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The R Workshop

Applying the Integrated Suite of Software
Facilities for Statistical Computing and Graphics

University of Georgia
Department of Workforce Education, Leadership, and Social Foundations
College of Education Research Office




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1. Introduction

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R is...

- A programming language and an environment for data manipulation, (statistical) computing, and graphical display.
- Powerful, but **FREE!**

Introduction



Download and Installation

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



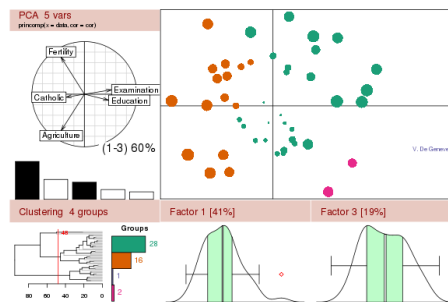
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The R Project for Statistical Computing



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

Download and Installation

1. Click on “CRAN”.
2. Select a mirror site near you.
3. Click on “*Download and install R*”.
4. Click on “*base*”.
5. Download the installation file and run it!

Introduction



Console

- Run R, then a R-GUI window will appear.
- In R-GUI window, you'll see another window called 'R console'.
- Command prompt:

```
> 3+2  
[1] 5  
> pi  
[1] 3.141693
```

Introduction



Working Directory

- *Working directory* is the default location for all file input and output.
- Use `getwd()` to report the current working directory, and use `setwd()` to change your working directory.


```
> getwd( )
> setwd("c:/users/mywork")
```
- Or, from the main menu, select
"File" → "Change dir..."



Introduction

Help

- Need a help for `persp()`? Type in command prompt:


```
> ? persp   or > help(persp)
```
- Need extended help? Type in command prompt:


```
> ?? log    or > help.search("log")
```
- Online documentation: Visit R-project website and click on "Manuals".



Introduction

Package(s)

- All R functions and datasets are stored in packages
- Installation of a package

```
> install.packages("package name")
```
- Loading a package

```
> library("package name")
```
- Unloading a package

```
> detach("package name")
```



Introduction

R command

- For variable names, we may use alphabets, numbers, period(.), underscore(_), etc.
- For assignment, <- is used. You may use =, but not preferable
- All names should begin with alphabet or period(.)
- Semicolon(;) separates multiple commands.

```
> beta.0 <- 3 ; beta.1 <- 2
```
- Comments begin with #

```
> rnorm(100) # to generates 100 random numbers
```



Introduction

R command

- Use arrow keys for recalling former commands.
- Type the name of a variable to print its value onto console.

```
> beta.0
[1] 3
> beta.0 + 1
[1] 4
```

Introduction



R command

- **Case-sensitive**

```
> a <- 1
> A <- 2
> a==A
[1] FALSE
```

- **The objects are stored in R's database**

```
> ls() # list the objects stored in database
```

- **Run the script files.**

```
> source("sample.R")
```

Introduction

