

SHETH L.U.J AND SIR M.V. COLLEGE

The image displays two screenshots of the RStudio interface, showing the process of installing R packages and the resulting environment.

Top Screenshot: The RStudio window shows the console with the following commands and output:

```
> source("~/active-rstudio-document", echo = TRUE)
> # Install necessary packages
> install.packages(c("readr", "psych"))
Restarting R session...
> install.packages(c("readr", "psych"))
WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:
https://cran.rstudio.com/bin/windows/Rtools/
Installing packages into 'C:/Users/IT/Documents/R/win-library/4.1'
(as 'lib' is unspecified)

There are binary versions available but the source versions are later:
  binary source needs_compilation
readr   2.1.4 2.1.6                TRUE
psych   2.3.3 2.5.6                FALSE

Binaries will be installed
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.1/readr_2.1.4.zip'
content type 'application/zip' length 1804406 bytes (1.7 MB)
downloaded 1.7 MB

package 'readr' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:\Users\IT\AppData\Local\Temp\RtmpM9Y8FY\downloaded_packages
installing the source package 'psych'

trying URL 'https://cran.rstudio.com/src/contrib/psych_2.5.6.tar.gz'
content type 'application/x-gzip' length 1152216 bytes (1.1 MB)
downloaded 1.1 MB

* installing *source* package 'psych' ...
** package 'psych' successfully unpacked and MD5 sums checked
** using staged installation
** R
```

The Environment pane on the right shows the Global Environment with 211 MB of memory used. The Data pane shows a variable named 'my_data' with 18000 observations and 15 variables.

Bottom Screenshot: The RStudio window shows the console with the following commands and output:

```
*** moving datasets to lazyload DB
** inst
** byte-compile and prepare package for lazy loading
** help
*** installing help indices
converting help for package 'psych'
finding HTML links ... done
00-psych-package
AUC
REDIRECT:topic Previous alias or file overwritten by alias: C:/Users/IT/Documents/R/win-library/4.1/00LOCK-psych/00
new/psych/help/auc.html
Garcia
Gleser
Gorsuch
Harman
ICC
ICLUST
ICLUST
REDIRECT:topic Previous alias or file overwritten by alias: C:/Users/IT/Documents/R/win-library/4.1/00LOCK-psych/00
new/psych/help/iclust.html
ICLUST.clust
ICLUST.graph
REDIRECT:topic Previous alias or file overwritten by alias: C:/Users/IT/Documents/R/win-library/4.1/00LOCK-psych/00
new/psych/help/iclust.graph.html
ICLUST.rgraph
ICLUST.sort
REDIRECT:topic Previous alias or file overwritten by alias: C:/Users/IT/Documents/R/win-library/4.1/00LOCK-psych/00
new/psych/help/iclust.sort.html
KMO
PINW
Promax
RMSEA
RV
SD
Schmid.Leiman
Tucker
VSS
REDIRECT:topic Previous alias or file overwritten by alias: C:/Users/IT/Documents/R/win-library/4.1/00LOCK-psych/00
new/psych/help/vss.html
VSS.parallel
VSS.plot
VSS.scree
Yule
```

The Environment pane on the right shows the Global Environment with 198 MB of memory used. The Data pane shows a variable named 'my_data' with 18000 observations and 15 variables.

SHETH L.U.J AND SIR M.V. COLLEGE

The screenshot displays the RStudio environment with the following components:

- Source Panel:** Contains R code for loading and analyzing data. The code includes comments about installing packages and loading data from a temporary location. It uses `tail(my_data)` and `head(my_data)` to inspect the data structure.
- Console Panel:** Shows the output of the R code, including the dimensions of the data (18000 rows, 15 columns) and a summary of the data.
- Environment Panel:** Displays the loaded data object `my_data` with 18000 observations and 15 variables.
- Files Panel:** Shows the file structure, including the `my_data` file.
- Plots Panel:** Displays a plot of the data, showing a distribution of values.

The R code in the Source panel is as follows:

```
R - R4.1.2 - ~/prac3/
# Installing packages
install.packages("tidyverse")
library(tidyverse)

# Loading data
my_data <- read_csv("C:/Users/IT/AppData/Local/Temp/98fV/downloaded_packages/
# Inspecting data
tail(my_data)
head(my_data)
dim(my_data)
cat("Dimensions (Rows, Columns): ", dim(my_data), "\n")
describe(my_data)
summary(my_data)
```

The console output shows the dimensions of the data and a summary of the data:

```
Dimensions (Rows, Columns): 18000 15
Error in describe(my_data) : could not find function "describe"

> summary(my_data)
timestamp      country      city      latitude      longitude      pm25
Length:18000   Length:18000   Length:18000   Min.   : -37.81   Min.   : -123.121   Min.   : 0.025
Class: character Class: character Class: character 1st Qu.: 12.97   1st Qu.: 2.352     1st Qu.: 27.904
Mode : character Mode : character Mode : character  Median : 29.23   Median : 42.146     Median : 40.286
                    Mean : 23.07   Mean : 37.656       Mean : 40.369
                    3rd Qu.: 41.01   3rd Qu.: 103.820    3rd Qu.: 52.436
                    Max.   : 60.17   Max.   : 174.763     Max.   : 115.683

pm10      no2      so2      o3      co      aqi
Min.   : 0.061   Min.   : 0.013   Min.   : 0.003   Min.   : 0.114   Min.   : 0.0000   Min.   : 16.0
1st Qu.: 53.126   1st Qu.: 22.363   1st Qu.: 4.361   1st Qu.: 38.029   1st Qu.: 0.6330   1st Qu.: 87.0
Median : 69.961   Median : 32.020   Median : 6.026   Median : 48.142   Median : 0.8005   Median : 103.0
Mean : 70.152     Mean : 32.055     Mean : 6.036     Mean : 48.065     Mean : 0.8006     Mean : 104.6
3rd Qu.: 87.257   3rd Qu.: 41.364   3rd Qu.: 7.715   3rd Qu.: 58.238   3rd Qu.: 0.9690   3rd Qu.: 121.0
Max.   : 161.810   Max.   : 90.019   Max.   : 16.559   Max.   : 103.016   Max.   : 1.8320   Max.   : 231.0

temperature      humidity      wind_speed
Min.   : 5.000   Min.   : 25.00   Min.   : 0.500
1st Qu.: 13.36   1st Qu.: 41.32   1st Qu.: 12.937
Median : 21.46   Median : 57.85   Median : 5.297
Mean : 21.51     Mean : 57.71     Mean : 5.284
3rd Qu.: 29.69   3rd Qu.: 74.23   3rd Qu.: 7.662
Max.   : 38.00   Max.   : 90.00   Max.   : 9.999
```