Classwork 3\_Samanta

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library(tidyverse)

## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --

## v ggplot2 3.3.5 v purrr 0.3.4  
## v tibble 3.1.4 v dplyr 1.0.7  
## v tidyr 1.1.3 v stringr 1.4.0  
## v readr 2.0.1 v forcats 0.5.1

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

library(dplyr)  
library(purrr)

V <- c("Bears", "Lions", "Dolphins", "Eagles", "Bengals")

1. Why is the vector shown above an atomic vector? (Explain using two or three sentences)

Because it is a vector containing all objects of the same type.In this case, all the objects are character strings.

1. Use and show R code that will extract “Dolphins” from the vector shown above.

V[3]

## [1] "Dolphins"

1. Use and show Rcode that will extract “Bears” , “Dolphins” and “Bengals” from the vector shown above.

V[c(1,3,5)]

## [1] "Bears" "Dolphins" "Bengals"

1. Use and show two Rcoding methods that will show all objects of the vector given above except “Bears”.

V[-1]

## [1] "Lions" "Dolphins" "Eagles" "Bengals"

V[c(2:5)]

## [1] "Lions" "Dolphins" "Eagles" "Bengals"

K <- list( x = 3:7, "never", 43, y = list(10,20,30))

1. Why is the vector given above called a list? (Explain in two or three sentences) If the vector is a list, identify the type of each object in the list.

Because this type of vector has different types of objects as opposed to all of the same kind. We can use str(K) to find the different types of objects in this list, as is done below. As we can see, there is an integer type variable x from 1 to 7; a character never; an integer 43, and a list with three numbers in it, 10, 20 and 30. :

str(K)

## List of 4  
## $ x: int [1:5] 3 4 5 6 7  
## $ : chr "never"  
## $ : num 43  
## $ y:List of 3  
## ..$ : num 10  
## ..$ : num 20  
## ..$ : num 30

1. Use and show R code that will give the length of the vector shown above.

length(K)

## [1] 4

1. Use and show R code that will output the fourth object in the vector shown above.

str(K[[4]])

## List of 3  
## $ : num 10  
## $ : num 20  
## $ : num 30

1. Use and show R code that will show all objects in the vector (list) given above.

str(K[])

## List of 4  
## $ x: int [1:5] 3 4 5 6 7  
## $ : chr "never"  
## $ : num 43  
## $ y:List of 3  
## ..$ : num 10  
## ..$ : num 20  
## ..$ : num 30

1. Copy and paste the following tribble

tribble( ~x, ~y, ~w, ~z,  
 210, 300, 220, 180,  
 102, 100, 119, 187,  
 176, 175, 188, 173,  
 87, 95, 91, 94,  
 202, 210, 234, 218,  
 110, 122, 131, 128,  
) -> dt  
dt

## # A tibble: 6 x 4  
## x y w z  
## <dbl> <dbl> <dbl> <dbl>  
## 1 210 300 220 180  
## 2 102 100 119 187  
## 3 176 175 188 173  
## 4 87 95 91 94  
## 5 202 210 234 218  
## 6 110 122 131 128

9a) Use and show a map function to find the mean of each column of the dt data table

map\_dbl(dt, mean)

## x y w z   
## 147.8333 167.0000 163.8333 163.3333

9b) Use and show a map function to find the standard deviation of each column of the dt data table.

map\_dbl(dt, sd)

## x y w z   
## 54.45151 79.12016 58.40348 44.66617

9c) Use and show a map function that will calculate the square root of each value of each column of the data table dt.

dt %>%  
 map(~. ^ 0.5)

## $x  
## [1] 14.491377 10.099505 13.266499 9.327379 14.212670 10.488088  
##   
## $y  
## [1] 17.320508 10.000000 13.228757 9.746794 14.491377 11.045361  
##   
## $w  
## [1] 14.832397 10.908712 13.711309 9.539392 15.297059 11.445523  
##   
## $z  
## [1] 13.41641 13.67479 13.15295 9.69536 14.76482 11.31371

9d) Use R code to find the mean, max, 1st Quartile, 2nd Quartile, Median, and Mean for each column of the dt data table. (Hint: You do not have to use a map function)

summary(dt)

## x y w z   
## Min. : 87.0 Min. : 95.0 Min. : 91.0 Min. : 94.0   
## 1st Qu.:104.0 1st Qu.:105.5 1st Qu.:122.0 1st Qu.:139.2   
## Median :143.0 Median :148.5 Median :159.5 Median :176.5   
## Mean :147.8 Mean :167.0 Mean :163.8 Mean :163.3   
## 3rd Qu.:195.5 3rd Qu.:201.2 3rd Qu.:212.0 3rd Qu.:185.2   
## Max. :210.0 Max. :300.0 Max. :234.0 Max. :218.0