Finolex Academy of Management and Technology, Ratnagiri

Department of Information Technology

Subject:	**R Programming Lab. (ITL804)**		
Class:	**BE IT / Semester – VIII (Rev-2016) / Academic year: 2019-20**		
Name of Student:	**Kazi Jawwad A Rahim**		
Roll No:	**28**	**Date of performance (DOP) :**	
Assignment/Experiment No:	**04**	**Date of checking (DOC) :**	
Title: Exploratory data analysis such as- Range, summary, mean, variance, median, standard deviation, histogram, boxplot, scatterplot			
Marks:		**Teacher's Signature:**	

1. Aim: To understand the exploratory data analysis and the methods required to do it in R.

2. Prerequisites:

1. Basics of R programming, various data structures, functions etc.

3. Hardware Requirements:

1. PC with minimum 2GB RAM

4. Software Requirements:

1. Windows / Linux OS.
2. R version 3.6 or higher

5. Learning Objectives:

1. To understand decision and loop control instructions.
2. To understand function definition and calling to it.

6. Learning Objectives Applicable: LO 3. LO 4

7. Program Outcomes Applicable: PO 2, PO 3

8. Program Education Objectives Applicable: PEO 2, PEO 3

Range:

```
a=c(1,5,7,8,9,6,4,9,5,8,9,6)
range(a)
```

OUTPUT:

```
[1] 1 9
```

Summary:

```
a=c(1,5,7,8,9,6,4,9,5,8,9,6)
summary(a)
```

OUTPUT:

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  1.000   5.000   6.500   6.417   8.250   9.000
```

Mean:

```
a=c(1,5,7,8,9,6,4,9,5,8,9,6)
mean(a)
```

OUTPUT:

```
[1] 6.416667
```

Mode:

```
a=c(1,5,7,8,9,6,4,9,5,8,9,6)
table(a)
```

OUTPUT:

```
a
1 4 5 6 7 8 9
1 1 2 2 1 2 3
```

=> Mode=9

Median:

```
a=c(1,5,7,8,9,6,4,9,5,8,9,6)
median(a)
```

OUTPUT:

```
[1] 6.5
```

Variance:

```
a=c(1,5,7,8,9,6,4,9,5,8,9,6)
var(a)
```

OUTPUT:

```
[1] 5.901515
```

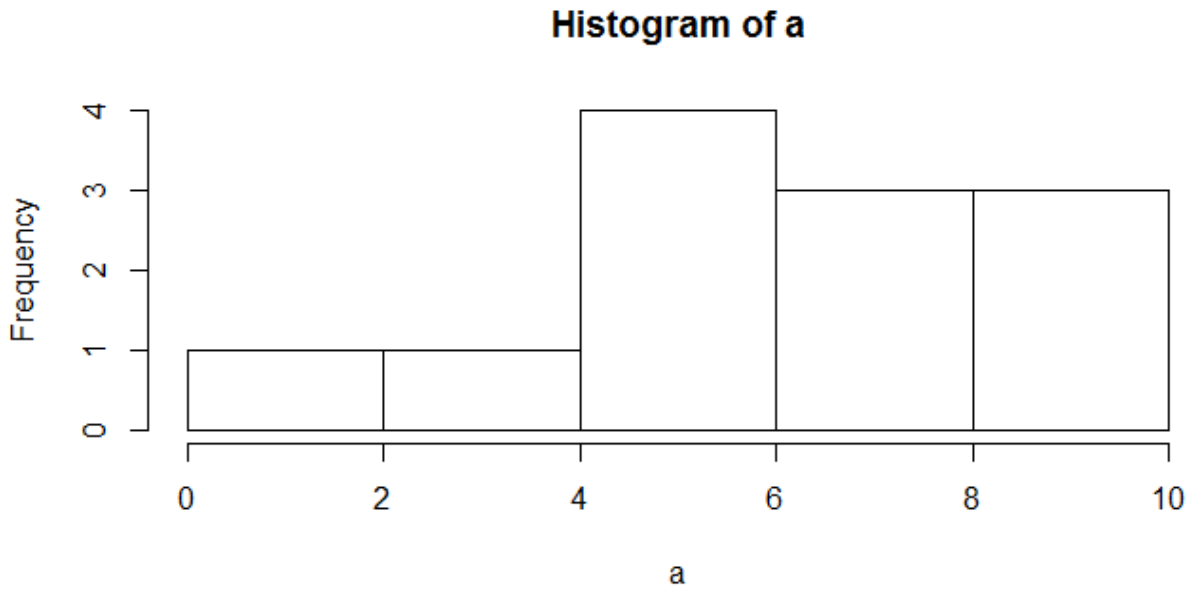
Standard Deviation:

```
a=c(1,5,7,8,9,6,4,9,5,8,9,6)
sqrt(var(a))
```

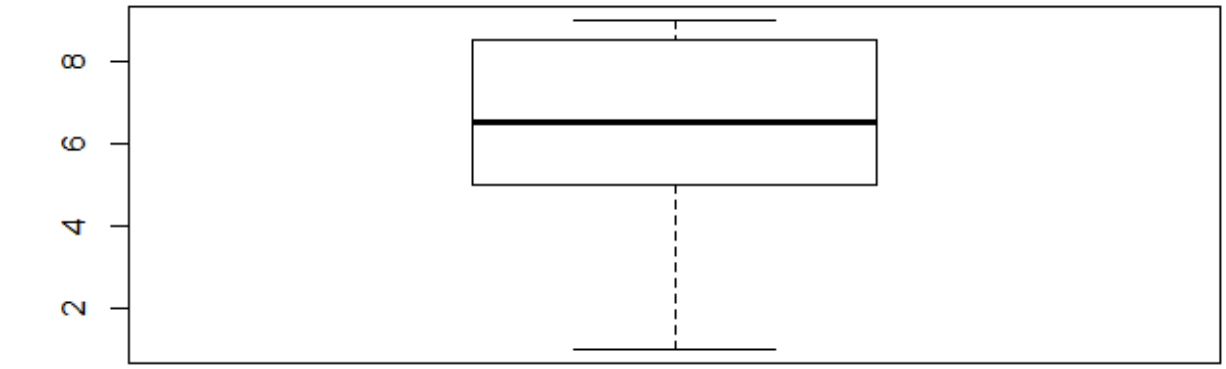
OUTPUT:

[1] 2.429303

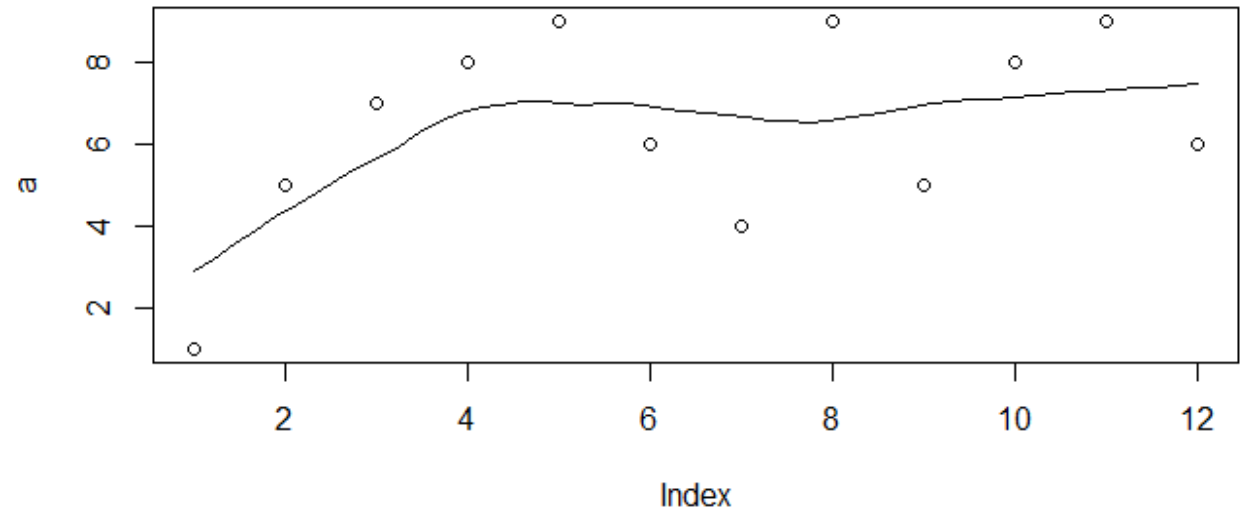
Histogram:



Boxplot:



Scatterplot:



Learning Outcomes Achieved:

1. We understood decision and loop control instructions.
2. We understood the function definition and it's calling.

Conclusion:

We have successfully demonstrated the data analysis such as- Range, summary, mean, variance, median, standard deviation, histogram, boxplot, scatterplot.

13. Experiment/Assignment Evaluation

Experiment/Assignment Evaluation:				
Sr. No.	**Parameters**		**Marks obtained**	**Out of**
1	Technical Understanding (Assessment may be done based on Q & A **or** any other relevant method.) Teacher should mention the other method used -			6
2	Neatness/presentation			2
3	Punctuality			2
Date of performance (DOP)		**Total marks obtained**		**10**
Date of checking (DOC)		**Signature of teacher**		

References:

1. URL: https://cran.r-project.org/doc/manuals/r-release/R-intro.pdf (Online Resources)
2. R Cookbook Paperback – 2011 by Teetor Paul O Reilly Publications
3. Beginning R: The Statistical Programming Language by Dr. Mark Gardener, Wiley Publications
4. R Programming For Dummies by Joris Meys Andrie de Vries, Wiley Publications

Viva Questions

1. What is exploratory data analysis ?
2. What is summary of the data ?
3. What is importance of median of the data collection ?
4. What is histogram? Why is it important in data?
5. What information does the box plot provides?
6. List various R library functions used in exploratory data analysis.