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Contents

Chapter 1

Ready?

1.1 R(Studio)

- R
- RStudio R R

1.2 Tips!

- R

1. R by
   R
2. R by &
   Tidyverse R

1.3 R(Studio)

- (https://posit.co/download/rstudio-desktop/)
- 1:Install R R
- 2:Install RStudio RStudio
- R

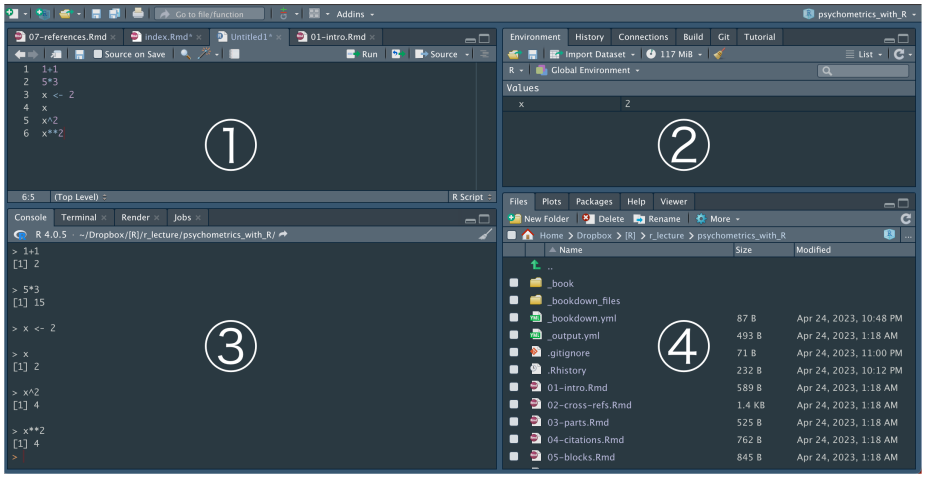
Chapter 2

Go!!

-

2.1 RStudio

- RStudio
-



2.2

- RStudio

- Console
-
- `>` `1+1` **Enter mac return**
- `[1] 2`
- 2 `1+1` `[1] 1`

2.3 R

- Rstudio

- **R**

R

- RStudio R Script
- R
- 1 `1+1` **ctrl+Enter mac command+return**

- (`[1] 2`)

- R **ctrl+s mac command+s**
-
- R ×
- R

- R

-
- 2 `5-2`
- 2 **ctrl+Enter**
- 2 (`[1] 3`)
- 1 **ctrl+Enter**
- 1 (`[1] 2`)
- **ctrl+Enter**
- **ctrl+shift+Enter mac command+shift+return**
- **ctrl+Enter**

R

1.
2.

3.

…

2.4

- R
- R

- New Directry → New Project

- Create Project

-
- .Rproj
- mac Document sugoi_project

-
-

1. .Rproj Rstudio
2.

Chapter 3

-
- GW
-
- GW R

3.1

R object R

```
first_object <- 1
```

first_object 1 <-
OK

```
first_object
```

```
## [1] 1
```

[1] 1 1

() second_object 2

```
(second_object <- 2)
```

```
## [1] 2
```

” “

```
first_string_object <- "Ritsumeikan University"
first_string_object
```

```
## [1] "Ritsumeikan University"
```

first_string_object "Ritsumeikan University"

1 c()

```
first_vector_object <- c(1, 2, 3, 4, 5)
first_vector_object
```

```
## [1] 1 2 3 4 5
```

first_vector_object 1 5

- third_object 10000
- my_name
- second_vector_object 1, 1, 2, 3, 5, 8

3.2

R +, -

```
1 + 1
```

```
## [1] 2
```

```
5 - 2
```

```
## [1] 3
```

* / ^ Excel

```
2 * 3
```

```
## [1] 6
```

```
10 / 2
```

```
## [1] 5
```

```
4 ^ 2
```

```
## [1] 16
```

'age' 10

```
age <- 20
age + 10
```

```
## [1] 30
```

1 + 1 one_plus_one

```
one_plus_one <- 1 + 1
one_plus_one
```

```
## [1] 2
```

one_plus_one 2

- a 3 b 4
- a, b 2 25

3.3 5.3

R function ( ) argument

3.3.1

R sqrt()

```
sqrt(4)
```

```
## [1] 2
```

sqrt() 4 4 2 log()

- a 3 b 4
- a, b 2 5
  sqrt()

3.3.2

age_vector <- c(18, 21, 22, 23, 34)

min()

```
age_vector <- c(18, 21, 22, 23, 34)
min(age_vector)
```

```
## [1] 18
```

18 max()

mean() median() sd()

```
mean(age_vector)
```

```
## [1] 23.6
```

```
median(age_vector)
```

```
## [1] 22
```

```
sd(age_vector)
```

```
## [1] 6.107373
```

- income_vector 10, 100, 1000, 10000, 100000
- income_vector

3.4

R

age_vector gender_vector `data.frame()`

```
age <- c(18, 21, 22, 23, 34) #
gender <- c("female", "male", "male", "female", "female") #
first_dataframe <- data.frame(age, gender)
first_dataframe
```

```
##   age gender
## 1  18 female
## 2  21   male
## 3  22   male
## 4  23 female
## 5  34 female
```

1 18 2 21 ... Excel R

$ first_dataframe

```
first_dataframe$gender
```

```
## [1] "female" "male"   "male"   "female" "female"
```

```
mean(first_dataframe$age)
```

```
## [1] 23.6
```

- income 10, 100, 1000, 10000, 100000
- city ”ibaraki”, “takatsuki”, “ibaraki”, “takatsuki”, “takatsuki”
- income city income_data
- income_data income

Chapter 4

-
- GW
-
- GW R

RStudio

4.1

Chapter 2

CSV .csv Excel .xlsx, .xls

1

4.2

4.2.1 CSV .csv

CSV `read.csv` sotsuron.csv

```
data_original <- read.csv("sotsuron.csv")
```

csv data_original data_original

- tidy_data.csv https://www.dropbox.com/s/wm46esg4dicye8j/tidy_data.csv?dl=0
- `read.csv` data

4.3

“Environment” data `head(data)` `str(data)`