

MAT5007 – Applied Statistical Methods

Embedded Lab – R Statistical Software

FALL SEMESTER – 20222023

L25+L26 SLOT

E-RECORD

Experiment No.: 2

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SITE

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Experiment No. : 1 Descriptive Statistics and Interpretation of the Results

Assignment 1: Collect at least 60 students and analyze the data by using descriptive statistics and interpret the results.

R code:

```
> x
[1] 38 7 10 41 21 28 38 50 10 17 20 49 28 46 26 34 43 11 15 25 31 6 37
[24] 28 21 50 27 4 39 2 47 2 28 0 10 40 21 0 48 21 45 11 45 19 41 37
[47] 38 11 37 6 32 37 12 12 20 50 35 12 31 50
```

```
> mean(x)
[1] 26.66667
> median(x)
[1] 28
```

Mode:

```
> xt=table(x)
> xt
x
 0  2  4  6  7 10 11 12 15 17 19 20 21 25 26 27 28 31 32 34 35 37 38 39 40 41 43 45 46 47 48 49
2  2  1  2  1  3  3  3  1  1  1  2  4  1  1  1  4  2  1  1  1  4  3  1  1  2  1  2  1  1  1  1
50
4
> mode(xt)
[1] "numeric"
> mode=which(xt==max(xt))
> mode
21 28 37 50
13 17 22 33
```

Summary

```
> summary(x)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   0.00   12.00   28.00   26.67   38.25   50.00
```

Variance and SD:

```
> var(x)
[1] 232.6328
> sd=sqrt(var(x))
> sd
[1] 15.2523
```

Coefficient Of Quartile Deviation:

```
> cqd=(38.25-12.00)/(38.25+12.00)
> cqd
[1] 0.5223881
```

Measure of Skewness and Kurtosis:

```
> n=length(x)
> n
[1] 60
> mean=mean(x)
> mean
[1] 26.66667
> m4=sum((x-mean)^4)/n
> m4
[1] 93547.43
> m2=var(x)
> m2
[1] 232.6328
> beta2
[1] 1.728582
> gam2=beta2-3
> gam2
[1] -1.271418
```

Mean Deviation about Mean:

```
> z =abs(x-median(x))
> md1=sum(y)/length(y)
> md1
[1] 26.66667
> md2=sum(z)/length(z)
> md2
[1] 13.1
```