R tutorial

Installation on Windows, Linux and Mac

Ed based workspace will be provided in this course to run R codes. However, if you would like to learn how to download and install RStudio on your computer system, follow the below steps:

- Click here to read the instructions on how to install RStudio on your local machine.
- Click here to download and install RStudio.

Basic tutorial: http://web.cs.ucla.edu/~gulzar/rstudio/basic-tutorial.html

Github source for R basics: https://github.com/rohitash-chandra/datascience-machinelearning/tree/master/week0

Basic functions

source for the lesson: https://www.tutorialspoint.com/r/r_functions.htm

Vectors

Source for the lesson: https://www.tutorialspoint.com/r/r_vectors.htm

Matrices

lesson source: https://www.tutorialspoint.com/r/r_matrices.htm

Arrays

Source to lesson: https://www.tutorialspoint.com/r/r_arrays.htm

Data frames

Source: https://www.tutorialspoint.com/r/r_data_frames.htm

Data reshaping

Source for the lesson: https://www.tutorialspoint.com/r/r_data_reshaping.htm

Data files

lesson source: https://www.tutorialspoint.com/r/r_csv_files.htm

read data from a web source: https://www.r-bloggers.com/getting-data-from-an-online-source/

https://www.tutorialspoint.com/r/r_web_data.htm

Visualisation of Data

https://www.tutorialspoint.com/r/r_line_graphs.htm

https://www.tutorialspoint.com/r/r_boxplots.htm

https://www.tutorialspoint.com/r/r_scatterplots.htm

Example 1: Fibonacci

Read more: https://en.wikipedia.org/wiki/Fibonacci_number

https://www.livescience.com/37470-fibonacci-sequence.html

code source: https://www.datamentor.io/r-programming/examples/fibonacci-recursion/

```
# Program to display the Fibonacci sequence up to n-th term using recursive functions
recurse_fibonacci <- function(n) {
  if(n <= 1) {
    return(n)
  } else {
    return(recurse_fibonacci(n-1) + recurse_fibonacci(n-2))
  }
}




# take input from the user
nterms = 20
# check if the number of terms is valid
if(nterms <= 0) {
  print("Plese enter a positive integer")
} else {
  print("Fibonacci sequence:")
  for(i in 0:(nterms-1)) {
    print(recurse_fibonacci(i))
  }
}
```

Example 2: Guess game

Source: http://www.rexamples.com/5/Guess%20a%20random%20number%20game

```
#http://www.rexamples.com/5/Guess%20a%20random%20number%20game

readinteger <- function()
{
  n <- readline(prompt="Enter an integer: ")
  if(!grepl("^[0-9]+$",n))
  {
    return(readinteger())
  }
  return(as.integer(n))
}

# real program start here

num <- round(runif(1) * 100, digits = 0)
guess <- -1

cat("Guess a number between 0 and 100.\n")

while(guess != num)
{
  guess <- readinteger()
  if (guess == num)
  {
    cat("Congratulations,", num, "is right.\n")
  }
  else if (guess < num)
  {
    cat("It's bigger!\n")
  }
  else if(guess > num)
  {
    cat("It's smaller!\n")
  }
}
```

Example 2: Guess Game

This code slide does not have a description.