컴퓨터 응용통계
1-2 R 입문

최경미

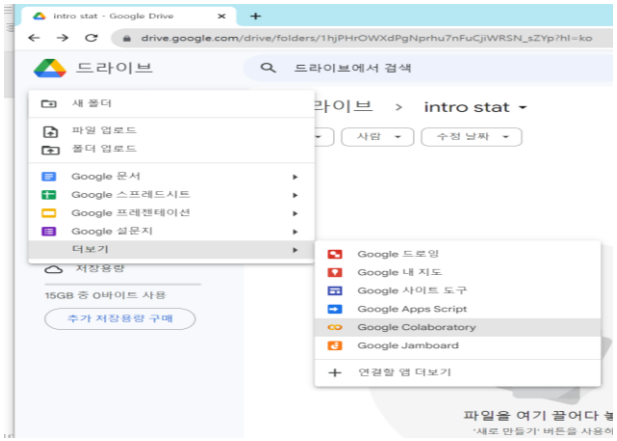
R 배경

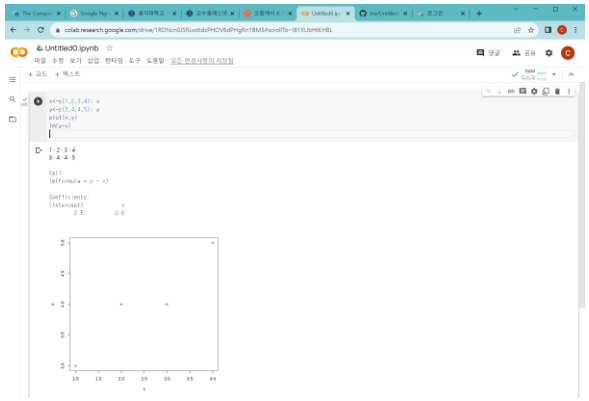
- 무료 소프트웨어
- 스크립트
- 객체지향언어
- 방대한 패키지 보유
- 지속적으로 수많은 전문가들이 contributor로 유입됨
- 우수한 그래픽
- 공학계산기부터 고급 자료분석 및 시뮬레이션까지 가능함

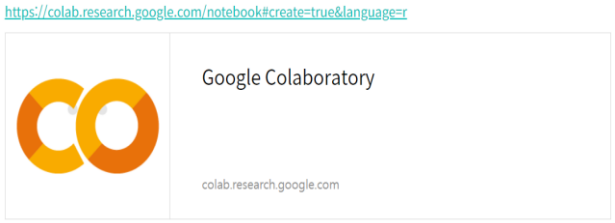
구글 콜랩으로 클라우드 버전 R 사용하기

https://colab.research.google.com/notebook#create=true&language=r

- Goole colaboratory
- Goole 계정 만들기
- Goole drive 로그인
- 왼쪽 위 새로 만들기
- 새로 만들기
  => 연결할 앱 더보기
  => 찾기
  => colab 추가 설치
- 새로 만들기 더보기







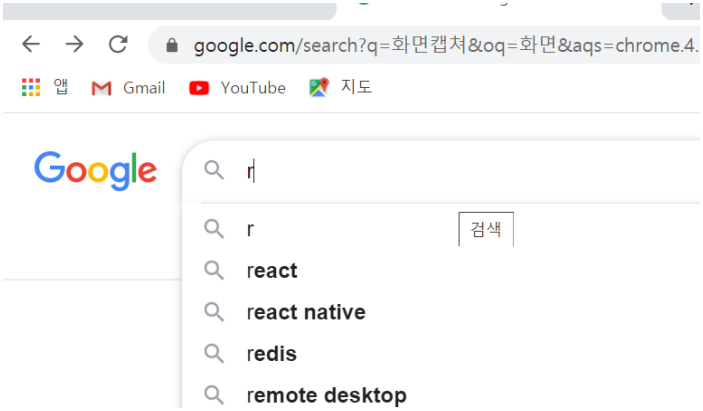
인쇄
PDF로 저장
폴더지정

런타임
런타임 유형변경 R
저장

장점: 컴퓨터 하드, 설치 필요 없음
태블릿 휴대폰에서 구동 가능
단점: 인터넷 접속 필요

R 깔기

- *Google 검색에서 R이라고 입력*
- https://www.r-project.org/
- download R
- mirror site 선택
- Download R for Windows
- Install R for the first time


google.com/search?q=화면캡쳐&oq=화면&aqs=chrome.4.
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Gmail
YouTube
지도
Google
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검색
react
react native
redis
remote desktop


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Gmail
YouTube
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동영상
지도
뉴스
더보기
설정
도구
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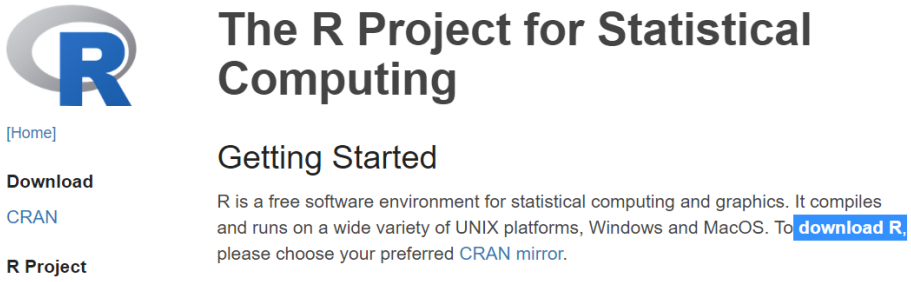
광고 · www.cl-oom.com/
R과 파이썬 입문 강좌 무료 | 경제금융 전문 교육-클룸 cloom
월스트리트 최고 투자책임자와 함께 기초에서 전문 실무까지 경제금융 전문가의 꿈을 실현하세요
www.r-project.org · 이 페이지 번역하기
The R Project for Statistical Computing
R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS.
CRAN · Download R · Windows · R language


The R Project for Statistical Computing
[Home]
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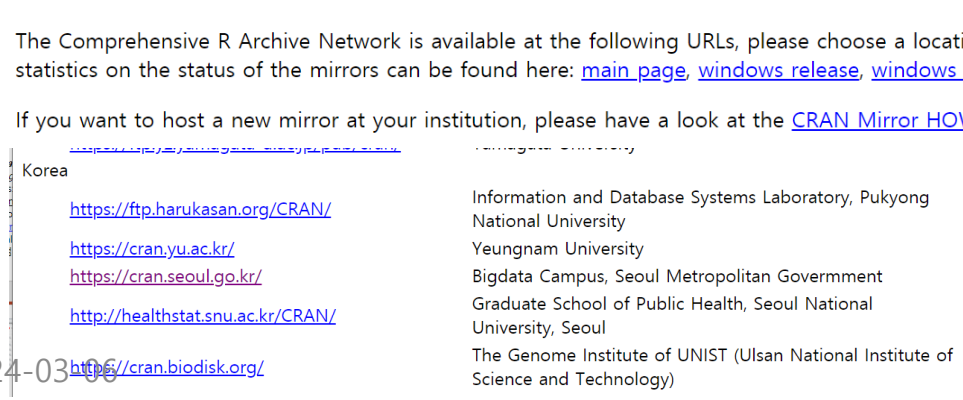
R Project
Getting Started
R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To download R, please choose your preferred CRAN mirror.


CRAN Mirrors
The Comprehensive R Archive Network is available at the following URLs, please choose a location close to you. Some statistics on the status of the mirrors can be found here: main page, windows release, windows old release.
If you want to host a new mirror at your institution, please have a look at the CRAN Mirror HOWTO.
Korea
https://ftp.harukasan.org/CRAN/
Information and Database Systems Laboratory, Pukyong National University
https://cran.yu.ac.kr/
Yeungnam University
https://cran.seoul.go.kr/
Bigdata Campus, Seoul Metropolitan Govermment
http://healthstat.snu.ac.kr/CRAN/
Graduate School of Public Health, Seoul National University, Seoul
https://cran.biodisk.org/
The Genome Institute of UNIST (Ulsan National Institute of Science and Technology)

CRAN
Mirrors
What's new?
Task Views

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 for Windows

Subdirectories:

base — Binaries for base distribution. This is what you want to **install R for the first time**.

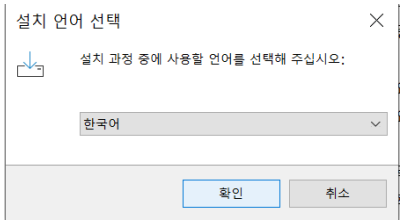
Download R-4.3.1 for Windows (79 megabytes, 64 bit)

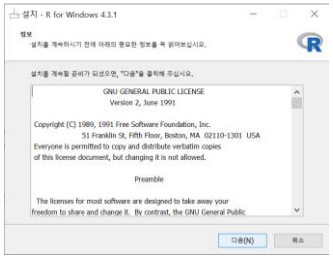
README on the Windows binary distribution
New features in this version

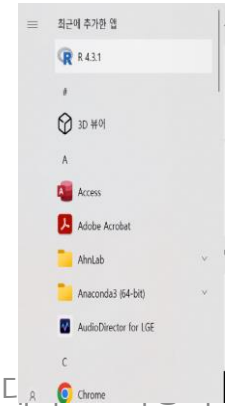
R 4.3.1 시작하기

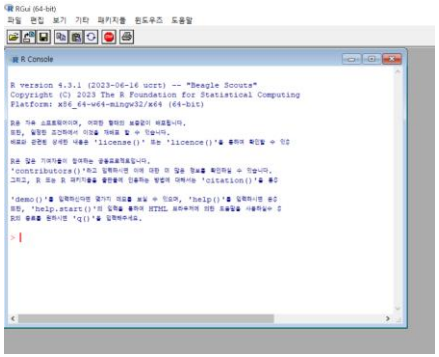
- 다운로드에서 R-4.3.1-win 클릭해서 설치

- 바탕화면의 R 클릭

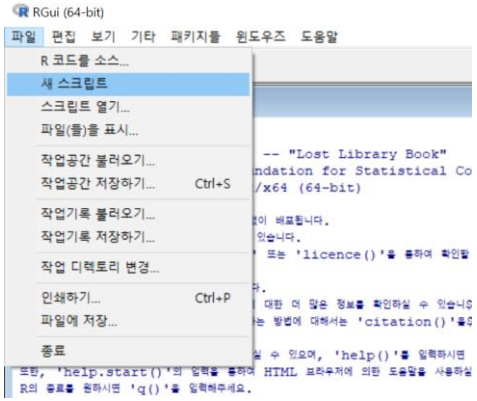


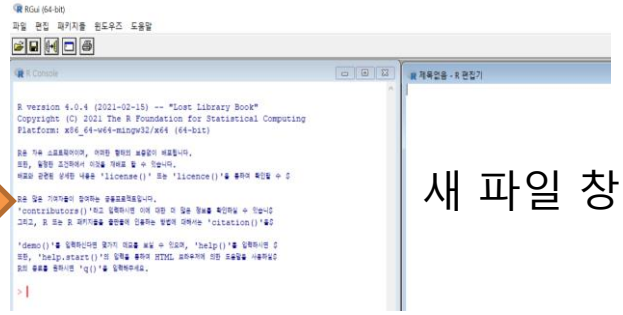




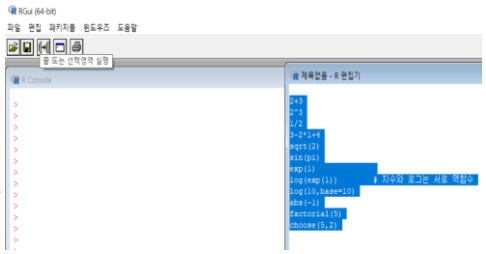


스크립트 저장하기

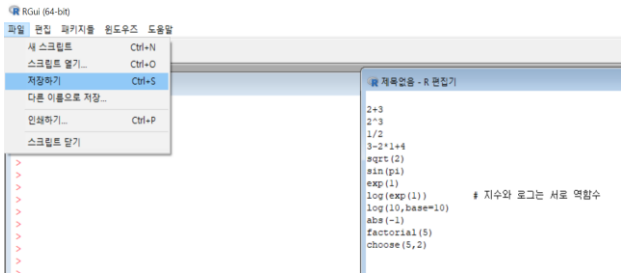




새 파일 창



코드 쓰고, 선택



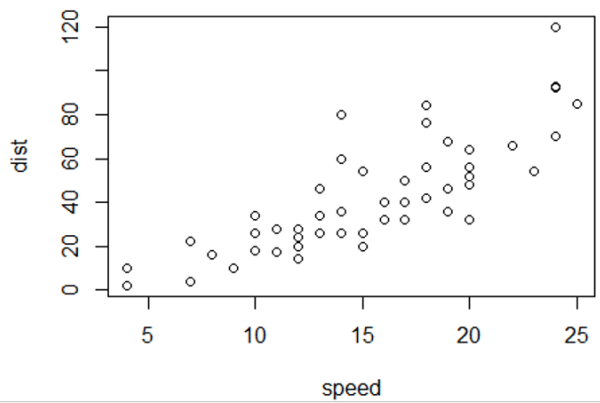
R markdown 결과

Analysis of Cars dataset i R

by Kyungmee Choi

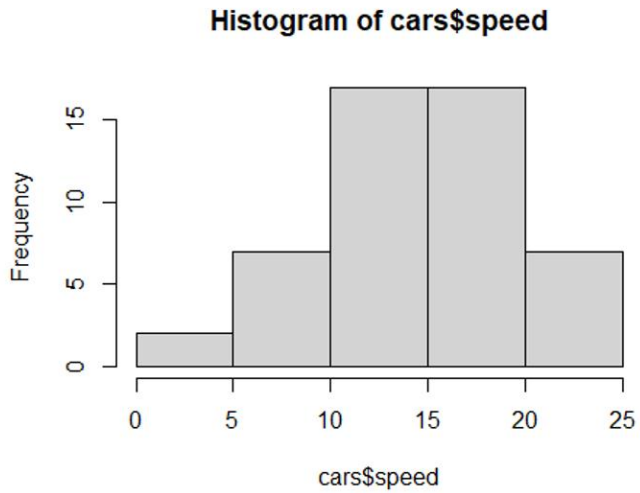
Part 1

```
data(cars)
str(cars)

## 'data.frame':    50 obs. of  2 variables:
##  $ speed: num  4 4 7 7 8 9 10 10 10 11 ...
##  $ dist : num  2 10 4 22 16 10 18 26 34 17 ...

summary(cars)

##      speed           dist       
##  Min.   : 4.0   Min.   :  2.00  
##  1st Qu.:12.0   1st Qu.: 26.00  
##  Median :15.0   Median : 36.00  
##  Mean   :15.4   Mean   : 42.98  
##  3rd Qu.:19.0   3rd Qu.: 56.00  
##  Max.   :25.0   Max.   :120.00

plot(cars)
```



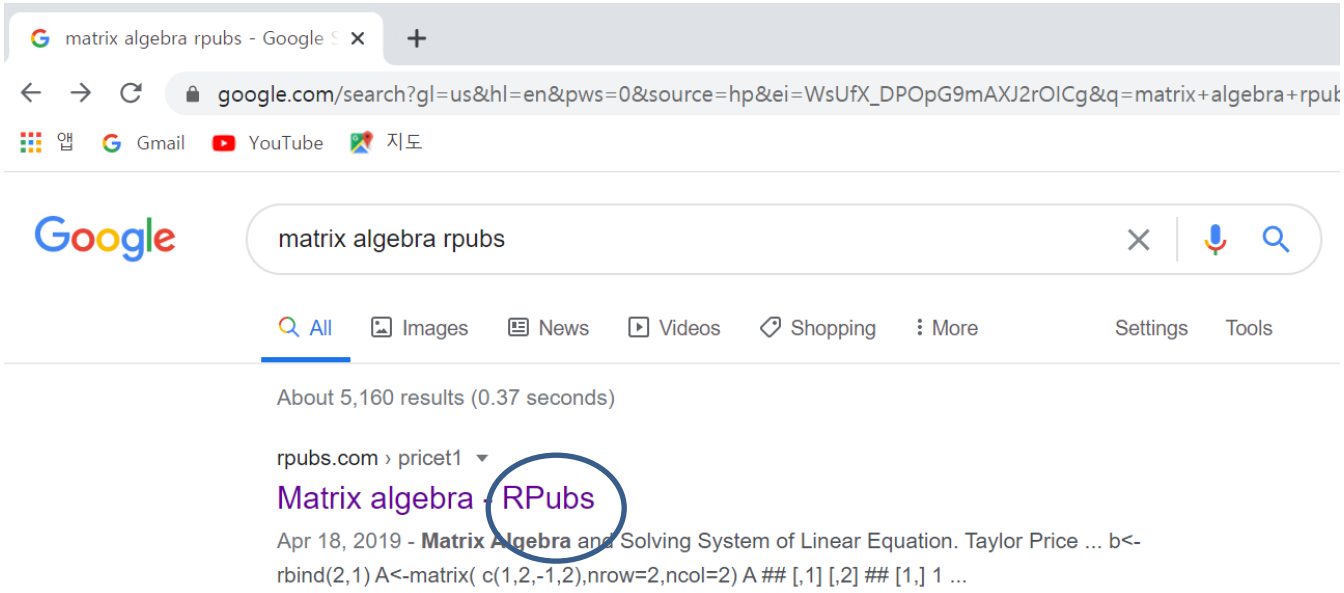
Part 2

```
hist(cars$speed)
```




```
boxplot(cars$dist)
```

구경하기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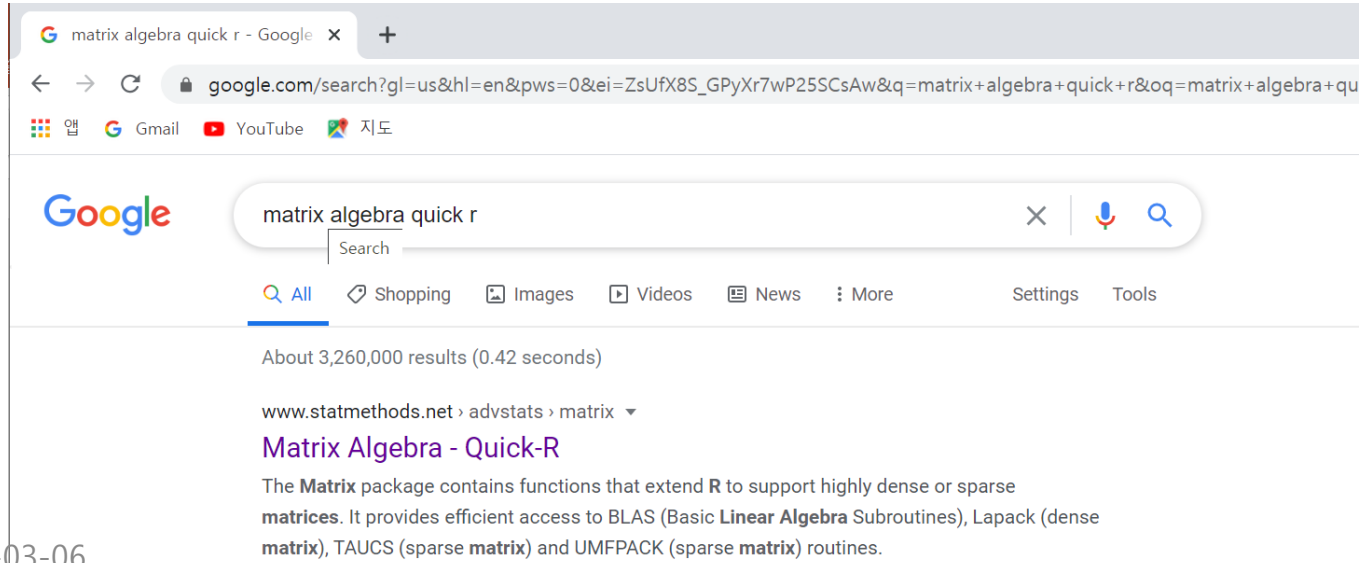
About 5,160 results (0.37 seconds)
rpubs.com › pricet1
Matrix algebra - RPubs
Apr 18, 2019 - Matrix Algebra and Solving System of Linear Equation. Taylor Price ... b<-
rbind(2,1) A<-matrix(c(1,2,-1,2),nrow=2,ncol=2) A ## [,1] [,2] ## [1,] 1 ...


matrix algebra quick r - Google
google.com/search?gl=us&hl=en&pws=0&ei=ZsUfX8S_GPyXr7wP25SCsAw&q=matrix+algebra+quick+r&oq=matrix+algebra+qu
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matrix algebra quick r
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All Shopping Images Videos News More Settings Tools
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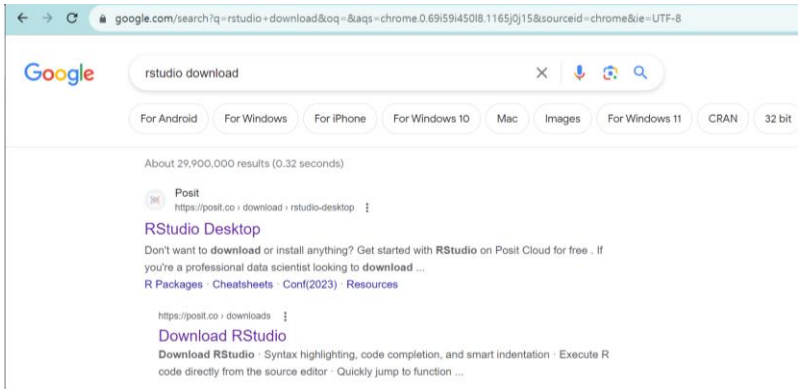
www.statmethods.net › advstats › matrix
Matrix Algebra - Quick-R
The Matrix package contains functions that extend R to support highly dense or sparse matrices. It provides efficient access to BLAS (Basic Linear Algebra Subroutines), Lapack (dense matrix), TAUCS (sparse matrix) and UMFPACK (sparse matrix) routines.

Rstudio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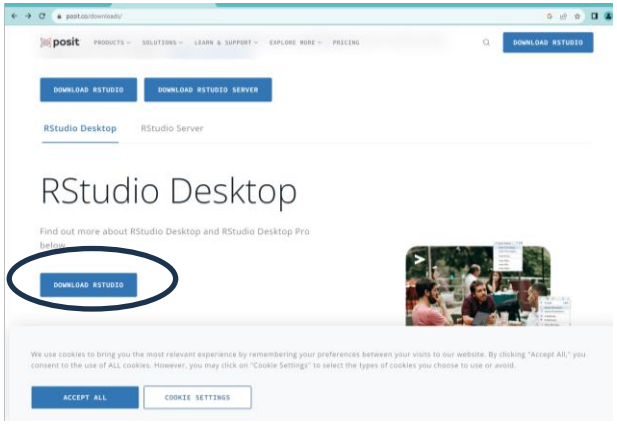
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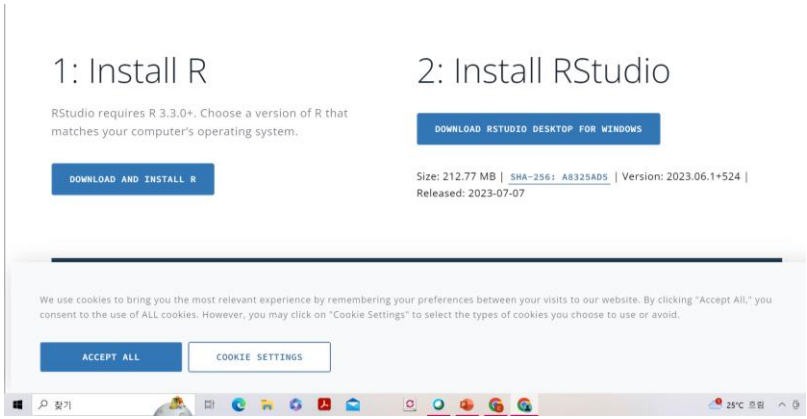
1: Install R
RStudio requires R 3.3.0+. Choose a version of R that matches your computer's operating system.
DOWNLOAD AND INSTALL R
2: Install RStudio
DOWNLOAD RSTUDIO DESKTOP FOR WINDOWS
Size: 212.77 MB | SHA-256: A8325AD5 | Version: 2023.06.1+524 | Released: 2023-07-07
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Rstudio


RStudio 설치
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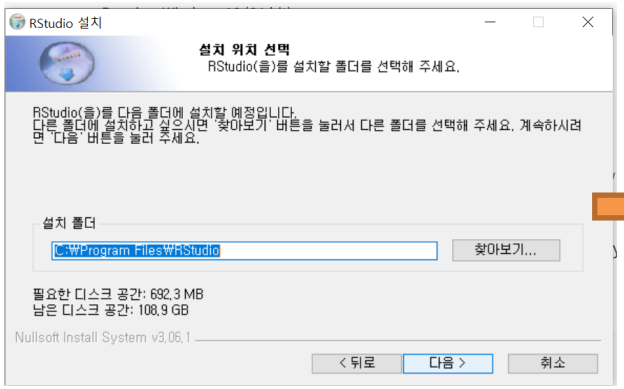
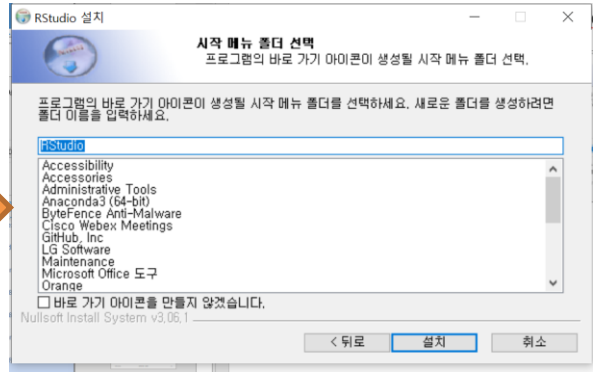
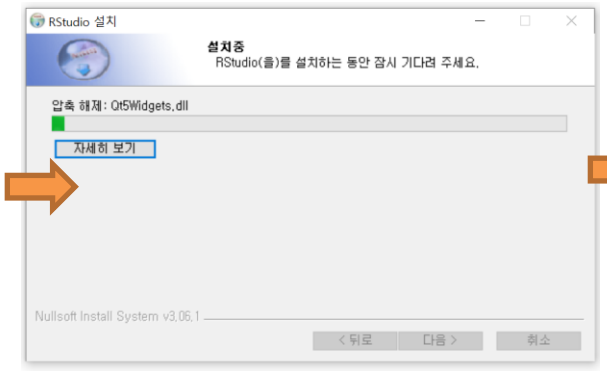
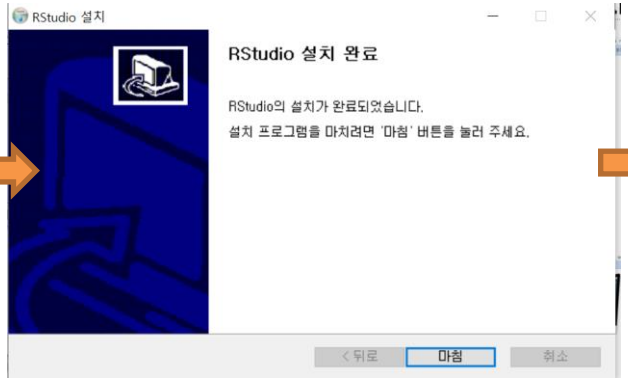
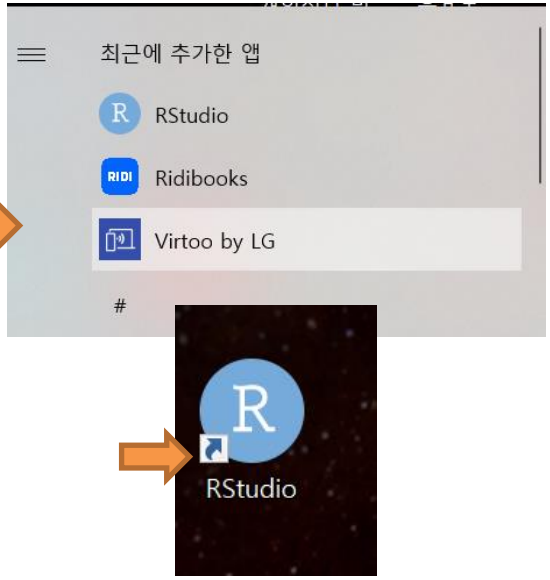
이 프로그램은 당신의 컴퓨터에 RStudio(을)를 설치할 것입니다.
설치를 시작하기 전 가능한 한 모든 프로그램을 종료하여 주시기 바랍니다. 이는 재부팅을 하지 않고서도 시스템 파일을 수정할 수 있게 해줍니다.
계속하시려면 '다음' 버튼을 눌러 주세요.
다음 >
취소


RStudio 설치
설치 위치 선택
RStudio(을)를 설치할 폴더를 선택해 주세요.
RStudio(을)를 다음 폴더에 설치할 예정입니다.
다른 폴더에 설치하고 싶으시면 '찾아보기' 버튼을 눌러서 다른 폴더를 선택해 주세요. 계속하시려면 '다음' 버튼을 눌러 주세요.
설치 폴더
C:₩Program Files₩RStudio
찾아보기...
필요한 디스크 공간: 692.3 MB
남은 디스크 공간: 108.9 GB
Nullsoft Install System v3.06.1
< 뒤로
다음 >
취소

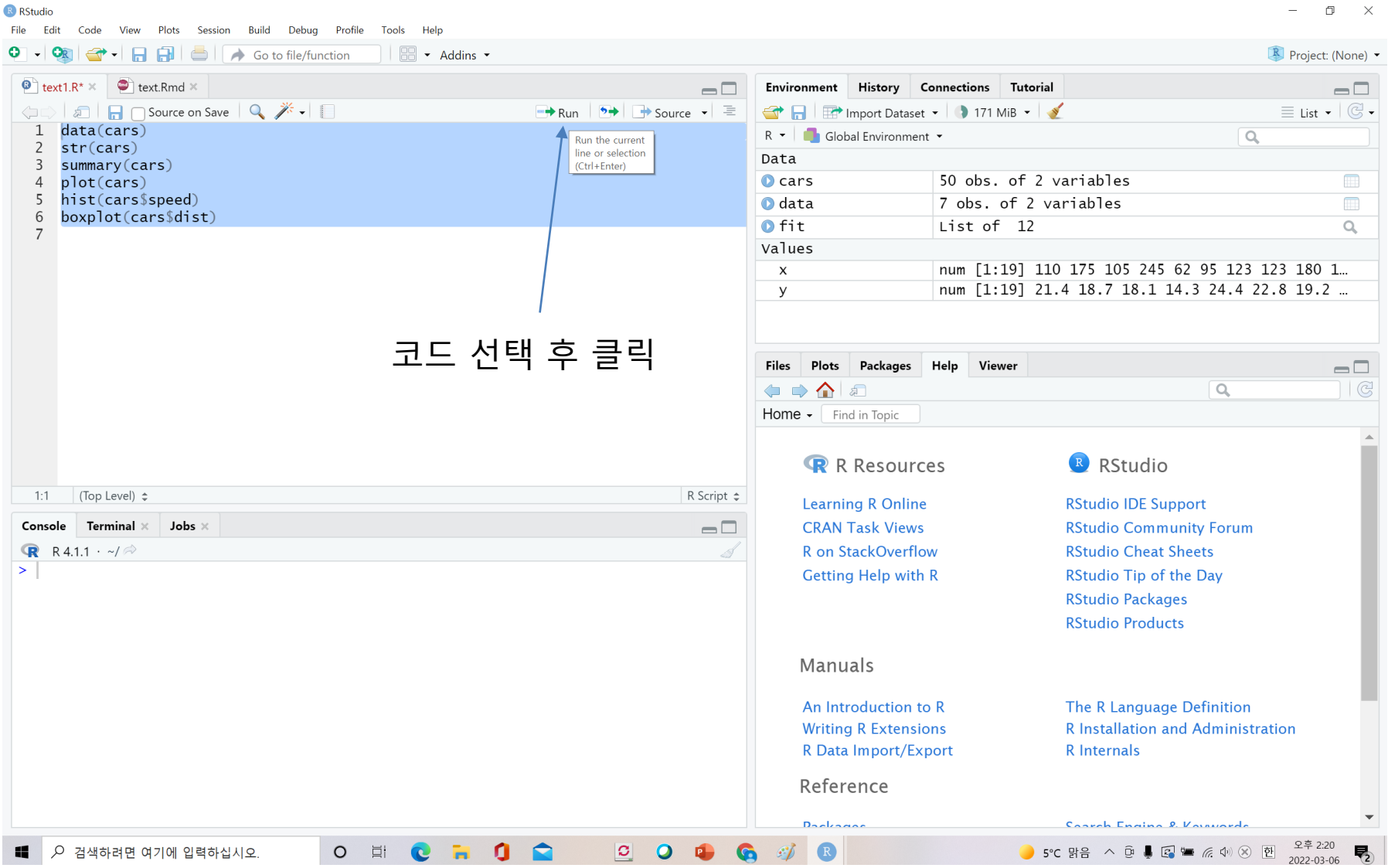

RStudio 설치
시작 메뉴 폴더 선택
프로그램의 바로 가기 아이콘이 생성될 시작 메뉴 폴더 선택.
프로그램의 바로 가기 아이콘이 생성될 시작 메뉴 폴더를 선택하세요. 새로운 폴더를 생성하려면 폴더 이름을 입력하세요.
RStudio
Accessibility
Accessories
Administrative Tools
Anaconda3 (64-bit)
ByteFence Anti-Malware
Cisco Webex Meetings
GitHub, Inc
LG Software
Maintenance
Microsoft Office 도구
Orange
바로 가기 아이콘을 만들지 않겠습니다.
Nullsoft Install System v3.06.1
< 뒤로
설치
취소


RStudio 설치
설치중
RStudio(을)를 설치하는 동안 잠시 기다려 주세요.
압축 해제: Qt5Widgets.dll
자세히 보기
Nullsoft Install System v3.06.1
< 뒤로
다음 >
취소


RStudio 설치
RStudio 설치 완료
RStudio의 설치가 완료되었습니다.
설치 프로그램을 마치려면 '마침' 버튼을 눌러 주세요.
< 뒤로
마침
취소

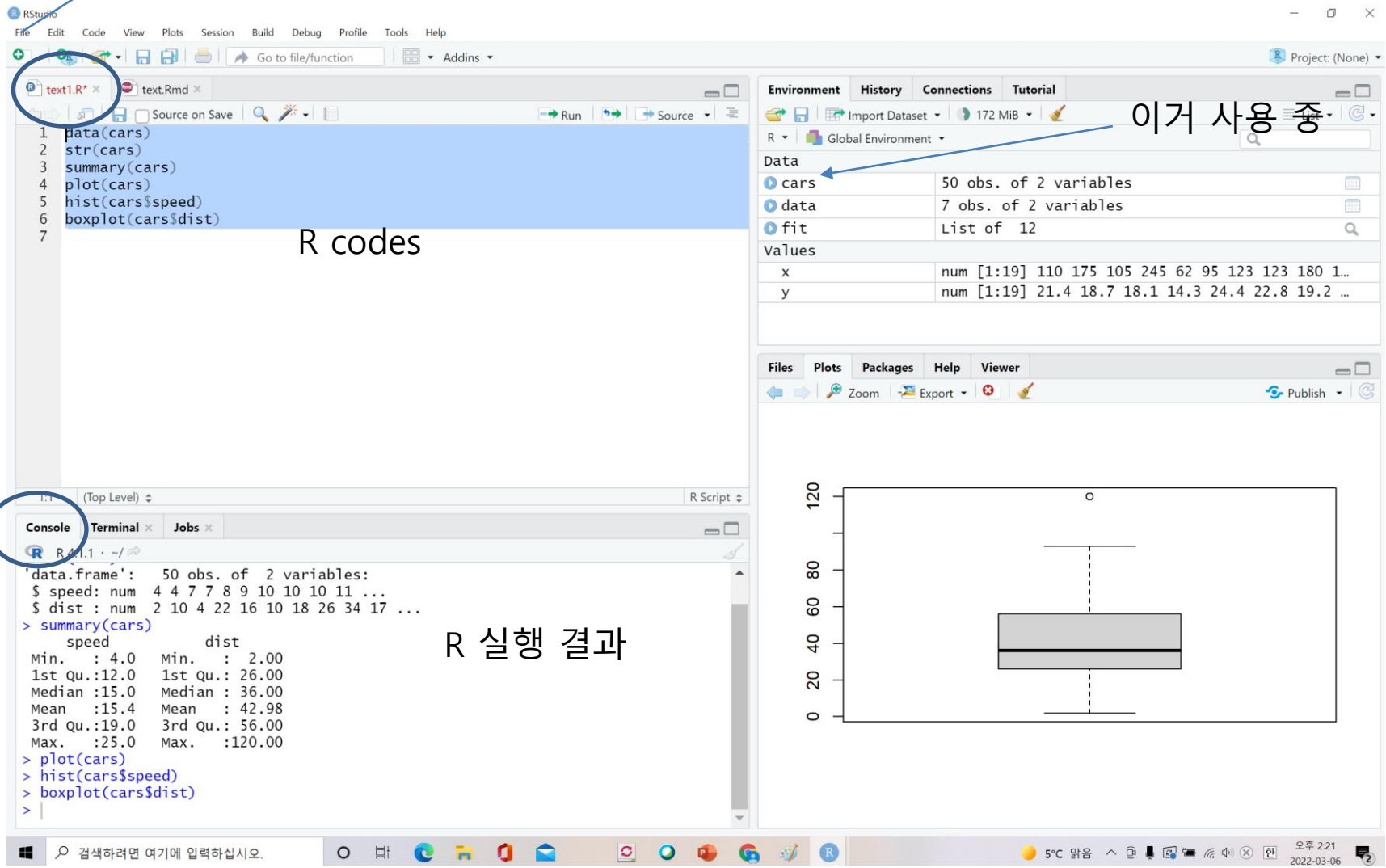

최근에 추가한 앱
RStudio
Ridibooks
Virtoo by LG
#
RStudio

Codes in Rstudio

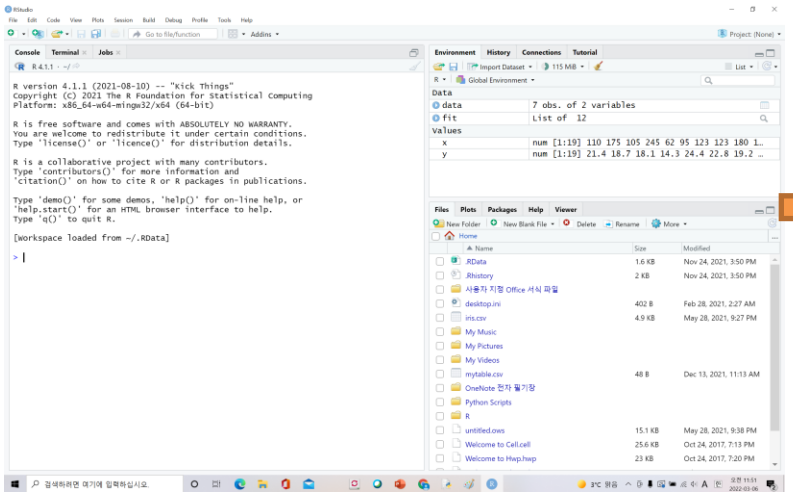


run result in Rstudio

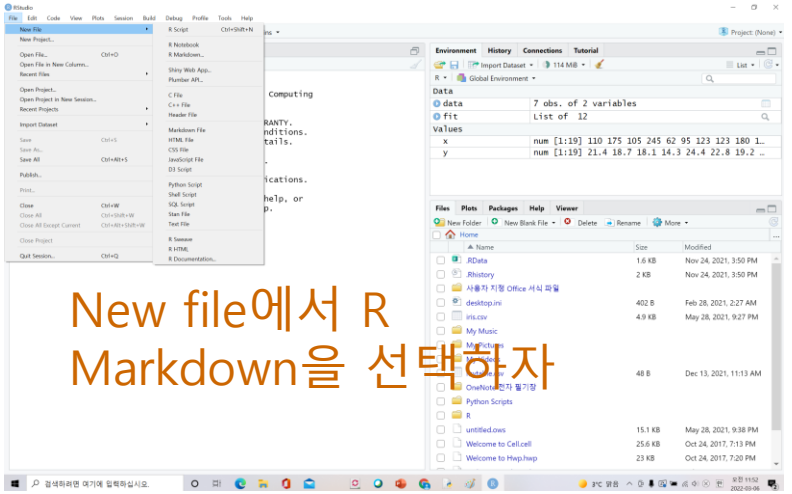
이거로 저장하기



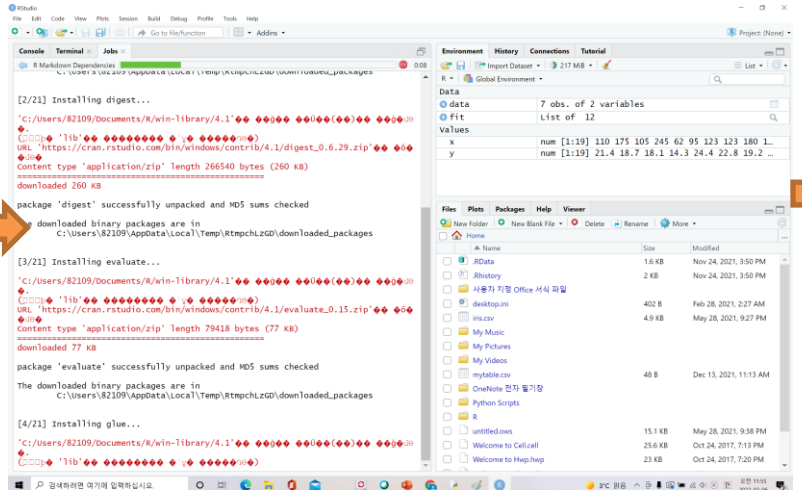
Rstudio에서 markdown 설치
install.packages("rmarkdown")



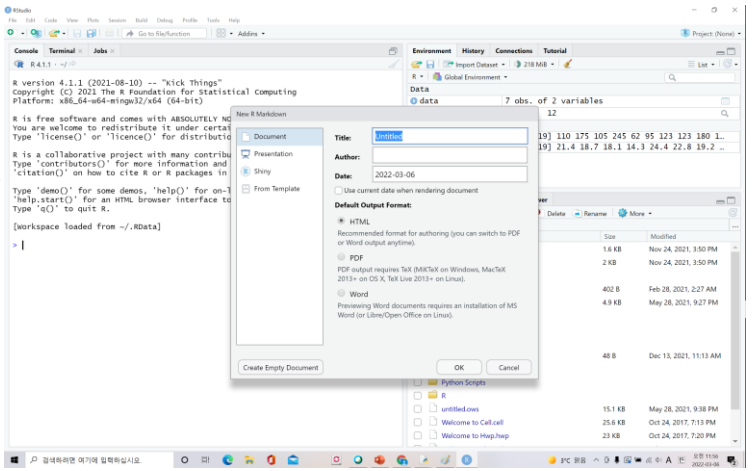
New file에서 R Markdown을 선택하자



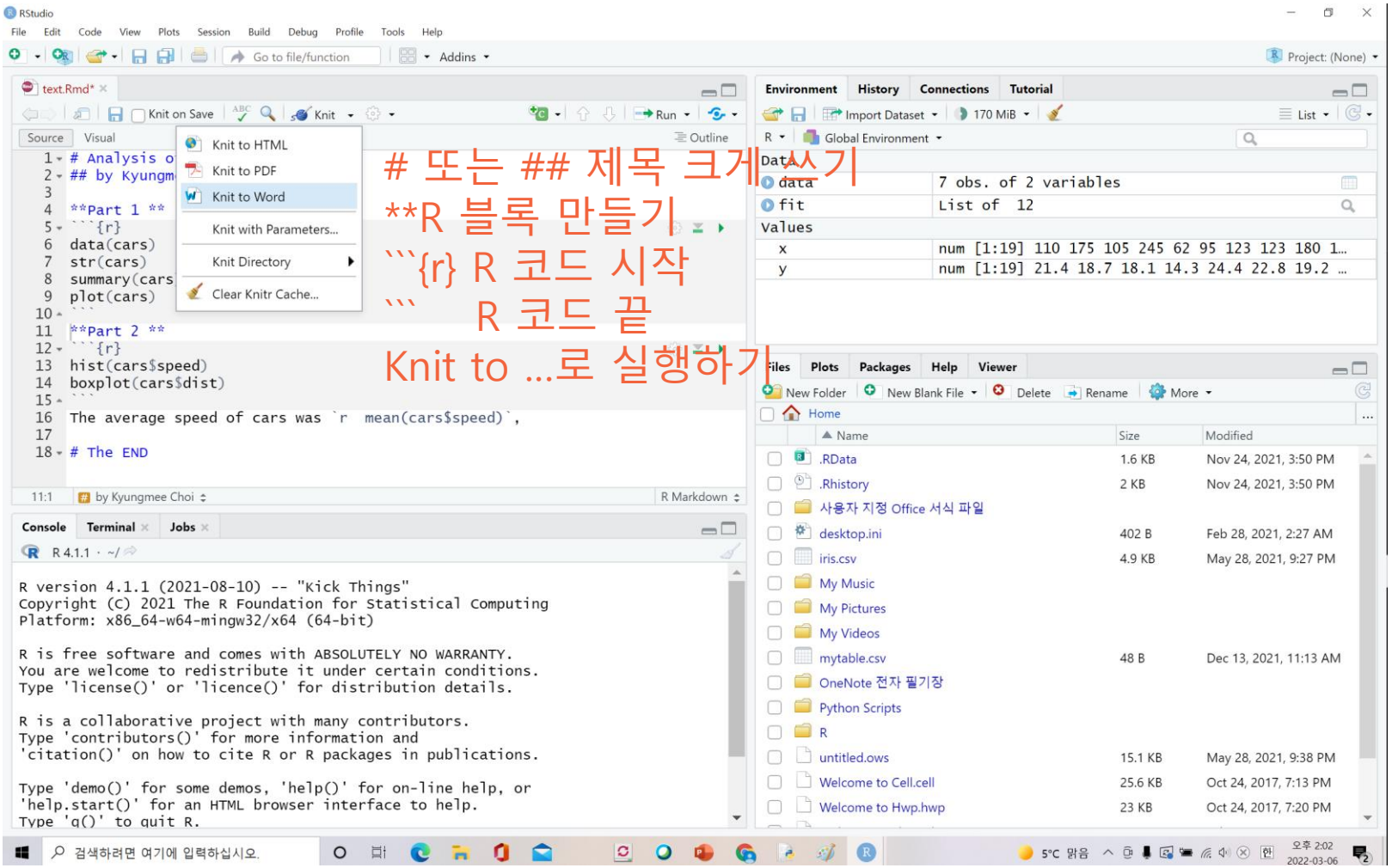
Markdown 설치 (처음에만)



File => New file => R Markdown 선택 후 파일 이름 지정



R markdown https://www.youtube.com/watch?v=tKUufzpoHDE



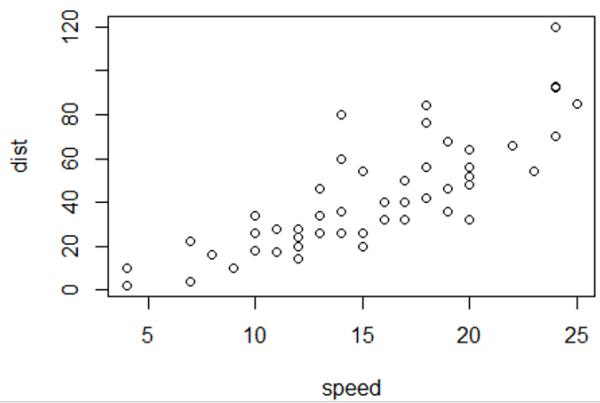
R markdown 결과

Analysis of Cars dataset i R

by Kyungmee Choi

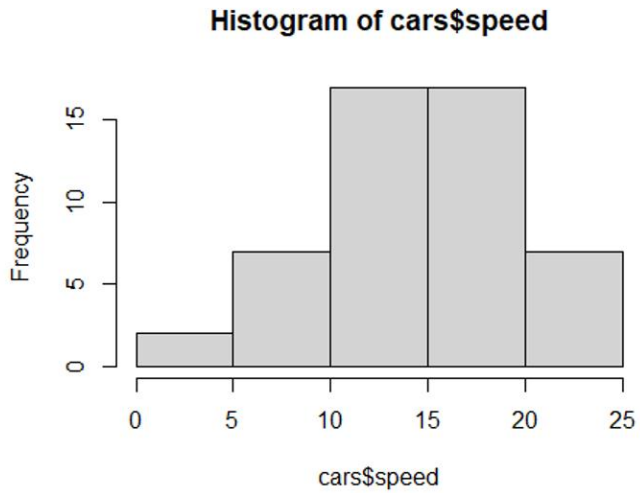
Part 1

```
data(cars)
str(cars)

## 'data.frame':    50 obs. of  2 variables:
##  $ speed: num  4 4 7 7 8 9 10 10 10 11 ...
##  $ dist : num  2 10 4 22 16 10 18 26 34 17 ...

summary(cars)

##      speed           dist       
##  Min.   : 4.0   Min.   :  2.00  
##  1st Qu.:12.0   1st Qu.: 26.00  
##  Median :15.0   Median : 36.00  
##  Mean   :15.4   Mean   : 42.98  
##  3rd Qu.:19.0   3rd Qu.: 56.00  
##  Max.   :25.0   Max.   :120.00

plot(cars)
```



Part 2

```
hist(cars$speed)
```




```
boxplot(cars$dist)
```