module_03.R

Greg Foster

2021-01-26

```
candidate_names <- c("Jeb", "Donald", "Ted", "Marco", "Carly", "Hillary",
"Bernie")
ABC_results <- c(4, 62, 51, 21, 2, 14, 15)
CBS_results <- c(12, 75, 43, 19, 1, 21, 19)

results <- cbind(candidate_names, ABC_results, CBS_results)
results
```

```
##      candidate_names ABC_results CBS_results
## [1,] "Jeb"           "4"         "12"
## [2,] "Donald"        "62"        "75"
## [3,] "Ted"           "51"        "43"
## [4,] "Marco"         "21"        "19"
## [5,] "Carly"         "2"         "1"
## [6,] "Hillary"       "14"        "21"
## [7,] "Bernie"        "15"        "19"
```

```
results.df <- data.frame(candidate_names, CBS_results, ABC_results)
results.df
```

```
##   candidate_names CBS_results ABC_results
## 1             Jeb          12           4
## 2          Donald          75          62
## 3             Ted          43          51
## 4           Marco          19          21
## 5           Carly           1           2
## 6         Hillary          21          14
## 7          Bernie          19          15
```

```
mean(results.df)
```

```
## Warning in mean.default(results.df): argument is not numeric or logical:
## returning NA

## [1] NA
```

```
mean(results.df[,2:3])
```

```
## Warning in mean.default(results.df[, 2:3]): argument is not numeric or
logical:
## returning NA

## [1] NA
```

```r
#The above two methods for obtaining the mean of CBS and ABC columns are
returning
#an error, so I will obtain their means another way
mean(results.df$CBS_results)
```

```
## [1] 27.14286
```

```r
mean(results.df$ABC_results)
```

```
## [1] 24.14286
```

```r
#The means and other descriptive information can also be attained with
'summary'
summary(results.df)
```

```
##  candidate_names     CBS_results     ABC_results
##  Length:7           Min.   : 1.00   Min.   : 2.00
##  Class :character   1st Qu.:15.50   1st Qu.: 9.00
##  Mode  :character   Median :19.00   Median :15.00
##                     Mean   :27.14   Mean   :24.14
##                     3rd Qu.:32.00   3rd Qu.:36.00
##                     Max.   :75.00   Max.   :62.00
```

```r
#I ran into errors trying to perform matrix multiplication with the provided
dataset,
#so I will attempt to recreate the conditions found in the provided text.
a <- c(1,2,3)
b <- c(10,20,30)
c <- c(100,200,300)
d <- c(1000,2000,3000)

C.df <- data.frame(a, b, c, d)

#Creating B object from what I can tell from example
B <- matrix(rep(1010101,12), nrow=3)

#as.matrix(C.df)%*%B
#That didn't work, so I will try it another way

C.m <- as.matrix(C.df)
B2 <- 1010101
C.m * B2
```

```
##            a        b         c          d
## [1,] 1010101 10101010 101010100 1010101000
## [2,] 2020202 20202020 202020200 2020202000
## [3,] 3030303 30303030 303030300 3030303000
```

```r
#That way was successful, but I've still been unable to perform
multiplication using the
# %*% operator....
```

```
m <- matrix(1:8, nrow=2)
n <- matrix(8:15, nrow=4)

m%*%n

##      [,1] [,2]
## [1,]  162  226
## [2,]  200  280

n%*%m

##      [,1] [,2] [,3] [,4]
## [1,]   32   72  112  152
## [2,]   35   79  123  167
## [3,]   38   86  134  182
## [4,]   41   93  145  197

#The operator functions properly with different matrices, so there must be an
issue
#of compatibility between the C.m and B matrices I am attempting to multiply
together.

#I will make a smaller matrix B to see if that will help.
B3 <- matrix(rep(1010101,4, nrow=2))
#C.m %*% B3
#Welp that didn't work... moving on

C.m

##      a  b   c    d
## [1,] 1 10 100 1000
## [2,] 2 20 200 2000
## [3,] 3 30 300 3000

mean(C.m)

## [1] 555.5

#mean(as.data.frame(C.m))
mean(C.df)

## Warning in mean.default(C.df): argument is not numeric or logical:
returning NA

## [1] NA
```