hw_wk_2

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```
# functions for sum, mean, and sd

df_sum <- function(selection){
  # This function takes a selection and returns sum
  y <- sum(selection)
  return(y)
}

df_mean <- function(selection){
  # Thus function will calculate mean of the selection and returns the same
  x <- df_sum(selection)/length(selection)
  sprintf("Mean: %s", x)
}

df_sd <- function(selection){
  # A function for calculating standard deviation of the selection
  x <- sqrt(sum((selection-mean(selection))^2/(length(selection)-1)))
  sprintf("Sd: %s", x)
}


# A function to take data frame, row, and cloumn as arguments, subsets data according
# to the given selections.
# Selection examples: By index, name, logical vector etc

wk_2_subset_function <- function(data, rows, cols){
  data <- data[rows,cols]
  result = list()
  for (col_name in names(data)) {
    col_value <- data[[col_name]]
    if(class(col_value) == 'numeric' | class(col_value) == 'integer') {
      statistics <- list(sum=df_sum(col_value), mean=df_mean(col_value), sd=df_sd(col_value))
      result[[col_name]] <- statistics
    } else {
      result[[col_name]] <- table(col_value)
    }
  }
  result
}

data <- mtcars

wk_2_subset_function(data, rows = 1:nrow(data), cols = 1:ncol(data))
```

```
## $mpg
## $mpg$sum
## [1] 642.9
##
## $mpg$mean
## [1] "Mean: 20.090625"
##
## $mpg$sd
## [1] "Sd: 6.0269480520891"
##
##
## $cyl
## $cyl$sum
## [1] 198
##
## $cyl$mean
## [1] "Mean: 6.1875"
##
## $cyl$sd
## [1] "Sd: 1.78592164694654"
##
##
## $disp
## $disp$sum
## [1] 7383.1
##
## $disp$mean
## [1] "Mean: 230.721875"
##
## $disp$sd
## [1] "Sd: 123.938693831382"
##
##
## $hp
## $hp$sum
## [1] 4694
##
## $hp$mean
## [1] "Mean: 146.6875"
##
## $hp$sd
## [1] "Sd: 68.5628684893206"
##
##
## $drat
## $drat$sum
## [1] 115.09
##
## $drat$mean
## [1] "Mean: 3.5965625"
##
## $drat$sd
## [1] "Sd: 0.534678736070971"
##
##
## $wt
## $wt$sum
## [1] 102.952
##
## $wt$mean
## [1] "Mean: 3.21725"
##
## $wt$sd
## [1] "Sd: 0.978457442989697"
##
##
## $qsec
## $qsec$sum
## [1] 571.16
##
## $qsec$mean
## [1] "Mean: 17.84875"
##
## $qsec$sd
## [1] "Sd: 1.78694323609684"
##
##
## $vs
## $vs$sum
## [1] 14
##
## $vs$mean
## [1] "Mean: 0.4375"
```

```
##
## $vs$sd
## [1] "Sd: 0.504016128774185"
##
##
## $am
## $am$sum
## [1] 13
##
## $am$mean
## [1] "Mean: 0.40625"
##
## $am$sd
## [1] "Sd: 0.498990917235846"
##
##
## $gear
## $gear$sum
## [1] 118
##
## $gear$mean
## [1] "Mean: 3.6875"
##
## $gear$sd
## [1] "Sd: 0.737804065256947"
##
##
## $carb
## $carb$sum
## [1] 90
##
## $carb$mean
## [1] "Mean: 2.8125"
##
## $carb$sd
## [1] "Sd: 1.61519997763185"
```