

M1_L01_installR

Sim, Ph.D.

lastly updated on 2020-03-10

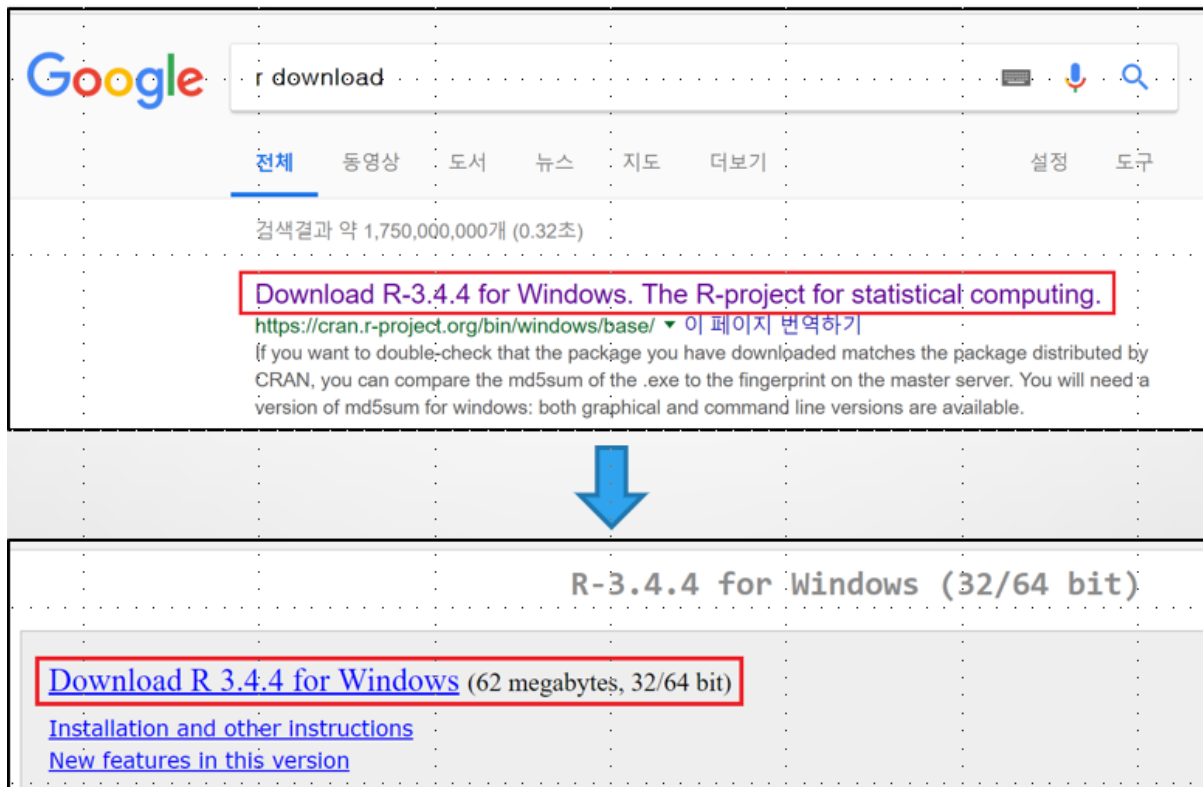
Table of Contents

I. R/Rstudio 의 설치	2
1. google 에서 “R download” 검색	2
2. google 에서 “R Studio download” 검색.....	3
3. 사용자 계정에 관련된 환경 설정	3
4. R Studio 의 실행 전 권한 셋팅	7
II. Rstudio 의 실행과 설정	8
1. 드디어 실행!!	8
2. 설치 테스트.....	9
3. 추가 설정	9
III. 간단한 실습	10
1. 코드 입력	10
2. 몇 개의 단축키	10
3. R Studio Cheatsheet.....	10
IV. Discussion	12
R Studio	12
다른 언어랑 비교	12

I. R/Rstudio 의 설치

1. google 에서 “R download” 검색

- OS 에 맞는 최신 버전 설치



The image shows a Google search interface with the query "r download". The search results display a link to "Download R-3.4.4 for Windows. The R-project for statistical computing." with the URL <https://cran.r-project.org/bin/windows/base/>. A blue arrow points down to a detailed view of the R-3.4.4 for Windows (32/64 bit) download page. This page includes a link to "Download R 3.4.4 for Windows (62 megabytes, 32/64 bit)" and links for "Installation and other instructions" and "New features in this version".

Google r download

전체 동영상 도서 뉴스 지도 더보기 설정 도구

검색결과 약 1,750,000,000개 (0.32초)

Download R-3.4.4 for Windows. The R-project for statistical computing.
<https://cran.r-project.org/bin/windows/base/> ▼ 이 페이지 번역하기
If you want to double-check that the package you have downloaded matches the package distributed by CRAN, you can compare the md5sum of the .exe to the fingerprint on the master server. You will need a version of md5sum for windows: both graphical and command line versions are available.

↓

R-3.4.4 for Windows (32/64 bit)

Download R 3.4.4 for Windows (62 megabytes, 32/64 bit)

[Installation and other instructions](#)
[New features in this version](#)

2. google 에서 “R Studio download” 검색

- R 의 설치가 완전히 완료된 이후에 설치하는 것이 좋음.
- 마찬가지로 OS 에 맞는 최신 버전 설치

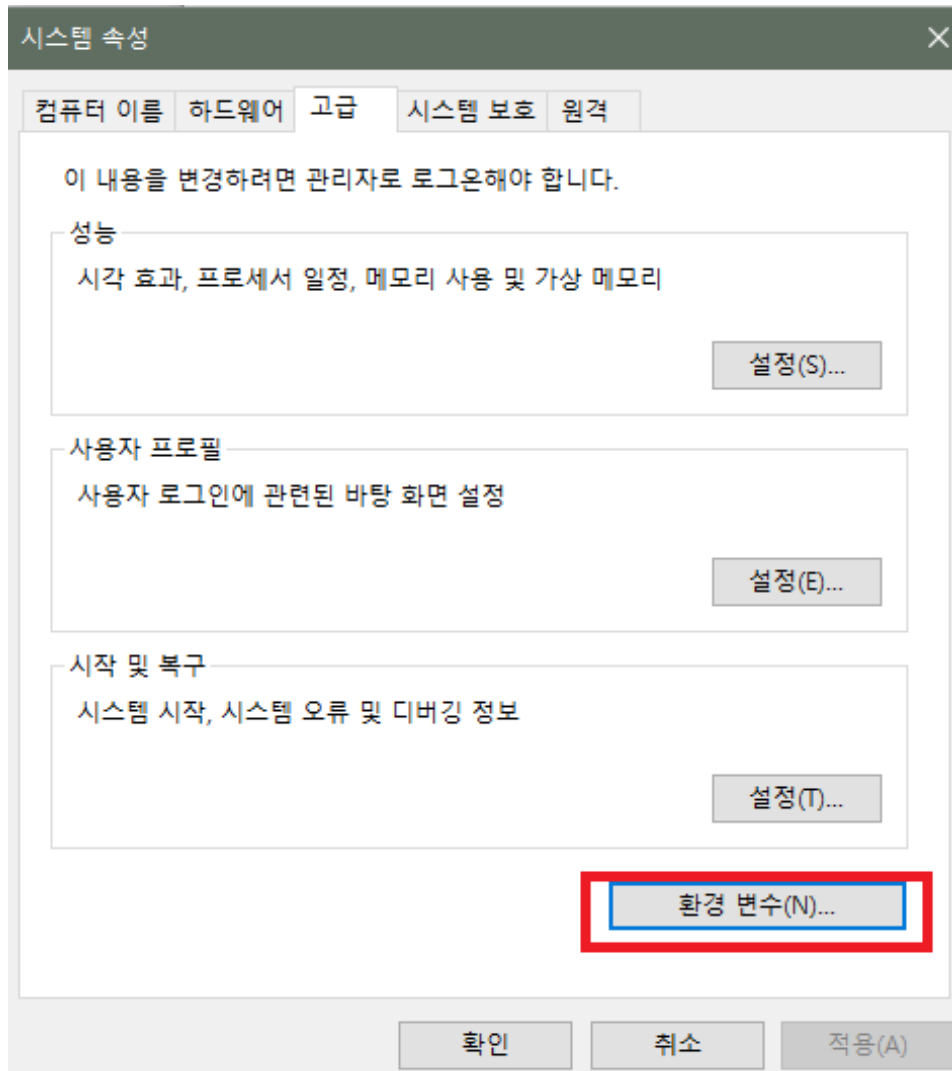
The screenshot shows a Google search for "R STUDIO download". The top result is "Download RStudio — RStudio" with the URL <https://www.rstudio.com/products/rstudio/download/>. Below the search results, there is a preview of the RStudio website. The website header says "Choose Your Version of RStudio" and describes RStudio as a set of integrated tools for R. It lists four options: "RStudio Desktop Open Source License" (FREE), "RStudio Desktop Commercial License" (\$995), "RStudio Server", and "RStudio Server Pto+". The "RStudio Desktop Open Source License" option has a "DOWNLOAD" button. Below this, there is a section titled "Installers for Supported Platforms" with a table of installers for various operating systems.

Installers	Size	Date	MD5
RStudio 1.1.442 - Windows (x64-bit)	65.8 MB	2018-03-12	25a6eb8ecae4fd71901c977dbcfb104b
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 (64-bit)	69.3 MB	2018-03-12	090fc1fec98e3d621bc89e113c8dc28
RStudio 1.1.442 - Ubuntu 12.04-15.10/Debian 8 (32-bit)	97.4 MB	2018-03-12	2c0805a6a8f12b06c7e6b343692288fd
RStudio 1.1.442 - Ubuntu 16.04+/Debian 9+ (64-bit)	65.1 MB	2018-03-12	c9eb172938b10626f6e4d65fa81c7175
RStudio 1.1.442 - Fedora 19+/RedHat 7+/openSUSE 13.1+ (32-bit)	68.1 MB	2018-03-12	77ced16b9ca8d9c636d388b842a60e1c
RStudio 1.1.442 - Fedora 19+/RedHat 7+/openSUSE 13.1+ (64-bit)	90.6 MB	2018-03-12	8e6435aa53fa0ea9878ef9c09b6419f4

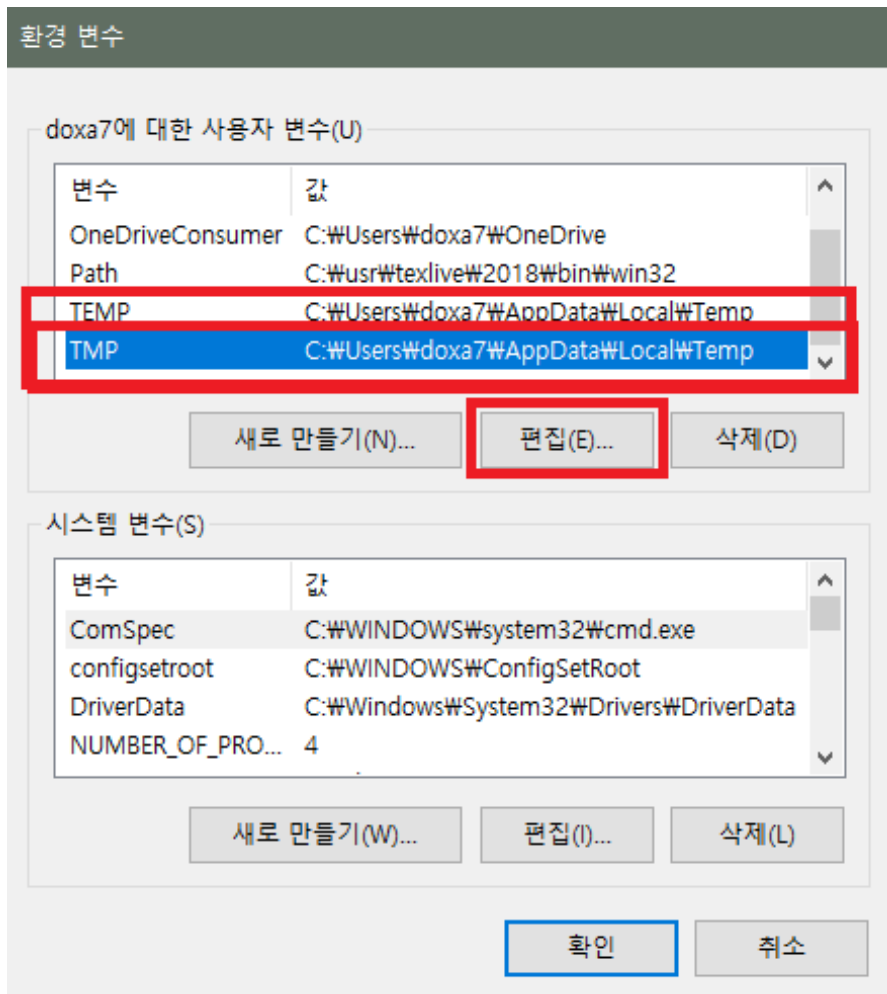
3. 사용자 계정에 관련된 환경 설정

- R/R Studio 의 경우에 많은 한글 관련 이슈가 해결되고 있는 추세이지만 아직 완벽하지 않음.
- 그러므로 윈도우 사용자 계정이 한글인 경우에는 아래의 과정을 거쳐서 각종 이슈를 미연에 방지해야 함.
- 윈도우 사용자 계정이 영어로 되어 있는 경우라면 이번 단계를 skip 해도 무방함.
- 프로그래밍을 할 예정이라면 폴더이름/파일이름등을 빈칸없이 영어로 하는 습관이 좋음.
- 빈칸이 필요한 경우에는 `south_korea` 과 같이 “underscore” 기호를 사용.

1. 제어판 → 시스템 및 보안 클릭 → 시스템 클릭 → 고급 시스템 속성 클릭 → 시스템 속성 창을 아래와 같이 띄움 (윈도우 버전이나 시스템 설정에 따라서 과정이 다를 수는 있으나 어쨌든 아래 화면을 띄워야 함)



2. 환경변수를 클릭하고 아래의 TEMP 와 TMP 항목의 값이 영어로된 경로의 폴더를 가르키게 바꾸어 줘야함. (어떤 폴더라도 상관없지만, 경로가 영어로 되어있어야 함)

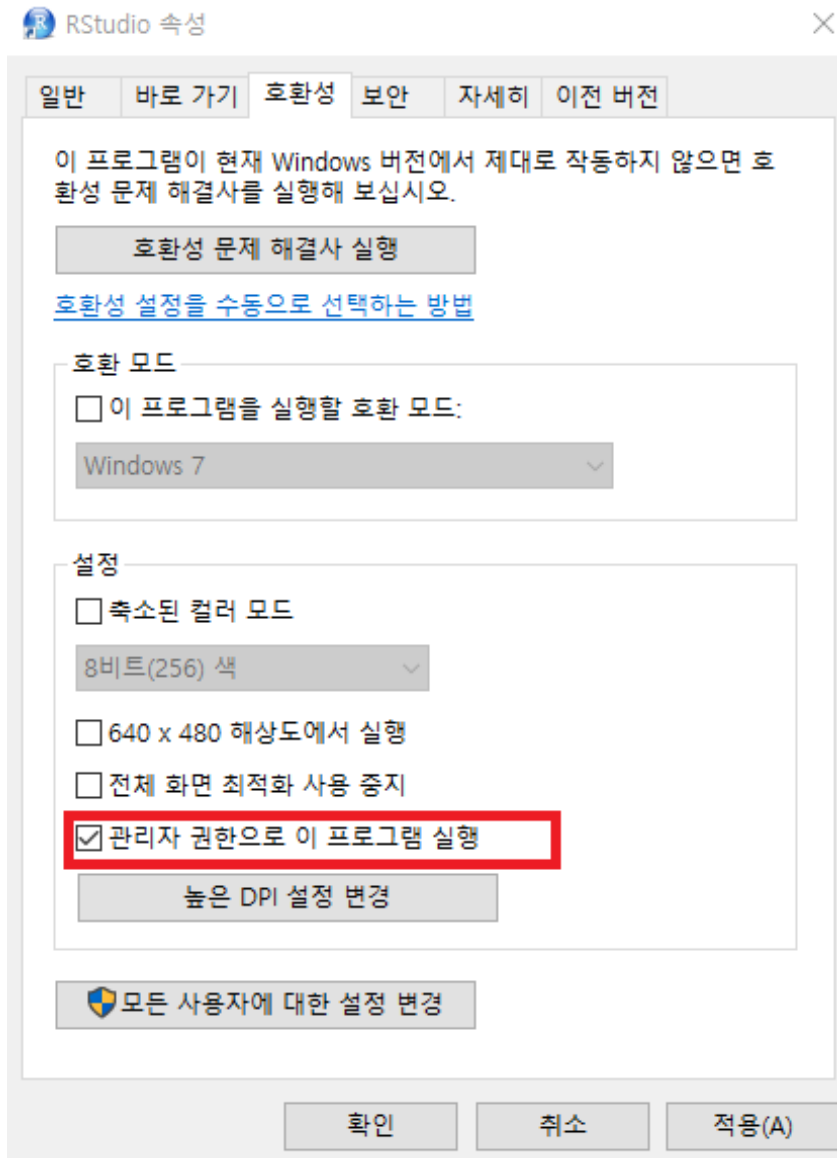


3. 간단한 방법으로써, 탐색기 프로그램을 이용해서 C:\Temp 폴더를 생성하고, 위의 그림에서 편집을 선택하여 TEMP 와 TMP 항목의 값에 아래와 같이 모두 C:\Temp 를 입력해 줌.

The image displays two sequential screenshots of the 'Edit User Variable' dialog box in Windows. Both screenshots show the 'Variable name' field filled with 'TEMP' in the first and 'TMP' in the second. The 'Variable value' field in both contains 'C:\Temp', which is highlighted with a red rectangular box. Below the input fields are buttons for 'Directory search (D)...', 'File search (F)...', 'Confirm', and 'Cancel'. The 'Confirm' button is also highlighted with a red rectangular box in both screenshots.

4. R Studio 의 실행 전 권한 셋팅

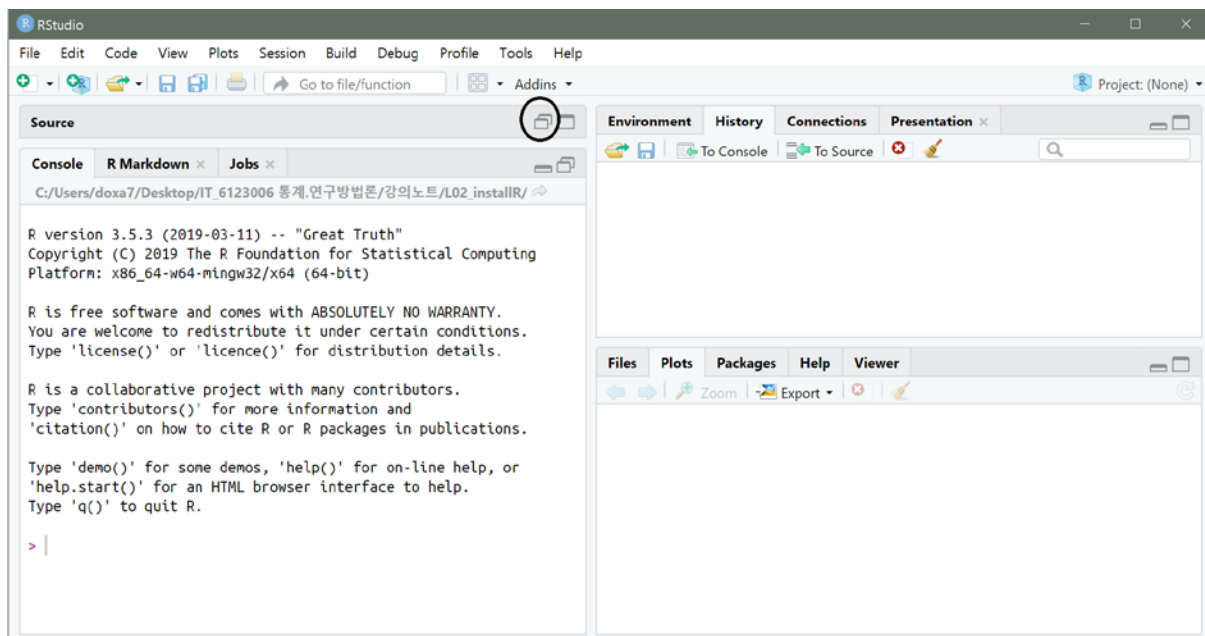
- 바탕화면에 R Studio 아이콘이 생성되지 않았다면, 시작버튼을 눌러서 R Studio 아이콘을 찾음.
- 바탕화면에 바로가기를 만들거나 작업표시줄에 추가하는 것을 추천.
- R Studio 아이콘을 우클릭 → 호환성 탭 → 관리자 권한으로 이 프로그램 실행을 체크



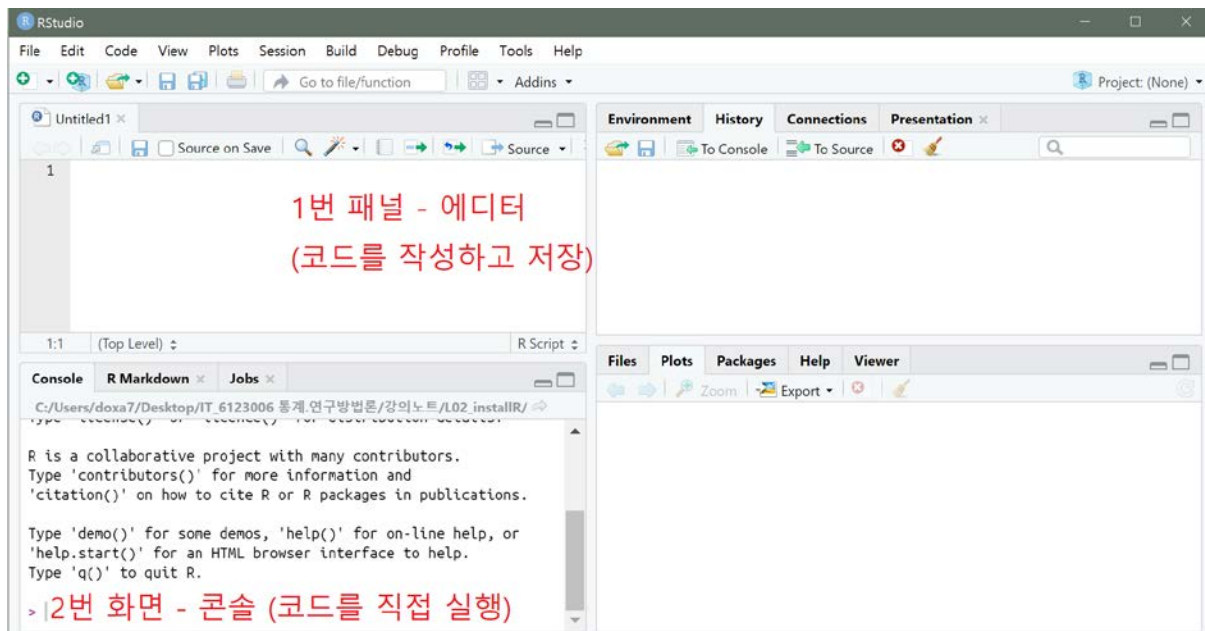
II. Rstudio 의 실행과 설정

1. 드디어 실행!!

- 아이콘을 더블클릭하여 실행하면 아래와 같은 화면이 나옵니다.



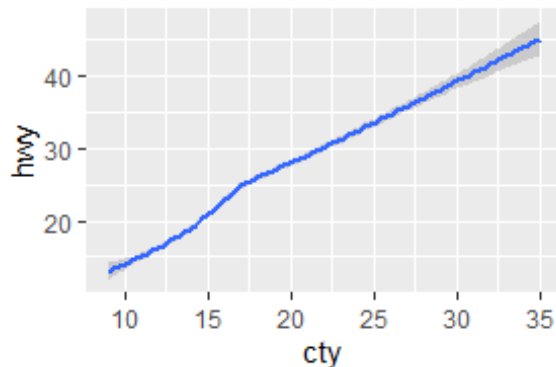
- 위 화면에서 검정색 동그라미로 표시된 버튼을 누르면 아래와 같이 4 분할된 화면이 등장합니다.



2. 설치 테스트

- 2 번 화면에 프롬프트 표시(>)가 보입니다.
- 여기에 아래의 명령어를 차례로 입력하여 아래와 같은 그림이 나오는지 확인하세요.
- 그림이 잘 나온다면 설치가 완료된 것입니다.

```
install.packages("ggplot2")  
library(ggplot2)  
ggplot(mpg, aes(cty, hwy)) + geom_smooth()
```



3. 추가 설정

- 한글 관련 이슈를 방지하기 위해서 아래의 설정을 합니다.
 - Tool → Global Option → CODE → Saving → Default Text Encoding... → UTF-8
 - 향후에 소스파일에서 한글이 깨질때에는
 1. File → Reopen with Encoding → UTF-8
 2. 그래도 안되면 UTF-8 이 아닌 CP-949 선택
 3. 그래도 안되면 Rstudio 를 닫았다가 재실행해서 1 과 2 를 다시 시도
 4. 그래도 안되면 질문!
- 편안한 작업을 위해서 폰트와 색상을 변경합니다.
 - Tool → Global Option → Appearance
 - 제 설정은요... (32 인치 모니터, 150% 확대설정)
 - Editor Font Size: 14
 - Editor Theme: "Tomorrow Midnight Blue"

III. 간단한 실습

1. 코드 입력

- 콘솔 패널에 아래와 같이 입력하세요.

```
"Hello"  
a <- 10  
a <- a + 5  
a
```

- 아래의 결과가 나오시나요?

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

- 우상단 패널의 History 탭을 누르면 지금까지 실행한 명령이 보입니다.
- Shift 키와 Ctrl 키를 이용해서 이들을 선택하고 To Editor 버튼을 눌러서 에디터 패널로 옮기세요.
- File → Save As 버튼을 눌러서 (단축키 Ctrl + S) 파일을 first.R로 저장하세요.
- R Studio를 종료하고 윈도우 탐색기에서 first.R를 더블클릭하면 R Studio가 실행됩니다.
- (아이콘이 아니라 소스 파일을 더블클릭해도 R Studio를 실행할 수 있습니다. - 엑셀처럼)

2. 몇 개의 단축키

- 1번 화면으로 커서를 이동하려면 Ctrl + 1
- 2번 화면으로 커서를 이동하려면 Ctrl + 2
- 1번 화면을 전체화면으로 만들려면 Ctrl + Shift + 1
- 2번 화면을 전체화면으로 만들려면 Ctrl + Shift + 2
- 1번 화면에 있는 코드를 2번 화면으로 Copy & Paste 하지 않고 바로 실행하려면 Ctrl + Enter

3. R Studio Cheatsheet

RStudio IDE : : CHEAT SHEET

Documents and Apps

Annotations for Documents and Apps pane:

- Check spelling
- Render output
- Choose output format
- Choose output location
- Insert code chunk
- Jump to previous chunk
- Jump to next chunk
- Run this chunk
- Publish to server
- Show file outline
- Help > Markdown Quick Reference
- Access markdown guide at
- Jump to chunk
- Set knitr options
- Run this and all previous code chunks
- Run this code chunk
- RStudio recognizes that files named **app.R**, **server.R**, **ui.R**, and **global.R** belong to a shiny app
- Choose app
- Publish to shinyapps.io or server
- Manage publish accounts

Write Code

Annotations for Write Code pane:

- Navigate tabs
- Open in new window
- Save
- Find and replace
- Compile as notebook
- Run selected code
- Source with or without Echo
- Show file outline
- Multiple cursors/column selection with **Alt + mouse drag**
- Code diagnostics that appear in the margin. Hover over diagnostic symbols for details.
- Syntax highlighting based on your file's extension
- Tab completion to quickly finish function names, file paths, arguments, and more.
- Multi-language code snippets to quickly use common blocks of code.
- Change file type
- Jump to function in file
- Working Directory
- Maximize, minimize panes
- Press **Esc** to see command history

R Support

Annotations for R Support pane:

- Import data with wizard
- History of past commands to run/copy
- Display R Markdown presentations
- File > New File > R Presentation
- Load workspace
- Save workspace
- Delete all saved objects
- Choose environment to display from list of parent environments
- Display objects as list or grid
- View in data viewer
- View function source code
- Displays saved objects by type with short description
- File browser keyed to your working directory. Click on file or directory name to open.

Pro Features

Annotations for Pro Features pane:

- Share Project with Collaborators
- Active shared collaborator
- Start new R Session in current project
- Close R Session in project
- Select R Version
- 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.
- RStudio opens plots in a dedicated Plots pane
- Navigate recent plots window
- Export plot
- Delete all plots
- GUI Package manager lists every installed package
- Install Packages
- Update Packages
- Create reproducible package
- Install Packages library for your project
- Click to load package with library(). Uncheck to detach package with detach()
- Package version installed
- Delete from library
- RStudio opens documentation in a dedicated Help pane
- Home page of helpful links
- Search within help file
- Search for help file
- Viewer Pane displays HTML content, such as Shiny apps, R Markdown reports, and interactive visualizations
- Stop Shiny
- Publish to shinyapps.io, pubvis, ISCRonline
- Refresh app
- View<data> opens spreadsheet like view of data set
- Filter rows by value or value range
- Sort by values
- Search for value

Debug Mode

Annotations for Debug Mode pane:

- Open with **debug()**, **browser()**, or a breakpoint. RStudio will open the debugger mode when it encounters a breakpoint while executing code.
- Launch debugger mode from origin of error
- Open traceback to examine the functions that R called before the error occurred
- 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
- Step through code one line at a time
- Step into and out of functions to run
- Resume execution mode
- Quit debug execution mode

Version Control with Git or SVN

Annotations for Version Control pane:

- Turn on at **Tools > Project Options > Git/SVN**
- Stage files
- Show file
- Commit staged files
- Push/Pull
- View History
- Added
- Deleted
- Modified
- Renamed
- Untracked
- Open shell to type commands
- current branch
- File > New Project > New Package
- Turn project into package
- Enable roxygen documentation with **Tools > Project Options > Build Tools**
- Roxygen guide at **Help > Roxygen Quick Reference**

Package Writing

Annotations for Package Writing pane:

- File > New Project > New Package
- Turn project into package
- Enable roxygen documentation with **Tools > Project Options > Build Tools**
- Roxygen guide at **Help > Roxygen Quick Reference**



RStudio® is a trademark of RStudio, Inc. • CC BY SA RStudio • info@rstudio.com • 844-448-1212 • rstudio.com • Learn more at www.rstudio.com • RStudio IDE 0.99.832 • Updated: 2016-01

1 LAYOUT

- 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
- 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
- Quit Session (desktop only)
- 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

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
- Quit Session (desktop only)
- 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

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
- (Un)Comment lines
- Rewind Comment
- Reformat Selection
- Select within braces
- Show Diagnostics
- Transpose Letters
- Move Lines Up/Down
- Copy Lines Up/Down
- Add New Cursor Above
- Move Active Cursor Up
- Move Active Cursor Down
- Find and Replace
- Use Selection for Find
- Replace and Find

5 DEBUG MODE

- Launch debugger
- Open traceback
- Click next to line number
- 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
- Step through code one line at a time
- Step into and out of functions to run
- Resume execution mode
- Quit debug execution mode

6 VERSION CONTROL

- Turn on at **Tools > Project Options > Git/SVN**
- Stage files
- Show file
- Commit staged files
- Push/Pull
- View History
- Added
- Deleted
- Modified
- Renamed
- Untracked
- Open shell to type commands
- current branch

7 MAKE PACKAGES

- Build and Reload
- Load All (devtools)
- Test Package (Desktop)
- Test Package (Web)
- Check Package
- Document Package

8 DOCUMENTS AND APPS

- View HTML (Markdown, etc.)
- Knit Document (knitr)
- Compile Notebook
- Compile PDF (text 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 previous Sweave/Rmd code
- Run the current chunk
- Run the next chunk
- Sync Editor & PDF Preview
- Previous plot
- Next plot
- Show Keyboard Shortcuts

WINDOWS/LINUX

- Ctrl+1
- Alt+L
- Shift+Alt+L
- Alt+O
- Shift+Alt+O
- Shift+Alt+G
- Shift+Alt+J
- Ctrl+Shift+.
- Ctrl+F11
- Ctrl+F12
- Ctrl+Shift+F11
- Ctrl+Shift+F12
- Ctrl+F9
- Ctrl+F10
- Ctrl+F
- Ctrl+Shift+Alt+E
- Ctrl+F3
- Ctrl+Shift+F
- Win+F3, Linux: Ctrl+G
- W: Shift+F3, L:
- Ctrl+↵
- Ctrl+↵
- Ctrl+Shift+O

MAC

- Cmd+1
- Cmd+Option+L
- Cmd+Shift+Option+L
- Cmd+Option+O
- Cmd+Shift+Option+O
- Cmd+Shift+Option+G
- Cmd+Shift+Option+J
- Ctrl+Shift+.
- Ctrl+F11
- Ctrl+F12
- Ctrl+Shift+F11
- Ctrl+Shift+F12
- Cmd+F9
- Cmd+F10
- Ctrl+F
- Ctrl+Shift+Option+E
- Cmd+E
- Cmd+Shift+F
- Cmd+G
- Cmd+Shift+G
- Option+↵
- Cmd+↵
- Cmd+Shift+O

WINDOWS/LINUX

- Ctrl+1
- Alt+L
- Shift+Alt+L
- Alt+O
- Shift+Alt+O
- Shift+Alt+G
- Shift+Alt+J
- Ctrl+Shift+.
- Ctrl+F11
- Ctrl+F12
- Ctrl+Shift+F11
- Ctrl+Shift+F12
- Ctrl+F9
- Ctrl+F10
- Ctrl+F
- Ctrl+Shift+Alt+E
- Ctrl+F3
- Ctrl+Shift+F
- Win+F3, Linux: Ctrl+G
- W: Shift+F3, L:
- Ctrl+↵
- Ctrl+↵
- Ctrl+Shift+O

MAC

- Cmd+1
- Cmd+Option+L
- Cmd+Shift+Option+L
- Cmd+Option+O
- Cmd+Shift+Option+O
- Cmd+Shift+Option+G
- Cmd+Shift+Option+J
- Ctrl+Shift+.
- Ctrl+F11
- Ctrl+F12
- Ctrl+Shift+F11
- Ctrl+Shift+F12
- Cmd+F9
- Cmd+F10
- Ctrl+F
- Ctrl+Shift+Option+E
- Cmd+E
- Cmd+Shift+F
- Cmd+G
- Cmd+Shift+G
- Option+↵
- Cmd+↵
- Cmd+Shift+O



RStudio® is a trademark of RStudio, Inc. • CC BY SA RStudio • info@rstudio.com • 844-448-1212 • rstudio.com • Learn more at www.rstudio.com • RStudio IDE 0.1.0 • Updated: 2017-09

IV. Discussion

R Studio

- 사기업으로써 안정적인 개발 환경을 제공하는 것을 목적으로 함
- 확장 프로그램들을 통합하여 관리, 메뉴얼 제공등

다른 언어랑 비교

- MATLAB: R 과 가장 유사하며 수리 계산에 강점. 유료
- SAS: 초고용량 데이터 처리. 매우 유료
- C, C++: 배우기 어렵지만 빠르고 다른 언어의 토대
- Python: 분석과 개발의 양쪽을 지원하여 인기가 높음

이 문서는 R Markdown 으로 작성되었습니다. 나눔 고딕, 나눔 명조, Palatino Linotype, Courier New 폰트가 설치되어 있는 컴퓨터에서 최적화되어 있습니다.