Ezra-_lab_3.R

Student

2021-07-22

```
#task1
help("state.x77")
```

```
## starting httpd help server ... done
```

```
#task2
dfStates77 <- data.frame(state.x77)
#task3
summary(dfStates77)
```

```
##    Population        Income       Illiteracy       Life.Exp
##  Min.   :  365   Min.   :3098   Min.   :0.500   Min.   :67.96
##  1st Qu.: 1080   1st Qu.:3993   1st Qu.:0.625   1st Qu.:70.12
##  Median : 2838   Median :4519   Median :0.950   Median :70.67
##  Mean   : 4246   Mean   :4436   Mean   :1.170   Mean   :70.88
##  3rd Qu.: 4968   3rd Qu.:4814   3rd Qu.:1.575   3rd Qu.:71.89
##  Max.   :21198   Max.   :6315   Max.   :2.800   Max.   :73.60
##      Murder          HS.Grad          Frost             Area
##  Min.   : 1.400   Min.   :37.80   Min.   :  0.00   Min.   :  1049
##  1st Qu.: 4.350   1st Qu.:48.05   1st Qu.: 66.25   1st Qu.: 36985
##  Median : 6.850   Median :53.25   Median :114.50   Median : 54277
##  Mean   : 7.378   Mean   :53.11   Mean   :104.46   Mean   : 70736
##  3rd Qu.:10.675   3rd Qu.:59.15   3rd Qu.:139.75   3rd Qu.: 81163
##  Max.   :15.100   Max.   :67.30   Max.   :188.00   Max.   :566432
```

```
#task4
totalPop77 <- sum(dfStates77[1:50,1])
#task5
library(readr)
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --
## v ggplot2 3.3.5     v dplyr   1.0.7
## v tibble  3.1.2     v stringr 1.4.0
## v tidyr   1.1.3     v forcats 0.5.1
## v purrr   0.3.4
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
urlToRead<- "https://ist387.s3.us-east-2.amazonaws.com/lab/states.csv"
dfStates17<-read.csv(url(urlToRead))
#task6
summary(dfStates17)
```

```
##     state               slug               code             nickname
##  Length:50          Length:50          Length:50          Length:50
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##    website          admission_date     admission_number capital_city
##  Length:50          Length:50          Min.   : 1.00    Length:50
##  Class :character   Class :character   1st Qu.:13.25    Class :character
##  Mode  :character   Mode  :character   Median :25.50    Mode  :character
##                                        Mean   :25.50
##                                        3rd Qu.:37.75
##                                        Max.   :50.00
##  capital_url          population       population_rank constitution_url
##  Length:50          Min.   :  582658   Min.   : 1.00   Length:50
##  Class :character   1st Qu.: 1857857   1st Qu.:13.25   Class :character
##  Mode  :character   Median : 4510382   Median :25.50   Mode  :character
##                     Mean   : 6309648   Mean   :25.50
##                     3rd Qu.: 6901760   3rd Qu.:37.75
##                     Max.   :38332521   Max.   :50.00
##  state_flag_url     state_seal_url     map_image_url
##  Length:50          Length:50          Length:50
##  Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character
##
##
##
##  landscape_background_url skyline_background_url twitter_url
##  Length:50                Length:50              Length:50
##  Class :character         Class :character       Class :character
##  Mode  :character         Mode  :character       Mode  :character
##
##
##
##  facebook_url
##  Length:50
##  Class :character
##  Mode  :character
##
##
##
```

```
#task7
totalPop17 <- sum(dfStates17[1:50,10])
#task8
ratio <- totalPop77/totalPop17
#task9
popDensity <- function(pop,area){
popDens <- pop/area
return(popDens)
}
#task10
dfStates77 <- data.frame(state.x77)
#task11
tempPop <- dfStates77[1:50,1]
#task12
tempArea <- dfStates77[1:50,8]
#task13
popDensity(tempPop,tempArea)
```

```
##  [1] 0.0712905261 0.0006443845 0.0195032491 0.0406198864 0.1355708904
##  [6] 0.0244877898 0.6375976964 0.2921291625 0.1530227399 0.0849103714
## [11] 0.1350972763 0.0098334482 0.2008502547 0.1471867468 0.0511431687
## [16] 0.0278772910 0.0854224464 0.0847095482 0.0342173351 0.4167424932
## [21] 0.7429082545 0.1603569354 0.0494520047 0.0494967862 0.0690919632
## [26] 0.0051240839 0.0201874926 0.0053690542 0.0899523651 0.9750033240
## [31] 0.0094224624 0.3779139052 0.1115004713 0.0091955019 0.2619890177
## [36] 0.0394725364 0.0237461532 0.2637548370 0.8875119161 0.0931679074
## [41] 0.0089658350 0.1009727062 0.0466822312 0.0146535763 0.0509334197
## [46] 0.1252136752 0.0534625207 0.0747403407 0.0842574912 0.0038681934
```

```
#task14
dfStates77<-cbind(dfStates77,popDensity(tempPop,tempArea))
cname<-colnames(dfStates77)
cname[9]<-"popDensity"
#task15
which.max(dfStates77[1:50,9])
```

```
## [1] 30
```

```
which.min(dfStates77[1:50,9])
```

```
## [1] 2
```

```
#reason for indexing into dfstates77 is we initially didn't use data.frame(state.x77) so $ didn't work
```