Aim : Write a program in R for implementing mean, mode & median.

Theory :

Mean, Median, Mode are different measures of center in a numerical dataset. They each try to summarise a dataset with a single number to represent a "Typical" data point from the dataset.

Mean : The average number, found by adding all data points and dividing by the number of data points.

Example : The mean of 4, 4, 1 & 7 is :
$$(4 + 4 + 1 + 7) = 12/4 = 3$$

Median : The middle number, found by ordering all data points and picking out the one in the middle.

Example : Median of 44, 11, 77.

Inorder : 11, 44, 77

44 is mode as it is in the middle.

Mode: The most frequent number that is the number that occurs the highest number of times.

Example: The mode of {44, 22, 44, 33, 22, 22} is 22 because it occurs more than any other number.

Find the mean, mode, median for the following list:

13, 18, 13, 14, 13, 16, 14, 21, 13.

Code:

```
list ← c (13, 18, 13, 14, 13, 16, 14, 21, 13)
# Mean
sum (list) / length (list)
mean (list)
# Median
sum (list) / length (list)
sort (list)
median (list)
# Mode
y ← table (list)
names (y) [which (y == max (y))]
names (table (list)) [table (list) == max (table (list))]
```

Output :
Mean : 15
Median : 14
Mode : 13

\# Write a R program to find the Mean,
Median and Mode using mtcars dataset
Code:

→
head (mtcars)
x ← mtcars $ wt
\# Mean
mean (x)
\# Median
median (x)
\# Mode
y ← table(x)
names (y) [which (y == max(y))]
names (table(x)) [table (x) == max(table (x))]

⇒ Mean : 3.21725
Median : 3.325
Mode : 3.44

Conclusion : Hence, successfully implemented a
program in R for mean, mode and median.

Code:

```r
#Shivam Tawari A-58
list <- c(13, 18, 13, 14, 13, 16, 14, 21, 13)
#mean
sum(list)/length(list)
mean(list)

#median
sum(list)/length(list)
sort(list)
median(list)

#mode
y <- table(list)
names(y)[which(y==max(y))]
names(table(list))[table(list)==max(table(list))]
```

Output:

```
                                        input
> #Shivam Tawari A-58
> list <- c(13, 18, 13, 14, 13, 16, 14, 21, 13)
> #mean
> sum(list)/length(list)
[1] 15
> mean(list)
[1] 15
>
> #median
> sum(list)/length(list)
[1] 15
> sort(list)
[1] 13 13 13 13 14 14 16 18 21
> median(list)
[1] 14
>
> #mode
> y <- table(list)
> names(y)[which(y==max(y))]
[1] "13"
> names(table(list))[table(list)==max(table(list))]
[1] "13"
```

Code:

```r
#Shivam Tawari A-58
head(mtcars)
x <- mtcars$wt

#Mean
mean(x)

#Median
median(x)

#Mode
y <- table(x)
names(y)[which(y==max(y))]
names(table(x))[table(x)==max(table(x))]
```

Output:

```
> #Shivam Tawari A-58
> head(mtcars)
                   mpg cyl disp  hp drat    wt  qsec vs am gear carb
Mazda RX4         21.0   6  160 110 3.90 2.620 16.46  0  1    4    4
Mazda RX4 Wag     21.0   6  160 110 3.90 2.875 17.02  0  1    4    4
Datsun 710        22.8   4  108  93 3.85 2.320 18.61  1  1    4    1
Hornet 4 Drive    21.4   6  258 110 3.08 3.215 19.44  1  0    3    1
Hornet Sportabout 18.7   8  360 175 3.15 3.440 17.02  0  0    3    2
Valiant           18.1   6  225 105 2.76 3.460 20.22  1  0    3    1
> x <- mtcars$wt
>
> #Mean
> mean(x)
[1] 3.21725
>
> #Median
> median(x)
[1] 3.325
>
> #Mode
> y <- table(x)
> names(y)[which(y==max(y))]
[1] "3.44"
> names(table(x))[table(x)==max(table(x))]
[1] "3.44"
```