

M11 – Introduction

LearningSpoonsR

2019-01-29

강의 소개

설치 및 준비

논 의

수업 과정

강의 소개

강의 소개

강의 일정 및 소통

- ▶ 1/28(월), 2/11(월), 2/18(월), 2/25(월), 3/4(월)
- ▶ 2/4(월) 휴강
- ▶ facebook에서 “Minkyu Sim” 검색 후 친구 신청 → 페이스북 그룹에 넣어드림
- ▶ 강의 자료 페이지 <https://github.com/LearningSpoonsR/LS-DS>
- ▶ learingSpoonsR@gmail.com (강사 이메일)
- ▶ 김형중 매니저

프로젝트 소개

수강생 프로젝트 소개

- ▶ <http://bitly.kr/1G0Q>

M41으로 보는 강의 목표

- ▶ 상관관계 (correlation) vs 인과관계 (causation)

1. income \rightarrow 기대수명
2. 부모수명 \rightarrow 자녀수명
3. 쌍둥이 형 \rightarrow 쌍둥이 동생

- ▶ $Y = \beta_0 + \beta_1 X + \epsilon$

1. $y = ax + b$
2. β_1
3. β_0
4. ϵ

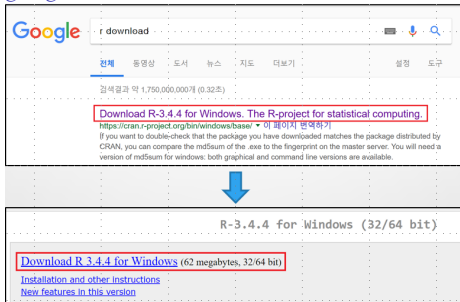
설치 및 준비

R 설치

설치 전 할일

- ▶ 윈도우 사용자 계정을 영어로 바꿔주세요.
 - ▶ 제어판 → 사용자 계정 → 계정 이름 변경 → 영어로 입력
 - ▶ 앞으로도 R파일과 데이터 파일 등도 가급적이면 영어로 다루는게 편리합니다.

google에서 “R download”를 검색하고 다운받아 설치합니다.



R Studio 설치

google에서 “R Studio download”를 검색하고 다운받아 설치합니다.

The screenshot shows a Google search for "R STUDIO download". The search results include a link to the RStudio download page. Below the search results, the RStudio website is displayed. The website has a navigation bar with links for Products, Resources, Pricing, and About Us. The main content area is titled "Choose Your Version of RStudio" and features a large "DOWNLOAD" button. Below the button, there is a table of installers for supported platforms.

R STUDIO download

전체 동영상 이미지 도서 뉴스 더보기 설정 도구

검색결과 약 8,960,000개 (0.36초)

Download RStudio – RStudio
<https://www.rstudio.com/products/rstudio/download/> ▾ 이 페이지 번역하기

2018. 3. 15. - RStudio includes a console, syn tools for plotting, viewin features.
 이 페이지를 여러 번 방

Choose Your Version of RStudio

RStudio is a set of integrated tools designed to help you be more productive with R. It includes a console, syntax-highlighting editor that supports direct code execution, and a variety of robust tools for plotting, viewing history, debugging and managing your workspace. [Learn More about RStudio features.](#)

RStudio Desktop Open Source License FREE
 RStudio Desktop \$995
 RStudio Server Pto +

DOWNLOAD
 Learn More

Installers for Supported Platforms

| Installer | Size | Date | MD5 |
|--|---------|------------|----------------------------------|
| RStudio 1.1.442 - Windows 64-bit (64-bit) | 85.8 MB | 2018-03-12 | 25a6eb8ecae4f971901c977dbcfb104b |
| RStudio 1.1.442 - Mac OS X 10.6+ (64-bit) | 74.5 MB | 2018-03-12 | 89613427803a1e516372075ec2e2d4b2 |
| RStudio 1.1.442 - Ubuntu 12.04-15.10/Debian 8 (32-bit) | 89.3 MB | 2018-03-12 | 090fcb1fec90e3d621bc89e113c8dc28 |
| RStudio 1.1.442 - Ubuntu 12.04/15.10/Debian 8 (64-bit) | 97.4 MB | 2018-03-12 | 2c0005a6a8f12b06c7e6b343692288fd |
| RStudio 1.1.442 - Ubuntu 16.04+/Debian 9+ (64-bit) | 65.1 MB | 2018-03-12 | c9eb172938b10626f8e4d65fa81c7175 |
| RStudio 1.1.442 - Fedora 19+/Redhat 7+/openSUSE 13.1+ (32-bit) | 88.1 MB | 2018-03-12 | 77ced16b9ca8d9c636d388b842a60b1c |
| RStudio 1.1.442 - Fedora 19+/Redhat 7+/openSUSE 13.1+ (64-bit) | 90.6 MB | 2018-03-12 | 8e6435aa53fa9e9878ef9c09b641f4 |

항상 관리자 모드로 R Studio를 실행합니다.

현재 변수 및 환경

최근 명령 (Command)

Environment History Connections

Global Environment

Environment is empty

Files Plots Packages Help Viewer

Recent Files

| Name | Size | Modified |
|--------------|----------|------------|
| .Rhistory | 23.5 KB | Mar 12, 20 |
| data | 870.5 KB | Feb 18, 20 |
| ggplot.html | 3.9 KB | Feb 18, 20 |
| ggplot.R | 2.6 KB | Apr 14, 20 |
| ggplot.Rmd | 14.6 KB | Feb 20, 20 |
| rconnect | 204 B | Feb 19, 20 |
| script.docx | | |
| 새 텍스트 문서.txt | | |

Terminal

```

Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R:

>
  
```

HELP 창

R과 CPU의 통신 기록

탐색기 기능

그래프

1. 좌상 패널 (Editor)

- ▶ 메모장과 같은 기능을 제공합니다. (편집 및 저장)
- ▶ **Ctrl + Enter**
 - ▶ 커서가 있는 라인
 - ▶ 선택된 블록이 있을 경우 그것을 실행합니다.
- ▶ **Ctrl + 1**
 - ▶ 다른 패널에서 Editor 패널로 이동합니다.
- ▶ **Ctrl + Shift + 1**
 - ▶ Editor 패널을 전체화면으로 표시합니다.

2. 좌하 패널 (Console)

- ▶ DOS창 처럼 R의 명령어를 실행할 수 있습니다.
- ▶ **Ctrl + 2**
 - ▶ 다른 패널에서 Console 패널로 이동합니다.
- ▶ **Ctrl + Shift + 2**
 - ▶ Console 패널을 전체화면으로 표시합니다.
- ▶ **Terminal** 탭은 R와 CPU의 통신 기록을 보여줍니다.

3. 우상 패널

- ▶ 현재 메모리 상태등을 보여줍니다.

4. 우하 패널

- ▶ 파일 탐색기, 출력된 그래프, HELP등의 기능을 제공합니다.

아래 코드를 콘솔에 입력해보세요.

```
"Hello"  
a <- 10  
b <- a + 5  
install.packages("dplyr")  
library(dplyr)  
b
```

- ▶ 에러가 없이 수행되고 아래의 결과가 나오시나요?

```
## [1] 15
```

- ▶ 우상단 패널에서 “History” 탭을 누르면 지금까지 실행한 명령을 볼 수 있습니다.
- ▶ 이들을 카피해서 좌상단 Editor 패널에 입력하세요.
- ▶ **File** -> **Save As**를 이용해서 **first.R**로 저장하세요.
- ▶ Rstudio를 종료하고 윈도우 탐색기에서 **first.R**을 찾아 더블클릭하세요.

여러가지 설정을 할 수 있습니다.

1. Tool → Global Option →

- ▶ **Appearance**: 폰트와 색상 등을 조정
- ▶ **PANE Layout**: 모니터 크기와 작업 목적에 따라 조정
- ▶ **CODE -> Saving -> Text Encoding in -> UTF-8**: 한글이 깨지는 현상을 방지합니다.

2. 한영 전환

- ▶ 한글로 전환: `Sys.Setlocale("LC_ALL", "ko_KR.UTF-8")`
- ▶ 영어로 전환: `Sys.Setlocale("LC_ALL", "en_KR.UTF-8")`

RStudio Cheatsheet (1)

RStudio IDE : : CHEAT SHEET

Documents and Apps



Open Shiny, R Markdown, knitr, Sweave, LaTeX, JAR files and more in Source Pane

Check spelling Render output Choose output format Choose output location Insert code chunk

Jump to chunk previous to next chunk Run selected lines Publish selected to server outline Show file outline

Access markdown guide at Help > Markdown Quick Reference

Set knitr chunk options Run this and all previous code chunks Run this code chunk

RStudio recognizes that this name is **app.R**, **server.R**, **ui.R**, and **global.R** belong to a shiny app

Run app Choose location to shinyapps.io Manage app view app Publish to shinyapps.io

Write Code

Navigate Open in new window Save Find and replace Compile as notebook Run selected code

Multiple cursors/column selection with **Alt + mouse drag**

Source with or without Echo Show file outline

Code diagnostics that appear in the margin. Hover over diagnostic symbols for details.

Syntax highlighting based on your file's extension

Tab completion to finish function names, file paths, arguments, and more.

Multi-language code snippets to quickly use common blocks of code.

Change file type

Working Directory Maximize, minimize panes Press **F4** to see command history Drag panes

R Support

Import data History of past commands to run/copy Display RPres slideshows File > New File > R Presentation

Save Delete all workspace saved objects Search inside environment

Choose environment to display from list of parent environments Display objects as list or grid

Displays saved objects by type with short description View in data viewer View function source code

Create Upload Delete Rename File to Working Directory Change directory

Link to displayed directory

A file browser keyed to your working directory. Click on file or directory name to open.

Version Control with Git or SVN

Turn on at Tools > Project Options > Git/SVN

Stage Show file Commit Push/Pull staged files to remote View History

Added Deleted Modified Renamed Untracked

Open shell to type commands

Package Writing

File > New Project > New Directory > R Package

Turn project into package, Enable roxygen documentation with Tools > Project Options > R Package

Roxygen guide at Help > Roxygen Quick Reference

Pro Features

Share Project Active shared collaboration Start new R Session in current project

PROJECT SYSTEM File > New Project

RStudio saves the call history, workspace, and working directory associated with a project. It reloads each when you re-open a project.

Name of current project

RStudio opens plots in a dedicated Plots pane

Navigate recent plots Export Delete Delete all plots

GUI Package manager lists every installed package

Install Update Create reproducible package Packages library for your project

Click to load package with library(). Unlick to detach package with detach()

Package version installed library

RStudio opens documentation in a dedicated Help pane

Home page of helpful hints Search within help file Search for help file

Viewer Pane displays HTML content, such as Shiny apps, Jupyter notebooks, and interactive visualizations

Stop Shiny app Publish to shinyapps.io, refresh app

View<data> opens spreadsheet like view of data set

Filter rows by value < or value range Sort by Search for value

Debug Mode

Open with debug(), browser(), or a breakpoint. RStudio will open the debugger mode when it encounters a breakpoint while executing code.

Click next to line number to add/remove a breakpoint.

Highlighted line shows where execution has paused

Run commands in environment where execution has paused

Examine variables in executing environment

Select function in traceback to debug

Launch debugger mode from origin

Open traceback to examine the functions that the error called before the error occurred

Console -> IDE/cheatsheet/... Stop

Step through code one line at a time

Step into and out of functions to run

Resume execution mode

Quit debug



RStudio Cheatsheet (2)

1 LAUNCH

Move focus to Source Editor
Move focus to Console
Move focus to Help
Show History
Show Files
Show Plots
Show Packages
Show Environment
Show Git/SVN
Show Build

2 RUN CODE

Search command history

Navigate command history
Move cursor to start of line
Move cursor to end of line
Change working directory
Interrupt current command
Clear console

Restart R Session

Run current line/selection

Run current (retain cursor)
Run from current to end
Run the current function
Source a file
Source the current file
Source with echo

3 NAVIGATE CODE

Goto File/Function

Fold Selected
Unfold Selected
Fold All
Unfold All
Go to line
Jump to
Switch to tab
Previous tab
Next tab
First tab
Last tab
Navigate back
Navigate forward
Jump to Brace
Select within Braces
Use Selection for Find
Find in Files
Find Next
Find Previous
Jump to Word
Jump to Start/End
Toggle Outline

Windows/Linux

Ctrl+1
Ctrl+2
Ctrl+3
Ctrl+4
Ctrl+5
Ctrl+6
Ctrl+7
Ctrl+8
Ctrl+9
Ctrl+0

Mac

Cmd+1
Cmd+2
Cmd+3
Cmd+4
Cmd+5
Cmd+6
Cmd+7
Cmd+8
Cmd+9
Cmd+0

4 WRITE CODE

Attempt completion

Navigate candidates
Accept candidate
Dismiss candidates
Undo
Redo
Cut
Copy
Paste
Select All
Delete Line
Select
Select Word
Select to Line Start
Select to Line End
Select Page Up/Down
Select to Start/End
Delete Word Left
Delete Word Right
Delete to Line End
Delete to Line Start
Indent
Outdent
Yank line up to cursor
Yank line after cursor
Insert yanked text
Insert %
Show help for function
Show source code
New document
New document (Chrome)
Open document
Save document
Close document
Close document (Chrome)
Close all documents
Extract function
Extract variable
Reindent lines
(Un)Comment lines
Refactor Comment
Reformat Selection
Select within braces
Show Diagnostics
Transpose Letters
Move Lines Up/Down
Copy Lines Up/Down
Add New Cursor Above
Add New Cursor Below
Move Active Cursor Up
Move Active Cursor Down
Find and Replace
Use Selection for Find
Replace and Find

5 DEBUG CODE

Toggle Breakpoint

Toggle Next Line
Step Into Function
Finish Function/Loop
Continue
Stop Debugging

6 VERSION CONTROL

Show diff

Commit changes
Scroll diff view
Stage/Unstage (Git)
Stage/Unstage and move to next

7 MAKE PACKAGES

Build and Reload

Load All (devtools)
Test Package (devtools)
Check Package
Document Package

8 DOCUMENTS AND APPS

Preview HTML (Markdown, etc.)

Knit Document (knitr)
Compile Notebook
Compile PDF (Risk and Sweave)
Insert chunk (Sweave and Knitr)
Insert code section
Re-run previous region
Run current document
Run from start to current line
Run the current code section
Run the current chunk
Run the next chunk
Sync Editor & PDF Preview
Previous plot
Next plot
Show Keyboard Shortcuts

9 WHY RSTUDIO SERVER PRO?

RSP extends the open source server with a commercial license, support, and more:
• open and run multiple R sessions at once
• tune your resources to improve performance
• edit the same project at the same time as others
• see what you and others are doing on your server
• switch easily from one version of R to a different version
• integrate with your authentication, authorization, and audit practices
Download a free 45 day evaluation at
www.rstudio.com/products/rstudio-server-pro/

10 WINDOWS/LINUX

Shift+F9
F10
Shift+F4
Shift+F6
Shift+F5
Shift+F8

11 MAC

Cmd+Option+D
Cmd+Option+M
Cmd+Option+F
Cmd+Option+R
Cmd+Option+B
Cmd+Option+T
Cmd+Option+H
Cmd+Option+N
Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

12 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

13 MAC

Cmd+Shift+B
Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

17 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

18 MAC

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Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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Cmd+Option+F12
Cmd+Option+Shift+K

22 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

23 MAC

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Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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Cmd+Option+T
Cmd+Option+H
Cmd+Option+N
Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

27 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

28 MAC

Cmd+Shift+B
Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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Cmd+Option+H
Cmd+Option+N
Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

32 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

33 MAC

Cmd+Shift+B
Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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Cmd+Option+H
Cmd+Option+N
Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

37 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

38 MAC

Cmd+Shift+B
Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

42 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

43 MAC

Cmd+Shift+B
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Cmd+Option+F12
Cmd+Option+Shift+K

47 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

48 MAC

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51 MAC

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52 WINDOWS/LINUX

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Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

53 MAC

Cmd+Shift+B
Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

54 WHY RSTUDIO SERVER PRO?

RSP extends the open source server with a commercial license, support, and more:
• open and run multiple R sessions at once
• tune your resources to improve performance
• edit the same project at the same time as others
• see what you and others are doing on your server
• switch easily from one version of R to a different version
• integrate with your authentication, authorization, and audit practices
Download a free 45 day evaluation at
www.rstudio.com/products/rstudio-server-pro/

55 WINDOWS/LINUX

Shift+F9
F10
Shift+F4
Shift+F6
Shift+F5
Shift+F8

56 MAC

Cmd+Option+D
Cmd+Option+M
Cmd+Option+F
Cmd+Option+R
Cmd+Option+B
Cmd+Option+T
Cmd+Option+H
Cmd+Option+N
Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

57 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

58 MAC

Cmd+Shift+B
Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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Shift+F9
F10
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Shift+F5
Shift+F8

61 MAC

Cmd+Option+D
Cmd+Option+M
Cmd+Option+F
Cmd+Option+R
Cmd+Option+B
Cmd+Option+T
Cmd+Option+H
Cmd+Option+N
Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

62 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

63 MAC

Cmd+Shift+B
Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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66 MAC

Cmd+Option+D
Cmd+Option+M
Cmd+Option+F
Cmd+Option+R
Cmd+Option+B
Cmd+Option+T
Cmd+Option+H
Cmd+Option+N
Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

67 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

68 MAC

Cmd+Shift+B
Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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Shift+F8

71 MAC

Cmd+Option+D
Cmd+Option+M
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Cmd+Option+R
Cmd+Option+B
Cmd+Option+T
Cmd+Option+H
Cmd+Option+N
Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

72 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

73 MAC

Cmd+Shift+B
Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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Shift+F8

76 MAC

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Cmd+Option+R
Cmd+Option+B
Cmd+Option+T
Cmd+Option+H
Cmd+Option+N
Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

77 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

78 MAC

Cmd+Shift+B
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Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

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Shift+F8

81 MAC

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Cmd+Option+M
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Cmd+Option+R
Cmd+Option+B
Cmd+Option+T
Cmd+Option+H
Cmd+Option+N
Cmd+F8
Cmd+Option+F11
Cmd+Option+F12
Cmd+Option+Shift+K

82 WINDOWS/LINUX

Ctrl+Shift+B
Ctrl+Shift+L
Ctrl+Shift+T
Ctrl+Shift+E
Ctrl+Shift+D

83 MAC

Cmd+Shift+B
Cmd+Shift+L
Cmd+Shift+T
Cmd+Shift+E
Cmd+Shift+D

84 WHY RSTUDIO SERVER PRO?

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• open and run multiple R sessions at once
• tune your resources to improve performance
• edit the

Cheatsheet?

- ▶ 모든 문법과 명령어를 외우는 것은 불가능합니다.
 - ▶ Cheatsheet은 사용법이 정리되어 있는 문서입니다.
 - ▶ 경험을 바탕으로 Cheat Sheet과 웹 검색을 하면서 프로그래밍을 합니다.
 - ▶ “Know-how” 보다 “Know-where”가 중요하다는 얘기 들어보셨죠?
- ▶ English?
 - ▶ 검색 결과와 설명서 등은 대부분 영어로 되어있습니다.
 - ▶ Cheat Sheet을 가득 채운 영어가 겁나시나요?
 - ▶ 그러나 컴퓨터와 프로그래밍에 관련된 용어이며,
 - ▶ 약 1000개만 익히면 되므로 경험과 함께 금방 익숙해 집니다.
 - ▶ 프로그래밍에 관련된 설명은 구글/네이버 번역기으로도 쉽게 이해할 수 있습니다.

논 의

R vs Excel

▶ R에서는

1. 한 번 했던 작업을 쉽게 재현할 수 있습니다.
2. 처음에는 어렵고 오래걸릴 수 도 있습니다.
3. 익숙해지면 빠르고 정확하게 분석을 할 수 있습니다.
4. 데이터 구조와 특성에 대해서 논리적으로 사고하게 됩니다.

| - | Excel | R |
|--------|------------|--------------------------|
| 인터페이스 | GUI | Console |
| 결과 재현 | 반복해서 작업 | 정확한 재현 가능 (Reproducible) |
| 난이도 | 쉬움 | 초반의 학습 곡선 |
| 속도, 용량 | 느리고 한정적 | 빠르고 대용량 |
| 실수 | 관대함 | 결과물의 실수 없음이 보장 |
| 장점 | 눈에 보여서 직관적 | 추상적, 논리적 사고가 요구됨 |

R vs 다른 언어들

▶ R Studio의 Support

1. 안정적인 개발 환경을 제공합니다.
2. 확장 프로그램들을 통합하여 관리합니다.
3. 쉽고 직관적인 메뉴얼을 제공합니다.

▶ 다른 언어들과 비교

- ▶ MATLAB: R과 가장 유사하며 수리 계산에 강점. 유료.
- ▶ SAS: 초고용량 데이터 처리. 매우 유료.
- ▶ C, C++: 배우기 어렵지만 빠르고 다른 언어의 토대.
- ▶ JAVA: C와 유사하지만 주로 웹개발 용으로 쓰임.
- ▶ Python
 - ▶ 분석과 개발의 양쪽을 지원하여 인기가 높음
 - ▶ R에 비해서 난이도, 시각화, 문서화가 약점

R은 왜 배워야 하나요?

▶ 시대의 흐름

- ▶ 데이터에 기반한 분석과 의사결정이 필수인 시대
- ▶ 반복작업은 최대한 컴퓨터에게 맡겨야 하는 시대
- ▶ 분석과 의사 결정을 하는 도구는 시대에 따라 진화
- ▶ 암산 → 주판 → 엑셀 → 프로그래밍
- ▶ 불과 20년 전에만 해도 엑셀 1급이면 전문가였습니다. 지금은 모두가 사용합니다.
- ▶ 스마트폰에서 사진을 찍고 카톡에 첨부해서 보내는 기능도 예전에는 생소했습니다.

▶ 지적인 발전

- ▶ 유소년 교육도 구구단 → 19단 → 프로그래밍으로 트렌드 변화
- ▶ 커리어 발전을 위해 다루는 데이터 구조를 파악하고 자동으로 처리해야 합니다.
- ▶ 비전공자가 처음으로 배우기에 가장 쉽습니다.

수업 과정

목표

1. R 프로그래밍을 배웁니다.
2. 데이터 분석 프로젝트의 흐름을 익힙니다.
3. 기수강생 결과물 수준의 결과물을 만들어 냅니다.
4. Take it to your workplace!

프로젝트 과정

1. 분석
 - ▶ Design (가설 설정 및 디자인)
 - ▶ Analysis (데이터 분석)
2. 공유
 - ▶ Visulization (시각화)
 - ▶ Documentation (문서화)

강의 순서

| 주제 | Module | Note |
|------------------|---------------|--------------|
| 0. 강의 소개 | M11, M41 | . |
| 1. 기본 문법 | M12, M13 | . |
| 2. 첫 번째 프로젝트 | M21, M22 | 분석, 시각화, 문서화 |
| 3. 문서화 templates | M25, M26, M27 | pdf, docx |
| 4. advanced 시각화 | M23, M24 | . |
| 5. advanced 문서화 | M32 | html 대시보드 |
| 6. 실무 프로젝트 | M43, M46 | . |
| 7. 데이터 다루기 | M51, M52 | 전처리, 시계열 데이터 |
| 8. advanced 문서화 | M33 | 동적인 html |

Survey

1. 이름, 이메일
2. 전공
3. 프로그래밍 경험
4. 직무 소개와 수강후에 직무에 어떻게 도움이 되리라 기대하는지 말씀 부탁드립니다.

