



Introduction to R

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What is R?



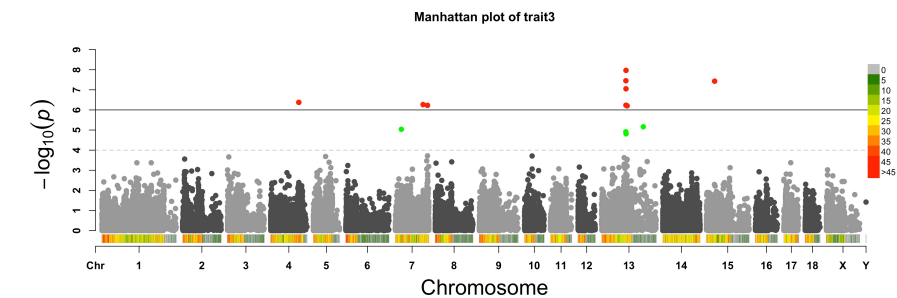
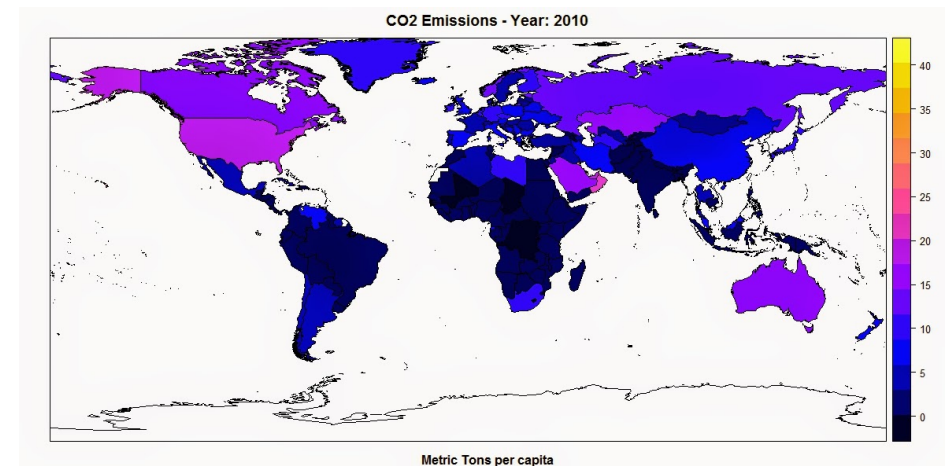
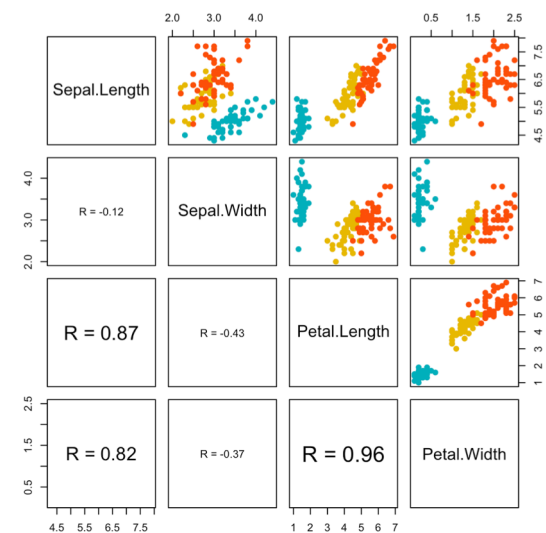
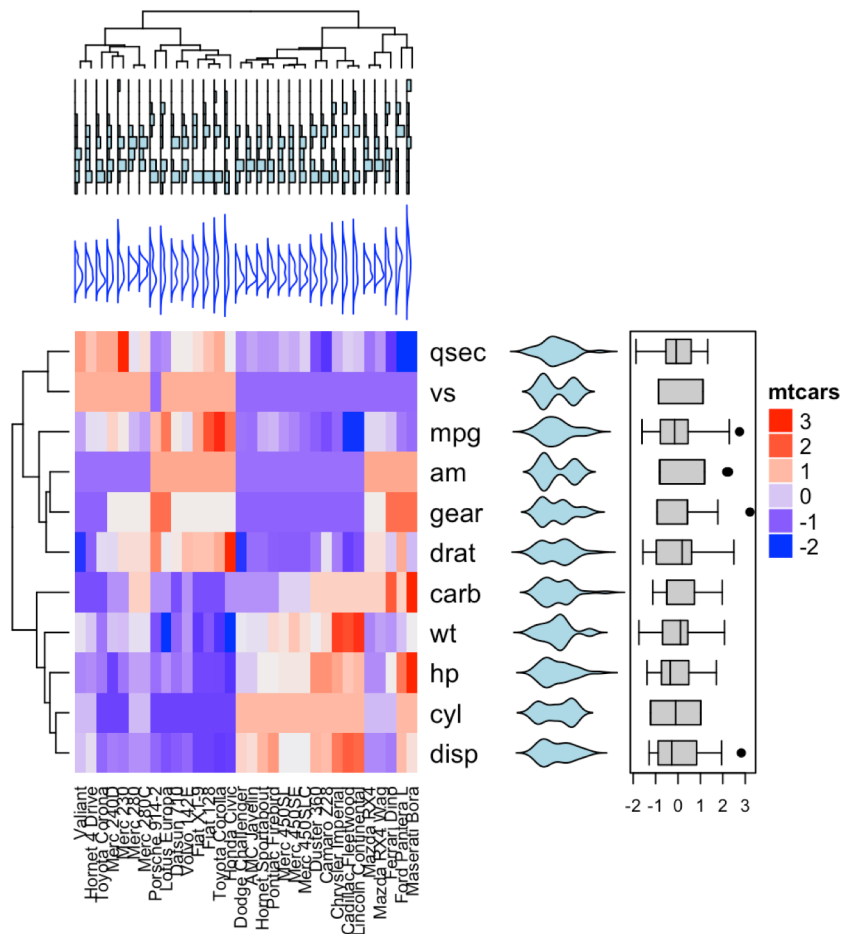
- Software package for data manipulation, calculation, and plotting
- Currently maintained by the R Development Core Team
- Free open-source program
- It runs in all major operating systems

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:

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
<input type="checkbox"/>	.Rhistory	20.3 KB	Jan 19, 2020, 8:08 AM
<input type="checkbox"/>	Desktop		
<input type="checkbox"/>	Documents		
<input type="checkbox"/>	Downloads		
<input type="checkbox"/>	igv		
<input type="checkbox"/>	miniconda3		
<input type="checkbox"/>	Miniconda3-latest-Linux-x86_64.sh	68.5 MB	Oct 25, 2019, 9:35 PM
<input type="checkbox"/>	Music		
<input type="checkbox"/>	Pictures		
<input type="checkbox"/>	Public		
<input type="checkbox"/>	R		
<input type="checkbox"/>	software		
<input type="checkbox"/>	Templates		
<input type="checkbox"/>	thinclient_drives		
<input type="checkbox"/>	Videos		

Console Terminal x Jobs x

R console and Terminal

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'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.
> |

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

The image shows the RStudio IDE interface. At the top is a menu bar with options: File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. To the right of the menu bar, the user name 'popgen' is displayed next to a power button icon. Below the menu bar is a toolbar with various icons for file operations (add, save, open), running code, and other functions. A search bar labeled 'Go to file/function' is also present.

The main workspace is divided into two panes. The left pane, titled 'Untitled1', contains a single line of code: '1'. The right pane is the 'Environment' pane, which is currently empty and displays the message 'Environment is empty'. Above the 'Environment' pane are tabs for 'Environment', 'History', and 'Connections'. Below the 'Environment' pane is a search bar.

At the bottom of the interface is the 'Console' pane. It displays the R startup message: 'R version 3.6.2 (2019-12-12) -- "Dark and Stormy Night"', followed by copyright information and instructions on how to use R. The console prompt is '> |'.

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