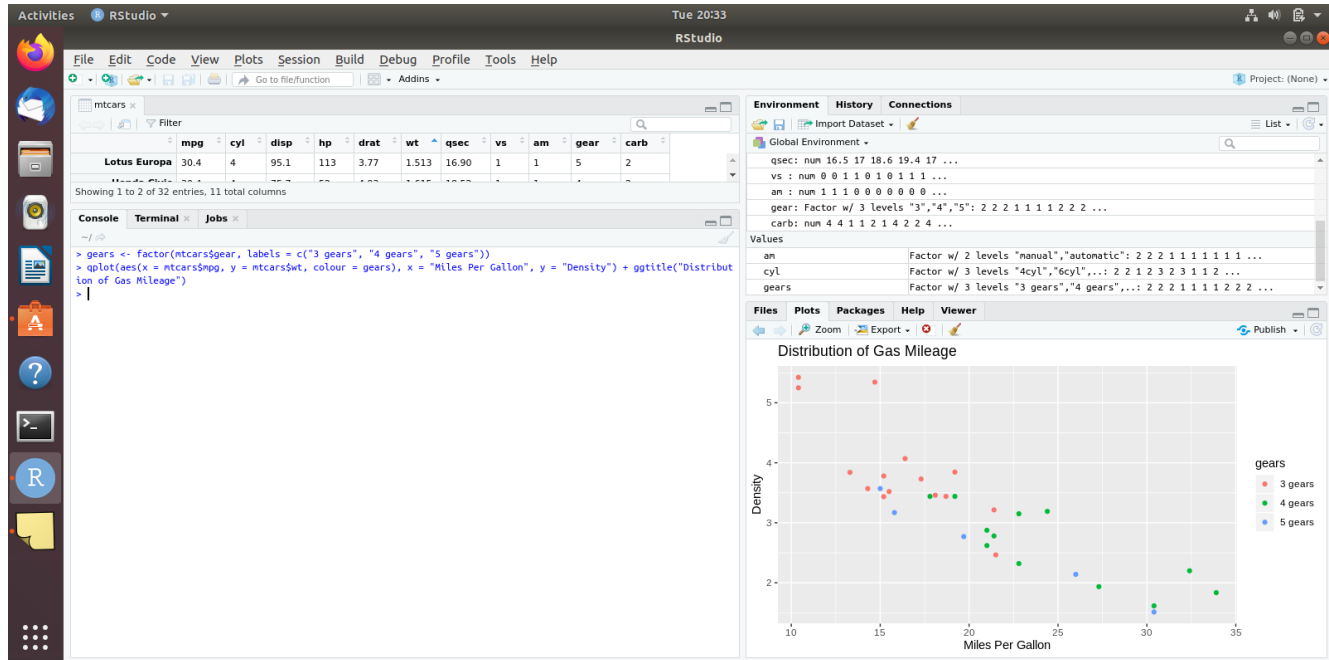
Arguments

x a ve

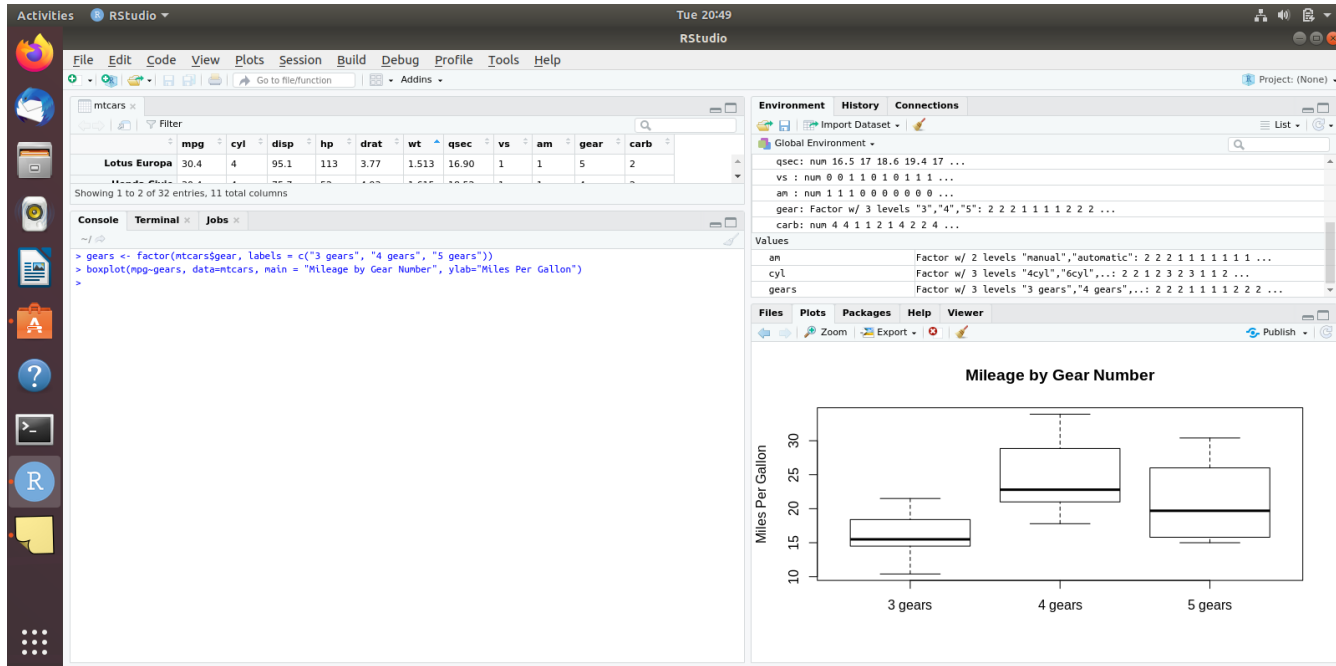
levels an o

defa

7)



8)



9)

Activities RStudio Tue 22:00 RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

mtcars x

Filter

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Lotus Europa	30.4	4	95.1	113	3.77	1.513	16.90	1	1	5	2

Showing 1 to 2 of 32 entries, 11 total columns

Console Terminal Jobs

```
~/Documents/
> df_csv <- read.csv("hw1-q9.csv")
Warning message:
In read.table(file = file, header = header, sep = sep, quote = quote, :
  incomplete final line found by readTableHeader on 'hw1-q9.csv'
> df_csv
  id name salary start_date dept
1  1 Rick  623.3 2012-01-01  IT
2  2 Emily 611.0 2014-11-15  IT
3  3 Sarah 578.0 2013-05-21  IT
> df_max <- df_csv$name[which.max(df_csv$salary)]
> df_max
[1] Rick
Levels: Emily Rick Sarah
> df_salary <- data.frame(df_max, df_csv)
> df_salary
  df_max id name salary start_date dept
1 Rick  1 Rick  623.3 2012-01-01  IT
2 Rick  2 Emily 611.0 2014-11-15  IT
3 Rick  3 Sarah 578.0 2013-05-21  IT
> |
```

Environment

Global Environment

df\_salary

mtcars

mpg : num 2

cyl : num 6

disp : num 16

hp : num 110

drat : num 3

wt : num 2.6

qsec : num 16

Files Plots

R: Maxima and Minima

S4 methods

max and min arguments

X, ..., na.rm = FALSE

Note

'Numeric' arguments

historical reasons

pmax and pmin

comparison, is

References

Becker, R. A., Chambers

Brooks/Cole.

See Also

[range](#) (both min and max)

extreme values