



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:	05	Date of checking (DOC) :	
Title: Working with graphics and tables			
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 for data sets.

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 various graphical visualization of data sets.
2. To understand the use of tables.

6. Learning Objectives Applicable: LO 5

7. Program Outcomes Applicable: PO 4, PO 5

8. Program Education Objectives Applicable: PEO 3, PEO 4



Theory:

Graphics in R:

R programming language has numerous libraries to create charts and graphs.

Pie chart:

A pie-chart is a representation of values as slices of a circle with different colours. The slices are labeled and the no. corresponding to each slice is also represented in the chart.

In R, the pie chart is created using the `pie` function which takes positive numbers as a vector input. The additional parameters are used to control labels, color, title, etc.

Syntax:

```
pie(x, labels, radius, main, col, clockwise)
```

Scatterplots:

Scatterplots shows many points in the cartesian plane. Each point represents the values of two variables. One variable is chosen in the horizontal axis and another in the vertical axis. The simplest scatterplot is created using the `plot()` function.

Syntax:

```
plot(x, y, main, xlab, ylab, xlim, ylim, axes)
```



Pairs:

Parameter calculation is based on the construction of a paired comparison matrix, M_{ij} , with entries representing the number of respondents, who answered to item i in category C and to item j in category C-1.

Syntax:

```
pair(datem, m=NULL, w=NULL, pot=TRUE,  
zeroes=TRUE, ccf=FALSE, ...)
```

Table:

Table uses the cross-classifying factors to build a contingency table of the counts at each combination of factor levels.

e.g.:

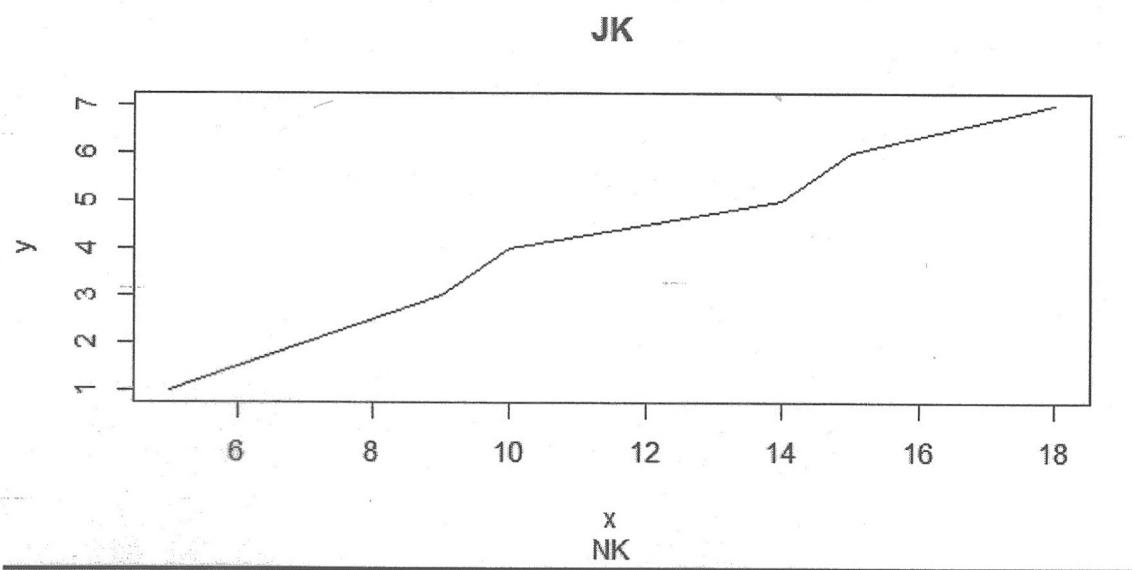
```
B=matrix(c(1:9), nrow=3, byrow=TRUE)  
t=as.table(B)  
print(t)  
plot(t)
```

10. Results:

Plot:

```
x=c(5,7,9,10,14,15,18)  
y=c(1,2,3,4,5,6,7)  
plot(x,y,'l',main="JK",sub="NK")
```

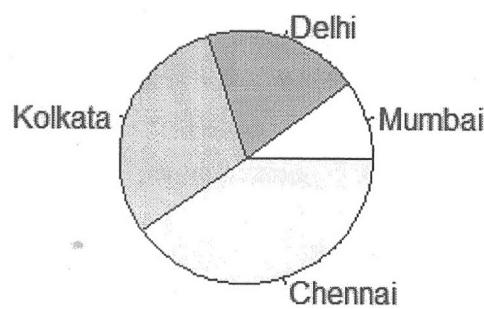
OUTPUT:



Pie Charts:

```
x1=c(21,42,63,84)  
labels=c("Mumbai","Delhi","Kolkata","Chennai")  
pie(x1,labels)
```

OUTPUT:



Pairs:

```
x2=1:5  
y2=x2**2  
z2=c(2,1,3,9,2)  
A=cbind(x2,y2,z2)  
pairs(A)
```

OUTPUT:

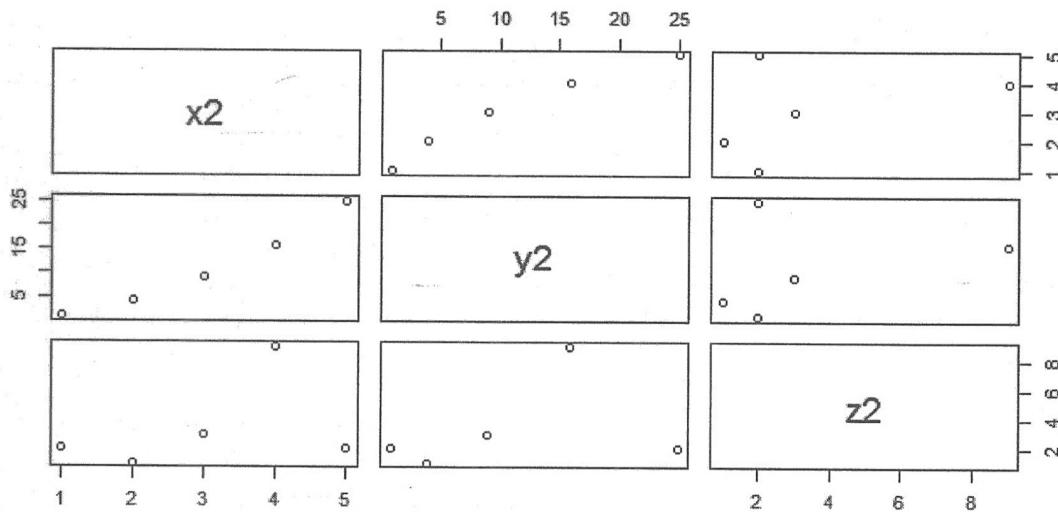


Table:

```
B=matrix(c(1:9),nrow=3,byrow=TRUE)  
t=as.table(B)  
print(t)  
plot(t)
```

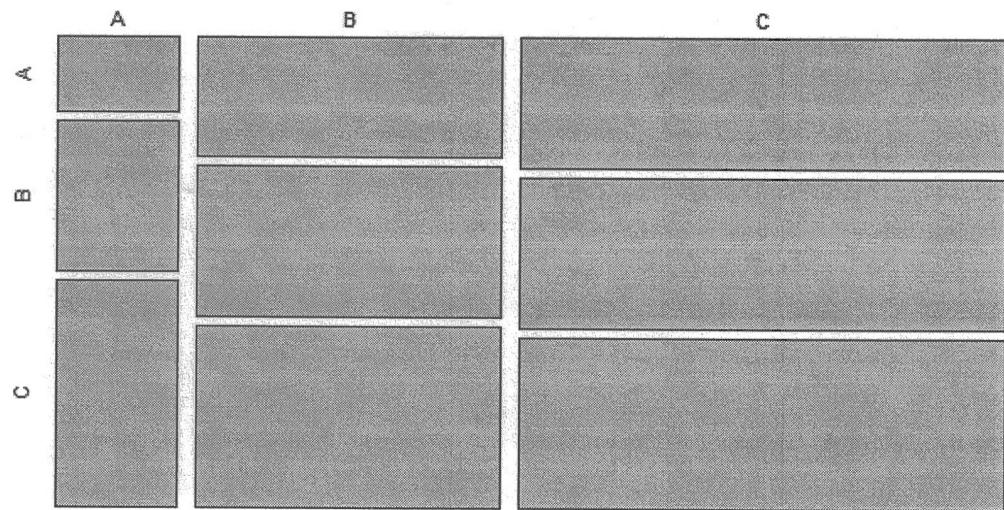
OUTPUT:

A B C

A 1 2 3

B 4 5 6

C 7 8 9



11. Learning Outcomes Achieved:

1. We understood various graphical visualization of data sets.
2. We understood the use of tables.

12. Conclusion:

We have successfully demonstrated the exploratory data analysis and the methods required to do it in R. We have also demonstrated various graphics methods such as scatterplots, pairs, pie charts and Tables.

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 <u>or</u> 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 are different data visualization command and functions in R?
2. What is table?
3. How table is different than data frame?