Day 3 Lab Manual

UNIVARIATE ANALYSIS IN R - MEASURES OF CENTRAL TENDENCY

Exercise:3

NAME:KRISHVANTH KUMAR E

REGISTER NUMBER:192125063

I. ARITHMETIC MEAN

a) Write suitable R code to compute the average of the following values.
12,7,3,4.2,18,2,54,-21,8,-5
b) Compute the mean after applying the trim option and removing 3 values from each end.
c) Compute the mean of the following vector .
(12,7,3,4.2,18,2,54,-21,8,-5,NA)
#If there are missing values, then the mean function returns NA.
Find mean dropping NA values.
#To drop the missing values from the calculation use na.rm = TRUE

II.MEDIAN

Write suitable R code to compute the median of the following values.

12,7,3,4.2,18,2,54,-21,8,-5

III. MODE

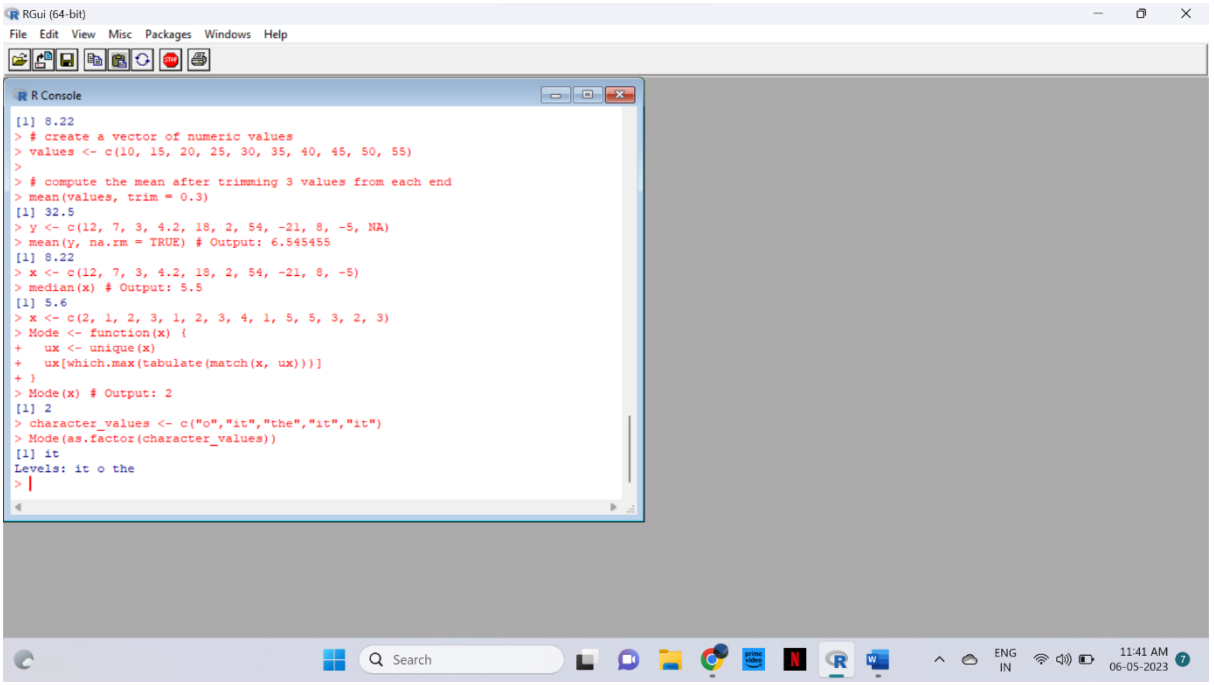
Calculate the mode for the following numeric as well as character data set in R.

(2,1,2,3,1,2,3,4,1,5,5,3,2,3) , ("o","it","the","it","it")

CODE

```
 x <- c(12, 7, 3, 4.2, 18, 2, 54, -21, 8, -5)
mean(x)
values <- c(10, 15, 20, 25, 30, 35, 40, 45, 50, 55)
 mean(values, trim = 0.3)
 y <- c(12, 7, 3, 4.2, 18, 2, 54, -21, 8, -5, NA)
 mean(y, na.rm = TRUE)
 x <- c(12, 7, 3, 4.2, 18, 2, 54, -21, 8, -5)
 median(x)
 x <- c(2, 1, 2, 3, 1, 2, 3, 4, 1, 5, 5, 3, 2, 3)
 Mode <- function(x) {
   ux <- unique(x)
   ux[which.max(tabulate(match(x, ux)))]
```

```
}
Mode(x)
character_values <- c("o","it","the","it","it")
Mode(as.factor(character_values))
```



UNIVARIATE ANALYSIS IN R - MEASURES OF DISPERSION

Exercise: 4

Download mpg dataset which contains Fuel economy data from 1999 and 2008 for 38 popular models of car from the URL given below.

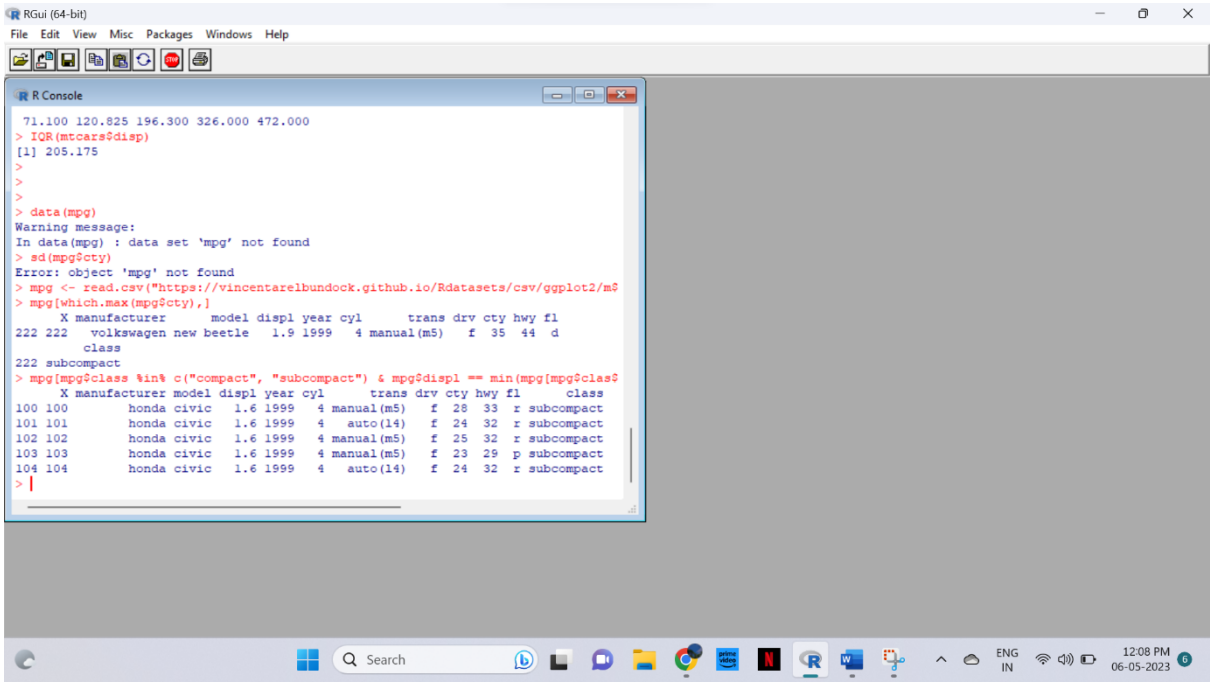
https://vincentarelbundock.github.io/Rdatasets/datasets.html

Answer the following queries

. Find the car which gives maximum city miles per gallon
. Find the cars which gives minimum disp in compact and subcompact class

CODE

```
mpg <-
read.csv("https://vincentarelbundock.github.io/Rdatasets/csv/ggplot2/mpg.csv")

 mpg[which.max(mpg$cty),]

 mpg[mpg$class %in% c("compact", "subcompact") & mpg$displ ==
min(mpg[mpg$class %in% c("compact", "subcompact"),]$displ),]
```



Exercise: 5

Use the same dataset as used in Exercise 4 and perform the following queries

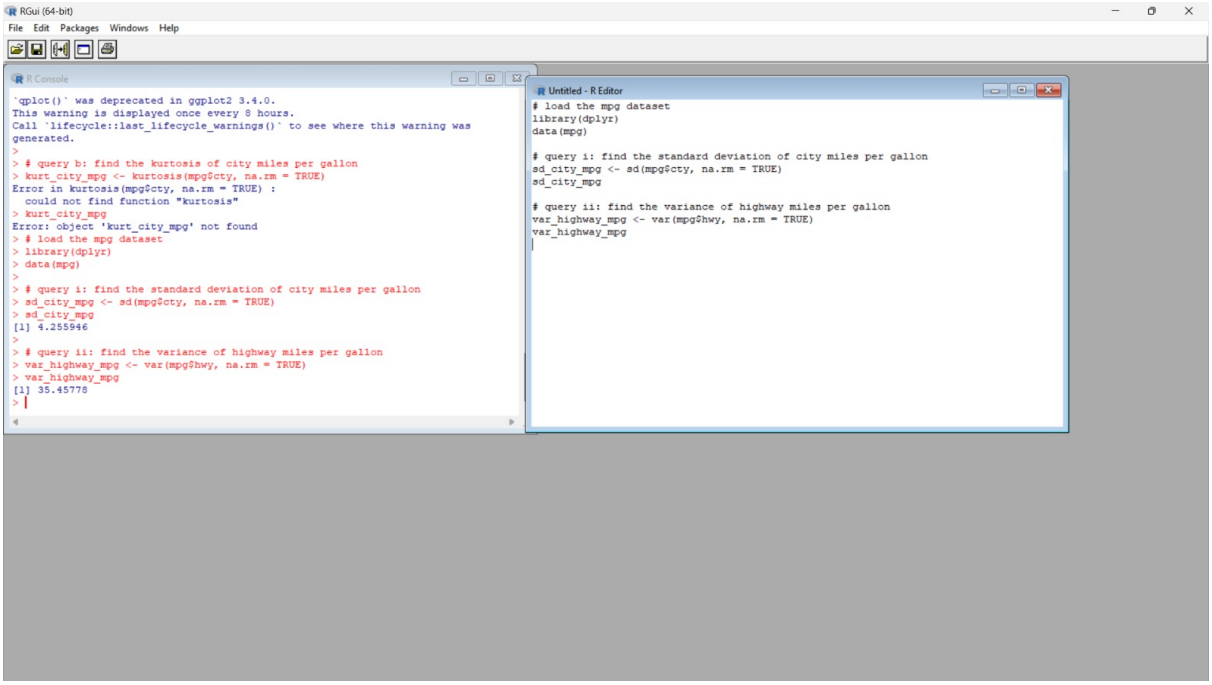
. Find the standard deviation of city milles per gallon
. Find the variance of highway milles per gallon

```
library(dplyr)

data(mpg)



sd_city_mpg <- sd(mpg$cty, na.rm = TRUE)
```

sd_city_mpg

var_highway_mpg <- var(mpg$hwy, na.rm = TRUE)

var_highway_mpg



Exercise 6

Use the same dataset and perform the following queries

. Find the range of the disp in the data set mpg
. Find the Quartile of the disp in the data set mpg
. Find the IQR of the disp column in the data set mpg

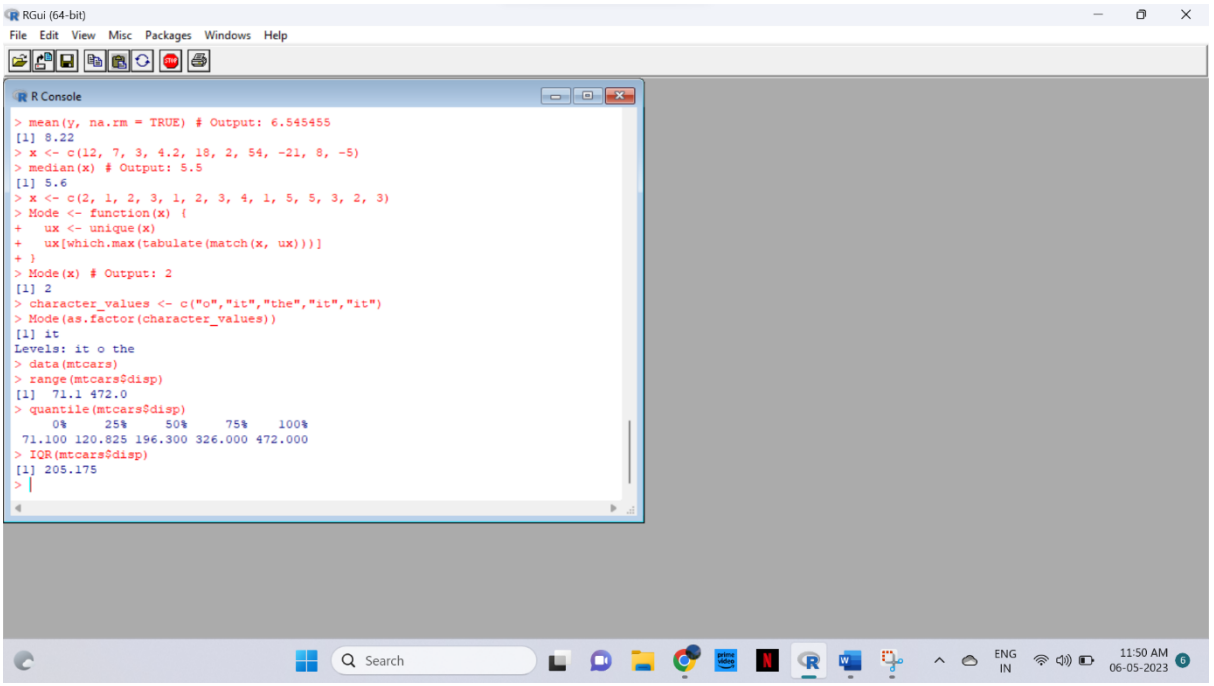
CODE

range(mtcars$disp)

range(mtcars$disp)

quantile(mtcars$disp)

IQR(mtcars$disp)



Exercise 7

#Install Library

library(e1071)

. Find the skewness of city miles per mileage in the data set mpg ?

Use qplot function and display the graph for the city miles per mileage column

b. Find the kurtosis of city miles per mileage in the data set mpg

CODE

```
library(dplyr)
data(mpg)

skew_city_mpg <- skewness(mpg$cty, na.rm = TRUE)
skew_city_mpg

library(ggplot2)
qplot(mpg$cty, geom = "histogram", binwidth = 2) +
  labs(x = "City miles per gallon", y = "Frequency")
```

kurt_city_mpg <- kurtosis(mpg$cty, na.rm = TRUE)

kurt_city_mpg