

A brief introduction to R and Rstudio

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R version

- ▶ version 3.3.1 (2016)

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- ▶ Microsoft R Open 3.3.1 ([revolutionanalytics](#))

Program installment

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- ▶ Microsoft R(Revolution Analytics):<https://msdn.microsoft.com/en-us/microsoft-r/>
- ▶ Integrated Development Environment (IDE):Notepad++, Submile, Eclipse (StatET)...
- ▶ Rstudio: <http://www.rstudio.com/>

Rstudio settings

- ▶ menu: Tools-> Global options
- ▶ appearance (tomorrow night bright)
- ▶ default directory (preference->default working directory)
- ▶ svn/git (details about version control later)

Rstudio interface

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Rstudio interface

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- ▶ source: shortcuts(ctrl+enter), cursor
- ▶ Enviornment, history, presentation
- ▶ plot, packages

help

```
help('lm')      #" can be omitted, but not for +-* /  
?lm  
example('lm')  # "" can be omitted  
apropos("mean") # "" can't be omitted  
vignette("caret") #" can't be omitted
```

- ▶ English
- ▶ www.google.com
- ▶ <http://www.rseek.org/>
- ▶ <http://stackoverflow.com/tags>
- ▶ <http://www.r-bloggers.com/>

Workspace

```
search() #loaded package
```

```
## [1] ".GlobalEnv"          "package:stats"      "package:graphics"
## [4] "package:grDevices"   "package:utils"      "package:datasets"
## [7] "package:methods"     "Autoloads"          "package:base"
```

R 初始状态载入包列表

包	描述
stats	常用统计函数
graphics	基础绘图函数
grDevices	基础或 grid 图形设备
utils	R 工具函数
datasets	基础数据集
methods	用于 R 对象和编程工具的方法和类的定义
base	基础函数

packages

Packages are collections of R functions, data, and compiled code in a well-defined format.

- ▶ <https://mirrors.ustc.edu.cn/CRAN/>

Workspace

```
ls() #user-defined object  
#up/down arrow: command history  
getwd()  
list.files()  
# setwd("~/desktop") # special case for windows.
```

file and folder

R	Stata/Linux
<code>getwd()</code>	<code>pwd</code>
<code>setwd()</code>	<code>cd</code>
<code>list.files()/dir()</code>	<code>ls</code>
<code>dir.create()</code>	<code>mkdir</code>

Figure 2: plot

packages installment

- ▶ `search() .libPaths()`
- ▶ `install.packages()` ## need "", with menu
- ▶ `install.packages("packageName.tgz", repos = "http://cran.us.r-project.org/", type="source")`
- ▶ `system('R CMD INSTALL packageName.tgz')` ## local package
- ▶ `install.packages("packageName.tgz", repos = NULL)` ## local package
- ▶ `install_github(repo =, username =)` `library(devtools)` #be cautious.

packages loading/unloading

- ▶ `library(foreign); require(foreign)`

```
if(!require(foreign)) install.packages('foreign')
```

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- ▶ `detach(package:foreign)`

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packages loading/unloading

- ▶ `library(foreign); require(foreign)`
- ▶ `detach(package:foreign)`
- ▶ bonus

```
if(!require(foreign)) install.packages('foreign')
```


options

- ▶ `options()`
- ▶ `options()$digits`
- ▶ `options(stringsAsFactors)`