



Introduction to R

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What is R?



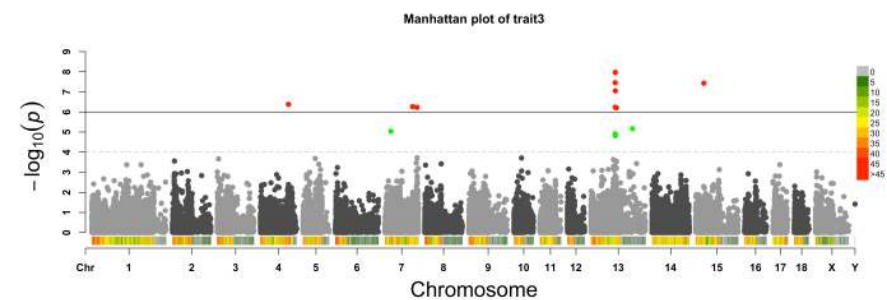
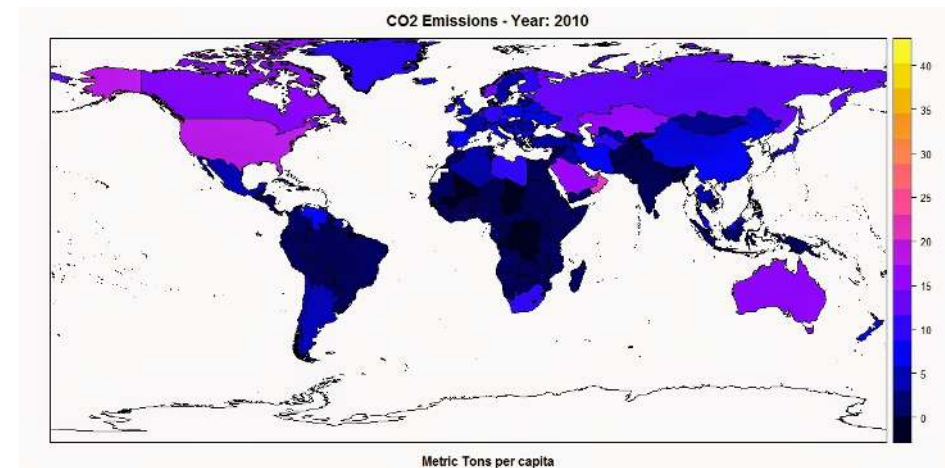
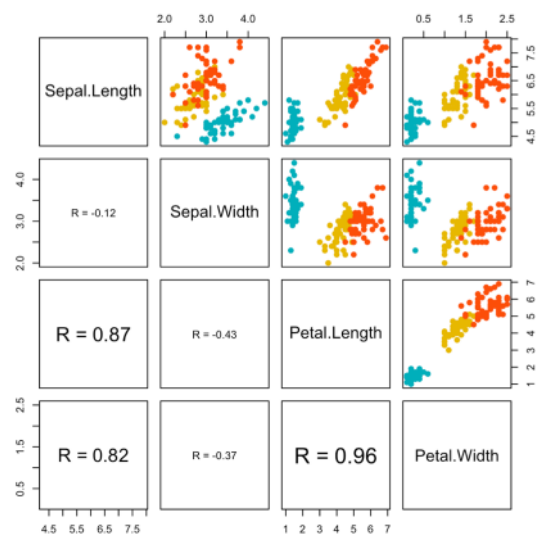
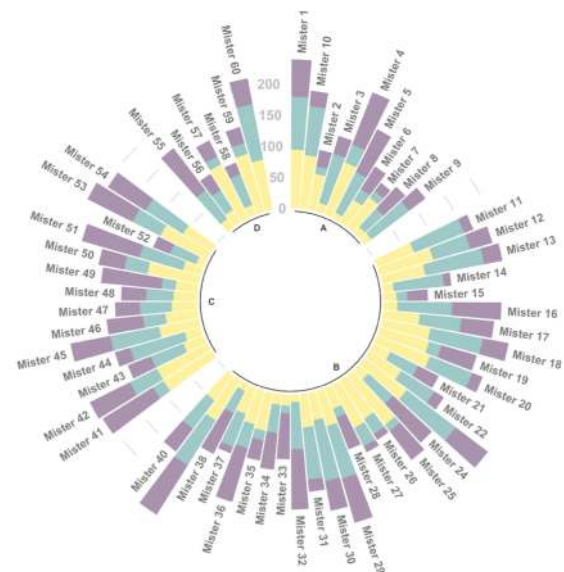
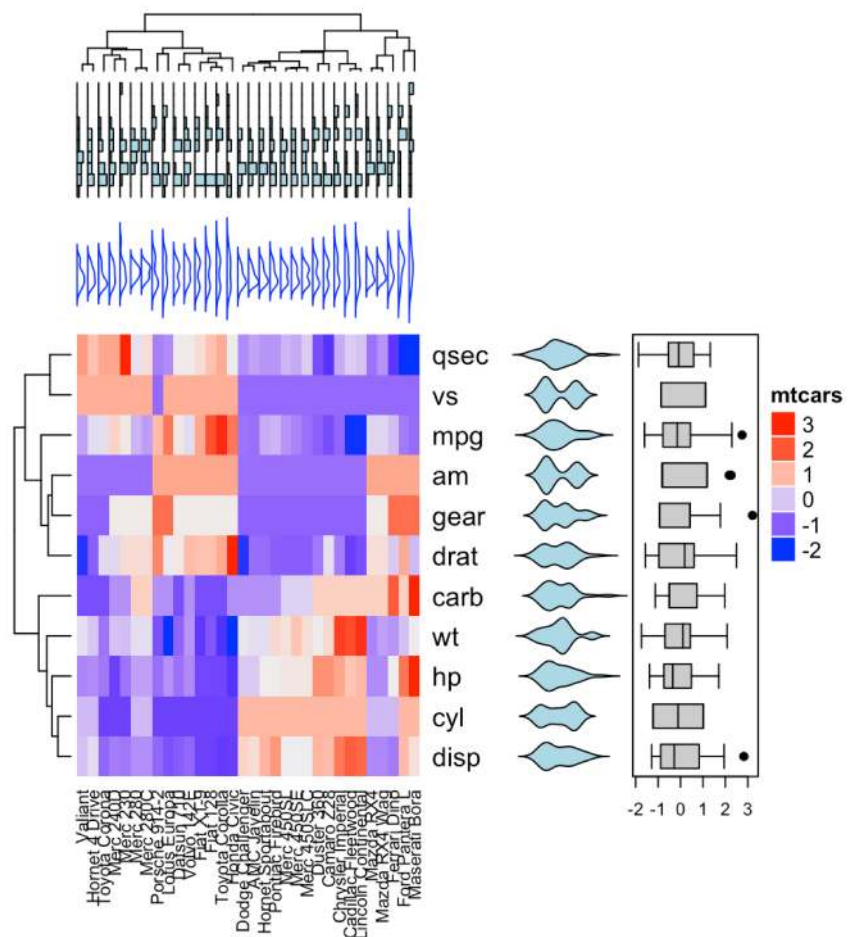
- Software package for data manipulation, calculation, and plotting
- Currently maintained by the R Development Core Team
- Free open-source program
- It runs in all major operating systems

What is R

(R environment for statistical computing)?



- Many built-in functions
- Highly extensible
- Large community of users
 - Many tools!
 - Many people actively solving questions in online forums
- Data analysis is highly reproducible and shareable
- Great for producing highly quality graphics



```
#####  
##      Workshop on Popgen 2020      ##  
##      Cesky Krumlov      ##  
##      @evomics #wpsg2020      ##  
#####
```

Welcome to Ubuntu 19.10 (5.3.0-1009-aws).

Last login: Sun Jan 19 16:30:26 2020 from 90.177.198.83
(base) 23:40:00 :~ \$ R█

The prompt

```
#####  
##      Workshop on Popgen 2020      ##  
##      Cesky Krumlov                ##  
##      @evomics #wpsg2020          ##  
#####  
  
Welcome to Ubuntu 19.10 (5.3.0-1009-aws).  
  
Last login: Sun Jan 19 16:30:26 2020 from 90.177.198.83  
(base) 23:40:00 ~ $ R  
  
R version 3.6.2 (2019-12-12) -- "Dark and Stormy Night"  
Copyright (C) 2019 The R Foundation for Statistical Computing  
Platform: x86_64-pc-linux-gnu (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.  
  
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.  
  
> █
```

What is RStudio?



- Graphical user interface for R
- Free open-source program
- Runs in major operating systems
- Workspace that facilitates code writing and development
- It has 4 panels:

The screenshot shows the RStudio IDE interface. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. The toolbar contains icons for file operations and a search bar. The main editor window, titled 'Untitled1*', contains the text '# Here you can type in your code' and is annotated with 'Text editor'. The Environment pane on the right shows 'Global Environment' and 'Environment is empty', annotated with 'Environment explorer (variables, history)'. The Files pane on the bottom right shows a file explorer view of the home directory, annotated with 'Explorer (files, plots, packages, R documentation)'. The Console pane at the bottom left shows the R startup message and is annotated with 'R console and Terminal'. Two green circles highlight window control icons in the top and bottom panes.

File Edit Code View Plots Session Build Debug Profile Tools Help

popgen Project: (None)

Go to file/function Addins

Untitled1* x

Source on Save Run Source

1 # Here you can type in your code

Text editor

Environment History Connections

Global Environment

Environment is empty

Environment explorer (variables, history)

Files Plots Packages Help Viewer

New Folder Upload Delete Rename More

Home

	Name	Size	Modified
☐	.Rhistory	20.3 KB	Jan 19, 2020, 8:08 AM
☐	Desktop		
☐	Documents		
☐	Downloads		
☐	igv		
☐	miniconda3		
☐	Miniconda3-latest-Linux-x86_64.sh	68.5 MB	Oct 25, 2019, 9:35 PM
☐	Music		
☐	Pictures		
☐	Public		
☐	R		
☐	software		
☐	Templates		
☐	thinclient_drives		
☐	Videos		

1:33 (Top Level) R Script

Console Terminal x Jobs x

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R console and Terminal

Explorer (files, plots, packages, R documentation)

R activity: Introduction to R

- Type to a web browser:

`http://ec2-XX-XXX-XXX-XXX.compute-1.amazonaws.com:8787`

Sign in to RStudio

Username:

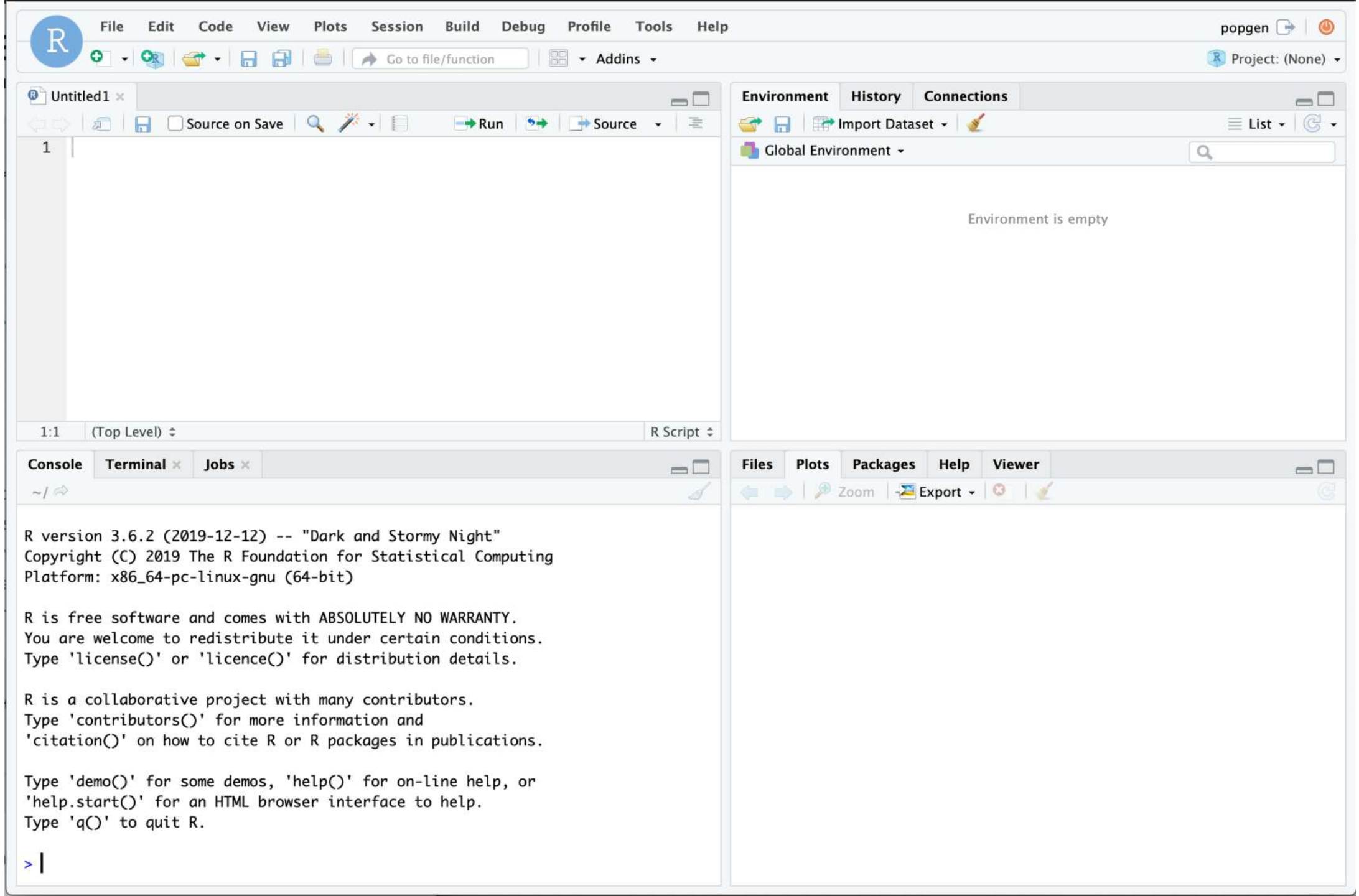
Password:

☐ Stay signed in

Sign In

← popgen

← evomics2020



Topics that will be covered in this tutorial

- How to install R packages
- R documentation and getting help
- Operators
- Data types
- Data structures
- Functions
- Data visualisation
- Read and write data