Chapter 13-1

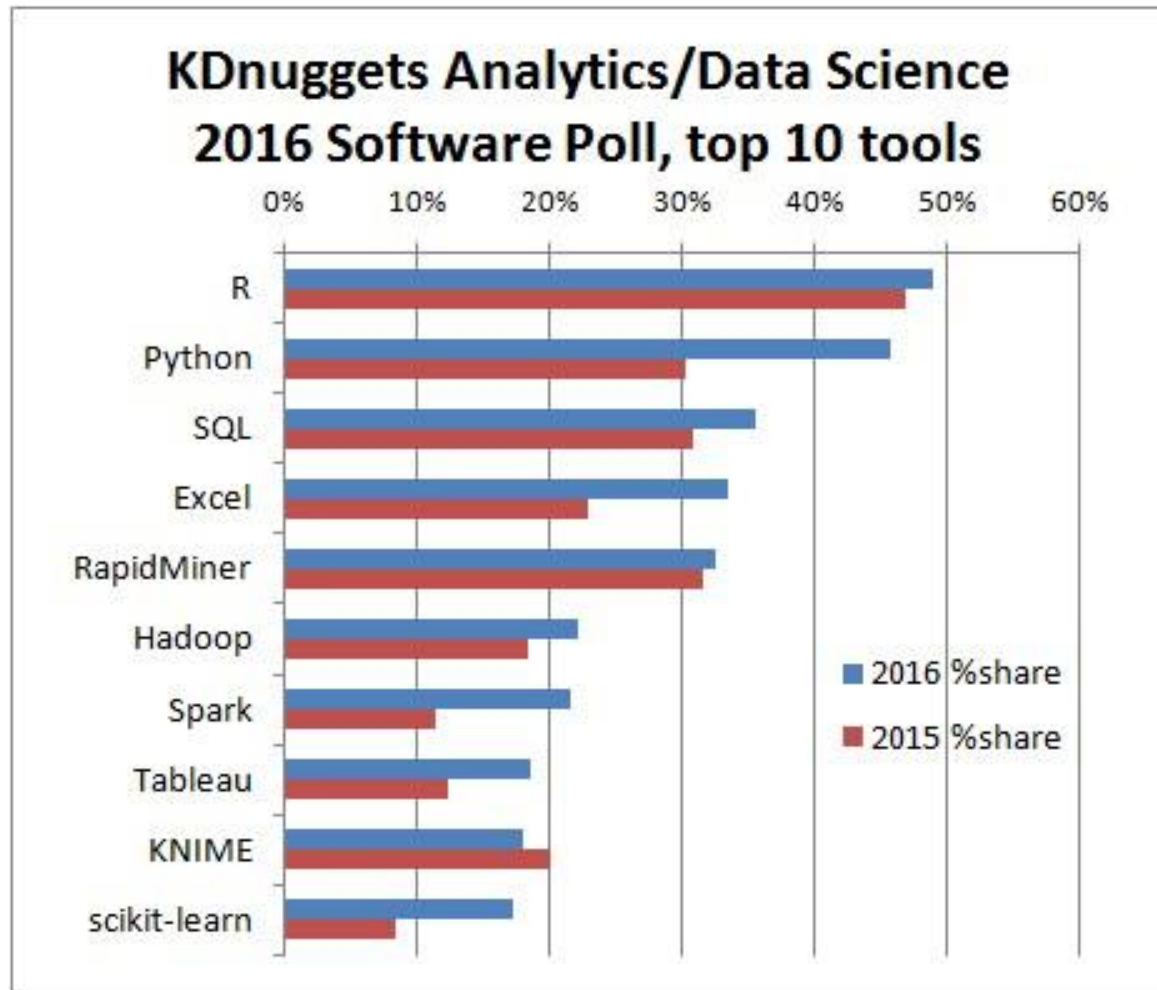# R, Rstudio 설치

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R 개요

- R 의 특징
  - 자료분석, 통계작업에 특화된 공개 SW
  - R 은 계산기
  - R 은 프로그래밍 언어
  - 자료, 통계 분석을 위한 거의 모든 기능을 함수, 패키지 형태로 제공
  - Java, C 프로그램과 연동 가능
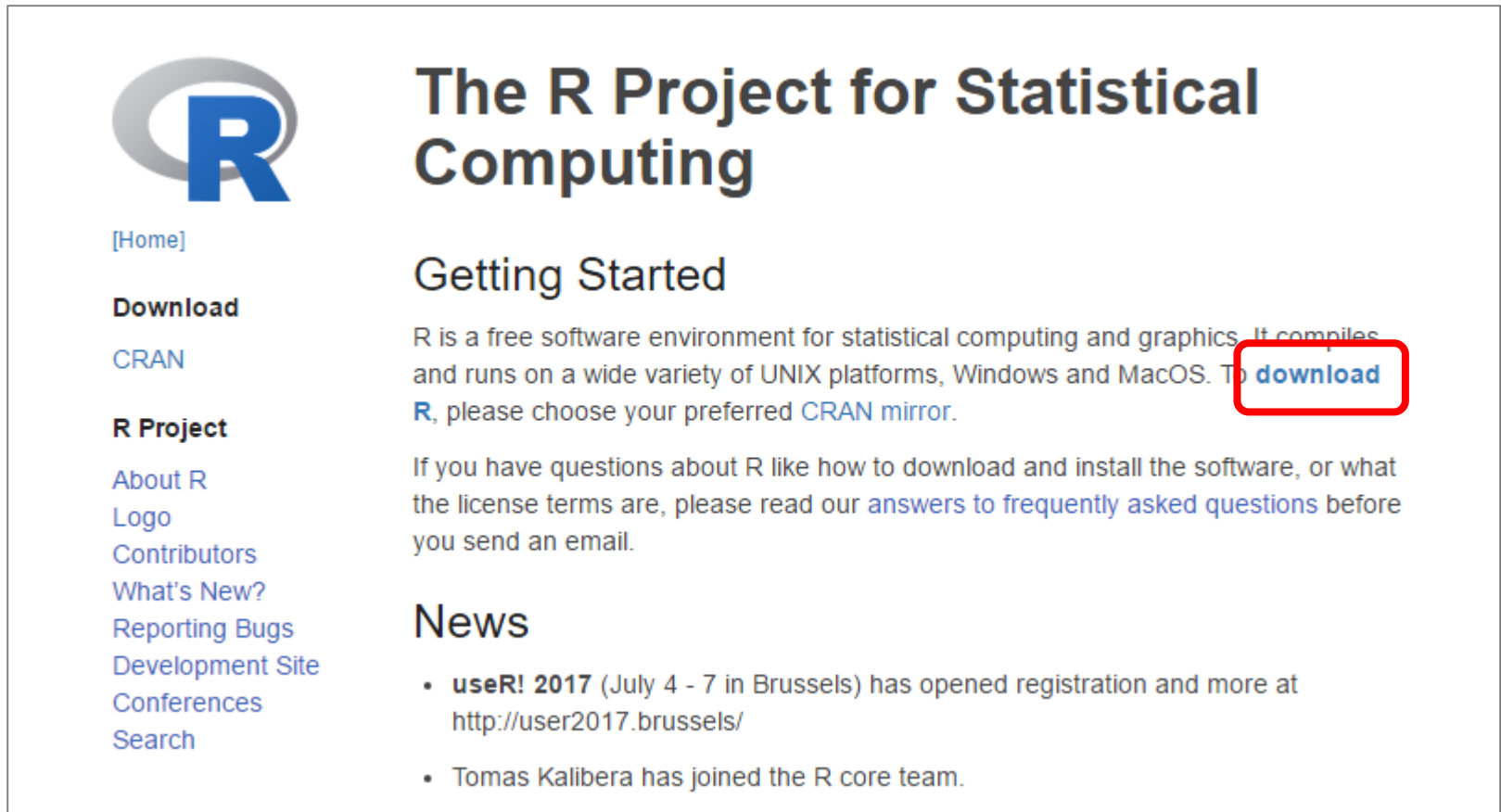 - Compact size (< 100 Mb)
  - Open Source SW

뛰어난 시각화 기능 제공

lm(formula = head ~ species + tars1 + tars2 + aede1, data = flea)

http://ggobi.github.io/ggally/

R 개요

- 시장 점유율

https://www.kdnuggets.com/2016/06/r-python-top-analytics-data-mining-data-science-software.html

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Install R, Rstudio

- https://www.r-project.org/

Install R, Rstudio

- 다운로드 사이트 선택

http://cran.stat.unipd.it/	University of Padua
http://dssm.unipa.it/CRAN/	Universita degli Studi di Palermo
Japan	
https://cran.ism.ac.jp/	The Institute of Statistical Mathematics, Tokyo
http://cran.ism.ac.jp/	The Institute of Statistical Mathematics, Tokyo
Korea	
http://cran.nexr.com/	NexR Corporation, Seoul
http://healthstat.snu.ac.kr/CRAN/	Graduate School of Public Health, Seoul National
http://cran.biodisk.org/	The Genome Institute of UNIST (Ulsan National In and Technology)
Lebanon	
http://rmirror.lau.edu.lb/	Lebanese American University, Byblos
Malaysia	
https://wbc.upm.edu.my/cran/	Univerisiti Putra Malaysia
http://wbc.upm.edu.my/cran/	Univerisiti Putra Malaysia

Install R, Rstudio

- 윈도우용 버전 선택

The Comprehensive R Archive Network

Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- Download R for Linux
- Download R for (Mac) OS X
- Download R for Windows

R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

Source Code for all Platforms

Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

- The latest release (Monday 2016-10-31, Sincere Pumpkin Patch) R-3.3.2.tar.gz, read

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- base 버전 선택

R for Windows

Subdirectories:

base	Binaries for base distribution (managed by Duncan Murdoch). This is what you want to **install R for the first time**.
contrib	Binaries of contributed CRAN packages (for R >= 2.11.x; managed by Uwe Ligges). There is also information on third party software available for CRAN Windows services and corresponding environment and make variables.
old contrib	Binaries of contributed CRAN packages for outdated versions of R (for R < 2.11.x; managed by Uwe Ligges).
Rtools	Tools to build R and R packages (managed by Duncan Murdoch). This is what you want to build your own packages on Windows, or to build R itself.

Please do not submit binaries to CRAN. Package developers might want to contact Duncan Murdoch or Uwe Ligges directly in case of questions / suggestions related to Windows binaries.

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- 현재 최신 버전은 R3.4.1

R-3.4.1 for Windows (32/64 bit)

Download R 3.4.1 for Windows (62 megabytes, 32/64 bit)
Installation and other instructions
New features in this version

If you want to double-check that the package you have downloaded matches the package distributed by CRAN, you can fingerprint on the master server. You will need a version of md5sum for windows: both graphical and command line vers

Frequently asked questions

- Does R run under my version of Windows?
- How do I update packages in my previous version of R?
- Should I run 32-bit or 64-bit R?

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- 다운로드 받은 설치 프로그램 실행
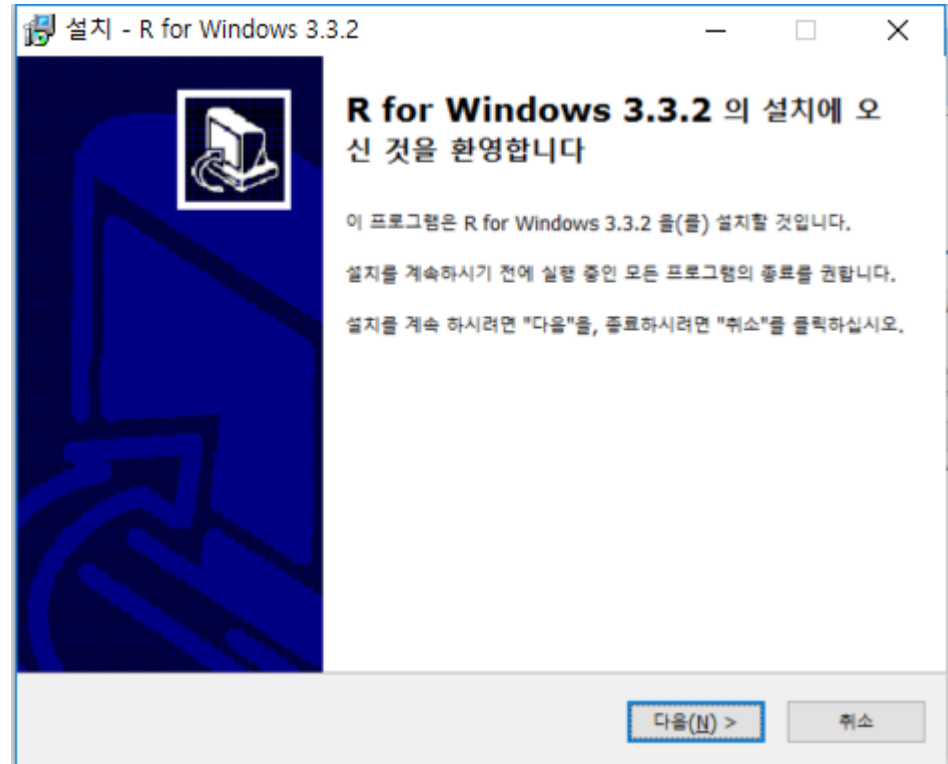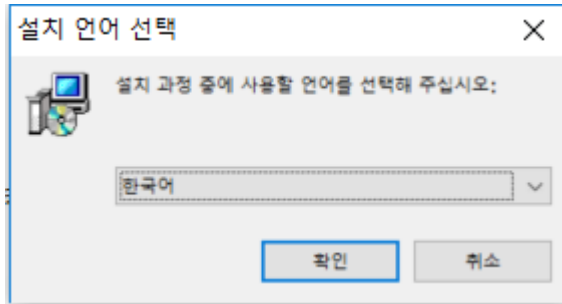
Install R, Rstudio
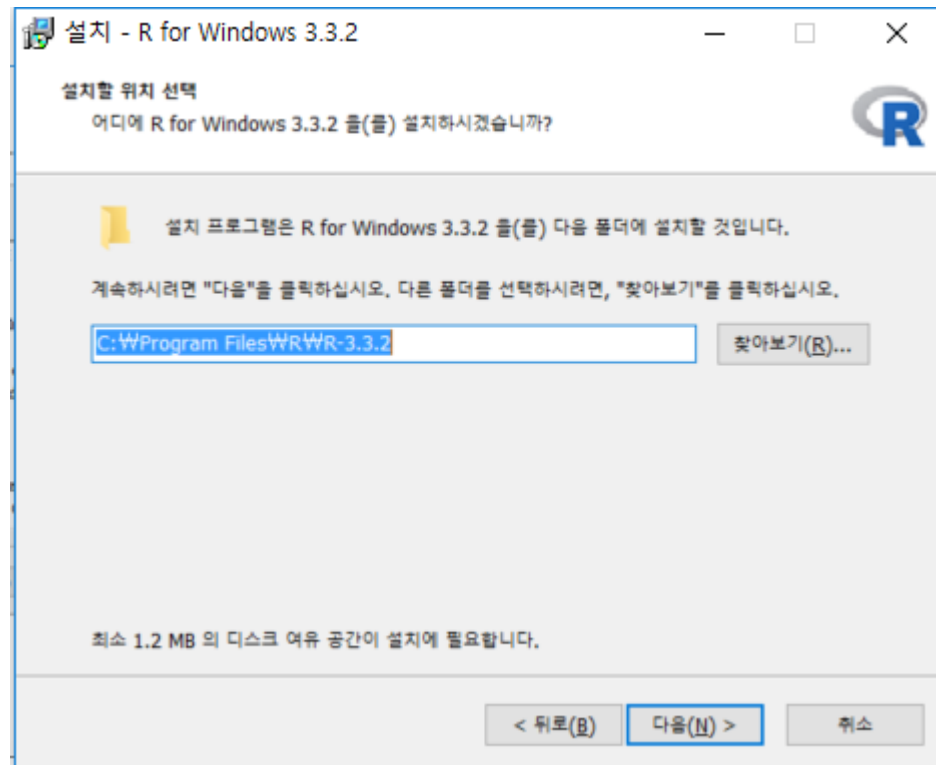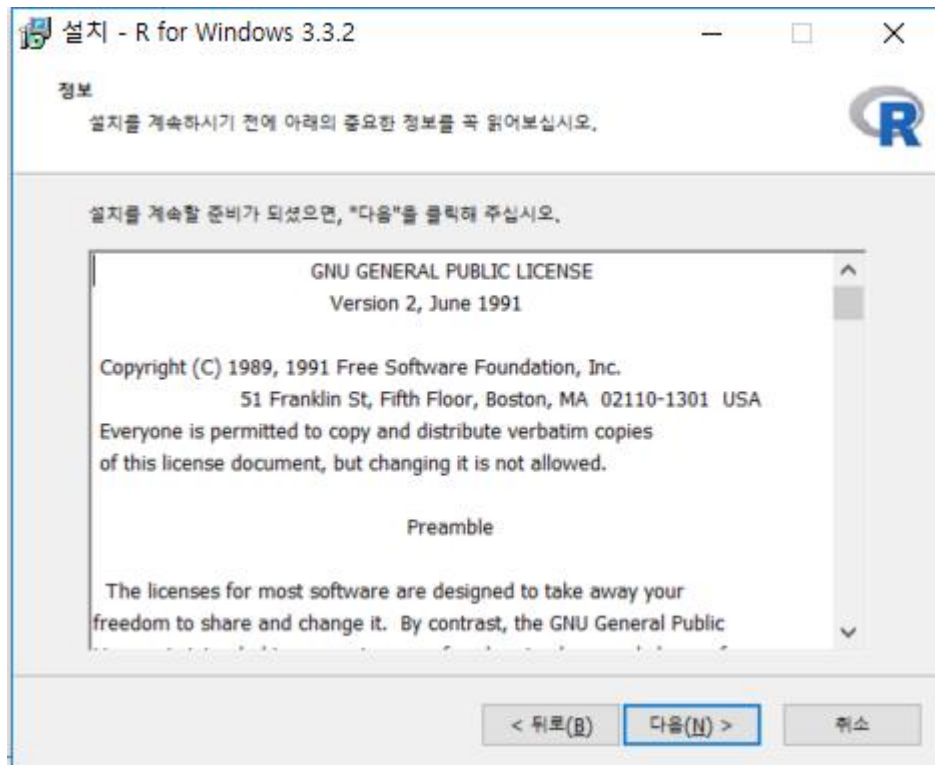
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- 32 bit 또는 64 bit 버전 중 하나를 설치한다.
  - 운영체제의 버전에 따라 선택. 64 bit 버전이 더 큰 데이터를 더 효율적으로 처리할 수 있다
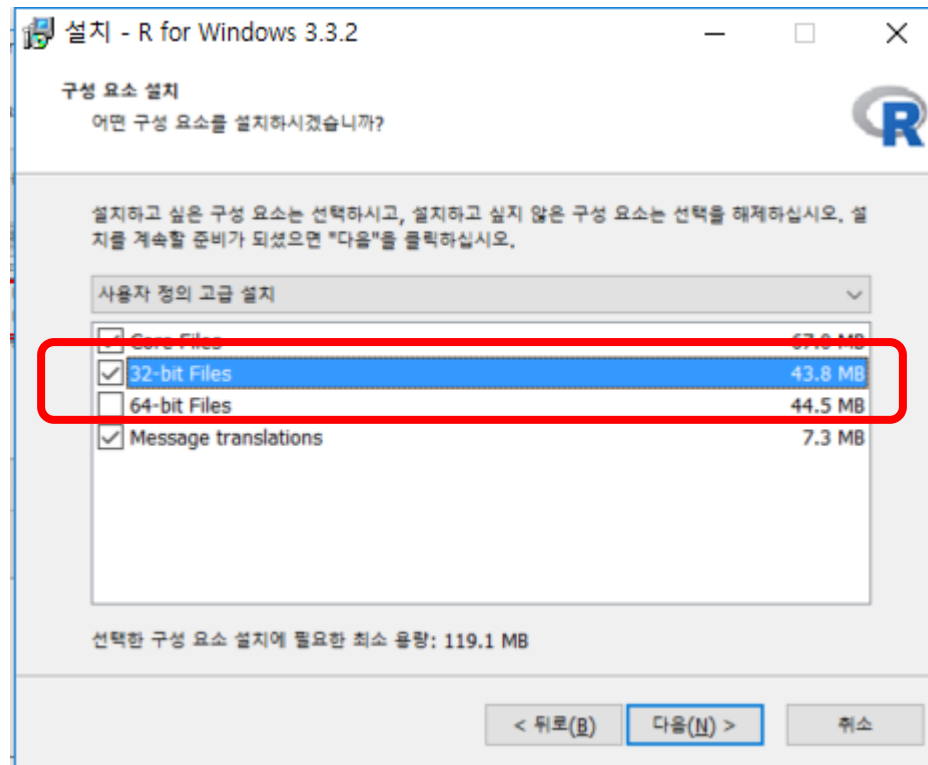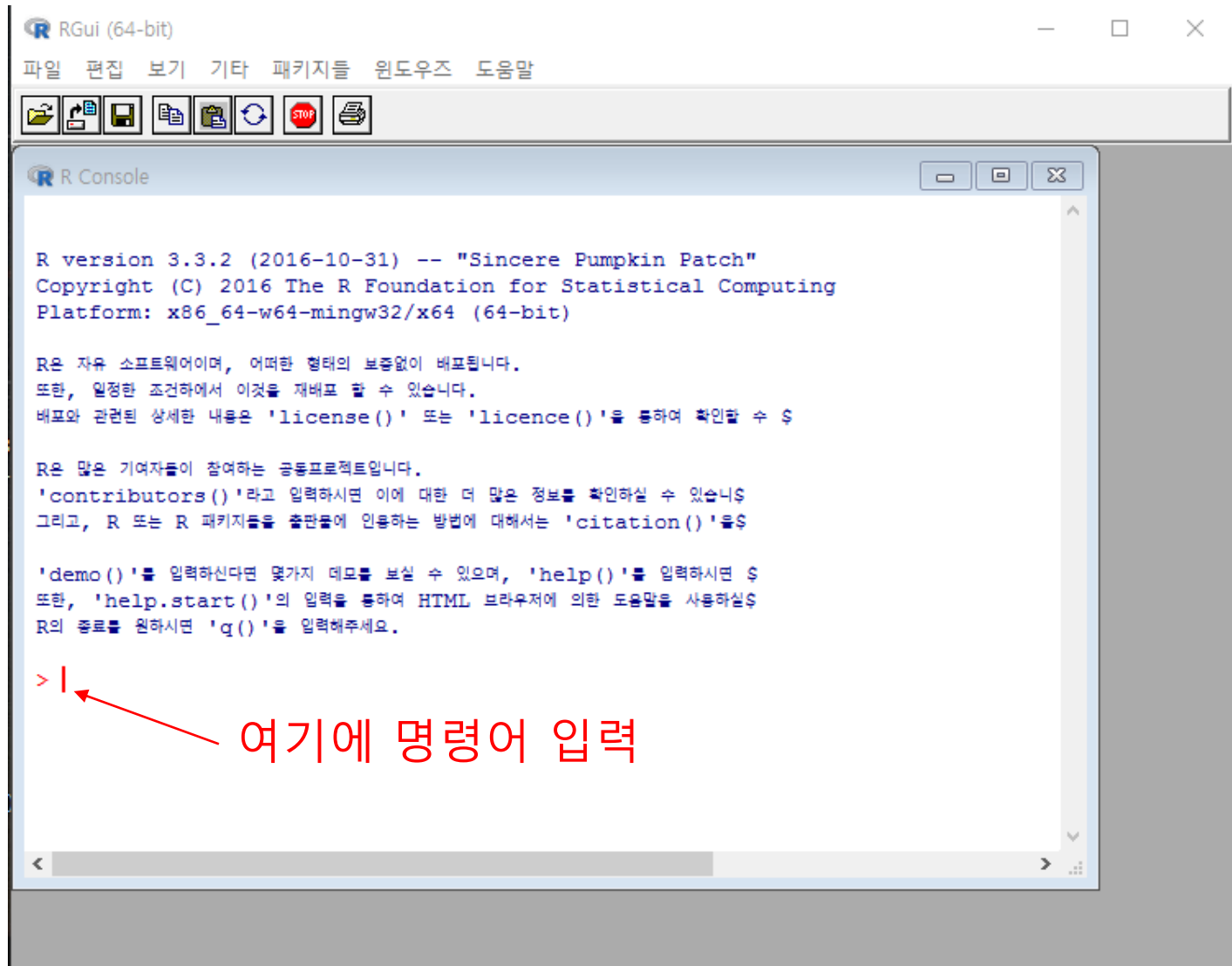
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- 설치가 완료되면 바탕화면에 실행 아이콘 생성

Install R, Rstudio

- R 을 실행 화면

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Install R, Rstudio

```
> 20+4
[1] 24
> a<-10
> b<-20
> a+b
[1] 30
>
```

```
> 20+4
[1] 24
> a<-10
> b<-20
> a+b
[1] 30
>
```

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- R user interface
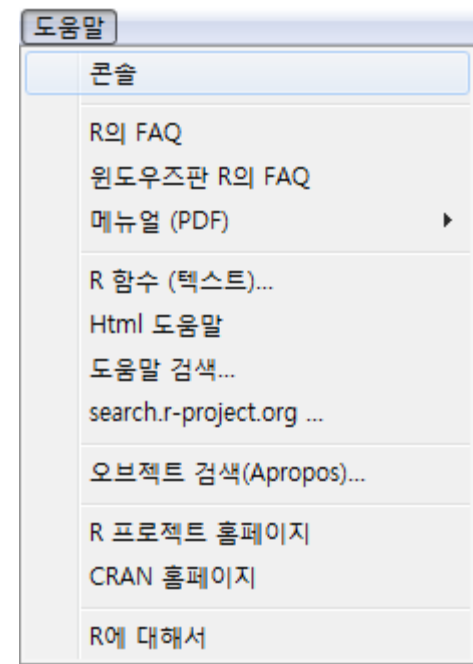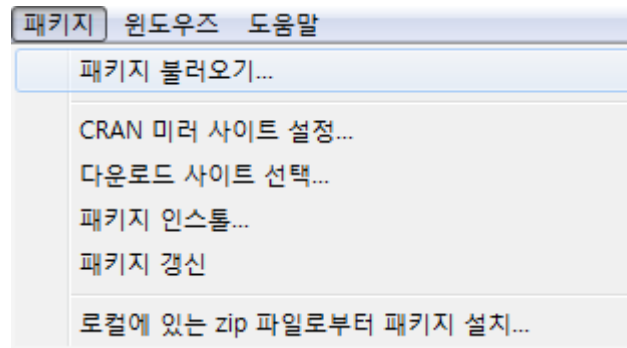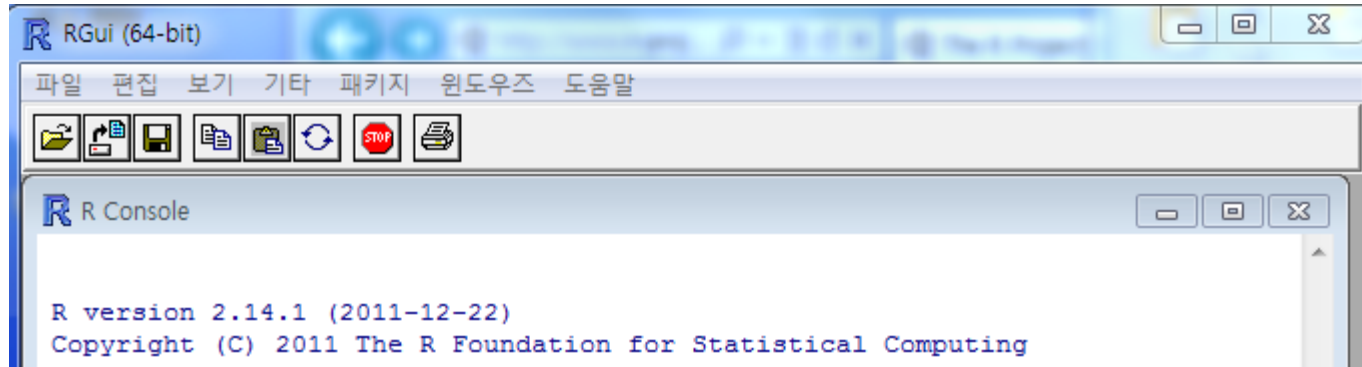
Install R, Rstudio
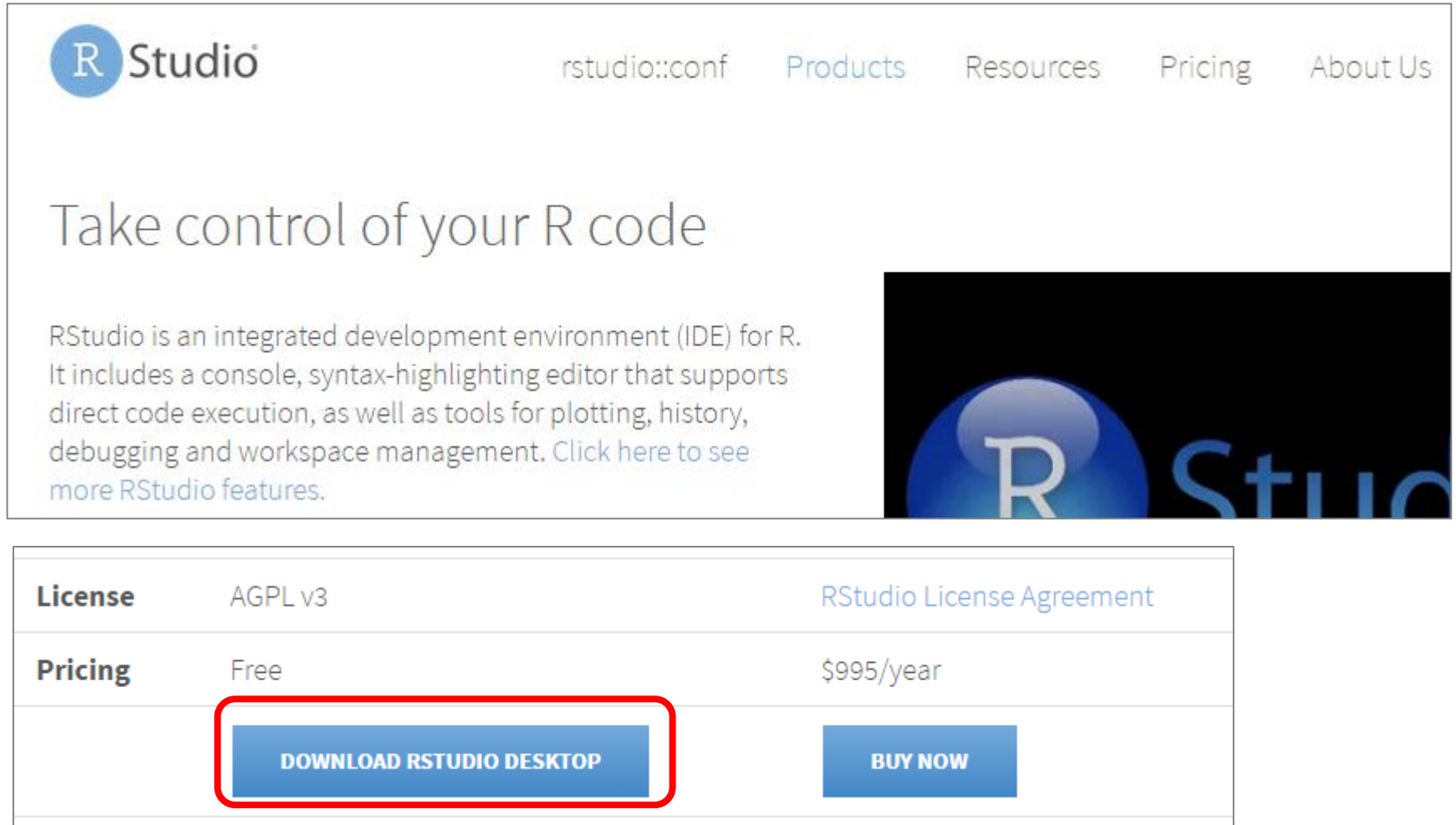
- R 실행 종료
  - 종료버튼 클릭시 다음과 같은 화면이 나오는데, 현재까지 작업한 결과를 저장할 것인지를 묻는 것이다.
  - 대부분의 경우는 실행한 명령어(R script)만 저장하고 작업공간 이미지(R script, 생성한 데이터 등)는 저장하지 않는다

Install R, Rstudio
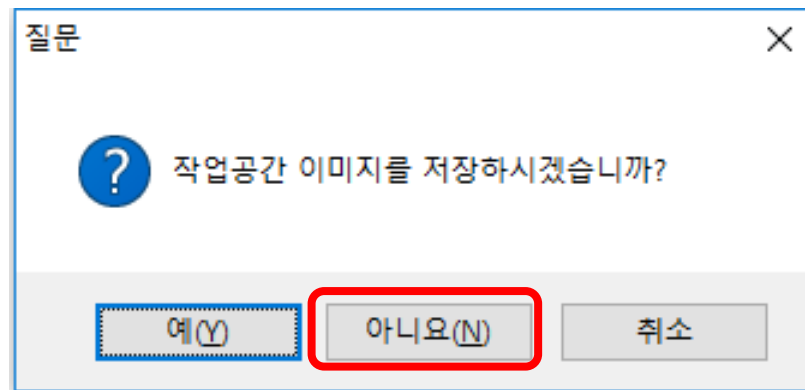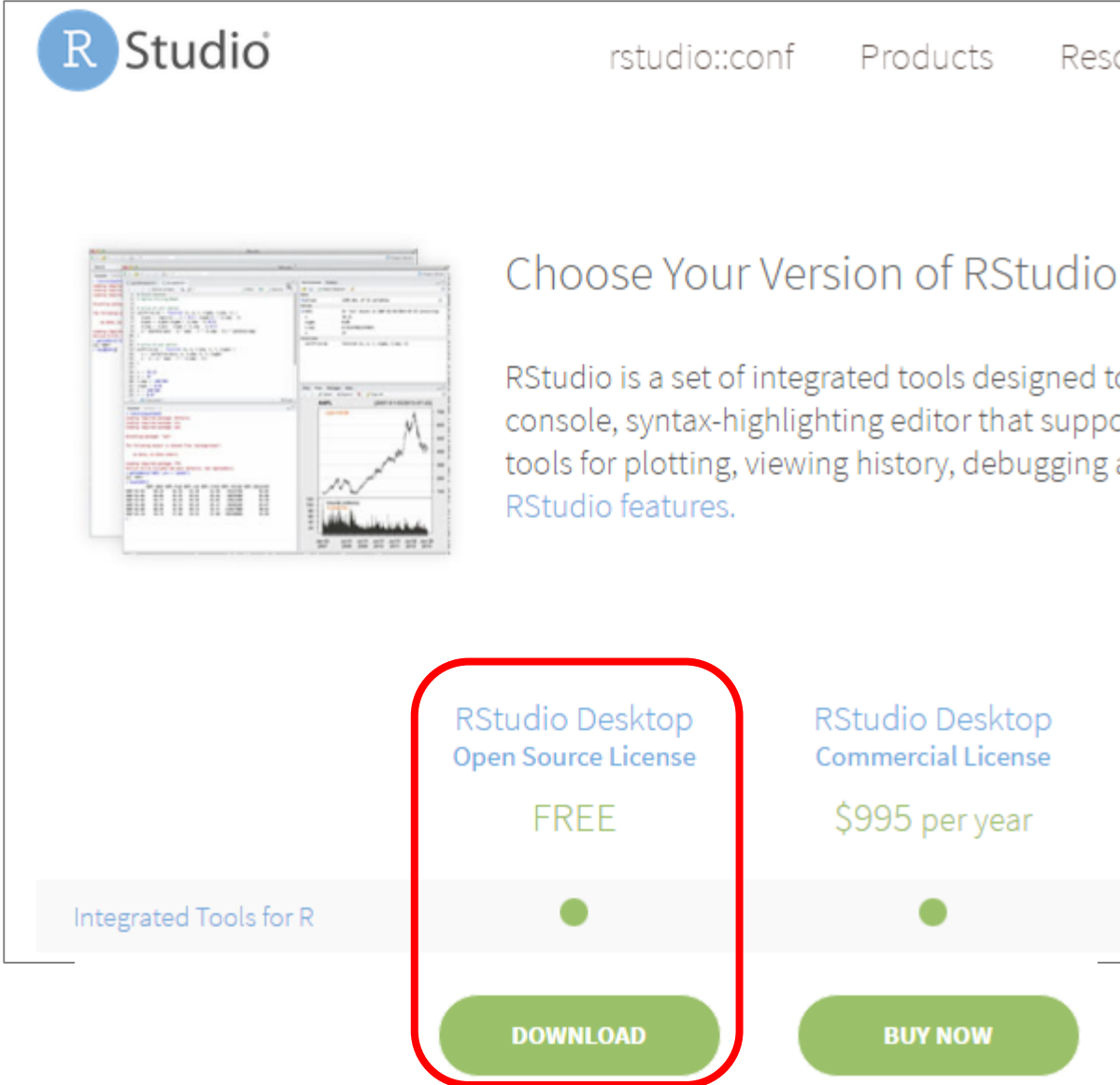
- https://www.rstudio.com/products/rstudio/
  - R 을 보다 편리하게 사용할 수 있는 환경 제공

Install R, Rstudio

R Studio®

rstudio::conf   Products   Reso

Choose Your Version of RStudio

RStudio is a set of integrated tools designed to
console, syntax-highlighting editor that suppo
tools for plotting, viewing history, debugging a
RStudio features.

	RStudio Desktop Open Source License	RStudio Desktop Commercial License
	FREE	$995 per year
Integrated Tools for R	●	●
	DOWNLOAD	**BUY NOW**

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- R Studio 초기화면

Install R, Rstudio

명령어 입력 창

명령어 실행 창

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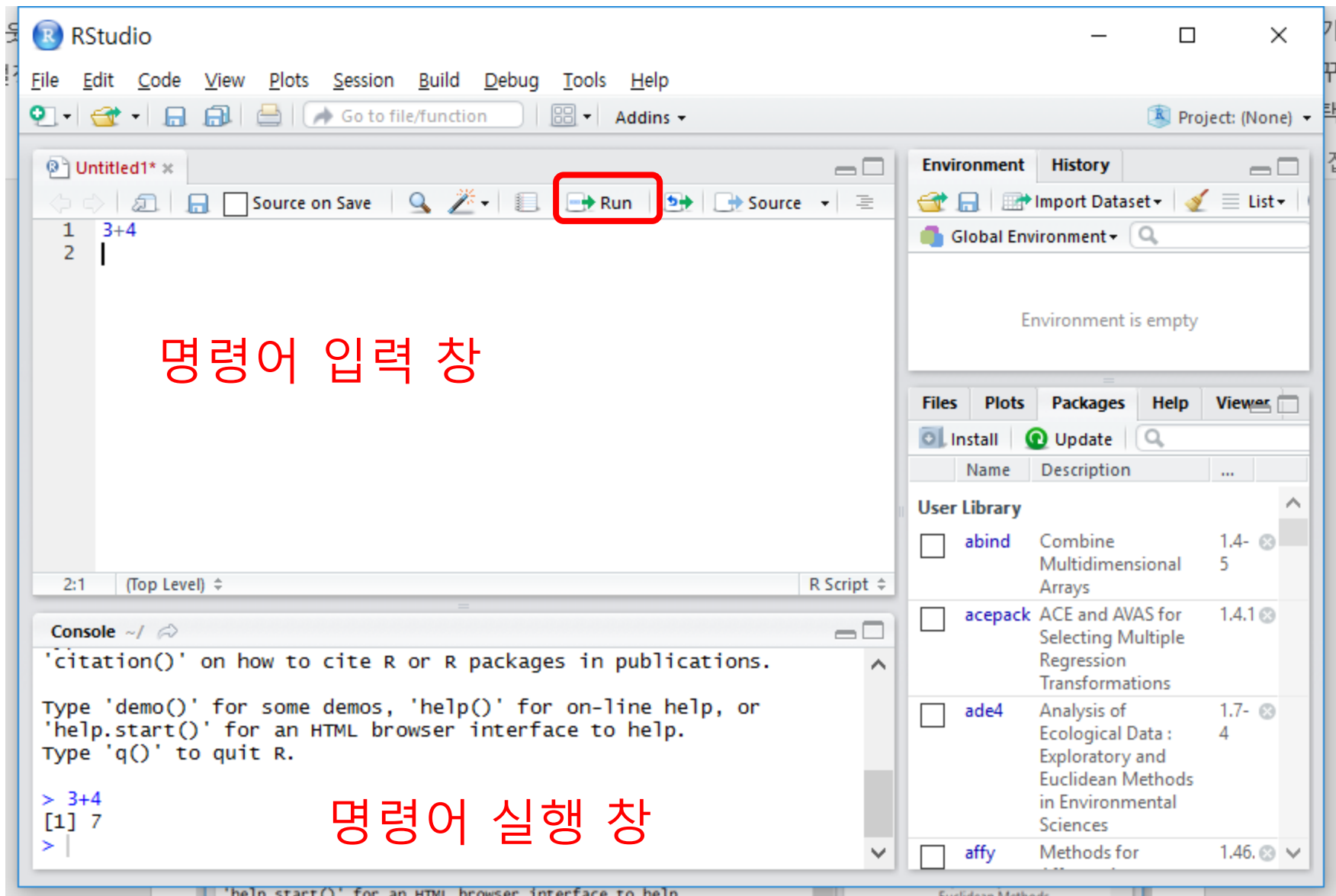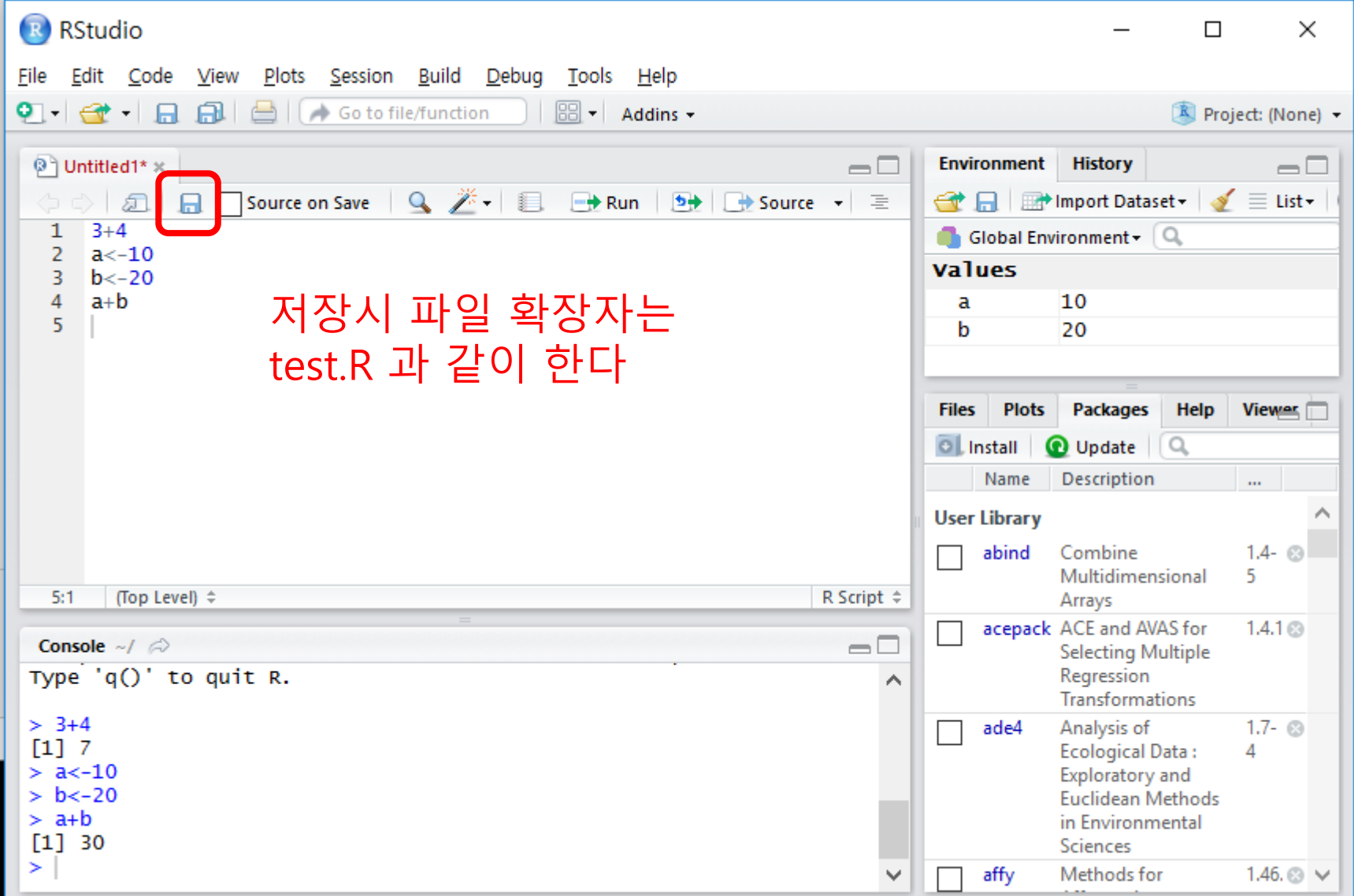
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- **Run** : 명령어 실행 버튼

  - 현재 커서가 위치한 라인의 명령어 실행
  - 여러 명령어 라인을 선택한 상태이면 선택한 명령어들을 실행

  - 명령어 실행 버튼을 클릭하는 대신 <Ctrl>+<Enter> 를 해도 된다

Install R, Rstudio

- 현재 작업 내용 (명령어들) 파일에 저장하기

Install R, Rstudio

- R script 파일 불러오기

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- 콘솔 화면이 오른쪽으로 가도록 조정하기

Install R, Rstudio

- 콘솔 화면이 오른쪽으로 가도록 조정하기

[R Tip]

- Rstudio 단축키

  ✓ 코드실행 :   [Ctrl] + [Enter]
  ✓ 주석처리/제거: [Ctrl] + [Shift] + [c]
  ✓ 콘솔창이동 :   [Ctrl] + [1]
  ✓ 스크립트창 이동 :   [Ctrl] + [2]

Help	
R Help	
About RStudio	
Check for Updates	
RStudio Docs	
RStudio Support	
Cheatsheets	▶
Keyboard Shortcuts Help	Alt+Shift+K
Markdown Quick Reference	
Roxygen Quick Reference	
Diagnostics	▶