

# Getting Ready with R

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- *R* is a language plus software environment for conducting statistical and numerical work on the computer
- It is free. You should download and install the latest version (4.0.2) from
  - windows <https://cran.r-project.org/bin/windows/base/>
  - mac <https://cran.r-project.org/bin/macosx/>
- *R* is interfaced on the computer through *Rstudio*, a free integrated development environment for writing and running *R* code and creating *R* packages
- You download and install *Rstudio* from <https://www.rstudio.com/products/rstudio/download/#download>

## Packages

- Before installing the packages on this page, please run this code in Rstudio

```
newpacks = c("quantmod",
             "lubridate", "xts",
             "Rcpp",
             "RcppArmadillo",
             "reshape2",
             "ggplot2",
             "scales",
             "grid",
             "coda"
)
newpacks1 <- newpacks[!(newpacks %in% installed.packages()[, "Package"])]
if(length(newpacks1)) install.packages(newpacks1,
                                       dependencies = TRUE)

lapply(newpacks,
       library, character.only = T)
remove(newpacks, newpacks1)
```

- If your laptop or desktop has multiple cores, then we can use parallel computing to reduce computation time in some computations
- First let us check how many cores we have

```
if (!require(parallel)) {  
  install.packages("parallel",dependencies = TRUE)  
}  
library(parallel);  
numcores = detectCores();
```

- If  $\text{numcores} > 1$ , then we can benefit from using the functions in the **future.apply()** package

## Installing future.apply

```
if (!require(future.apply)) {  
  install.packages("future.apply",dependencies = TRUE)  
}  
library(future.apply);
```