

R / RStudio 軟體環境介紹

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<https://hmwu.idv.tw>



本章大綱&學習目標

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- R軟體環境簡介
 - R軟體安裝，R程式執行及套件(Package)
 - R相關檔案其副檔名的意義
 - 求助說明 `help()`、內訂Demo程式
- R程式IDE編輯器: RStudio
 - 建立專案、HELP、常用快速鍵
- 更新R軟體及R套件
- 常用查詢指令: `sessionInfo`, `.libPaths`, `R.Version`, `RStudio.Version`, `packageVersion`
- R的學習資源
- 安裝RStudio常見問題

The R Project for Statistical Computing

<http://www.r-project.org>



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CRAN

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The R Project for Statistical Computing

Rgui

Getting Started

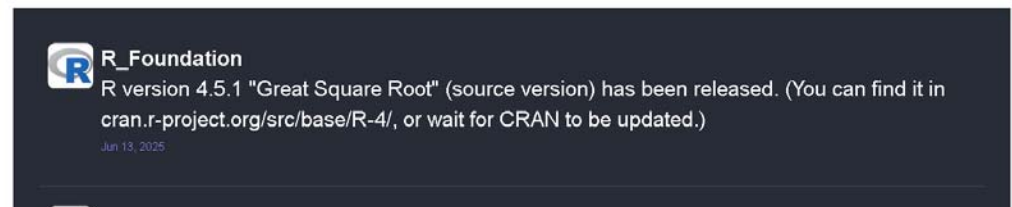
R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To [download R](#), please choose a [mirror](#).

If you have questions about R like how to download and install the software, or how to use it, please read our [answers to frequently asked questions](#) before you send an email.

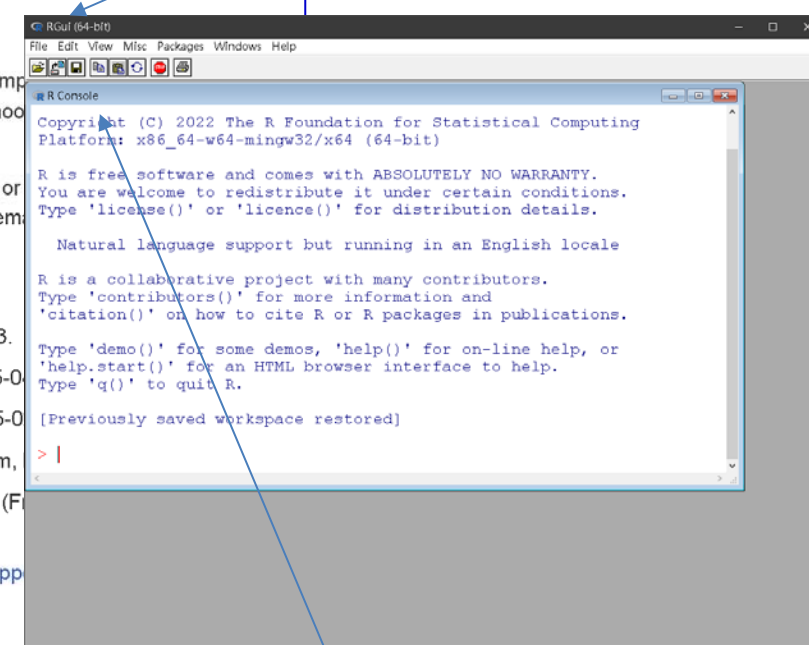
News

- [R version 4.5.1 \(Great Square Root\)](#) has been released on 2025-06-13.
- [R version 4.5.0 \(How About a Twenty-Six\)](#) has been released on 2025-06-06.
- [R version 4.4.3 \(Trophy Case\)](#) (wrap-up of 4.4.x) was released on 2025-05-18.
- The [useR! 2025](#) conference will take place at Duke University, in Durham, NC, USA, from June 16-18, 2025.
- We are deeply sorry to announce that our friend and colleague Friedrich (Fritz) Irmann passed away on June 10, 2025. [Read our tribute to Fritz here.](#)
- You can support the R Foundation with a renewable subscription as a [supporter](#).

News via Mastodon



R_Foundation
R version 4.5.1 "Great Square Root" (source version) has been released. (You can find it in cran.r-project.org/src/base/R-4/, or wait for CRAN to be updated.)
Jun 13, 2025



Rgui (64-bit)
File Edit View Misc Packages Windows Help

R Console

```
Copyright (C) 2022 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
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.

[Previously saved workspace restored]

> |
```

R Console



R是什麼？

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R is a language and environment for **statistical computing and graphics**.

- R 是一種程式語言與統計軟體環境，主要用於統計分析、資料探勘、機器學習與繪圖。
- 它最早(1985)由紐西蘭奧克蘭大學的 Ross Ihaka 和 Robert Gentleman 開發（名字 R 就來自他們的名字首字母）。
- R 有龐大的套件生態系（CRAN），研究人員、數據科學家和統計學家可以快速使用現成的套件做迴歸、分類、時間序列、文字探勘等分析。
- R 在學術界和產業界都非常普及，尤其是在需要大量統計建模和資料視覺化的領域。
- 簡單來說，R 就像是一個「專門為統計和資料分析打造的程式語言」，特別適合學術研究與數據處理。

R 語言應用地圖

- 統計分析：迴歸、ANOVA、時間序列、貝葉斯模型
- 資料視覺化：ggplot2、互動式圖表、儀表板
- 機器學習：分類、分群、神經網路、隨機森林
- 商業與經濟分析：行銷數據、財務風險、顧客分析
- 生物資訊與醫學研究：基因資料、臨床試驗數據、生存分析
- 文字探勘與自然語言處理：文字雲、情感分析、語料庫研究
- 大數據與資料處理：SparkR、資料清理與轉換、大規模運算
- 學術研究與教育：教學、教材開發、學術論文分析

優點：

- 免費統計分析軟體’ 完整的說明文件與討論區’ 高品質的學術繪圖’ 程式易根據需求修改

缺點：

- 不親切的使用者介面(Rgui)’ 需詳知套件、函式名稱與程式編寫邏輯’ 大量計算效能低。(已有改進方法)’ its lack of security over the Web

我為什麼要使用R做為資料分析工具?

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<http://www.r-project.org>
<https://posit.co/>

寫程式是資料分析的必要技能

<https://medium.com/datainpoint/9ee15b58cc>

Python or R, what should you learn first?

<https://read01.com/0ePnyD.html#.Wu66C3--kZY>

Why I use R for Data Science – An Ode to R

<https://www.r-bloggers.com/why-i-use-r-for-data-science-an-ode-to-r-2/>

選擇R開發數據分析平台的 4 個不錯的理由

<https://read01.com/660M4g.html>

做數據分析必須學R語言的4個理由

<https://read01.com/yyREB2.html>

Hadley Wickham：一個改變了R的人

<https://read01.com/Mmy64J.html>

Hadley Wickham: "R is ... tailored to the problems of data science"



COPSS Presidents' Award: Hadley Wickham

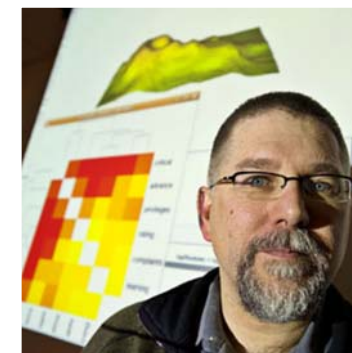
SEPTEMBER 2, 2019

Hadley Wickham wins the prestigious 2019 COPSS Presidents' Award

Winners of the COPSS Presidents' Award [\[edit \]](#)

- 1981: Peter J. Bickel, University of California, Berkeley
- 1982: Stephen Fienberg, Carnegie Mellon University
- 1983: Tze Leung Lai, Stanford University
- 1984: David V. Hinkley, University of California, Santa Barbara
- 1985: James O. Berger, Duke University
- 1986: Ross L. Prentice, Fred Hutchinson Cancer Research Center
- 1987: C.F. Jeff Wu, Georgia Institute of Technology
- 1988: Raymond J. Carroll, Texas A&M University
- 1989: Peter Hall, Australian National University
- 1990: Peter McCullagh, University of Chicago
- 1991: Bernard Silverman, University of Oxford
- 1992: Nancy Reid, University of Toronto
- 1993: Wing Hung Wong, Stanford University
- 1994: David L. Donoho, Stanford University
- 1995: Iain M. Johnstone, Stanford University
- 1996: Robert J. Tibshirani, Stanford University
- 1997: Kathryn Roeder, Carnegie Mellon University
- 1998: Pascal Massart, Université de Paris-Sud
- 1999: Larry A. Wasserman, Carnegie Mellon University
- 2000: Jiaqing Fan, Princeton University
- 2001: Xiao-Li Meng, Harvard University
- 2002: Jun Liu, Harvard University
- 2003: Andrew Gelman, Columbia University
- 2004: Michael A. Newton, University of Wisconsin
- 2005: Mark J. van der Laan, University of California, Berkeley
- 2006: Xihong Lin, Harvard University
- 2007: Jeff Rosenthal, University of Toronto
- 2008: T. Tony Cai, University of Pennsylvania
- 2009: Rafael Irizarry, Harvard University
- 2010: David Dunson, Duke University
- 2011: Nilanjan Chatterjee, Johns Hopkins University
- 2012: Samuel Kou, Harvard University
- 2013: Marc A. Suchard, UCLA
- 2014: Martin J. Wainwright, University of California, Berkeley
- 2015: John D. Storey, Princeton University
- 2016: Nicolai Meinshausen, ETH Zürich
- 2017: Tyler J. VanderWeele, Harvard University
- 2018: Richard J. Samworth, University of Cambridge
- 2019: Hadley Wickham, RStudio, Inc.
- 2020: Rina Foygel Barber, University of Chicago
- 2021: Jeffrey T. Leek, Johns Hopkins University
- 2022: Daniela Witten, University of Washington

Robert C. Gentleman
Department of Biostatistical Sciences,
Dana Farber Cancer Institute



Ross Ihaka,
University of Auckland, 2017



TIOBE 全球程式語言排名

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<http://www.tiobe.com/tiobe-index/>

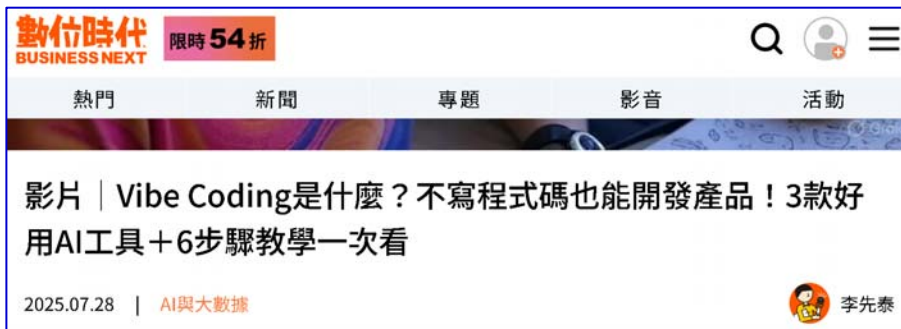
(共243種程式語言)

Aug 2025	Aug 2024	Change	Programming Language	
1	1			Python
2	2			C++
3	3			C
4	4			Java
5	5			C#
6	6			JavaScript
7	8	▲		Visual Basic
8	9	▲		Go
9	25	▲▲		Perl
10	12	▲		Delphi/Object Pascal
11	10	▼		Fortran
12	7	▼▼		SQL
13	30	▲▲		Ada
14	19	▲▲		R
15	13	▼		PHP
16	11	▼▼		MATLAB
17	20	▲		Scratch
18	14	▼▼		Rust
19	18	▼		Kotlin
20	17	▼		Assembly language

Vibe Coding

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<https://www.bnext.com.tw/article/82704/how-to-vibe-coding-2025>



Vibe Coding是什麼？

隨著生成式AI進入爆發生長時期，2025年初自美國矽谷颳起一股軟體開發新風潮，透過AI工具協助，軟體工程師可以在「不寫程式碼」的前提下開發產品，而這種近乎佛系、不用刻苦寫code的開發方式，被取了一個新穎的名字：**Vibe Coding**。

在Vibe Coding風潮中，其中Anthropic旗下的Claude系列模型被認為是擁有最強大寫程式能力的AI模型。近期外媒也訪問Anthropic高層，揭露其RLAIF學習技術、加強使用工具及記憶能力是勝出關鍵。

而除了Claude系列，好用的Vibe Coding工具有哪些？

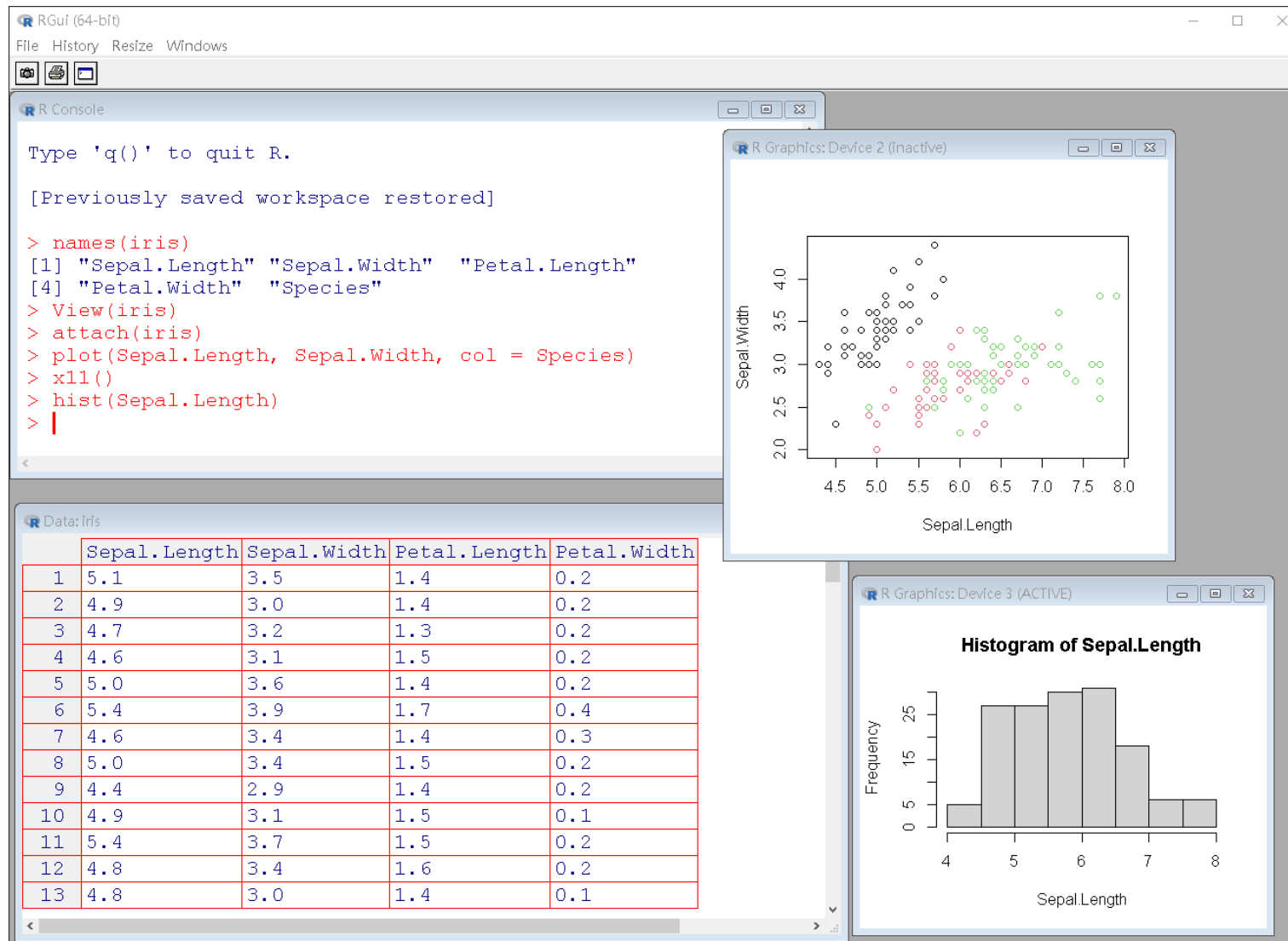


<https://www.youtube.com/watch?v=8me0juJCpWM&t=40s>

<https://hmwu.idv.tw>

軟體外觀 (Windows)

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CRAN: The Comprehensive R Archive Network

New Zealand

<https://cran.stat.auckland.ac.nz/>

University of Auckland

Norway

<https://cran.uib.no/>

University of Bergen

Philippines

<https://cran.stat.upd.edu.ph/>

University of the Philippines and PREGINET

Poland

<https://cran.mi2.ai/>

MI2.ai, Warsaw University of Technology

Portugal

<https://cran.radicaldevelop.com/>

Russia

<https://mirror.truenetwork.ru/CRAN/>

South Africa

<https://cran.mirror.ac.za/>

Spain

<https://ftp.cixug.es/CRAN/>

<https://cran.rediris.es/>

Sweden

<https://ftp.acc.umu.se/mirror/CRAN/>

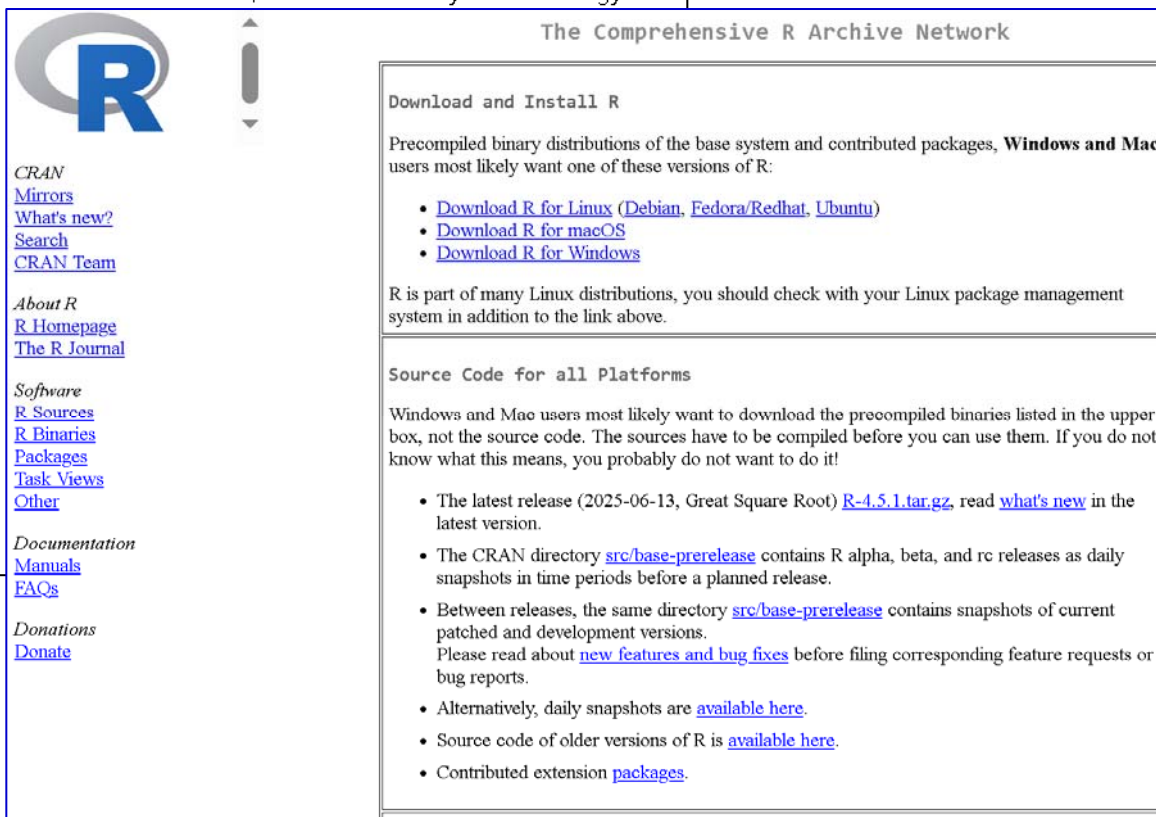
Switzerland

<https://stat.ethz.ch/CRAN/>

<https://mirror.metanet.ch/cran/>

Taiwan

<https://cran.csie.ntu.edu.tw/>



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 \(Debian, Fedora/Redhat, Ubuntu\)](#)
- [Download R for macOS](#)
- [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 (2025-06-13, Great Square Root) [R-4.5.1.tar.gz](#), read [what's new](#) in the latest version.
- The CRAN directory [src/base-prerelease](#) contains R alpha, beta, and rc releases as daily snapshots in time periods before a planned release.
- Between releases, the same directory [src/base-prerelease](#) contains snapshots of current patched and development versions. Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.
- Alternatively, daily snapshots are [available here](#).
- Source code of older versions of R is [available here](#).
- Contributed extension [packages](#).

CRAN
[Mirrors](#)
[What's new?](#)
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[CRAN Team](#)

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[R Homepage](#)
[The R Journal](#)

Software
[R Sources](#)
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repos="https://cran.csie.ntu.edu.tw/"

<https://hmwu.idv.tw>



R軟體下載

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- T
- re
- S
- in
- D

R-4.5.1 for Windows

[Download R-4.5.1 for Windows](#) (86 megabytes, 64 bit)

[README on the Windows binary distribution](#)

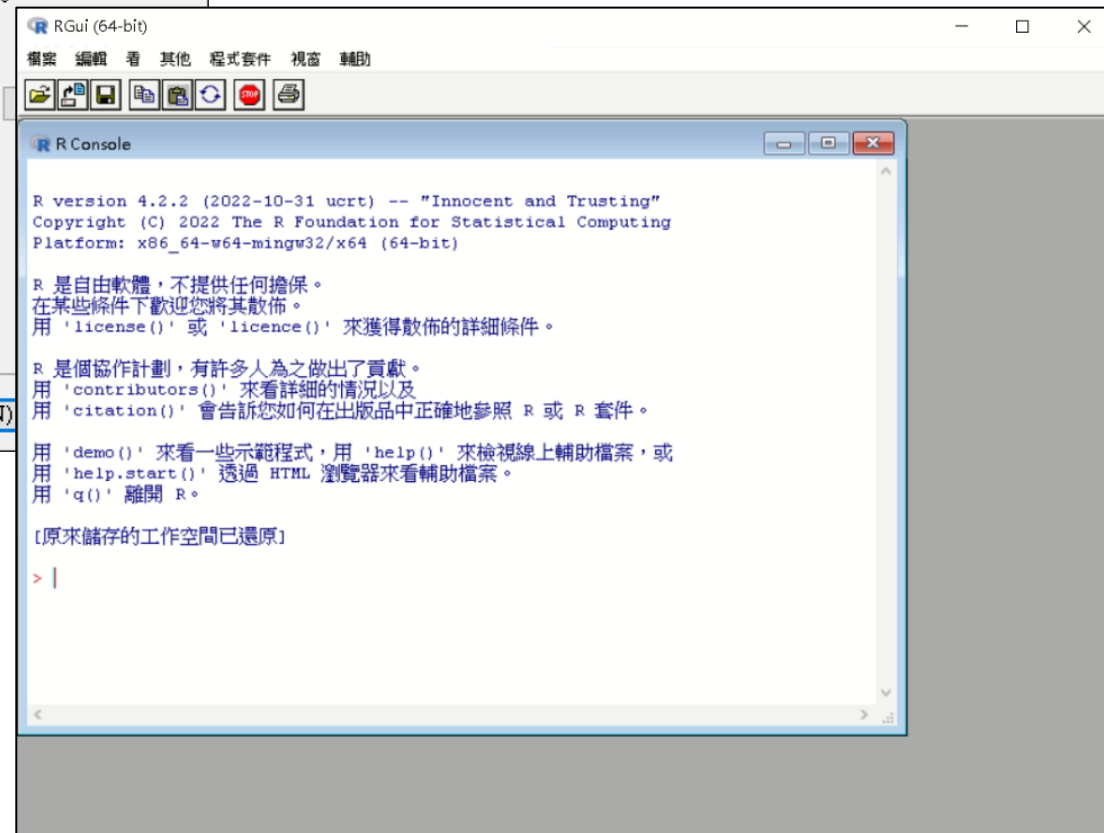
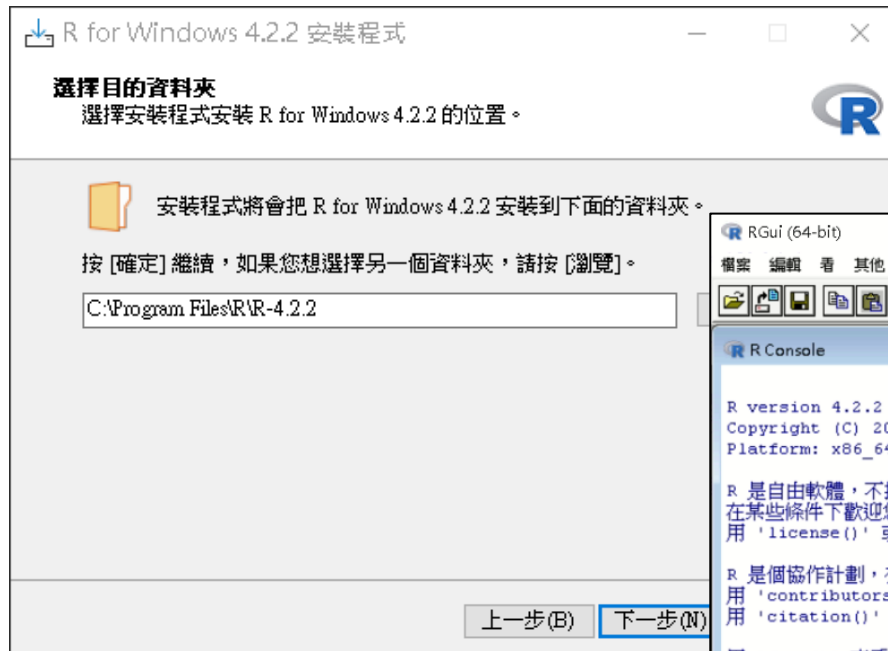
[New features in this version](#)

<https://cran.csie.ntu.edu.tw/bin/windows/base/R-4.2.2-win.exe>

軟體安裝; 啟動R

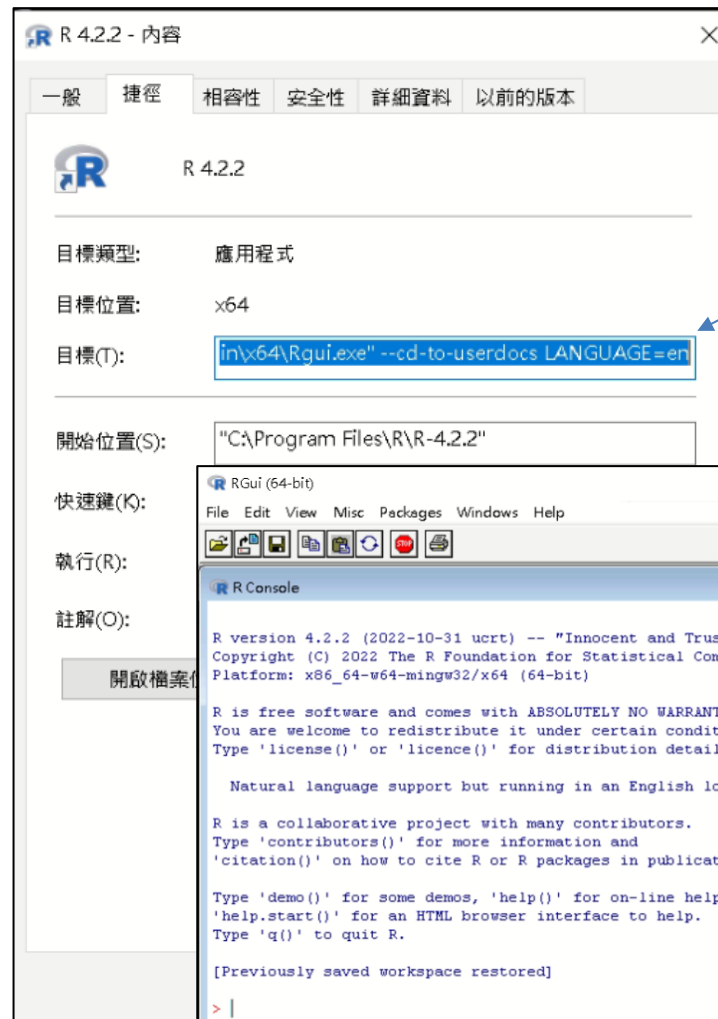
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注意: R軟體安裝目錄，使用者目錄、R套件安裝目錄的路徑

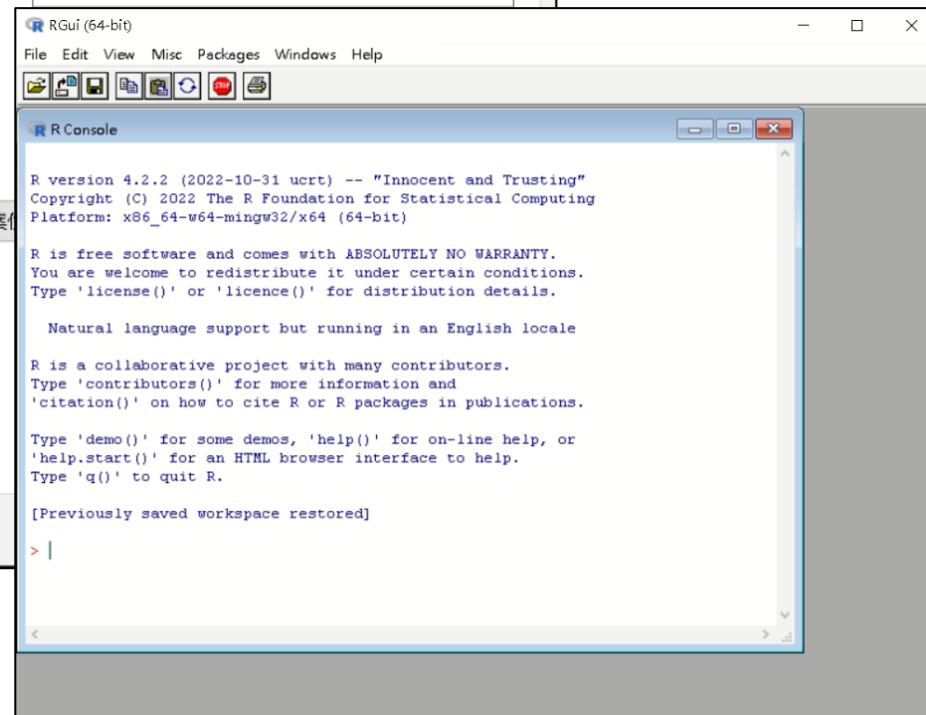


想把中文介面改成英文介面

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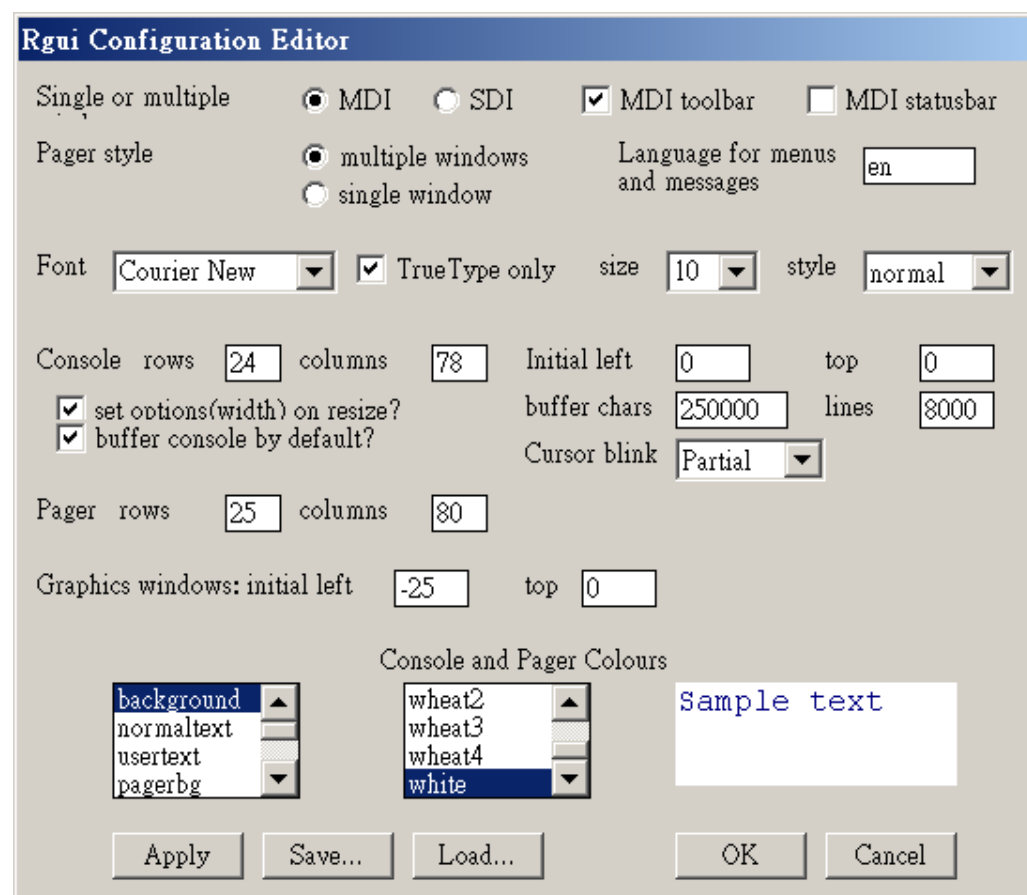
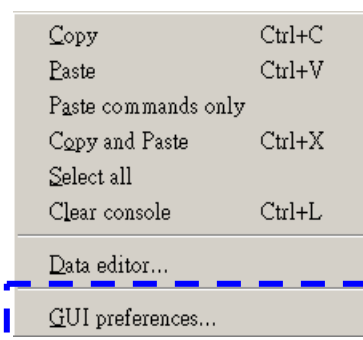
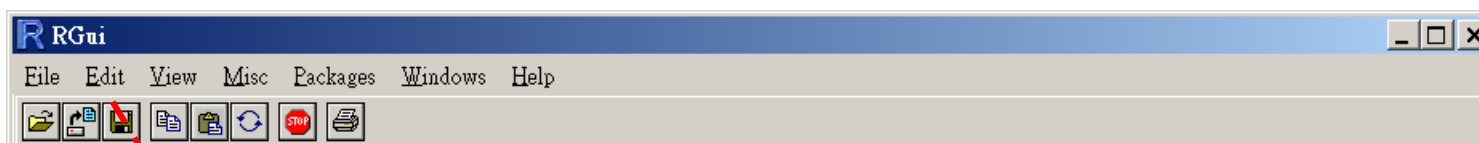


加入
LANGUAGE=en



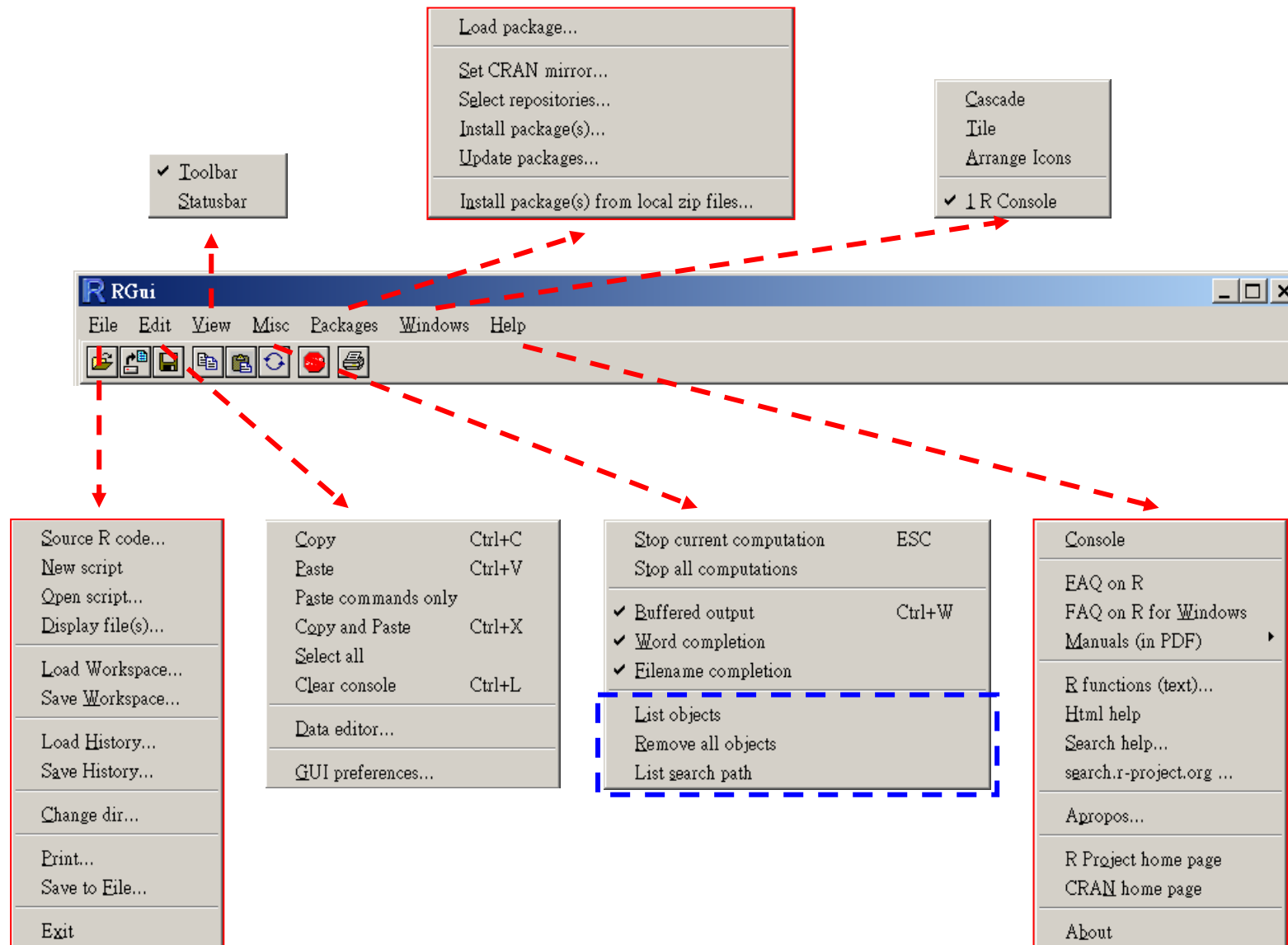
喜好設定

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R 選單

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寫程式及執行

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The screenshot shows the RGui (64-bit) interface. The main window has a menu bar (File, Edit, View, Misc, Packages, Windows, Help) and a toolbar. The 'File' menu is open, showing options like 'New script', 'Open script...', 'Display file(s)...', 'Load Workspace...', 'Save Workspace...', 'Load History...', 'Save History...', 'Change dir...', 'Print...', 'Save to File...', and 'Exit'. A red dashed arrow points from the 'New script' option to a callout box labeled '(1) 執行程式'. The main window displays the following R code and its output:

```
#####  
# My testing R code  
# Han-Ming Wu  
# 2024/07/16  
#####  
cat("Use iris data to test")  
data(iris)  
View(iris)  
head(iris, 3)  
summary(iris)  
  
attach(iris)  
plot(Sepal.Length, Sepal.Width, col=Species)
```

The output in the console shows the execution of the code:

```
> x <- 1+4  
> x  
[1] 5  
> (y <- 1:100)  
[1] 1 2 3 4 5 6 7  
[19] 19 20 21 22 23 24 25 26  
[37] 37 38 39 40 41 42 43 44  
[55] 55 56 57 58 59 60 61 62  
[73] 73 74 75 76 77 78 79 80  
[91] 91 92 93 94 95 96 97 98  
> sum(y)  
[1] 5050  
> sample(1:42, 6)  
[1] 4 11 39 27 35 10  
> |
```

A secondary window titled 'R Untitled - R Editor' is open, showing the same R code. A red dashed arrow points from the 'Run line or selection' menu item to a callout box labeled '(2) 執行程式'. The 'Run line or selection' menu is open, showing options like 'Run line or selection Ctrl+R', 'Undo Ctrl+Z', 'Cut Ctrl+X', 'Copy Ctrl+C', 'Paste Ctrl+V', 'Delete', and 'Select all Ctrl+A'. A red dashed arrow points from the 'Save' option in the 'File' menu to a callout box labeled '(3) 利用source 執行程式'. The 'File' menu is also open in the main window, showing options like 'New script Ctrl+N', 'Open script... Ctrl+O', 'Save Ctrl+S', 'Save as...', 'Print...', and 'Close all'. A red dashed arrow points from the 'Save' option to a callout box labeled '程式存檔 (myRcode.R)'. A red dashed arrow points from the 'Run line or selection' menu to a callout box labeled '注意工作目錄及print'.

(1) 執行程式

(2) 執行程式

程式存檔
(myRcode.R)

(3) 利用source
執行程式

注意工作目錄
及print

> source("myRcode.R")



R相關檔案副檔名

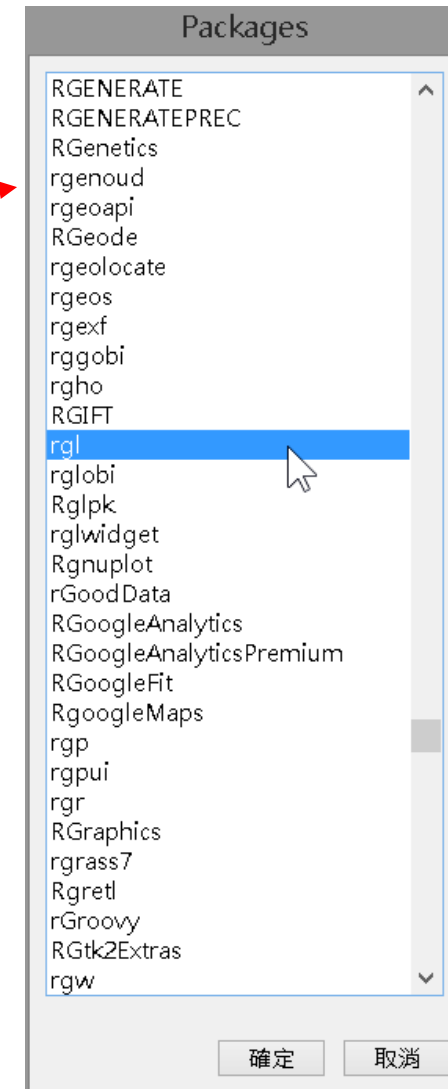
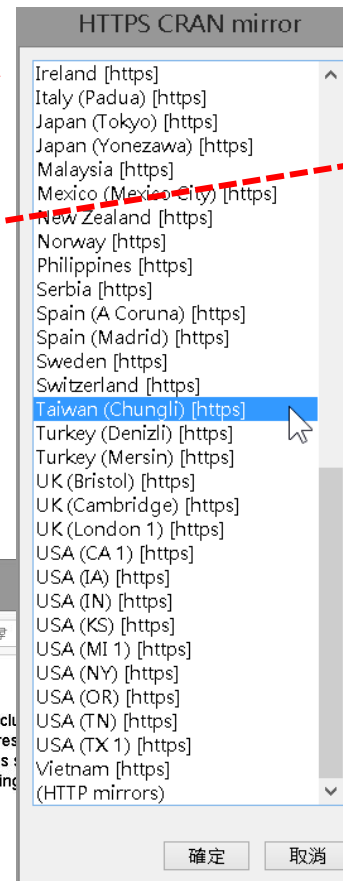
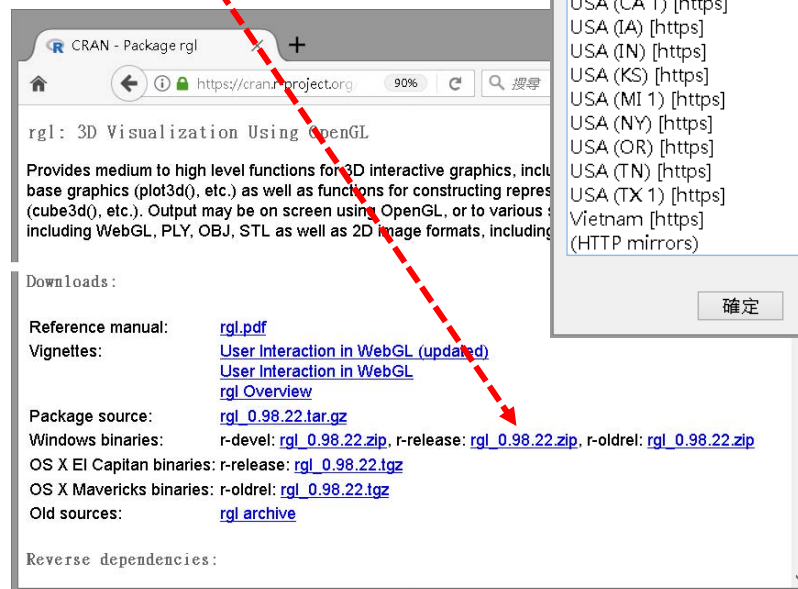
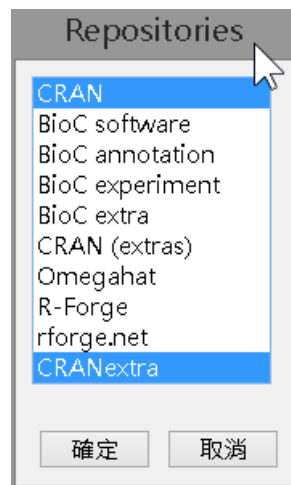
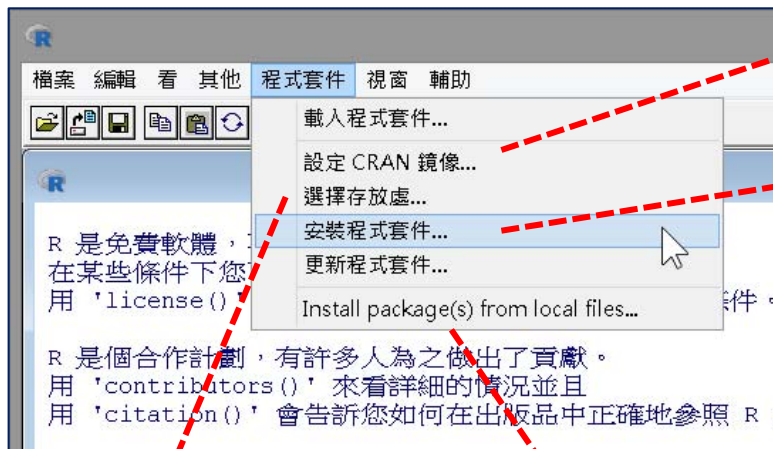
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- **.R** : 標準 R 程式碼檔案
- **.Rhistory** : 指令操作紀錄檔
- **.Rprofile** : 啟動時自動執行的設定檔
- **.RData** : 整個工作環境 (workspace)
- **.rda** / **.Rda** : 多個 R 物件
- **.rds** : 單一 R 物件 (資料交換常用)
- **.tar.gz** : Linux/Unix R 套件壓縮檔
- **.zip** : Windows R 套件壓縮檔
- **.dll** / **.so** : 編譯後的函式庫
- **.Rmd** : R Markdown 文件
- **.Rnw** : Sweave (R + LaTeX 文件)
- **.Renvi** : R 環境變數設定檔
- **.Rproj** : RStudio 專案檔
- **.Rd** : R 套件文件檔 (help)

安裝R套件 (RGui選單)

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- Packages => Install package(s) => CRAN mirror => installr, rgl, scatterplot3d (按Ctrl可多重選取) => OK



安裝R套件 (指令方式)

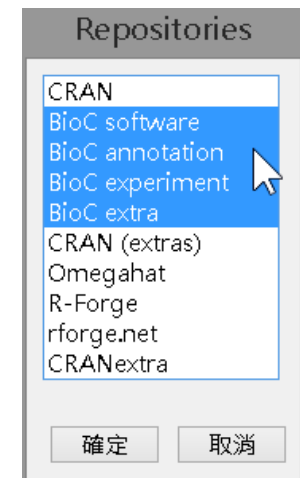
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```
> setRepositories()
> chooseCRANmirror()
> install.packages("rgl") # 安裝套件
> library(rgl) # 載入套件
> # same as > library("rgl")
> detach("package:rgl", unload=TRUE) # 卸載套件
> remove.packages("rgl") # 移除套件
> .libPaths() # 列出library安裝目錄
```

```
> # 指定repositories
> install.packages("rgl", repos = "http://cran.csie.ntu.edu.tw")
```

```
> options(repos="http://cran.csie.ntu.edu.tw")
> pks <- c("rgl", "ggplot2", "maps", "e1071")
> install.packages(pks)
> lapply(pks, library, character.only = TRUE)
```

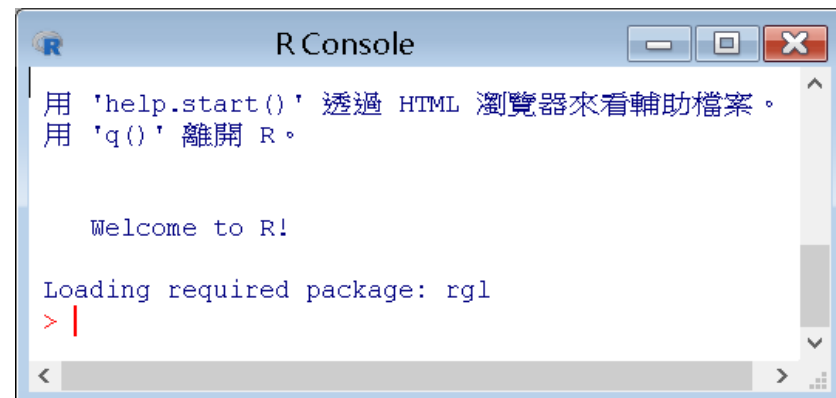
```
> # 安裝 BioC 的套件
> # setRepositories(graphics = F, ind = 2)
> # options("repos")
> source("https://bioconductor.org/biocLite.R")
> biocLite("EBImage")
```



Automatically load packages in the Startup of R:

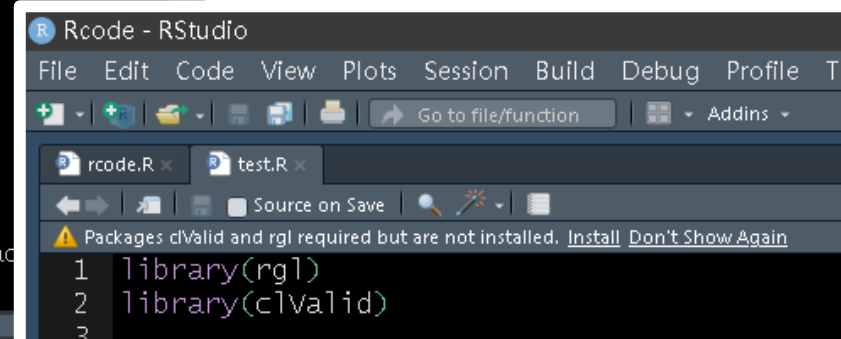
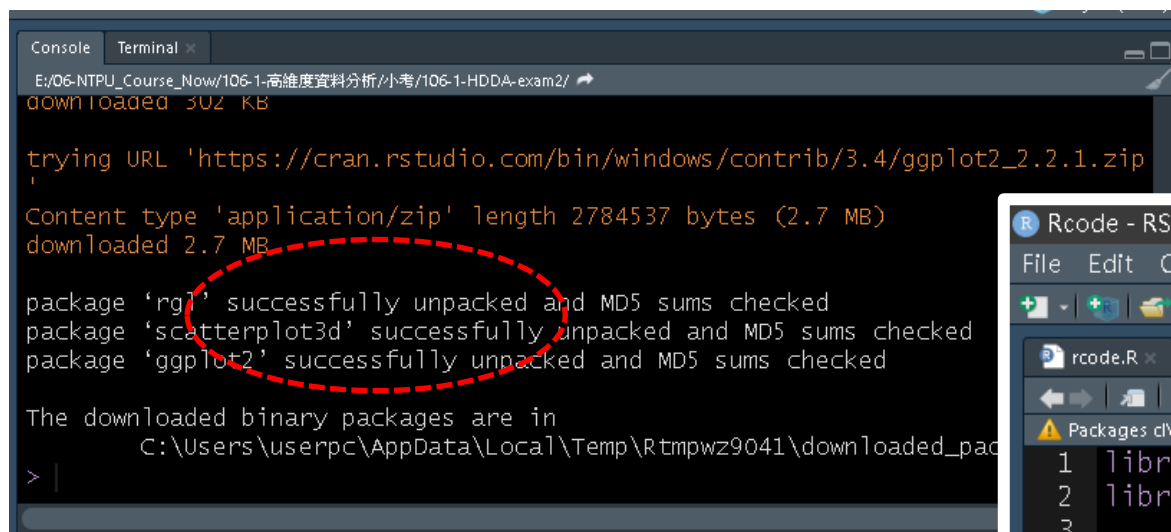
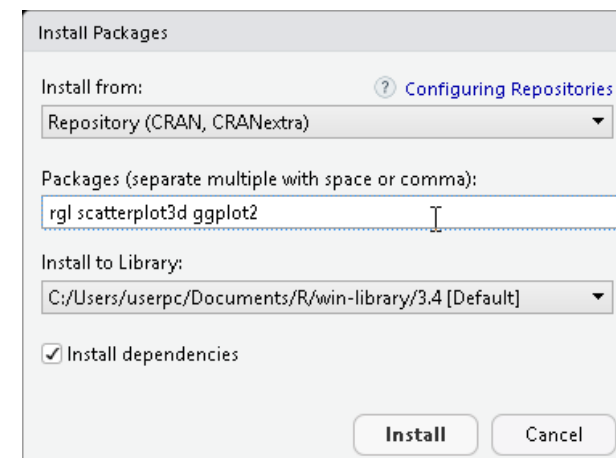
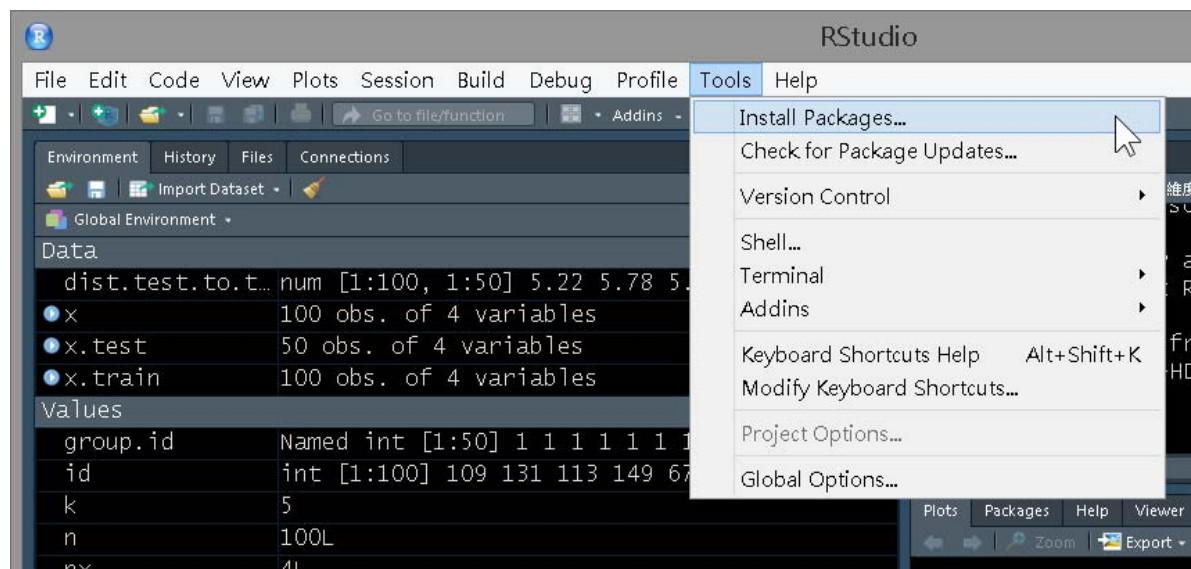
- call **.First()** in the **Rprofile** file.
- 編輯檔案(Windows) C:\Program Files\R\R-3.3.1\library\base\Rprofile

```
.First <- function(){
  cat("\n Welcome to R!\n\n")
  require(rgl)
}
```



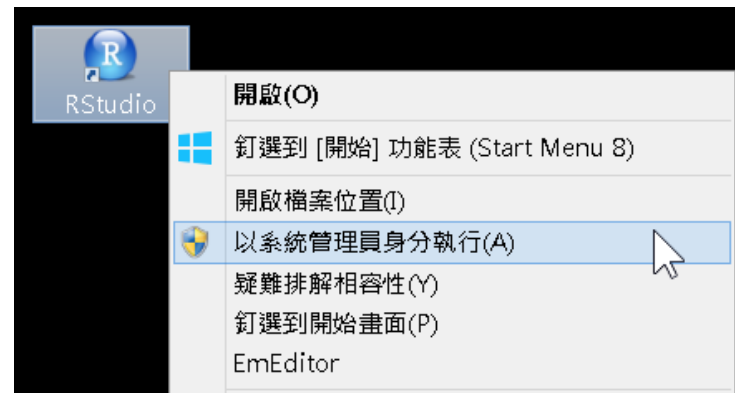
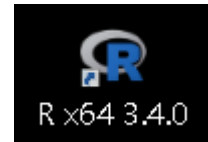
安裝R套件 (RStudio選單)

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```
Consol Terminal x
~/Documents/my first R/ ➤
x/el-capitan/contrib/3.4/rgl_0.98.22.tgz'
Warning in install.packages :
  URL 'https://cran.rstudio.com/bin/macosx/el-capitan/contrib/3.4/rgl_0.98.22.tgz': status was 'Couldn't connect to server'
Error in download.file(url, destfile, method, mode = "wb", ...) :
  無法開啟 URL 'https://cran.rstudio.com/bin/macosx/el-capitan/contrib/3.4/rgl_0.98.22.tgz'
Warning in install.packages :
  download of package 'rgl' failed
> install.packages("rgl")
嘗試 URL 'https://cran.rstudio.com/bin/macosx/el-capitan/contrib/3.4/rgl_0.98.22.tgz'
Content type 'application/x-gzip' length 3830751 bytes (3.7 MB)
=====
downloaded 3.7 MB

The downloaded binary packages are in
/var/folders/zb/lqb9zm_j0bdgmfj24glp38dh0000gn/T//Rtmp006ZKM/downloaded_packages
> |
```



Installing R on OS X

<https://www.r-bloggers.com/installing-r-on-os-x/>

Why mac OS failed to install rgl: rgl package needs X11 to show its 3D plots.

- (1) Download/install XQuartz <https://www.xquartz.org>
- (2) Check the library /usr/X11/lib/libGLU.1.dylib is loaded
- (3) install.packages("rgl")



library 和 require 的差別

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- 狀況(1): 載入已安裝的套件，且 using the command outside of a function definition，則：
 - **"require"** or **"library"** 相同。
- 狀況(2): 載入未安裝的套件，則：
 - **library(foo)**: 程式停止 with the message **"Error in library(foo): there is no package called 'foo'."**
 - **require(foo)**: get a warning, but not an error. Your program will continue to run, only to crash later when you try to use a function from the library **"foo"**
- **require(package)** returns (invisibly) **TRUE** if the package is available
 - > **# install "package" if it doesn't exist, and then load it.**
 - > **if (!require(package)) install.packages("package")**
 - > **library(package)**



CRAN Task Views

<https://cran.r-project.org/web/views/>

ActuarialScience	Actuarial Science
Agriculture	Agricultural Science
Bayesian	Bayesian Inference
CausalInference	Causal Inference
ChemPhys	Chemometrics and Computational Physics
ClinicalTrials	Clinical Trial Design, Monitoring, and Analysis
Cluster	Cluster Analysis & Finite Mixture Models
CompositionalData	Compositional Data Analysis
Databases	Databases with R
DifferentialEquations	Differential Equations
Distributions	Probability Distributions
DynamicVisualizations	Dynamic Visualizations and Interactive Graphics
Econometrics	Econometrics
Environmetrics	Analysis of Ecological and Environmental Data
Epidemiology	Epidemiology
ExperimentalDesign	Design of Experiments (DoE) & Analysis of Experimental Data
ExtremeValue	Extreme Value Analysis
Finance	Empirical Finance
FunctionalData	Functional Data Analysis
GraphicalModels	Graphical Models
HighPerformanceComputing	High-Performance and Parallel Computing with R
Hydrology	Hydrological Data and Modeling
MachineLearning	Machine Learning & Statistical Learning
MedicalImaging	Medical Image Analysis
MetaAnalysis	Meta-Analysis
MissingData	Missing Data
MixedModels	Mixed, Multilevel, and Hierarchical Models in R
ModelDeployment	Model Deployment with R
NaturalLanguageProcessing	Natural Language Processing
NetworkAnalysis	Network Analysis
NumericalMathematics	Numerical Mathematics
OfficialStatistics	Official Statistics & Survey Statistics
Omics	Genomics, Proteomics, Metabolomics, Transcriptomics, and Other Omics
Optimization	Optimization and Mathematical Programming
Paleontology	Paleontology
Pharmacokinetics	Analysis of Pharmacokinetic Data
Phylogenetics	Phylogenetics
Psychometrics	Psychometric Models and Methods
ReproducibleResearch	Reproducible Research
Robust	Robust Statistical Methods
Spatial	Analysis of Spatial Data
SpatioTemporal	Handling and Analyzing Spatio-Temporal Data
SportsAnalytics	Sports Analytics
Survival	Survival Analysis
TeachingStatistics	Teaching Statistics
TimeSeries	Time Series Analysis
Tracking	Processing and Analysis of Tracking Data
WebTechnologies	Web Technologies and Services

```
> install.packages("ctv")
> library(ctv)
>
> available.views()
```

CRAN Task Views

Name: Bayesian
Topic: Bayesian Inference
Maintainer: Jong Hee Park
Repository: <https://cran.fhcrc.org>

```
...
> ## install MachineLearning view
> install.views("MachineLearning")
> ## only with core packages
> install.views("MachineLearning",
  coreOnly = TRUE)
> ## update MachineLearning view
> update.views("MachineLearning")
```

What is the difference between **require()** and **library()**? Not much difference in everyday work. **require** is used inside functions, as it outputs a warning and continues if the package is not found, whereas **library** will throw an error.

- [Top 25 R Packages \(You Need To Learn In 2024\) | R-bloggers](https://www.r-bloggers.com/2024/08/top-25-r-packages-you-need-to-learn-in-2024/)



<https://www.r-bloggers.com/2024/08/top-25-r-packages-you-need-to-learn-in-2024/>

- Top 15 R Libraries for Data Science in 2023

<https://www.knowledgehut.com/blog/data-science/top-r-libraries-for-data-science>

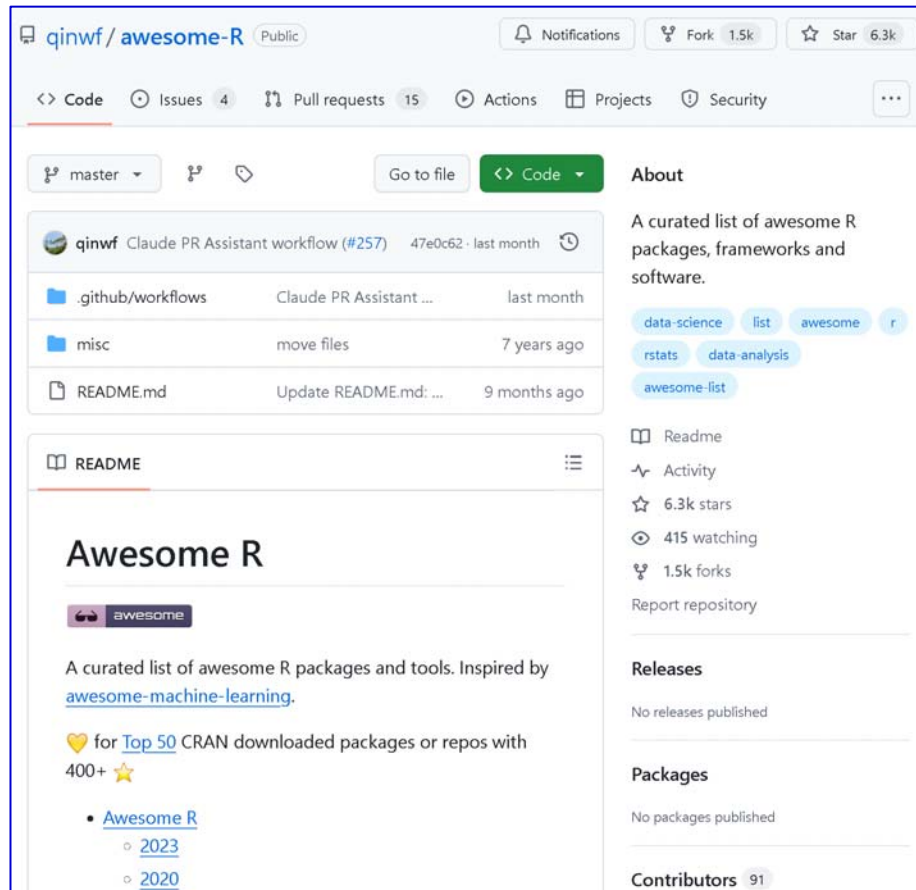
dplyr, tidyr, readr, stringr, lubridate, jsonlite, Shiny, tseries, Prophet, RColorBrewer, githubinstall, ggmap, sqldf, caret

- Quick list of useful R packages

<https://support.posit.co/hc/en-us/articles/201057987-Quick-list-of-useful-R-packages>

Categories: To Fload data, To manipulate data, To visualize data, To model data, To report results, For Spatial data, For Time Series and Financial data, To write high performance R code, To work with the web, To write your own R packages

<https://github.com/qinwf/awesome-R>



qinwf / awesome-R Public

Notifications Fork 1.5k Star 6.3k

<> Code Issues 4 Pull requests 15 Actions Projects Security

master Go to file Code

qinwf Claude PR Assistant workflow (#257) 47e0c62 · last month

.github/workflows Claude PR Assistant ... last month

misc move files 7 years ago

README.md Update README.md: ... 9 months ago

README

Awesome R

awesome

A curated list of awesome R packages and tools. Inspired by [awesome-machine-learning](#).

👍 for [Top 50](#) CRAN downloaded packages or repos with 400+ ⭐

- [Awesome R](#)
 - [2023](#)
 - [2020](#)

Readme Activity 6.3k stars 415 watching 1.5k forks Report repository

Releases No releases published

Packages No packages published

Contributors 91

Data Formats

Packages for reading and writing data of different formats.

- [arrow](#) 🍷 - An interface to the Arrow C++ library.
- [feather](#) 🍷 - Fast, interoperable binary data frame storage for Python, R, and more powered by Apache Arrow.
- [fst](#) 🍷 - Lightning Fast Serialization of Data Frames for R.
- [haven](#) - Improved methods to import SPSS, Stata and SAS files in R.
- [jsonlite](#) - A robust and quick way to parse JSON files in R.
- [qs](#) - Quick serialization of R objects.
- [readxl](#) 🍷 - Read excel files (.xls and .xlsx) into R.
- [readr](#) 🍷 - A fast and friendly way to read tabular data into R.
- [rio](#) - A Swiss-Army Knife for Data I/O.
- [readODS](#) - Read OpenDocument Spreadsheets into R as data.frames.
- [RcppTOML](#) - Rcpp Bindings to C++ parser for TOML files.
- [vroom](#) - Fast reading of delimited files.
- [writexl](#) - Portable, light-weight data frame to xlsx exporter for R.
- [yaml](#) - R package for converting objects to and from YAML.

Graphic Displays

Packages for showing data.

- [ggplot2](#) 🍷 - An implementation of the Grammar of Graphics.
- [ggfortify](#) - A unified interface to ggplot2 popular statistical packages using one line of code.
- [ggrepel](#) - Repel overlapping text labels away from each other.
- [ggalt](#) - Extra Coordinate Systems, Geoms and Statistical Transformations for ggplot2.
- [ggstatsplot](#) - ggplot2 Based Plots with Statistical Details

Related Projects

<https://www.r-project.org/other-projects.html>

- **Bioconductor: Bioinformatics with R**

<http://www.bioconductor.org>

- Rgeo: Spatial Statistics with R

<https://geodacenter.asu.edu/projects/rsp>

- Robust Statistics with R

<http://www.statistik.tuwien.ac.at/rsr/>

- Rmetrics: Financial Market Analysis with R

<http://www.rmetrics.org>

- Omegahat: Distributed Statistical Computing

<http://www.omegahat.org>

- Graphical User Interfaces for R

http://www.sciviews.org/_rgui/

- ESS: Emacs speaks Statistics

<http://ess.R-project.org/>

- R for Mediawiki

<http://mars.wiwi.hu-berlin.de/mediawiki/sk/index.php/R> Extension for MediaWiki

- PowerShell R Interop Cmdlet

<http://powershellinterop.codeplex.com>

- TANGO/ALGENCAN

<http://www.ime.usp.br/~egbirgin/tango/>

The screenshot shows the Bioconductor website homepage. The header features the Bioconductor logo and navigation links: Home, Install, Help, Developers, and About. A search bar is located in the top right. The main content area is divided into several sections: 'About Bioconductor' (describing its purpose and availability), 'News' (listing recent updates), 'Install' (providing links to installation guides), 'Learn' (offering resources like courses and support), 'Use' (guiding users on creating solutions), and 'Develop' (encouraging contributions). The page is designed with a clean, professional layout using a teal and white color scheme.

<http://www.bioconductor.org>

說明手冊 (Help Manuals)

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The screenshot displays the R Studio interface with the 'Help' menu open. The menu options include: Console, FAQ on R, FAQ on R for Windows (in PDF), R functions (text), **Html help** (highlighted), Search help... search.r-project.org, Apropos..., R Project home page, CRAN home page, and About.

Three browser windows are open, showing R documentation:

- The R Language**: Displays 'Statistical Data Science'.
- R: Package Index**: Lists various R packages including `mvtnorm`, `nlme`, `nnet`, `parallel`, `pcaPP`, `plyr`, `proto`, `R2HTML`, `Rcmdr`, `RColorBrewer`, `Rcpp`, `reshape2`, `rgl` (highlighted), `robustbase`, `RODBC`, `rpanel`, `rpart`, `rrcov`, `RSDA`, `RSQLite`, `RSQLite.extfuns`, `rstudio`, and `scales`.
- R: 3D visualization device system (OpenGL)**: Shows documentation for the 'rgl' package version 0.93.1098. It includes links for [DESCRIPTION file](#), [Code demos](#), and [Package NEWS](#). Below is a list of help pages: [ABC](#), [D](#), [E](#), [G](#), [I](#), [L](#), [M](#), [N](#), [O](#), [P](#), [Q](#), [R](#), [S](#), [T](#), [V](#), [misc](#). The 'rgl-package' section lists functions like `abclines3d`, `addNormals`, `addNormals.mesh3d`, `addNormals.shapelist3d`, `asEuclidean`, `asHomogeneous`, `aspect3d`, `axes3d`, and `axis3d`.

求助範例

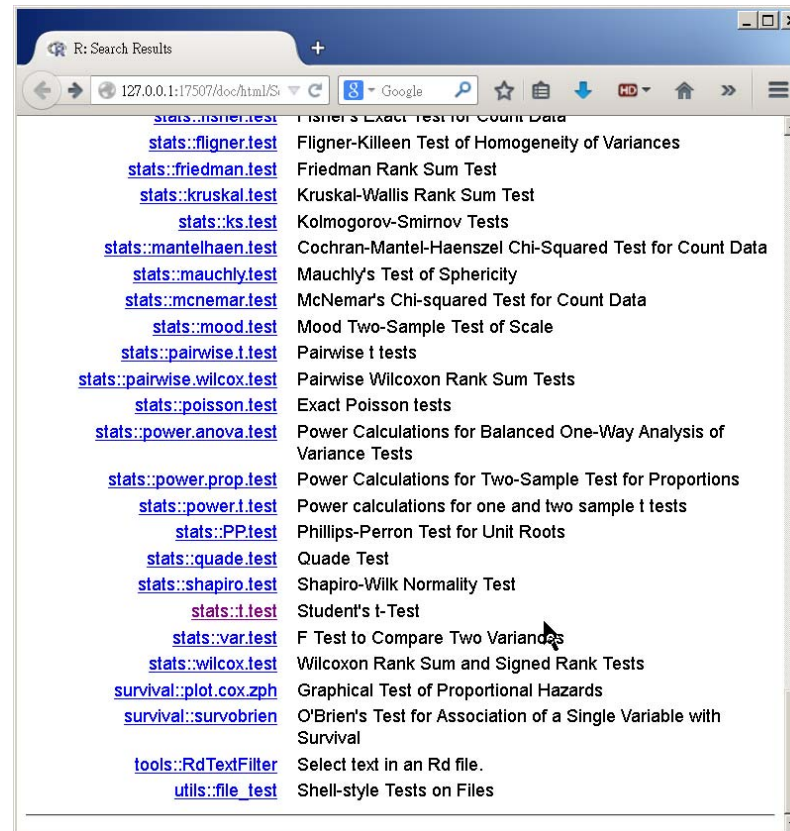
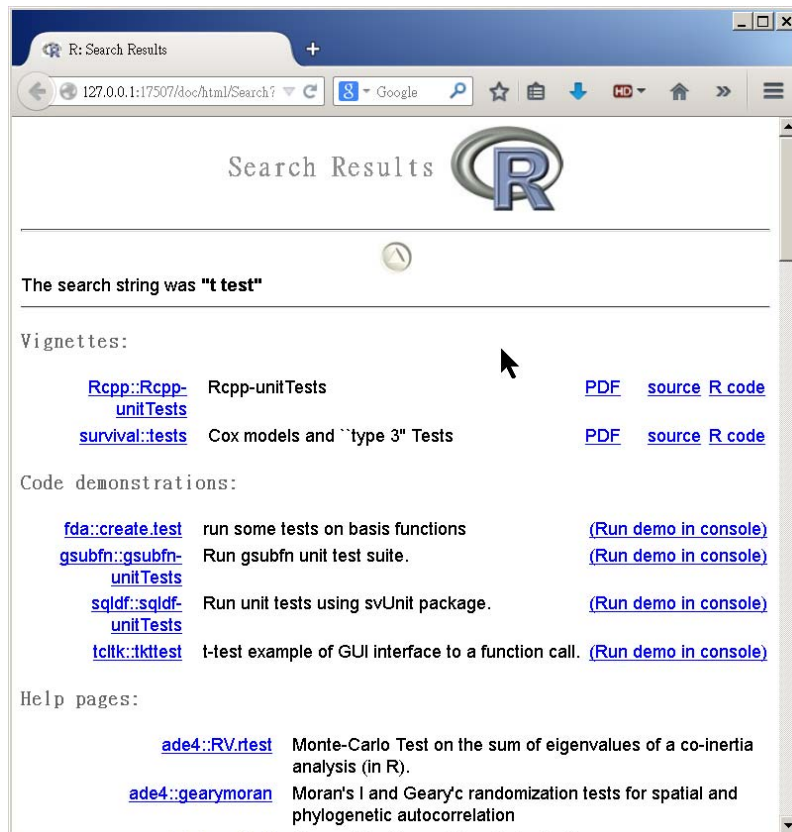
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```
> help.search("t test")  
> ?t.test
```

```
> help(solve)  
> ?solve  
> help("[[")  
> help.start()  
> ?help
```

NOTE:

```
> ?'if'  
> ?Control  
> ?'while'  
> ?'%*%'
```



?package.name

?package.name : function.name

apropos("norm") #search all function names for the "norm" key

```
t.test {stats}
```

Student's t-Test

Description

Performs one and two sample t-tests on vectors of data.

Usage 語法

```
t.test(x, ...)
```

```
## Default S3 method:
```

```
t.test(x, y = NULL,  
       alternative = c("two.sided", "less", "greater"),  
       mu = 0, paired = FALSE, var.equal = FALSE,  
       conf.level = 0.95, ...)
```

```
## S3 method for class 'formula'
```

```
t.test(formula, data, subset, na.action, ...)
```

Arguments 參數

x a (non-empty) numeric vector of data values.
y an optional (non-empty) numeric vector of data values.
alternative a character string specifying the alternative hypothesis, must be one of "less". You can specify just the initial letter.
mu a number indicating the true value of the mean (or difference in mean)
paired a logical indicating whether you want a paired t-test.
var.equal a logical variable indicating whether to treat the two variances as being equal to estimate the variance otherwise the Welch (or Satterthwaite) used.

Details

說明

The formula interface is only applicable for the 2-sample tests.

alternative = "greater" is the alternative that x has a larger mean.

If **paired** is TRUE then both x and y must be specified and they must be in pairs if **paired** is TRUE. If **var.equal** is TRUE then the pooled estimate of the variance is used to estimate the standard error of the difference in means. If **var.equal** is FALSE then the variance is estimated separately for both groups and the Welch-Satterthwaite approximation is used to estimate the standard error of the difference in means.

Value

回傳值

A list with class "htest" containing the following components:

statistic the value of the t-statistic.
parameter the degrees of freedom for the t-statistic.
p.value the p-value for the test.
conf.int a confidence interval for the mean appropriate to the specified alternative hypothesis.
estimate the estimated mean or difference in means depending on whether it was a one-sample or a two-sample test.
null.value the specified hypothesized value of the mean or mean difference depending on whether it was a one-sample or a two-sample test.
alternative a character string describing the alternative hypothesis.
method a character string indicating what type of t-test was performed.
data.name a character string giving the name(s) of the data.

See Also

[prop.test](#)

範例

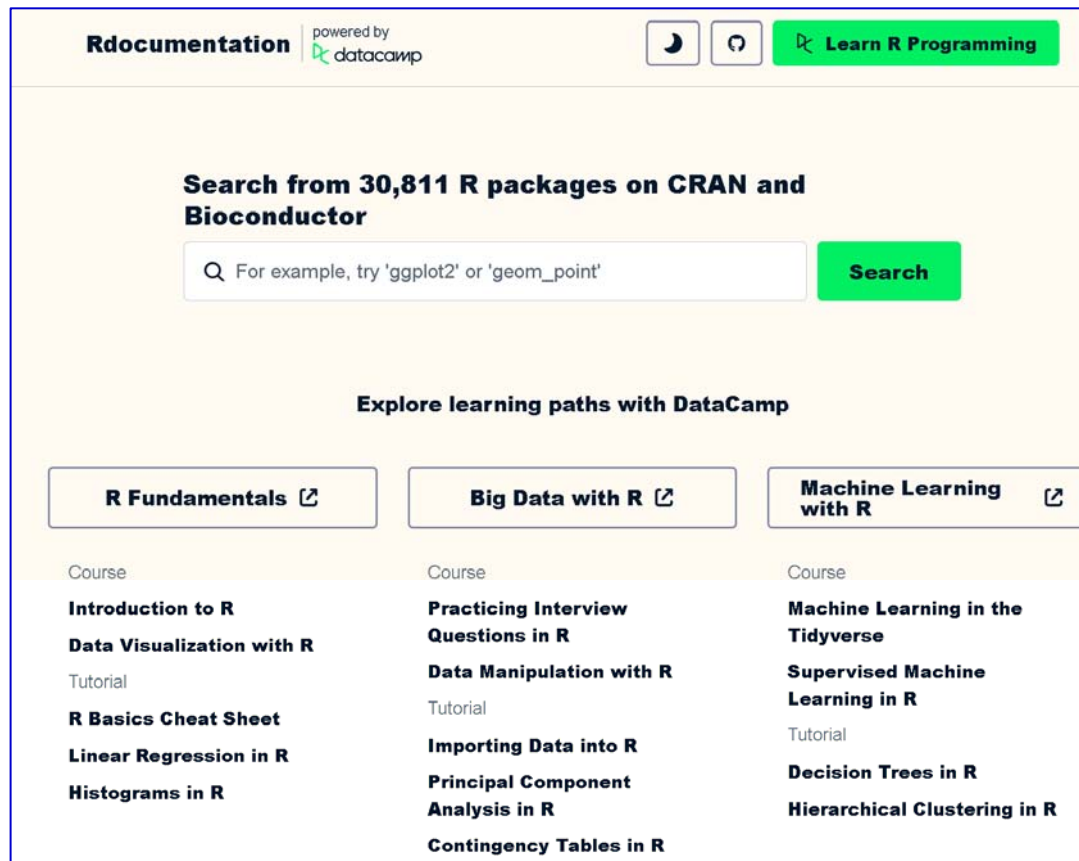
Examples

```
require(graphics)  
  
t.test(1:10, y = c(7:20))      # P = .00001855  
t.test(1:10, y = c(7:20, 200)) # P = .1245    -- NOT significant anymore  
  
## Classical example: Student's sleep data  
plot(extra ~ group, data = sleep)  
## Traditional interface  
with(sleep, t.test(extra[group == 1], extra[group == 2]))  
## Formula interface  
t.test(extra ~ group, data = sleep)
```

Search R

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<http://www.rdocumentation.org/>



The screenshot shows the Rdocumentation website. At the top, it says "Rdocumentation" and "powered by datacamp". There is a "Learn R Programming" button. Below this, it says "Search from 30,811 R packages on CRAN and Bioconductor". There is a search bar with the placeholder text "For example, try 'ggplot2' or 'geom_point'" and a "Search" button. Below the search bar, it says "Explore learning paths with DataCamp". There are three columns of learning paths: "R Fundamentals", "Big Data with R", and "Machine Learning with R". Each column lists several courses and tutorials.

Course	Course	Course
Introduction to R	Practicing Interview Questions in R	Machine Learning in the Tidyverse
Data Visualization with R	Data Manipulation with R	Supervised Machine Learning in R
Tutorial	Tutorial	Tutorial
R Basics Cheat Sheet	Importing Data into R	Decision Trees in R
Linear Regression in R	Principal Component Analysis in R	Hierarchical Clustering in R
Histograms in R	Contingency Tables in R	

RSeek:

<https://rseek.org/>



The screenshot shows the RSeek website. It has a search bar with the R logo and the word "SEEK". Below the search bar, it says "Created and maintained by Sasha Goodman" and "Serving the R community since 2007. Version 2.0." There are links for "Privacy Policy" and "Download and Install R".

pkgsearch: Search and Query CRAN R Packages

<https://cran.r-project.org/web/packages/pkgsearch/index.html>

ps() is an alias to **pkg_search()**

```
> install.packages("pkgsearch")
> library(pkgsearch)
> ps("survival")
> ps("networks")
> ps("visualization")
```

> demo()

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```
R demos

Demos in package 'base':

error.catching    More examples on catching and handling errors
is.things          Explore some properties of R objects and
                   is.FOO() functions. Not for newbies!
recursion          Using recursion for adaptive integration
scoping           An illustration of lexical scoping.

Demos in package 'graphics':

Hershey            Tables of the characters in the Hershey
                   vector fonts
Japanese           Tables of the Japanese characters in the
                   Hershey vector fonts
graphics           A show of some of R's graphics capabilities
image             The image-like graphics builtins of R
persp              Extended persp() examples
plotmath           Examples of the use of mathematics annotation

Demos in package 'grDevices':

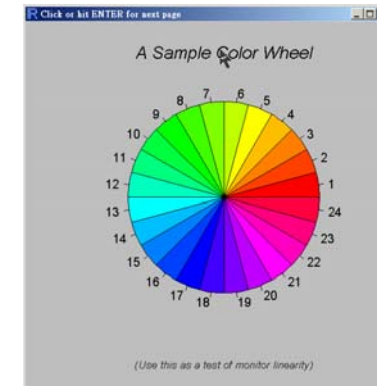
colors             A show of R's predefined colors()
hclColors           Exploration of hcl() space

Demos in package 'stats':

glm.vr            Some glm() examples from V&R with several
                   predictors
lm.glm            Some linear and generalized linear modelling
                   examples from 'An Introduction to Statistical
                   Modelling' by Annette Dobson
nlm               Nonlinear least-squares using nlm()
smooth           'Visualize' steps in Tukey's smoothers

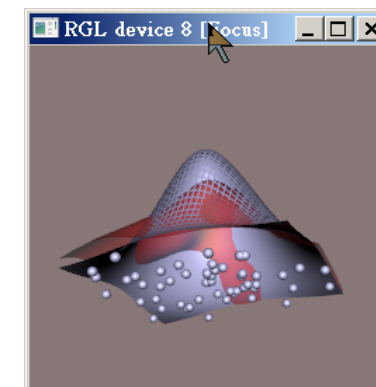
Use 'demo(package = .packages(all.available = TRUE))'
to list the demos in all *available* packages.
```

> demo(graphics)



> library(rgl)

> demo(rgl)



demo(package = .packages(all.available = TRUE))

演示程式碼 (Demo Code)

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The screenshot displays an R graphics demo environment. On the left, a code editor window titled "graphics.R - EmEditor" shows the following R code:

```
1 # Copyright (C) 1997-2009 The R Core Team↓
2 ↓
3 require(datasets)↓
4 require(grDevices); require(graphics)↓
5 ↓
6 ## Here is some code which illustrates some of the differences between↓
7 ## R and S graphics capabilities. Note that colors are generally specifi↓
8 ## by a character string name (taken from the X11 rgb.txt file) and that↓
9 ## textures are given similarly. The parameter "bg" sets the background↓
10 ## parameter for the plot and there is also an "fg" parameter which sets↓
11 ## the foreground color.↓
12 ↓
13 ↓
14 x <- stats::rnorm(50)↓
15 opar <- par(bg = "white")↓
16 plot(x, ann = FALSE, type = "n")↓
17 abline(h = 0, col = gray(.90))↓
18 lines(x, col = "green4", lty = "dotted")↓
19 points(x, bg = "limegreen", pch = 21)↓
20 title(main = "Simple Use of Color In a Plot",↓
21       xlab = "Just a Whisper of a Label",↓
22       col.main = "blue", col.lab = gray(.8),↓
23       cex.main = 1.2, cex.lab = 1.0, font.main = 4, font.lab = 3)↓
24 ↓
25 ↓
26 ## A little color wheel. This code just plots equally spaced hues↓
27 ## a pie chart. If you have a cheap SVGA monitor (like me) you will↓
28 ## probably find that numerically equispaced does not mean visually↓
29 ## equispaced. On my display at home, these colors tend to cluster at↓
```

On the right, a file browser window titled "demo" shows a directory structure. The top pane lists files: graphics.R, Hershey.R, image.R, Japanese.R, persp.R, and plotmath.R. The bottom pane, titled "Files", shows a list of files: abundance.r, bivar.r, envmap.r, flag.R, hist3d.r, lollipop3d.R, lsystem.r, mouseCallbacks.R, regression.r, rgl.r, shapes3d.R, stereo.R, and subdivision.r.

R程式IDE編輯器: RStudio

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Download RStudio Desktop

<https://posit.co/>

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Build better with Posit Workbench

Code in R. Code in Python. Develop in the environments you prefer: Jupyter, VSCode, and the RStudio IDE. Create the data products your stakeholders need: applications, reports, dashboards, and more.



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RStudio Desktop

Used by millions of people weekly, the RStudio integrated development environment (IDE) is a set of tools built to help you be more productive with R and Python.

IDE: integrated development environment

<https://hmwu.idv.tw>



Tools => Global Options...

The image shows the RStudio Global Options dialog box with the 'Pane Layout' tab selected. The dialog is divided into two main sections: 'R Sessions' and 'Workspace'. The 'R Sessions' section includes options for R version, default working directory, and startup behavior. The 'Workspace' section includes options for restoring .RData files and saving workspace. The 'History' section includes options for saving history and removing duplicates. The 'Other' section includes options for wrap-around navigation, update notifications, and crash reports. The 'Pane Layout' section, which is the focus of the image, allows users to choose the layout of the panels in RStudio by selecting from the controls in each panel. It includes a list of panels (Source, Console, Environment, History, Files, Plots, Connections, Packages, Help, Build, VCS, Tutorial) and a list of controls (Environment, History, Files, Plots, Connections, Packages, Help, Build, VCS, Tutorial) that can be added to the layout. The 'Add Column' button is highlighted, and the 'Remove Column' button is also visible. The 'Pane Layout' section also includes a list of panels (Source, Console, Environment, History, Files, Plots, Connections, Packages, Help, Build, VCS, Tutorial) and a list of controls (Environment, History, Files, Plots, Connections, Packages, Help, Build, VCS, Tutorial) that can be added to the layout. The 'Add Column' button is highlighted, and the 'Remove Column' button is also visible.

Options

General

R Sessions

R version: [Default] [64-bit] C:\Program Files\R\R-4.2.2 **Change...**

Default working directory (when not in a project): ~ **Browse...**

☒ Restore most recently opened project at startup

☒ Restore previously open source documents at startup

Workspace

☒ Restore .RData into workspace at startup

Save workspace to .RData on exit: Ask

History

☒ Always save history (even when not saving .RData)

☐ Remove duplicate entries in history

Other

☒ Wrap around when navigating to previous/next tab

☒ Automatically notify me of updates to RStudio

☐ Send automated crash reports to RStudio

Pane Layout

Choose the layout of the panels in RStudio by selecting from the controls in each panel. Add up to three additional Source Columns to the left side of the layout. When a column is removed, all saved files within the column are closed and any unsaved files are moved to the main Source Pane.

Add Column **Remove Column**

Source Console

Environment, History, Files, Connections, Packages, Help, Build, VCS, Tutorial

Plots, Packages, Help, Viewer, Environment, History, Files, Plots, Connections, Packages, Help, Build, VCS, Tutorial

OK **Cancel** **Apply**

- File => New Project... => New Directory => Empty Project => Create Project

The sequence of dialog boxes illustrates the steps to create a new project in RStudio:

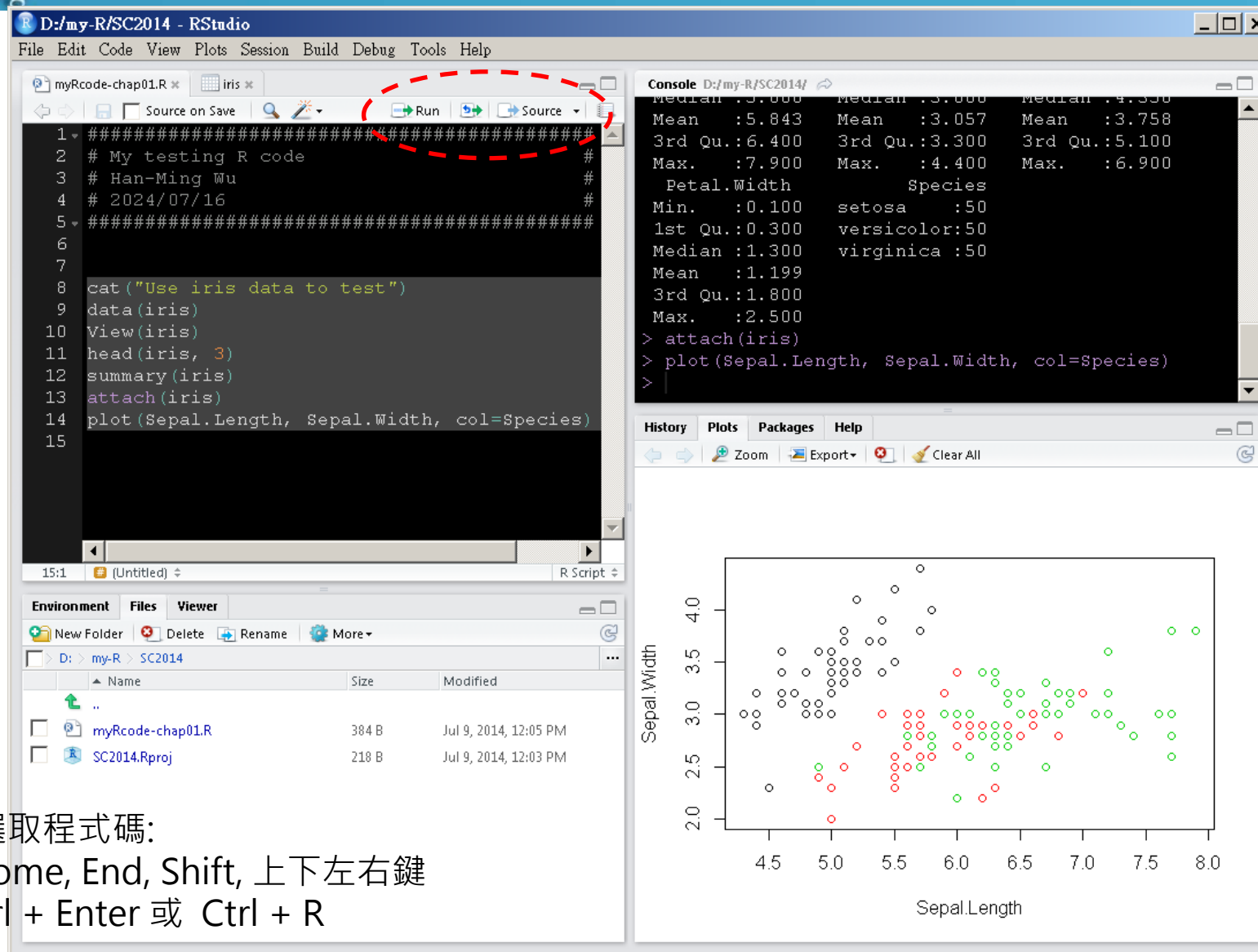
- New Project** (Initial selection):
 - Create project from:
 - New Directory (Selected): Start a project in a brand new working directory
 - Existing Directory: Associate a project with an existing working directory
 - Version Control: Checkout a project from a version control repository
- New Project** (Project Type selection):
 - Project Type
 - Empty Project (Selected): Create a new project in an empty directory
 - R Package: Create a new R package
 - Shiny Web Application: Create a new Shiny web application
- New Project** (Create Project from Existing Directory):
 - Create Project from Existing Directory
 - Project working directory: D:/my-R
- New Project** (Create New Project):
 - Create New Project
 - Directory name: SC2014
 - Create project as subdirectory of: D:/my-R

Final step: **File => New File => R Script**

The final screenshot shows the RStudio interface with the **File** menu open, **New File** selected, and **R Script** chosen from the submenu.

執行程式

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以鍵盤選取程式碼:

配合Home, End, Shift, 上下左右鍵

執行: Ctrl + Enter 或 Ctrl + R

安排RStudio 專案目錄結構

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The screenshot displays the RStudio interface with a project titled "X:/08-MyProjects/07-exploreSDA/MyPackage/exploreSDA". The left pane shows the source editor with R code for "ESDA-Demo.R". The right pane shows the console with an error message: "Error: could not find function 'plot.index.i'". A red dashed circle highlights the "exploreSDA" dropdown menu in the top right corner, which is open, showing a list of projects including "exploreSDA", "Rcode-isoSIR", "Rcode-PathPointSIR", "Rcode-SIR-TimeInterval", "Rcode-ISOMAP-SDA", "Rcode-SIR+SDA", "Clear Project List", and "Project Options...". A red dashed circle also highlights the "Build" button in the bottom toolbar. An orange box with the text "制作一R套件的目錄結構" (Create an R package directory structure) is overlaid on the bottom right of the screenshot.

```
#####
1
2 # exploreSDA
3 # ESDA-Demo.R
4 # Han-Ming Wu (hmwu@gm.ntpu.edu.tw)
5 # Department of Statistics, National Taipei University
6 # http://www.hmwu.idv.tw
7 #
8 # Build 2015-03-21, Initial Release
9 #####
10
11 # getwd()
12 # dir()
13 # install.packages("exploreSDA_0.0.0.9000.zip", type="source")
14 # install.packages("tools")
15 # library('tools')
16 # install.packages(pkgDepends('exploreSDA')$Depends)
17
18 cat("\014"); rm(list=ls(all=TRUE)); gc()
19 library(exploreSDA)
20
21 ## (1) use build-in data set
22 data(face)
23 idata.x <- face$x
24 y.C <- face$y
25 title <- "face data"
26
27 ## (2) use big data from UCI
28 #head(iris)
29 #idata <- ToIntervalData.stratified(iris[,1:4], as.is=TRUE)
30 #idata.x <- idata$x
31 #y.C <- idata$y
32 #title <- "big data"
33
34 #####
35 ## use face data to demonstrate
36 #####
```

Console: X:/08-MyProjects/07-exploreSDA/MyPackage/exploreSDA/

```
> idata.x <- face$x
> y.C <- face$y
> title <- "face data"
> plot.index.i(idata.x[,1,], fill.col=y.C, ylab="AD")
Error: could not find function "plot.index.i"
> source('X:/08-MyProjects/07-exploreSDA/MyPackage/exploreSDA/R/ESDA-histogram.R')
> source('X:/08-MyProjects/07-exploreSDA/MyPackage/exploreSDA/R/ESDA-interval.R')
> source('X:/08-MyProjects/07-exploreSDA/MyPackage/exploreSDA/R/ESDA-plots.R')
> plot.index.i(idata.x[,1,], fill.col=y.C, ylab="AD")
>
```

History Files Plots Packages Help Build Viewer

New Folder Delete Rename More

X: > 08-MyProjects > 07-exploreSDA > MyPackage > exploreSDA

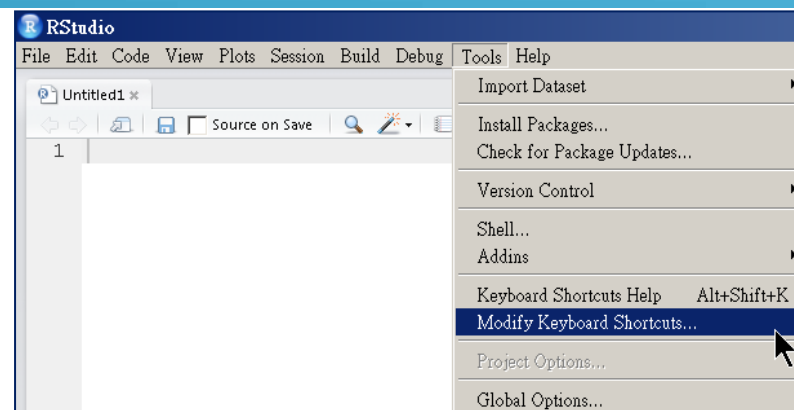
Name	Size	Modified
..		
src-x64		
src-i386		
src		
raw-data		
R		
man		
inst		
extdata		
demo		
data		
readme.txt	4 KB	May 17, 2015, 11:11 AM
exploreSDA.dll	19 KB	Apr 23, 2014, 7:57 PM
exploreSDA.Rproj	407 B	Jun 20, 2015, 11:30 AM
.Rhistory	19.8 KB	Apr 16, 2016, 2:27 PM
.Rbuildignore	30 B	May 4, 2015, 10:35 AM
.RData	222.6 KB	Apr 16, 2016, 2:12 PM
NAMESPACE	24 B	May 3, 2015, 9:26 PM

RStudio 常用快速鍵 (Windows)

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控制台(Console)

- 游標移動到控制台 (Move cursor to Console): **Ctrl+2**
- 清除控制台 (Clear console): **Ctrl+L**
- 移動游標到行首 (Move cursor to beginning of line): **Home**
- 移動游標到行尾 (Move cursor to end of line): **End**
- 調出歷史指令 (Navigate command history): **上箭頭/下箭頭**
- 彈出歷史指令 (Popup command history): **Ctrl+上箭頭**
- 中斷正在執行的指令 (Interrupt currently executing command): **Esc**



RStudio 0.99.893

<C:\Program Files\RStudio\www\docs\keyboard.htm>

原始碼編輯區(Source)

- 游標移動到原始檔編輯區 (Move cursor to Source Editor): **Ctrl+1**
- 存檔 (Save active document): **Ctrl+S**
- 關閉當前檔案 (Close active document): **Ctrl+W**
- 執行當前行或者選擇的行 (Run current line/selection): **Ctrl+Enter**
- 執行當前檔 (Run current document): **Ctrl+Alt+R**
- 從檔案開頭執行到該行 (Run from document beginning to current line): **Ctrl+Alt+B**
- 行縮排 (Reindent lines): **Ctrl+I**
- 註解(或消除)當前行或者所選程式碼 (Comment/uncomment current line/selection): **Ctrl+Shift+C**
- 跳轉到配對的括弧 (Jump to Matching Brace/Parentheses): **Ctrl+P**
- 刪除行 (Delete Line): **Ctrl+D**
- 選擇 (Select): **Shift+箭頭**

RStudio，重新載入R:

選單: Session => Restart R

快速鍵: **ctrl + shift + F10**

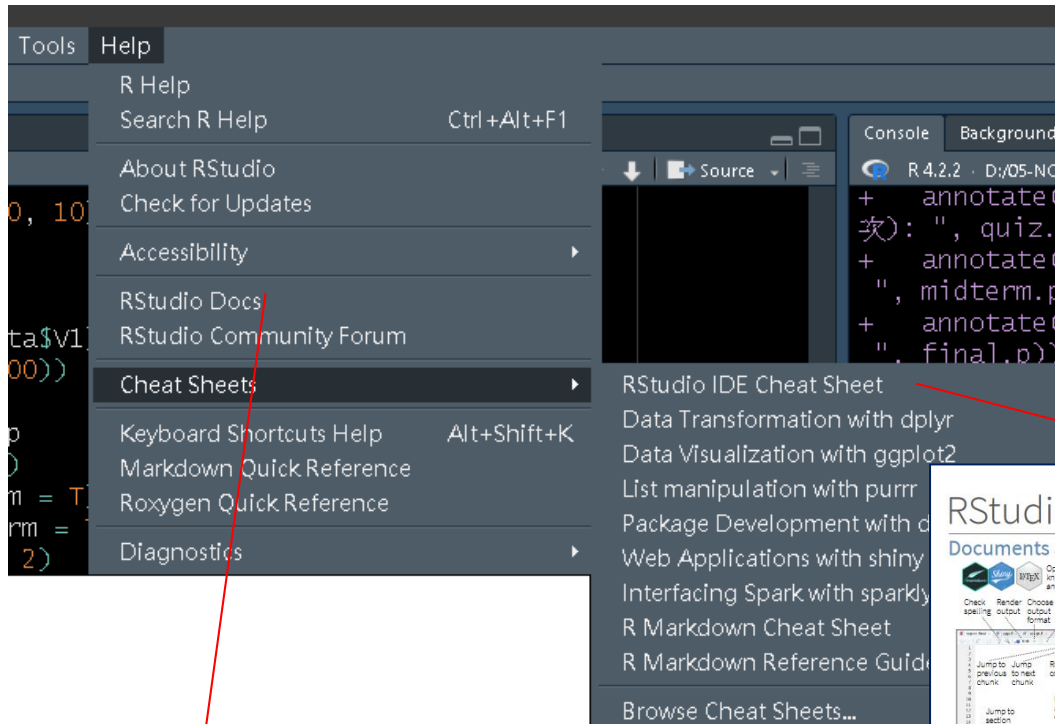
指令: **> .rs.restartR()**

一般

- 尋找和替換 (Find and Replace): **Ctrl+F**; 尋找上一個 (Find Previous): **Shift+F3**; 尋找下一個 (Find Next): **F3**
- 上一步 (Undo): **Ctrl+Z**; 剪下 (Cut): **Ctrl+X**; 複製 (Copy): **Ctrl+C**; 貼上 (Paste): **Ctrl+V**; 全選 (Select All): **Ctrl+A**

RStudio Help

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The screenshot shows the RStudio Help menu on the left, with options like 'R Help', 'Search R Help', 'About RStudio', 'Check for Updates', 'Accessibility', 'RStudio Docs', 'RStudio Community Forum', 'Cheat Sheets', 'Keyboard Shortcuts Help', 'Markdown Quick Reference', 'Roxygen Quick Reference', and 'Diagnostics'. A red arrow points from the 'Cheat Sheets' option to a list of cheat sheets on the right. The list includes 'RStudio IDE Cheat Sheet', 'Data Transformation with dplyr', 'Data Visualization with ggplot2', 'List manipulation with purrr', 'Package Development with devtools', 'Web Applications with shiny', 'Interfacing Spark with sparklyr', 'R Markdown Cheat Sheet', 'R Markdown Reference Guide', and 'Browse Cheat Sheets...'.

Tools Help

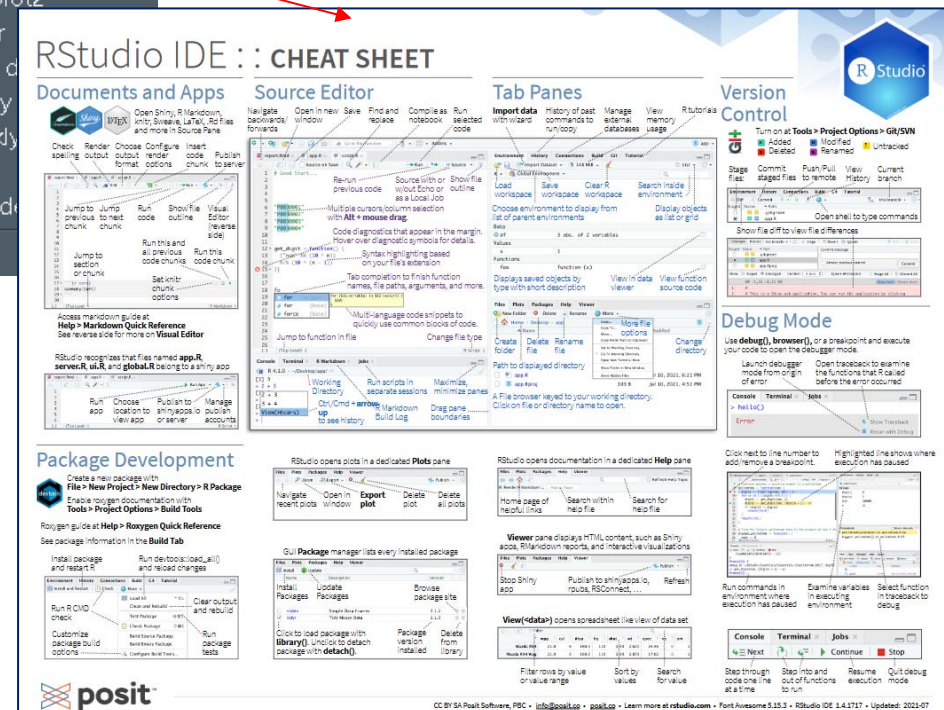
- R Help
- Search R Help Ctrl+Alt+F1
- About RStudio
- Check for Updates
- Accessibility
- RStudio Docs
- RStudio Community Forum
- Cheat Sheets
- Keyboard Shortcuts Help Alt+Shift+K
- Markdown Quick Reference
- Roxygen Quick Reference
- Diagnostics

RStudio IDE Cheat Sheet

- Data Transformation with dplyr
- Data Visualization with ggplot2
- List manipulation with purrr
- Package Development with devtools
- Web Applications with shiny
- Interfacing Spark with sparklyr
- R Markdown Cheat Sheet
- R Markdown Reference Guide
- Browse Cheat Sheets...



Posit Documentation



The RStudio IDE Cheat Sheet is a comprehensive guide to the RStudio interface. It is organized into several sections: Documents and Apps, Source Editor, Tab Panes, Version Control, Package Development, Plots, Package Development, Viewer, and Debug Mode. Each section contains a series of icons and text describing the various functions and tools available in RStudio. The cheat sheet is designed to be a quick reference for users, providing a visual overview of the IDE's capabilities. The Posit logo is visible in the bottom left corner, and the footer contains copyright information for Posit Software, PBC.

RStudio IDE : : CHEAT SHEET

Documents and Apps

Source Editor

Tab Panes

Version Control

Package Development

Plots

Viewer

Debug Mode

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<https://posit.co/resources/cheatsheets/>

Posit Cheatsheets

Data transformation with dplyr : CHEAT SHEET

dplyr functions work with pipes and expect tidy data. In tidy data:

- Each variable is in its own column
- Each observation, or case, is in its own row
- $x \% \gg \% f(y)$ becomes $f(x, y)$

Summary function

Apply **summary functions** to columns to create a new table of summary statistics. Summary functions take vectors as input and return one value (see back).

summary function

- `summarise(data, ...)` Compute table of summaries. `summarise(mtcars, avg = mean(mpg))`
- `count(data, ...)` Count number of rows in each group defined by the variables in ... Also `tally()`. `count(mtcars, cyl)`

Group Cases

Use `group_by(data, ...)`, add `FALSE`, `drop = TRUE` to create a "grouped" copy of a table grouped by columns in ... dplyr functions will manipulate each "group" separately and combine the results.

Use `rowwise(data, ...)` to group data into individual rows. dplyr functions will compute results for each row. Also apply functions to list-columns. See tidy cheat sheet for list-column workflow.

`as_tibble(mtcars) %>% rowwise() %>% mutate(film_count = length(film))`

`ungroup(x, ...)` Returns ungrouped copy of table. `ungroup(g_mtcars)`

Manipulate Cases

Row functions return a subset of rows as a new table.

EXTRACT CASES

- `filter(data, ...)` `preserve = FALSE` Extract rows that meet logical criteria. `filter(mtcars, mpg > 20)`
- `distinct(data, ...)` `keep_all = FALSE` Remove rows with duplicate values. `distinct(mtcars, gear)`
- `slice(data, ...)` `preserve = FALSE` Select rows by position. `slice(mtcars, 10:15)`
- `slice_sample(data, ...)` `n`, `prop`, `weight_by = NULL`, `replace = FALSE` Randomly select rows. Use `n` to select a number of rows and `prop` to select a fraction of rows. `slice_sample(mtcars, n = 3, replace = TRUE)`
- `slice_min(data, order_by, ...)` `n`, `prop`, `with_ties = TRUE` and `slice_max()` Select rows with the lowest and highest values. `slice_min(mtcars, mpg, prop = 0.25)`
- `slice_head(data, ...)` `n`, `prop` and `slice_tail()` Select the first or last rows. `slice_head(mtcars, n = 2)`

Logical and boolean operators to use with filter()

<code>==</code>	<code><</code>	<code><=</code>	<code>is.na()</code>	<code>%in%</code>	<code> </code>	<code>xor()</code>
<code>!=</code>	<code>></code>	<code>>=</code>	<code>!is.na()</code>	<code>!</code>	<code>&</code>	

See ?base::Logic and ?Comparison for help.

ARRANGE CASES

- `arrange(data, ...)` `by_group = FALSE` Order rows by values of a column or columns (low to high), use `with_desc()` to order from high to low. `arrange(mtcars, mpg)`
- `arrange(mtcars, desc(mpg))`

ADD CASES

- `add_row(data, ...)` `before = NULL`, `after = NULL` Add one or more rows to a table. `add_row(mtcars, speed = 1, dist = 1)`

Manipulate Variables

Column functions return a set of columns as a new vector or table.

EXTRACT VARIABLES

- `pull(data, var = 1, name = NULL, ...)` Extract column values as a vector, by name or index. `pull(mtcars, wt)`
- `select(data, ...)` Extract columns as a table. `select(mtcars, mpg, wt)`
- `relocate(data, ...)` `before = NULL`, `after = NULL` Move columns to new position. `relocate(mtcars, mpg, cyl, after = last_col())`

Use these helpers with select() and across()

- `contains(match)` `num_range(prefix, range)` `!e.g. mpg:cyl`
- `ends_with(match)` `all_of(x)/any_of(x, ..., vars)` `!e.g. gear`
- `starts_with(match)` `matches(match)` `everything()`

MANIPULATE MULTIPLE VARIABLES AT ONCE

- `across(cols, funs, ...)` `names = NULL` Summarise or mutate multiple columns in the same way. `summarise(mtcars, across(everything(), mean))`
- `c_across(cols)` Compute across columns in row-wise data. `transmute(rowwise(UKgas), total = sum(c_across(1:2)))`

MAKE NEW VARIABLES

Apply **vectorized functions** to columns. Vectorized functions take vectors as input and return vectors of the same length as output (see back).

vectorized function

- `mutate(data, ...)` `keep = "all"`, `before = NULL`, `after = NULL` Compute new column(s). Also `add_column()`, `add_count()`, and `add_tally()`. `mutate(mtcars, gpm = 1 / mpg)`
- `transmute(data, ...)` Compute new column(s), drop others. `transmute(mtcars, gpm = 1 / mpg)`
- `rename(data, ...)` Rename columns. Use `rename_with()` to rename with a function. `rename(cars, distance = dist)`

CC BY-SA Posit Software, PBC • info@posit.co • @posit • Learn more at dplyr.tidyverse.org • dplyr 1.0.7 • Updated: 2021-07

- Sparklyr Cheat Sheet
- R Markdown Cheat Sheet
- RStudio IDE Cheat Sheet
- Shiny Cheat Sheet
- Data Visualization Cheat Sheet
- Package Development Cheat Sheet
- Data Wrangling Cheat Sheet
- R Markdown Reference Guide
- Contributed Cheatsheets
- Base R
- Advanced R
- Regular Expressions
- How big is your graph? (base R graphics)

R Packages Developed by RStudio

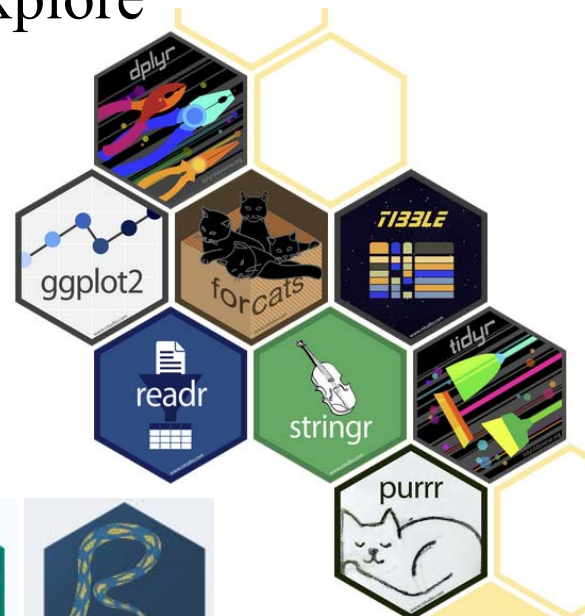
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<https://posit.co/products/open-source/rpackages/>

R PACKAGES

Inspired by R and
our community

Analyze and explore



Connect and
Integrate



Communicate and interact



Model and predict



更新R軟體及R套件

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- 安裝R套件
- 利用installr套件更新R軟體及R套件
 - > `update.packages(checkBuilt=TRUE, ask=FALSE)`
 - RGui => Packages => Update packages
 - RStudio => Tools => Check for Package Updates...

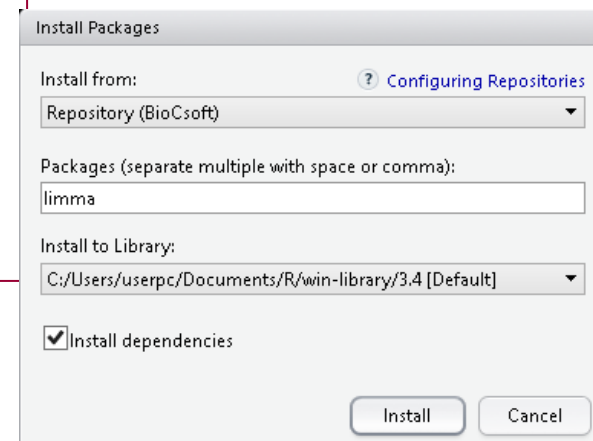
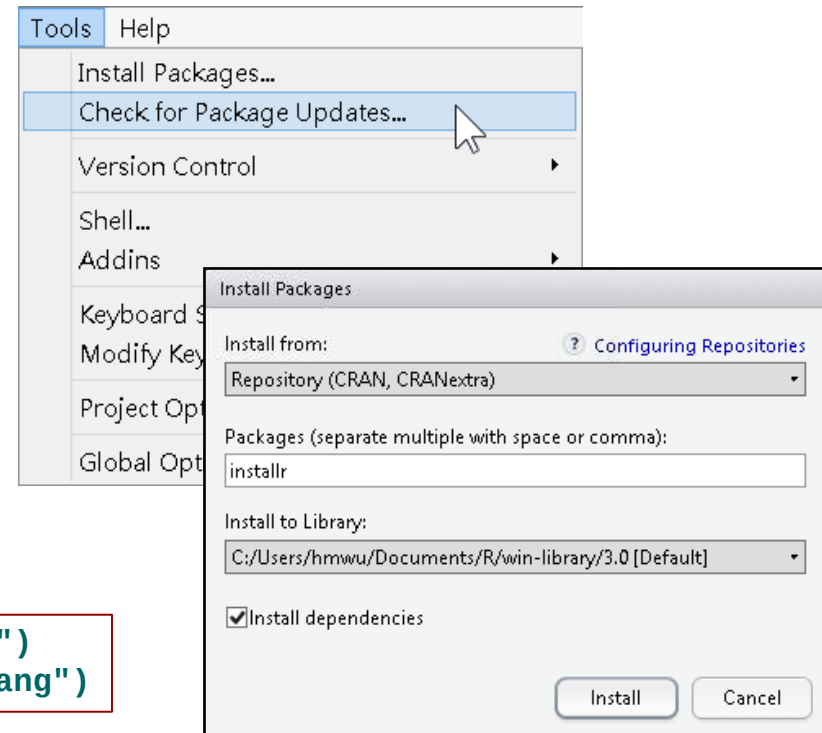
```
> setRepositories()  
--- Please select repositories for use in this  
session ---
```

```
1: + CRAN  
2:   BioC software  
3:   BioC annotation  
4:   BioC experiment  
5:   BioC extra  
6:   CRAN (extras)  
7:   Omegahat  
8:   R-Forge  
9:   rforge.net
```

Enter one or more numbers separated by
spaces, or an empty line to cancel

```
1: 2
```

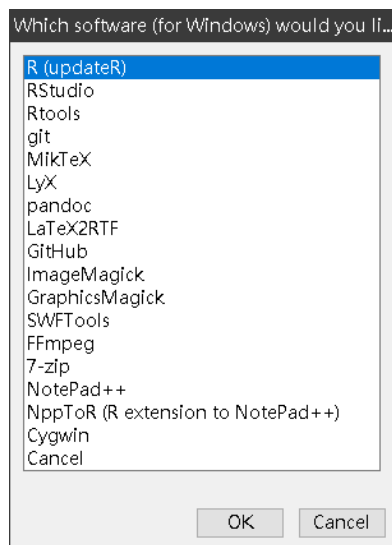
```
> update.packages("rlang")  
> uninstall.packages("rlang")
```



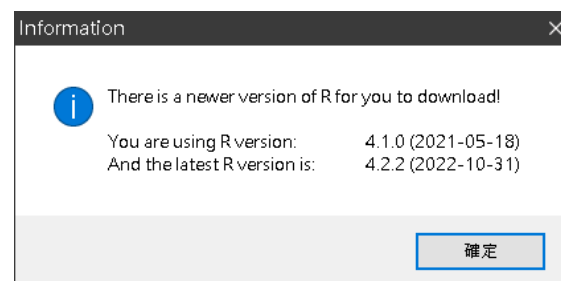
Note: 先暫時不移除舊版的R及套件!

利用installr套件更新R軟體

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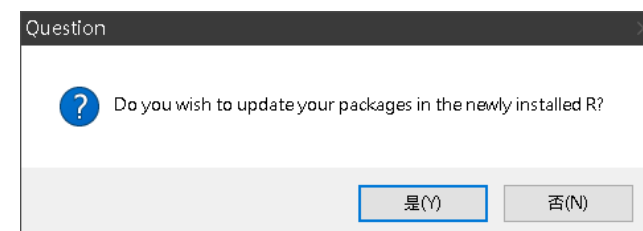
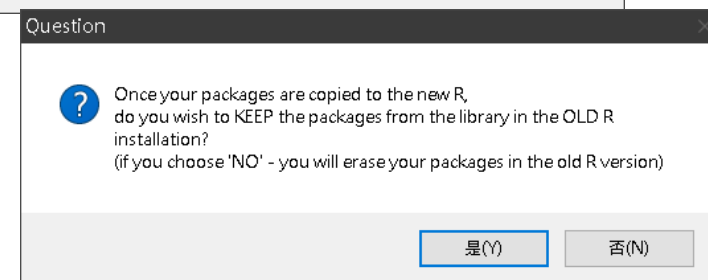
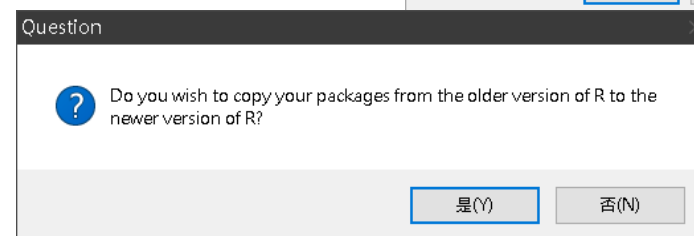
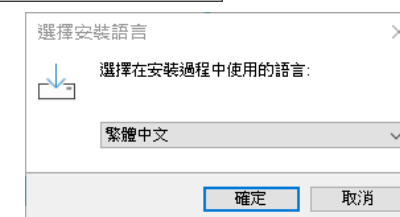
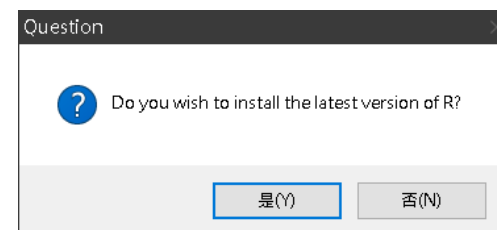
```
> library(installr)
> installr()
```



```
> sessionInfo()
```

```
> version

platform      x86_64-w64-mingw32
arch           x86_64
os             mingw32
crt            ucrt
system         x86_64, mingw32
status
major          4
minor          2.2
year           2022
month          10
day            31
svn rev        83211
language       R
version.string R version 4.2.2 (2022-10-31 ucrt)
nickname       Innocent and Trusting
```





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中華R軟體研發暨應用協會?





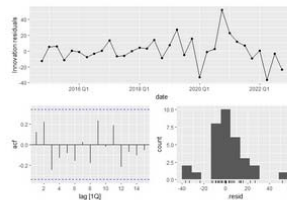
R news and tut

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Forecasting Disney Stock Prices as the Latest Earnings Beat Estimates

February 21, 2023 | Sercuk Disci

Walt Disney (NYSE: DIS) recently announced significant labor cuts to ease shareholders' pressure on reducing costs due to rising streaming investment. These cuts and some structural changes in the company have provided some boost to stock prices. We will examine these price changes based on earnings per share (EPS) and ...

[\[Read more...\]](#)

Calculating Log Likelihood Ratios (LLR) module

February 21, 2023 | ["Peter M.B. Cahusac"]

tl;dr Ever wanted to try doing an evidential analysis? You may have found it difficult to find a statistical platform to do it. Now there is the jamovi module jeva which can provide log likelihood ratios for a range of common statistical tests.

<https://www.r-bloggers.com>

R Cheatsheet:

<https://pyoflife.com/wp-content/uploads/2022/01/R-Cheatsheet-.pdf>https://www.rforecology.com/uploads/The_essential_R_Cheatsheet_v1_0.pdf<https://noeliagorod.com/2019/04/24/r-resources-free-courses-books-tutorials-cheat-sheets/><https://www.i3s.unice.fr/~malapert/R/pdf/base-r.pdf><https://rstudio.cloud/learn/cheat-sheets><https://www.rstudio.com/resources/cheatsheets/><https://www.i3s.unice.fr/~malapert/R/pdf/base-r.pdf><https://www.amelia.mn/Syntax-cheatsheet.pdf><https://cheatography.com/dipakk/cheat-sheets/r-basic/pdf/><https://cheatography.com/noella/cheat-sheets/introduction-to-package-r-sheet/pdf/><https://cheatography.com/bwaldo/cheat-sheets/r-subsetting/pdf/>

相關中文書目/查詢相關中文書目

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博客來 全部 R軟體

HOT 暢銷書66折 教科書7折起 貓爪節送贈品 飛利浦54折

領券現折 百貨滿千 登記送 \$200 電子書訂閱30天

客服公告：反詐騙！提醒您「不碰ATM、網銀，不說信用卡資料」詳情

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全站分類 | 品牌旗艦 | 林莉婚紗 | 親子幼童 | 健康運動 | 家居日用 | 美妆個護 | 旅遊戶外

博客來 > 搜尋結果

熱門搜尋 晶片戰爭獨家 星巴克 小魔女doremi icash 灌籃高手 想見你 魔都精兵的奴隸 告五人 晶片戰爭 悠遊卡 咒術迴戰

您輸入的關鍵詞: R軟體

分類 (單選) ☒ 所有商品(1108) ☐ 圖書(341) ☐ 影音(26) ☐ 雜誌(15) ☐ 百貨(696) ☐ 電子書(30) 顯示所有篩選

清除篩選 確認

搜尋結果共 1108 筆, 頁數 1 / 47

排序依 準確度 呈現 列表 小圖

應用機器學習：R軟體實務演練 R軟體：應用統計方法(二版)(附光碟1片) R軟體統計應用分析實務 R軟體在決策樹的實務應用 R軟體統計進階分析實務 心理測驗理論與應用：含RT與R軟體分析

R/RStudio on the Phone

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Games Apps Movies & TV Books

 **R Programming Compiler**
Kappsmart
Contains ads · In-app purchases

3.8★
380 reviews

100K+
Downloads

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You can share this with your family. [Learn more about Family Library.](#)

Sample Source:

```
hello <- "Hello world!"  
slices <- (10, 12, 4, 10, 9)  
data <- ("US", "UK", "Australia",  
        "Germany", "France")  
plot(slices, labels = data,  
      main="Pie Chart of Countries")  
x <- (1,2,4,8,16)  
for (loop = 1)  
  print(loop)
```

PDF Viewer: 

R 3.6 Output:

```
"Hello world!"  
1  
2  
4  
8  
16
```

Settings: R Compiler Version: 4.0.0, Font Size (Min: 8 - Max: 32), Soft Tabs (Min: 2 - Max: 16), Highlight Current Line, Word Wrap, Auto Indentation, Syntax Highlighting, Code Completion, Bracket Completion, Extended Keyboard

YouTube Premium TW

How to install RStudio on Android

How to install RStudio on Android
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Franz Chandi

Timestamps: 0:00 - Intro 0:31 - Reasons to install RStudio on Android 2:09 - How to install RStudio on Android 9:42

Intro | Reasons to install RStudio on Android | How to... 11 個章節

Programming R on mobile phone: Statistical programming on mobile
觀看次數: 1 萬次 · 2 年前
Rajendra Choure

rprogramming #rprogrammingonandroid #compiler #rprogrammingonmobilephone This video discusses use of mobile for ...

How to run R Programming in Mobile🔥/Free/R Programming
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Om Ojha

Hello guys Subscribe karo agar kuch information mili ho to Share Like #R Programming Mobile # Coding in mobile #coding ...

~12 to 24 hours ~4 to 5 hours

Programming R on Mobile phone.pdf

Programming R on Android : Statistical programming on Mobile phone

Rajendra Choure

The Institute of Science, Mumbai

7:41

R

FREE

R PROGRAMMING IN MOBILE

Rcmdr: R Commander

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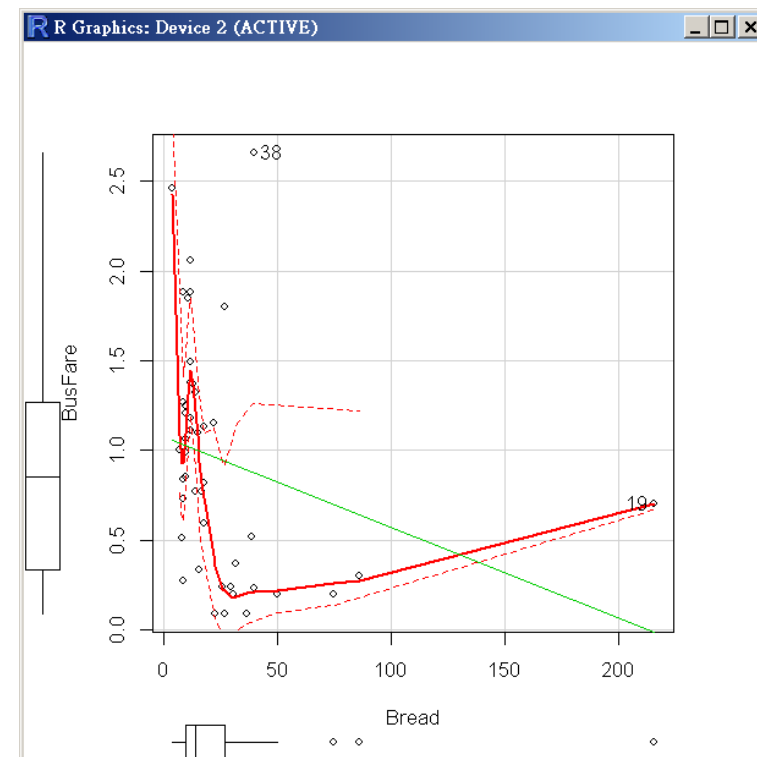
The R Commander: A Basic-Statistics GUI for R

Current Version: 2.7-x

John Fox

<https://cran.r-project.org/web/packages/Rcmdr/index.html>

<https://socialsciences.mcmaster.ca/jfox/Misc/Rcmdr/>





EN JP

Overview

Downloads

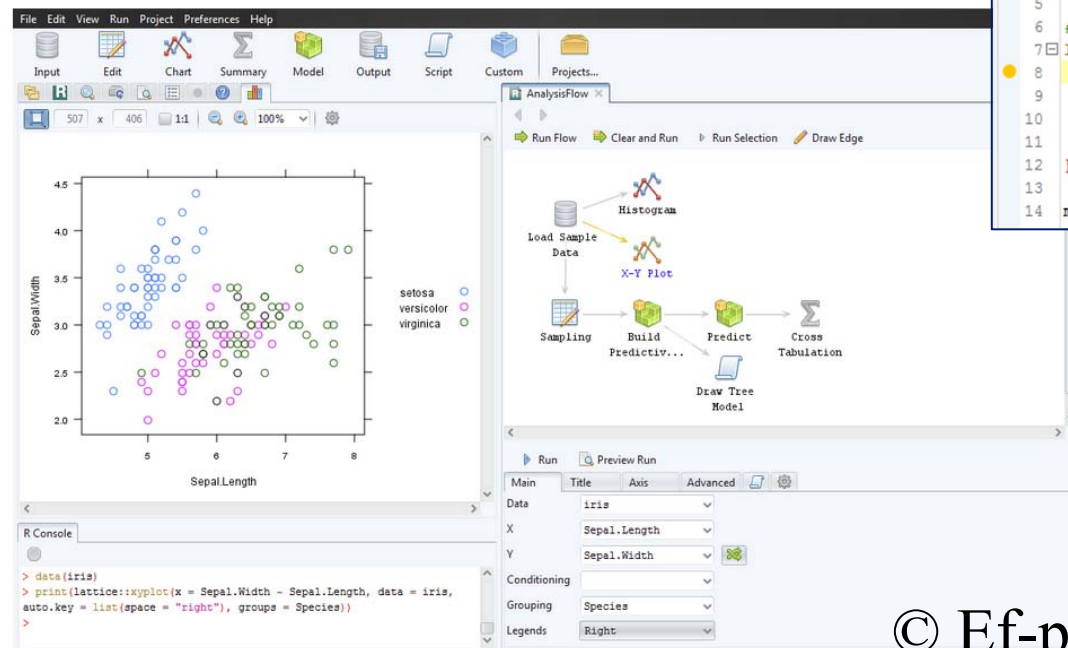
Documents

Help & Support

Designed for data analysis. Great for everyone.

R AnalyticFlow is a data analysis software that utilizes the R environment for statistical computing. In addition to intuitive user interface, it also provides advanced features for R experts. These features enable you to share the processes of data analysis between users with differing levels of proficiency. AnalyticFlow works on Windows, Mac OS X, and Linux and is free for any use.

R Programming Support



```
*New Flow ▶ # Build and Validate Pr...
Run ▶ Run Selection
Settings

1 ## Build and Validate Predictive Model
2
3 # Load Data
4 data(iris)
5
6 # Sampling
7 local({
8   x <- iris
9   smpl <- iris[iris$Species == "setosa", , drop = FALSE]
10  assign(x = "smpl", value = smpl, pos = parent.frame(n = 1))
11  assign(x = "test", value = x[-smpl, , drop = FALSE], pos = parent.frame(n = 1))
12 })
13
14 model <- rpart::rpart(formula = Species ~ ., data = train)
```

© Ef-prime, Inc.

```
> # R.Version: Version Information
> as.data.frame(R.Version())
  platform arch os system status major minor year month day svn.rev
1 x86_64-w64-mingw32 x86_64 mingw32 x86_64, mingw32 3 3.1 2016 06 21 70800
  language version.string nickname
1 R R version 3.3.1 (2016-06-21) Bug in Your Hair
>
> # Sys.info: Extract System and User Information
> Sys.info()
  sysname release version nodename machine login user effective_user
"Windows" "8.1 x64" "build 9600" "HMWU-HOME" "x86-64" "userpc" "userpc" "userpc"
>
> # .Platform: Platform Specific Variables
> as.data.frame(.Platform)
  OS.type file.sep dynlib.ext GUI endian pkgType path.sep r_arch
1 windows / .dll Rgui little win.binary ; x64
>
> # .Machine {base}: Numerical Characteristics of the Machine
> as.data.frame(.Machine)
  double.eps double.neg.eps double.xmin double.xmax double.base double.digits
1 2.220446e-16 1.110223e-16 2.225074e-308 1.797693e+308 2 53
  double.rounding double.guard double.ulp.digits double.neg.ulp.digits double.exponent
1 5 0 -52 -53 11
  double.min.exp double.max.exp integer.max sizeof.long sizeof.longlong sizeof.longdouble
1 -1022 1024 2147483647 4 8 16
  sizeof.pointer
1 8
```

ChatGPT for R, or in RStudio

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8 ChatGPT packages for R

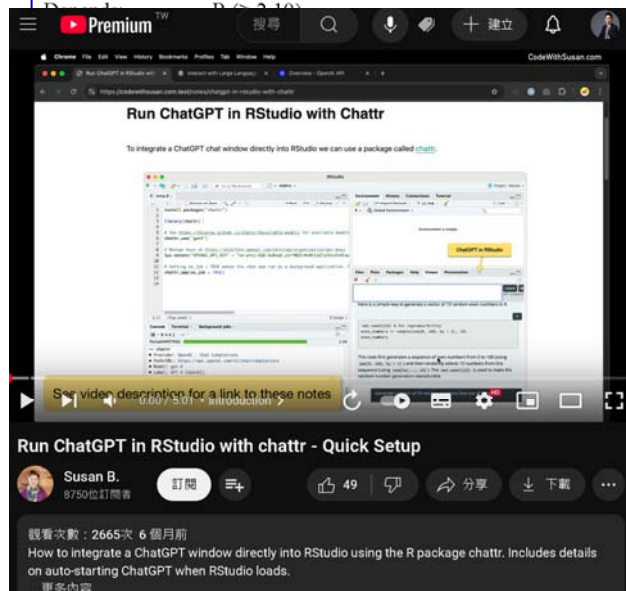
<https://www.infoworld.com/article/2338386/8-chatgpt-tools-for-r-programming.html>
air, **TheOpenAIR**, **RTutor**, **CodeLingo**, **askgpt**, **gptstudio**, **gpttools**, **gptchatterR**

<https://cran.r-project.org/web/packages/chattr/index.html>

chattr: Interact with Large Language Models in 'RStudio'

Enables user interactivity with large-language models ('LLM') inside the 'RStudio' integrated development environment (IDE). The user can interact with the model using the 'shiny' app included in this package, or directly in the 'R' console. It comes with back-ends for 'OpenAI', 'GitHub' 'Copilot', and 'LlamaGPT'.

Version: 0.3.1



<https://www.youtube.com/watch?v=AvRPsnqzAM>

<https://hmwu.idv.tw>

gptr: An R Interface with the ChatGPT API

Author: [Wanjuan Gu](#)

gptr is an R package that provides a convenient interface with the OpenAI ChatGPT API. It allows you to interact with ChatGPT, a powerful language model, for various natural language processing tasks.

The **gptr** R package makes talking to ChatGPT in R super easy. It helps researchers and data folks by simplifying the complicated stuff, like asking questions and getting answers. With **gptr**, you can use ChatGPT in R without any hassle, making it simpler for everyone to do cool things with language!

Installation

You can install **gptr** directly from CRAN:

```
install.packages("gptr")
```



<https://cran.r-project.org/web/packages/gptr/readme/README.html>



<https://chatgpt.com/g/g-WUWF2eO0b-analysis-with-r>



sessionInfo()

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```
> sessionInfo()  
R version 4.2.2 (2022-10-31 ucrt)  
Platform: x86_64-w64-mingw32/x64 (64-bit)  
Running under: Windows 10 x64 (build 19044)
```

```
Matrix products: default
```

```
locale:
```

```
[1] LC_COLLATE=Chinese (Traditional)_Taiwan.utf8  
[2] LC_CTYPE=Chinese (Traditional)_Taiwan.utf8  
[3] LC_MONETARY=Chinese (Traditional)_Taiwan.utf8  
[4] LC_NUMERIC=C  
[5] LC_TIME=Chinese (Traditional)_Taiwan.utf8
```

```
attached base packages:  
> .libPaths()  
[1] "C:/Users/hanmi/AppData/Local/R/win-library/4.5"  
[2] "C:/Program Files/R/R-4.5.0/library"
```

```
loaded via an untrusted source:  
[1] compiler  
> # 查詢特定套件的安裝目錄:  
> system.file(package = "ggplot2")  
[1] "C:/Users/hanmi/AppData/Local/R/win-library/4.5/ggplot2"
```

```
> # 查詢所有已安裝的套件清單與路徑:
```

```
> # installed.packages()  
> installed.packages()[, c("Package", "LibPath")]
```

	Package	LibPath
abind	"abind"	"C:/Users/hanmi/AppData/Local/R/win-library/4.5"
admisc	"admisc"	"C:/Users/hanmi/AppData/Local/R/win-library/4.5"
arm	"arm"	"C:/Users/hanmi/AppData/Local/R/win-library/4.5"
...		

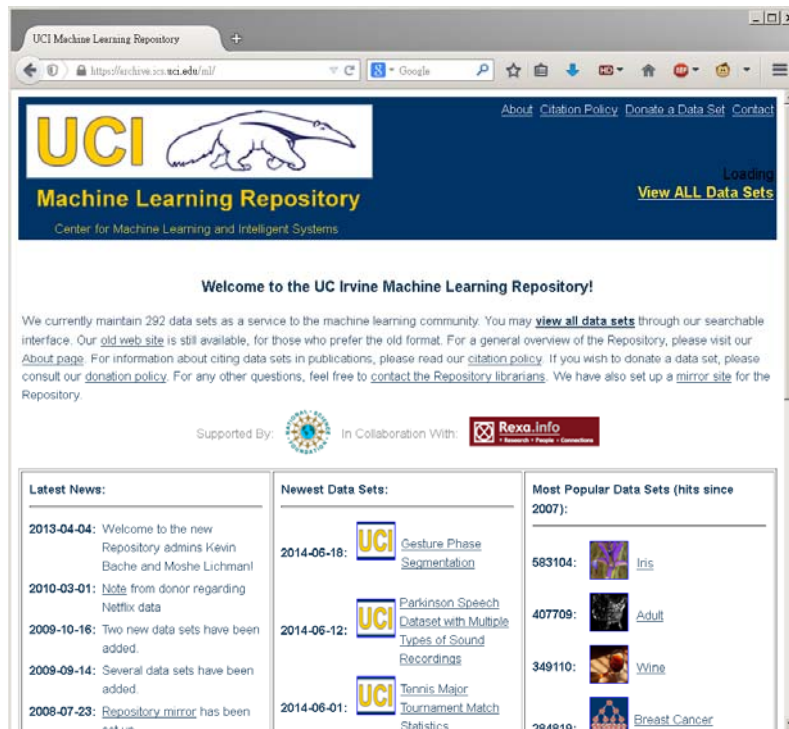
```
> RStudio.Version()  
$citation  
...  
$version  
[1] '2022.7.2.576'
```

```
# 查詢套件版本
```

```
> packageVersion("rlang")  
[1] '0.4.5'
```

The Most Frequently Used Data Set

UCI Machine Learning Repository
<https://archive.ics.uci.edu/ml/>



The sepal length, sepal width, petal length, and petal width are measured in centimeters on 50 iris specimens from each of three species, *Iris setosa*, *I. versicolor*, and *I. virginica*. Fisher (1936)



○ Iris Setosa ○ Iris Versicolor ○ Iris Virginica

	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
1	5.1	3.5	1.4	0.2	setosa
2	4.9	3	1.4	0.2	setosa
3	4.7	3.2	1.3	0.2	setosa
4	4.6	3.1	1.5	0.2	setosa
5	5	3.6	1.4	0.2	setosa
6	5.4	3.9	1.7	0.4	setosa
7	4.6	3.4	1.4	0.3	setosa
8	5	3.4	1.5	0.2	setosa
9	4.4	2.9	1.4	0.2	setosa
10	4.9	3.1	1.5	0.1	setosa
11	5.4	3.7	1.5	0.2	setosa
12	4.8	3.4	1.6	0.2	setosa
13	4.8	3	1.4	0.1	setosa
14	4.3	3	1.1	0.1	setosa
15	5.0	4	1.2	0.2	setosa
16	5.7	4.4	1.5	0.4	setosa
17	5.4	3.9	1.3	0.4	setosa
18	5.1	3.5	1.4	0.3	setosa
19	5.7	3.8	1.7	0.3	setosa
20	5.1	3.8	1.5	0.3	setosa
21	5.4	3.4	1.7	0.2	setosa

2014 IASC Data Analysis Competition: <http://www.iasc-isi.org/node/227>

- World Bank - <http://data.worldbank.org>
- United Nations - <http://www.un.org/en/databases/#stats>
- World Health Organization - <http://www.who.int/research/en/>

- StatLib: <http://lib.stat.cmu.edu/>
- 政府資料開放平台
<http://data.gov.tw/>
- 開放資料Open Data
<http://www.opendata.tw/>

RStudio 套件安裝問題 (1)

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```
> install.packages("CVD")
WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:
https://cran.rstudio.com/bin/windows/Rtools/
Warning in install.packages :
  cannot create dir 'C:\Users\xãñçò\AppData\Local\Temp\Rtmpw9xEQw\downloaded_packages', reason 'No such file or directory'
Error in install.packages : unable to create temporary directory 'C:\Users\xãñçò\AppData\Local\Temp\Rtmpw9xEQw\downloaded_packages'
> |
```

中文帳戶名問題

■ My favorite RStudio tips and tricks

http://datacornering.com/my-favorite-rstudio-tips-and-tricks/?fbclid=IwAR2ZK9Fu3Q5j_wUQVo-tFuX0lxP4Zp2TwcfWKXHyV2R-C6ElgG1Gn-t3uJg

套件安裝問題，可能的解決方法：

- (1) 以「系統管理者員身份執行」開啟RStudio。
- (2) 改變R套件安裝資料夾「.libPaths」

<https://www.twblogs.net/a/5cc0edfcdbd9eee397113dede>

- (3) 解決RStudio不支持Windows系統中文用戶名問題

https://blog.csdn.net/qg_16146103/article/details/105445198

- (4) win10用戶名為中文導致RStudio繪圖錯誤的解決方法

<https://www.cnblogs.com/yanjiamin/p/12064048.html>

- (5) Windows中文使用者與RStudio的環境變數調校

<http://shorturl.at/AMNQ9>

- (6) 解決RStudio中的亂碼

<https://itw01.com/5XYZENB.html>

- (7) 如何更改R的預設語系

<https://psmethods.postach.io/post/ru-he-geng-gai-rde-yu-she-yu-xi>

中文路徑名問題

```
Error in utils::shortPathName(path[i]) : 無效的多
位元組字串於 '<e6><88><91>?□□~1/DOCUME~1/R/WIN-LI~
1/4.0/RMARKD~1/rmd/h/DEFAUL~1.HTM'
Calls: <Anonymous> ... do.call -> <Anonymous> ->
pandoc_path_arg -> <Anonymous>
停止執行
```

```
# 列出已安裝套件 ? installed.packages
mypks <- as.data.frame(installed.packages()[, 1:3])
mypks
```

RStudio 套件安裝問題 (2)

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```
> install.packages("gridExtra")
```

將程式套件安裝入 'C:/Users/User/Documents/R/win-library/4.1'
(因為 'lib' 沒有被指定)

Warning in install.packages :

'lib = "C:/Users/User/Documents/R/win-library/4.1"' is not writable

嘗試 URL 'https://cran.rstudio.com/bin/windows/contrib/4.1/gridExtra_2.3.zip'

Content type 'application/zip' length 1109407 bytes (1.1 MB)

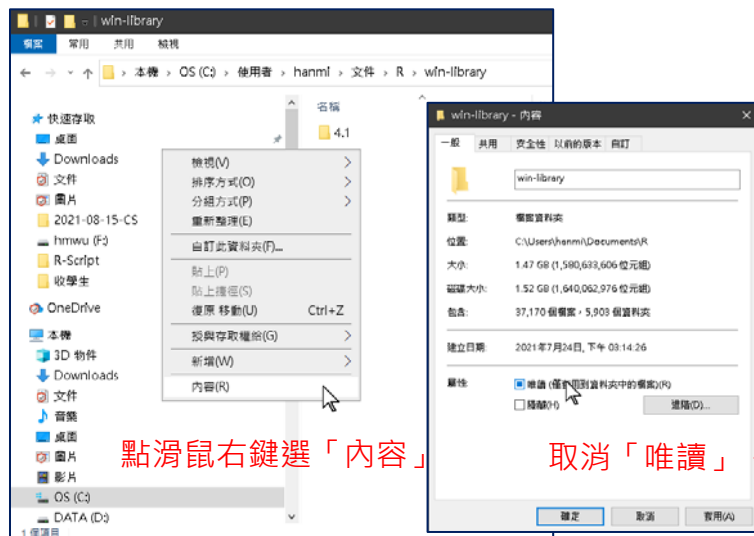
downloaded 1.1 MB

Warning in install.packages :

無法建立目錄 'C:\Users\User\Documents\R\win-library\4.1\file2b905b04620'，原因是 'No such file or directory'

Error in install.packages : unable to create temporary directory

'C:\Users\User\Documents\R\win-library\4.1\file2b905b04620'



```
> install.packages("readxl")
WARNING: Rtools is required to build R packages but is not currently installed. Please
download and install the appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/
warning in install.packages :
'lib = "C:/Program Files/R/R-4.1.1/library"' is not writable
```

