

OSBO A Assignment 7: Graph plotting

* Aim: Visualize the data using R by plotting the graph for air quality dataset & Facebook dataset (scatterplot, bar plot, box plot, pie chart, line plot)

* Theory:

Q1) What is package in R? Explain steps to download / install a package.

Ans: i) R packages are a collection of R Functions, compiled code & sample data. They are stored under library in R environment.

ii) By default, R installs a set of packages during installation. More packages are added later as and when needed.

iii) Installing a package:

a) install from CRAN: Following command fetches the package from CRAN & installs the package in R environment.

`install.package("package name")`

b) install manually: `install.packages(path, repos = null)`

Q2) Explain the ggplot2 package.

Ans: i) ggplot2 is a system for declaratively creating graphics based on the grammar of the graphics.

ii) We provide data, tell ggplot how to map data to aesthetics, what graphical primitives to use & it will take care of the details.

iii) ggplot2 supports following plots:

- scatter plot
- box plot
- pie chart
- bar graph
- line plot

iv) installation: `install.packages("ggplot2")`

Q3) Explain following functions in R:

Ans: a) `aes()`: Aesthetic mappings define how variables in the data are mapped to visual properties of geoms.

eg. `aes(x, y, ...)`

b) `geom_boxplot()`: boxplot compactly displays the distribution of

a continuous variable. It visualises 5 summary statistics (median, two hinges and two whiskers).

c) `geom_point()`: Used to create scatter plots. Useful for displaying relationship between two continuous variables.

d) `geom_bar()`: makes the height of the bar proportional to the number of cases in each group.

* Conclusion: This graph plotting for Facebook & air quality datasets has been implemented.

Plots.R

```
facebookData <- read.csv("F:/College Assignements/DSBDA/Assignment 1 Group
B/dataset_Facebook.csv", sep = ";")

library("ggplot2")

# Scatterplot

scatterPlot <- ggplot(facebookData, aes(x = Lifetime.Post.Total.Reach, y =
Lifetime.Post.Total.Impressions))+ geom_point(color="salmon")

scatterPlot

# Barplot

barPlot <- ggplot(facebookData, aes(x = Type)) + geom_bar(color="blue",
fill="blue")

barPlot

# pie chart

pieChart <- pie(table(facebookData$Type), labels =
c("Link","Photo","Status","Video"))

pieChart

# Lineplot

linePlot <- ggplot(facebookData, aes(x = Lifetime.Post.Total.Reach, y =
Lifetime.Post.Total.Impressions, color=Type)) + geom_line(color="orange")

linePlot

# Boxplot

boxPlot <- ggplot(facebookData, aes(x = Type, y = like)) +
geom_boxplot(color="blue")

boxPlot

data("airquality")

airquality$Ozone[is.na(airquality$Ozone)] <- mean(airquality$Ozone, na.rm =
TRUE)

airquality$Solar.R[is.na(airquality$Solar.R)] <- mean(airquality$Solar.R,
na.rm = TRUE)

airQuality$Month <- month.abb[airQuality$Month]
```

```
# Scatterplot
```

```
scatterPlotAQ <- ggplot(airquality, aes(x = Solar.R, y = Ozone)) +  
geom_point(color="salmon")
```

```
scatterPlotAQ
```

```
# Barplot
```

```
barPlotAQ <- ggplot(airquality, aes(x = Ozone)) + geom_bar(fill="blue",  
color="blue")
```

```
barPlotAQ
```

```
pieChartAQ <- ggplot(airQuality, aes(x="", y=Ozone, fill = Month)) +  
geom_bar(width = 0.2, stat = "identity") + coord_polar("y", start = 0) +  
theme_void()
```

```
pieChartAQ
```

```
# Lineplot
```

```
linePlotAQ <- ggplot(airquality, aes(x = Wind, y = Temp)) +  
geom_line(color="orange")
```

```
linePlotAQ
```

```
boxPlotAQ <- ggplot(airQuality, aes(x = Temp, y = Ozone)) +  
geom_boxplot(color="blue")
```

```
boxPlotAQ
```

Output Plots









