Day 3 Lab Manual Part 2

BIVARIATEANALYSIS IN R -COVARIANCE, CORRELATION, CROSSTAB

Exercise: 8

```
  Reference   Status Gender  TestNewOrFollowUp
1       KRXH Accepted Female Test1           New
2       KRPT Accepted   Male Test1           New
3       FHRA Rejected   Male Test2           New
4       CZKK Accepted Female Test3           New
5       CQTN Rejected Female Test1           New
6       PZXW Accepted Female Test4     Follow-up
7       SZRZ Rejected   Male Test4           New
8       RMZE Rejected Female Test2           New
9       STNX Accepted Female Test3           New
10      TMDW Accepted Female Test1           New
```

i) Load the dataset and Create a data frame and name it as dataframe1

ii) Load the function for crosstab

Note: Perform status+gender

```
          Gender
Status     Female Male
  Accepted      5    1
  Rejected      2    2
```

Note: Reference+Status

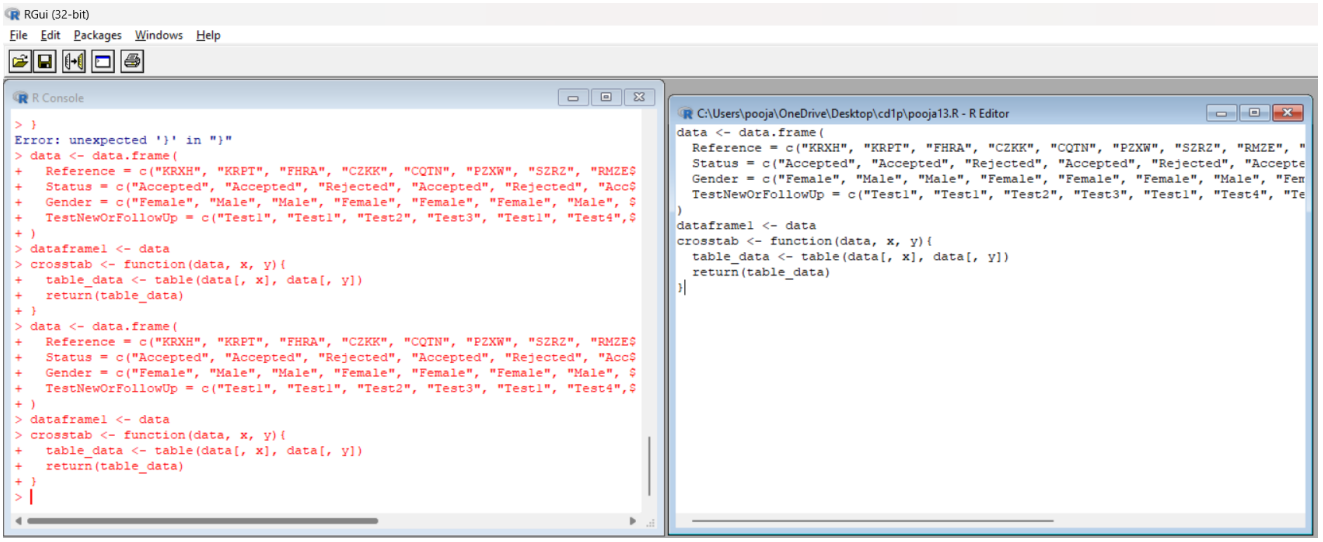
```
         Status
Reference Accepted Rejected
     CQTN        0        1
     CZKK        1        0
     FHRA        0        1
     KRPT        1        0
     KRXH        1        0
     PZXW        1        0
     RMZE        0        1
     STNX        1        0
     SZRZ        0        1
     TMDW        1        0
```

coding:

```
data <- data.frame(
  Reference = c("KRXH", "KRPT", "FHRA", "CZKK", "CQTN", "PZXW", "SZRZ", "RMZE", "STNX", "T
  Status = c("Accepted", "Accepted", "Rejected", "Accepted", "Rejected", "Accepted", "Rejected", "Rejected
"Accepted"),
  Gender = c("Female", "Male", "Male", "Female", "Female", "Female", "Male", "Female", "Female", "Fema
  TestNewOrFollowUp = c("Test1", "Test1", "Test2", "Test3", "Test1", "Test4", "Test4", "Test2", "Test3", "Te
```

```
)
dataframe1 <- data
crosstab <- function(data, x, y){
  table_data <- table(data[, x], data[, y])
  return(table_data)
}
```

output:



Exercise: 9

i) Use Two Categorical Variables and Discover the relationships within a dataset

ii) Next, using the xtabs() function, apply two variables from “dataframe1 “, to create a table delineating the relationship between the “Reference” category, and the “Status” category.

iii) Save the file in the name of dataframe2

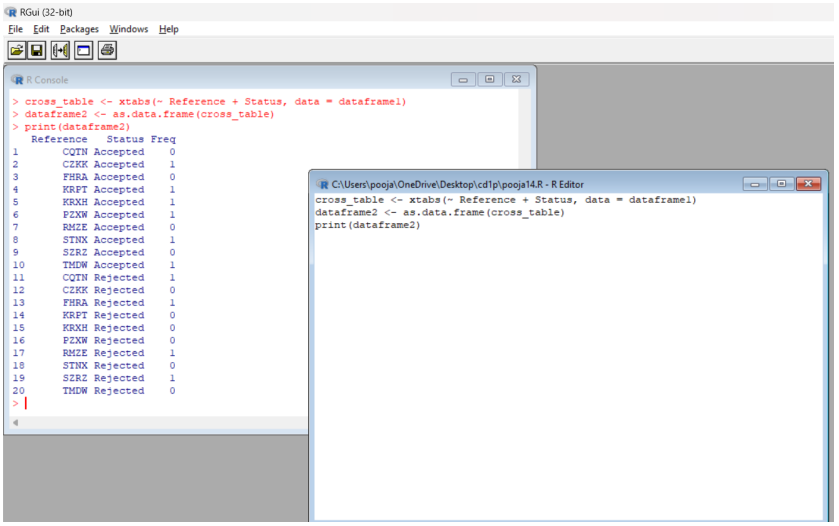
coding:

```
cross_table <- xtabs(~ Reference + Status, data = dataframe1)

dataframe2 <- as.data.frame(cross_table)

print(dataframe2)
```

output:



Exercise: 10

Use the same data frame using three Categorical Variables create a Multi-Dimensional Table

Apply three variables from "dataframe1" to create a Multi-Dimensional Cross-Tabulation of "Status", "Gender", and "Test".

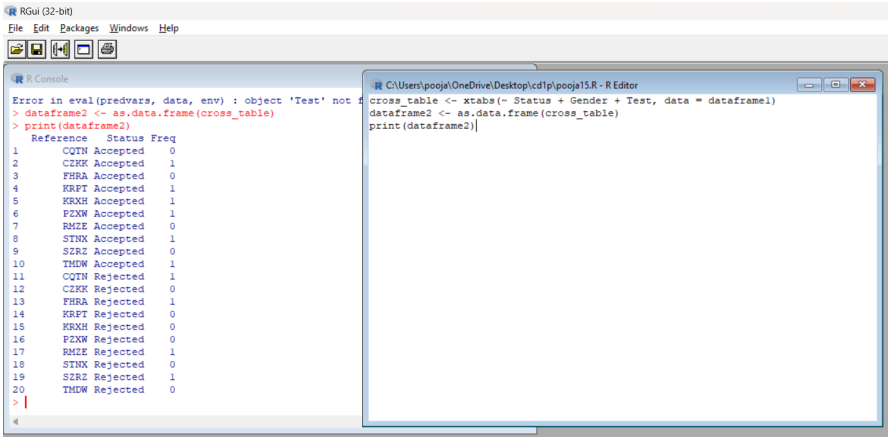
coding:

```
cross_table <- xtabs(~ Status + Gender + Test, data = dataframe1)

dataframe2 <- as.data.frame(cross_table)

print(dataframe2)
```

output:



Exercise: 11

Row Percentages

The R package "tigerstats" is required for the next two exercises.

1) Create an xtabs() formula that cross-tabulates “Status“, and “Test“.

2) Enclose the xtabs() formula in the tigerstats function, “rowPerc()” to display row percentages for “Status” by “Test“

Exercise 12

Column Percentages

1) Create an xtabs() formula that cross-tabulates “Status“, and “Test“.

2) Enclose the xtabs() formula in the tigerstats function, “colPerc()” to display row percentages for “Status” by “Test“.

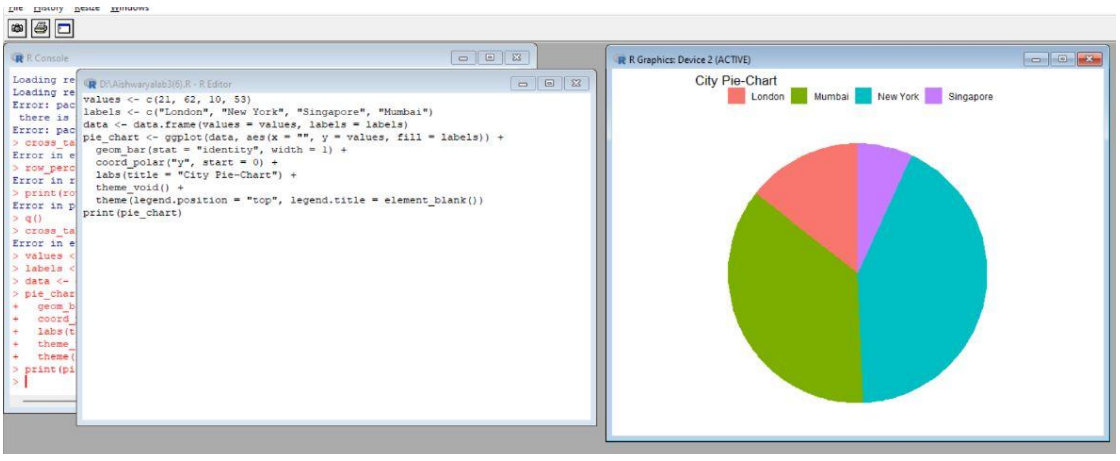
VISUALIZATION IN R

13. Write a program for creating a pie-chart in R using the input vector(21,62,10,53). Provide labels for the chart as ‘London’, ‘New York’, ‘Singapore’, ‘Mumbai’. Add a title to the chart as ‘city pie-chart’ and add a legend at the top right corner of the chart.

    coding:

```
values <- c(21, 62, 10, 53)
labels <- c("London", "New York", "Singapore", "Mumbai")
data <- data.frame(values = values, labels = labels)
pie_chart <- ggplot(data, aes(x = "", y = values, fill = labels)) +
  geom_bar(stat = "identity", width = 1) +
  coord_polar("y", start = 0) +
  labs(title = "City Pie-Chart") +
  theme_void() +
  theme(legend.position = "top", legend.title = element_blank())
print(pie_chart)
```

    output:

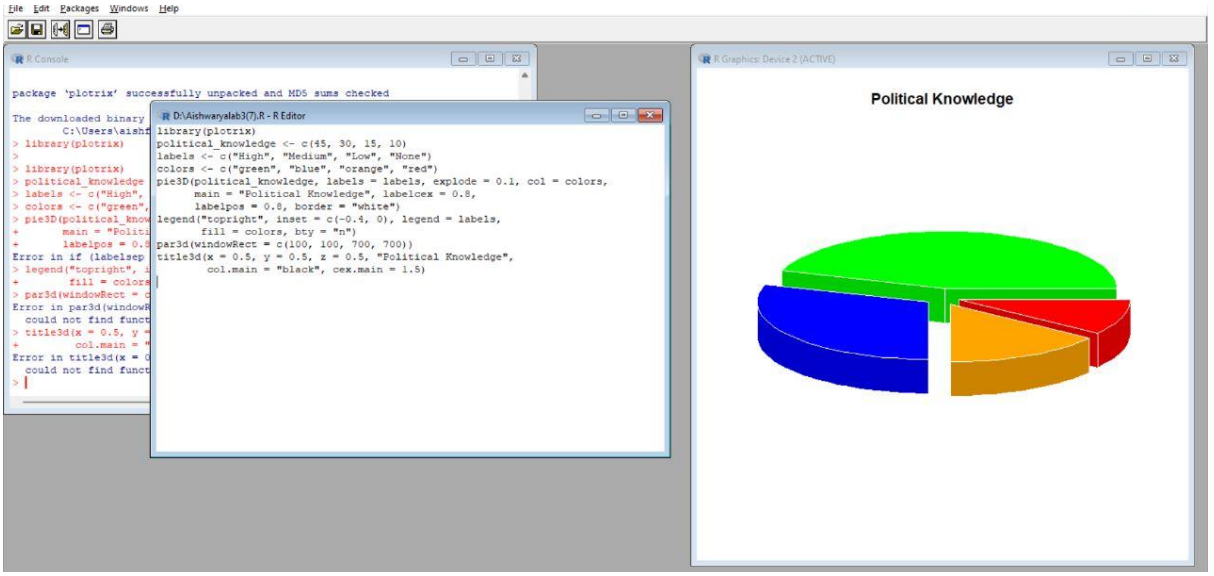


14. Create a 3D Pie Chart for the dataset “political Knowledge” with suitable labels,colours and a legend at the top right corner of the chart.

coding:

```
library(plotrix)
political_knowledge <- c(45, 30, 15, 10)
labels <- c("High", "Medium", "Low", "None")
colors <- c("green", "blue", "orange", "red")
pie3D(political_knowledge, labels = labels, explode = 0.1, col = colors,
      main = "Political Knowledge", labelcex = 0.8,
      labelpos = 0.8, border = "white")
legend("topright", inset = c(-0.4, 0), legend = labels,
       fill = colors, bty = "n")
par3d(windowRect = c(100, 100, 700, 700))
title3d(x = 0.5, y = 0.5, z = 0.5, "Political Knowledge",
        col.main = "black", cex.main = 1.5)
```

output:



15. Write a program for creating a bar chart using the vectors H=c(7,12,28,3,41) and M=c(“mar”, “apr”, “may”, “jun”, “jul”). Add a title to the chart as “Revenue chart”.

16. Make a histogram for the “AirPassengers“dataset, start at 100 on the x-axis, and from values 200 to 700, make the bins 200 wide

17. Create a Boxplot graph for the relation between "mpg"(miles per galloon) and "cyl"(number of Cylinders) for the dataset "mtcars" available in R Environment.