Day 3 Lab Manual

UNIVARIATE ANALYSIS IN R - MEASURES OF CENTRAL TENDENCYExercise:

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

code:-

```
values <- c(12, 7, 3, 4.2, 18, 2, 54, -21, 8, -5)

mean(values)

# Compute the mean after trimming 3 values from each end#

print("USING TRIM")

mean(values, trim = 0.3)

values <- c(12, 7, 3, 4.2, 18, 2, 54, -21, 8, -5, NA)

mean(values, na.rm = TRUE)
```

b) Compute the mean after applying the trim option and removing 3 values from eachend.

c) Compute the mean of the following vector .

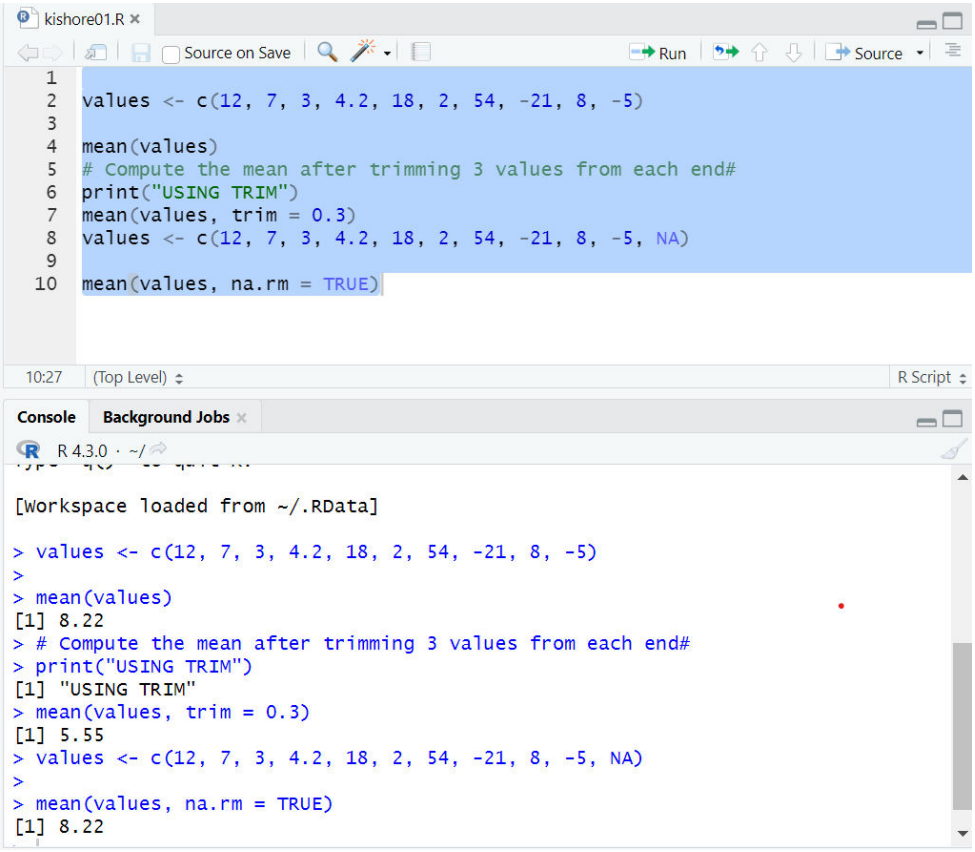
(12,7,3,4.2,18,2,54,-21,8,-5,NA)

#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

SAMPLE INPUT/OUTPUT:-



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

CODE:-

```
values <- c(12, 7, 3, 4.2, 18, 2, 54, -21, 8, -5)

median(values)
```

SAMPLE INPUT/OUTPUT:-

```
# Define a vector containing the values
values <- c(12, 7, 3, 4.2, 18, 2, 54, -21, 8, -5)

# Compute the median of the values
median(values)
```

```
> median(values)
[1] 5.6
```

III. MODE

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

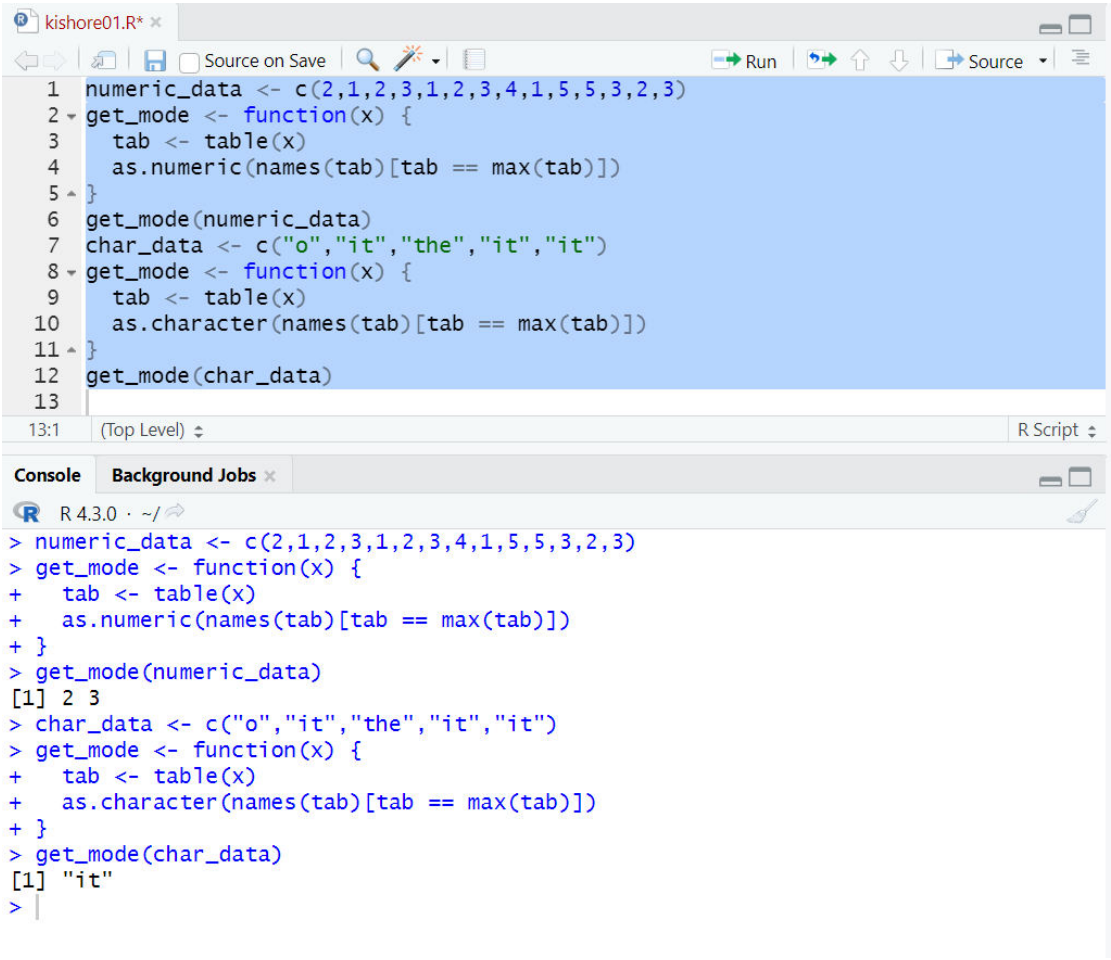
(2,1,2,3,1,2,3,4,1,5,5,3,2,3) , ("o","it","the","it","it")

UNIVARIATE ANALYSIS IN R - MEASURES OF DISPERSION

CODE:-

```
numeric_data <- c(2,1,2,3,1,2,3,4,1,5,5,3,2,3)
get_mode <- function(x) {
tab <- table(x)
as.numeric(names(tab)[tab == max(tab)])
}
get_mode(numeric_data)
char_data <- c("o","it","the","it","it")
get_mode <- function(x) {
tab <- table(x)
as.character(names(tab)[tab == max(tab)])
}
get_mode(char_data)
```

SAMPLE INPUT/OUTPUT:-



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

i) Find the car which gives maximum city miles per gallon

ii) Find the cars which gives minimum disp in compact and subcompact class

CODE:-

```
library(utils)
download.file("https://github.com/tidyverse/ggplot2/blob/main/data-raw/mpg.csv", "mpg.csv")
mpg <- read.csv("mpg.csv")
```

max_city_mpg <- max(mpg$cty)

max_city_mpg_car <- mpg[mpg$cty == max_city_mpg, "model"]

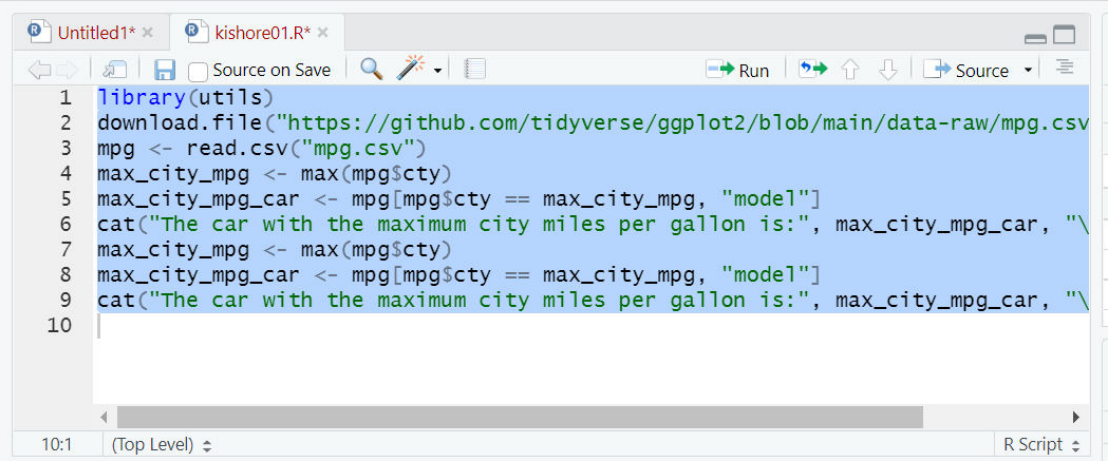
cat("The car with the maximum city miles per gallon is:", max_city_mpg_car, "\n")

max_city_mpg <- max(mpg$cty)

max_city_mpg_car <- mpg[mpg$cty == max_city_mpg, "model"]

cat("The car with the maximum city miles per gallon is:", max_city_mpg_car, "\n")

SAMPLE INPUT/OUTPUT:-



Exercise: 5

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

i) Find the standard deviation of city milles per gallon

ii) Find the variance of highway milles per gallon

Exercise 6

Use the same dataset and perform the following queries

i) Find the range of the disp in the data set mpg

ii) Find the Quartile of the disp in the data set mpg

iii) Find the IQR of the disp column in the data set mpg

Exercise 7

#Install Library

library(e1071)

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