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2/19/2021

## R Markdown

## (1)

data <- USArrests

The data frame records crimes such as rape and murder and the proportion of urban population in each state.

## (2)

library(tidyverse)

## ─ Attaching packages ──────────── tidyverse 1.3.0 ─

## ✓ ggplot2 3.2.1 ✓ purrr 0.3.3  
## ✓ tibble 2.1.3 ✓ dplyr 0.8.3  
## ✓ tidyr 1.0.2 ✓ stringr 1.4.0  
## ✓ readr 1.3.1 ✓ forcats 0.4.0

## ─ Conflicts ────────────── tidyverse\_conflicts() ─  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()

map(data,max)

## $Murder  
## [1] 17.4  
##   
## $Assault  
## [1] 337  
##   
## $UrbanPop  
## [1] 91  
##   
## $Rape  
## [1] 46

data[data$Assault==337,]

## Murder Assault UrbanPop Rape  
## North Carolina 13 337 45 16.1

Which State has the largest number of Assaults according to the USAressts data frame ?: North Carolina

## (3)

library(nycflights13)

## (4)

nrow(flights)

## [1] 336776

ncol(flights)

## [1] 19

Tibble is a replacement in R language data.frame Extended data frame of type.

is\_tibble(flights)

## [1] TRUE

##(5)

map(flights,typeof)

## $year  
## [1] "integer"  
##   
## $month  
## [1] "integer"  
##   
## $day  
## [1] "integer"  
##   
## $dep\_time  
## [1] "integer"  
##   
## $sched\_dep\_time  
## [1] "integer"  
##   
## $dep\_delay  
## [1] "double"  
##   
## $arr\_time  
## [1] "integer"  
##   
## $sched\_arr\_time  
## [1] "integer"  
##   
## $arr\_delay  
## [1] "double"  
##   
## $carrier  
## [1] "character"  
##   
## $flight  
## [1] "integer"  
##   
## $tailnum  
## [1] "character"  
##   
## $origin  
## [1] "character"  
##   
## $dest  
## [1] "character"  
##   
## $air\_time  
## [1] "double"  
##   
## $distance  
## [1] "double"  
##   
## $hour  
## [1] "double"  
##   
## $minute  
## [1] "double"  
##   
## $time\_hour  
## [1] "double"

## (6)

models <- iris %>%  
 split(.$Species) %>%  
 map(~lm(Sepal.Length ~ Sepal.Width, data = .))  
models

## $setosa  
##   
## Call:  
## lm(formula = Sepal.Length ~ Sepal.Width, data = .)  
##   
## Coefficients:  
## (Intercept) Sepal.Width   
## 2.6390 0.6905   
##   
##   
## $versicolor  
##   
## Call:  
## lm(formula = Sepal.Length ~ Sepal.Width, data = .)  
##   
## Coefficients:  
## (Intercept) Sepal.Width   
## 3.5397 0.8651   
##   
##   
## $virginica  
##   
## Call:  
## lm(formula = Sepal.Length ~ Sepal.Width, data = .)  
##   
## Coefficients:  
## (Intercept) Sepal.Width   
## 3.9068 0.9015

## (7)

V <- list(12, 22, 27, 31.5, NA, 39, "east")

length(V)

## [1] 7

V[is.na(V)]

## [[1]]  
## [1] NA

V[3]

## [[1]]  
## [1] 27

for(i in 1:length(V)){  
 a <- unlist(V[i])  
 if(is.character(a)){print(a)}  
}

## [1] "east"

min(unlist(V[1:4]))

## [1] 12

is.character(V[[7]])

## [1] TRUE