**Lab Graphs**

**Pie Chart Using R**

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

Following is the description of the parameters used −

* **x** is a vector containing the numeric values used in the pie chart.
* **labels** is used to give description to the slices.
* **radius** indicates the radius of the circle of the pie chart.(value between −1 and +1).
* **main** indicates the title of the chart.
* **col** indicates the color palette.
* **clockwise** is a logical value indicating if the slices are drawn clockwise or anti clockwise.

**Example 1**

# Create data for the graph.

x <- c(21, 62, 10, 53)

labels <- c("London", "New York", "Singapore", "Mumbai")

# Give the chart file a name.

png(file = "city.jpg")

# Plot the chart.

pie(x,labels)

# Save the file.

dev.off()

**#Example 2**

# Create data for the graph.

x <- c(21, 62, 10, 53)

labels <- c("London", "New York", "Singapore", "Mumbai")

# Give the chart file a name.

png(file = "city\_title\_colours.jpg")

# Plot the chart with title and rainbow color pallet.

pie(x, labels, main = "City pie chart", col = rainbow(length(x)))

# Save the file.

dev.off()

**#Example 3**

# Create data for the graph.

x <- c(21, 62, 10,53)

labels <- c("London","New York","Singapore","Mumbai")

piepercent<- round(100\*x/sum(x), 1)

# Give the chart file a name.

png(file = "city\_percentage\_legends.jpg")

# Plot the chart.

pie(x, labels = piepercent, main = "City pie chart",col = rainbow(length(x)))

legend("topright", c("London","New York","Singapore","Mumbai"), cex = 0.8,

fill = rainbow(length(x)))

# Save the file.

dev.off()

**#Example 4**

# Get the library.

library(plotrix)

# Create data for the graph.

x <- c(21, 62, 10,53)

lbl <- c("London","New York","Singapore","Mumbai")

# Give the chart file a name.

png(file = "3d\_pie\_chart.jpg")

# Plot the chart.

pie3D(x,labels = lbl,explode = 0.1, main = "Pie Chart of Countries ")

# Save the file.

dev.off()

**Barplot using R**

barplot(H,xlab,ylab,main, names.arg,col)

Following is the description of the parameters used −

* **H** is a vector or matrix containing numeric values used in bar chart.
* **xlab** is the label for x axis.
* **ylab** is the label for y axis.
* **main** is the title of the bar chart.
* **names.arg** is a vector of names appearing under each bar.
* **col** is used to give colors to the bars in the graph.

**#Example 1**

# Create the data for the chart

H <- c(7,12,28,3,41)

# Give the chart file a name

png(file = "barchart.png")

# Plot the bar chart

barplot(H)

# Save the file

dev.off()

**#Example 2**

# Create the data for the chart

H <- c(7,12,28,3,41)

M <- c("Mar","Apr","May","Jun","Jul")

# Give the chart file a name

png(file = "barchart\_months\_revenue.png")

# Plot the bar chart

barplot(H,names.arg=M,xlab="Month",ylab="Revenue",col="blue",

main="Revenue chart",border="red")

# Save the file

dev.off()

**#Example 3**

# Create the input vectors.

colors = c("green","orange","brown")

months <- c("Mar","Apr","May","Jun","Jul")

regions <- c("East","West","North")

# Create the matrix of the values.

Values <- matrix(c(2,9,3,11,9,4,8,7,3,12,5,2,8,10,11), nrow = 3, ncol = 5, byrow = TRUE)

# Give the chart file a name

png(file = "barchart\_stacked.png")

# Create the bar chart

barplot(Values, main = "total revenue", names.arg = months, xlab = "month", ylab = "revenue", col = colours)

# Add the legend to the chart

legend("topleft", regions, cex = 1.3, fill = colours)

# Save the file

dev.off()

**Boxplots Using R**

boxplot(x, data, notch, varwidth, names, main)

Following is the description of the parameters used −

* **x** is a vector or a formula.
* **data** is the data frame.
* **notch** is a logical value. Set as TRUE to draw a notch.
* **varwidth** is a logical value. Set as true to draw width of the box proportionate to the sample size.
* **names** are the group labels which will be printed under each boxplot.
* **main** is used to give a title to the graph.

**#Example 1**

input <- mtcars[,c('mpg','cyl')]

print(head(input))

**Results 1**

mpg cyl

Mazda RX4 21.0 6

Mazda RX4 Wag 21.0 6

Datsun 710 22.8 4

Hornet 4 Drive 21.4 6

Hornet Sportabout 18.7 8

Valiant 18.1 6

**#Example 2**

# Give the chart file a name.

png(file = "boxplot.png")

# Plot the chart.

boxplot(mpg ~ cyl, data = mtcars, xlab = "Number of Cylinders",

ylab = "Miles Per Gallon", main = "Mileage Data")

# Save the file.

dev.off()

**Example 3**

# Give the chart file a name.

png(file = "boxplot\_with\_notch.png")

# Plot the chart.

boxplot(mpg ~ cyl, data = mtcars,

xlab = "Number of Cylinders",

ylab = "Miles Per Gallon",

main = "Mileage Data",

notch = TRUE,

varwidth = TRUE,

col = c("green","yellow","purple"),

names = c("High","Medium","Low")

)

# Save the file.

dev.off()

**Histogram Using R**

hist(v,main,xlab,xlim,ylim,breaks,col,border)

Following is the description of the parameters used −

* **v** is a vector containing numeric values used in histogram.
* **main** indicates title of the chart.
* **col** is used to set color of the bars.
* **border** is used to set border color of each bar.
* **xlab** is used to give description of x-axis.
* **xlim** is used to specify the range of values on the x-axis.
* **ylim** is used to specify the range of values on the y-axis.
* **breaks** is used to mention the width of each bar.

**Example 1**

# Create data for the graph.

v <- c(9,13,21,8,36,22,12,41,31,33,19)

# Give the chart file a name.

png(file = "histogram.png")

# Create the histogram.

hist(v,xlab = "Weight",col = "yellow",border = "blue")

# Save the file.

dev.off()

**Example 2**

# Create data for the graph.

v <- c(9,13,21,8,36,22,12,41,31,33,19)

# Give the chart file a name.

png(file = "histogram\_lim\_breaks.png")

# Create the histogram.

hist(v,xlab = "Weight",col = "green",border = "red", xlim = c(0,40), ylim = c(0,5),

breaks = 5)

# Save the file.

dev.off()

**```{r nice-fig, fig.cap='Here is a nice figure!', out.width='80%', fig.asp=.75, fig.align='center'}**

**H <- c(8,8,14)**

**M <- c("A","B","C")**

**barplot(H,names.arg=M,xlab="Month",ylab="Revenue",col="blue",**

**main="Revenue chart",border="red")**

**```**