Graphics

Graph basics

- plot.new()
- plot.window(xlim=c(0,10), ylim=c(0,10))
- abline(a=2, b=1)
- axis(1)
- axis(2)
- title(main="The Overall Title")
- title(xlab="An x-axis label")
- title(ylab="A y-axis label")
- x<-1:10
- y<-1:10
- points(x,y)
- box()

plot

- **plot.new()** signals to R that a new plot is to be produced. This will open a new graphics window if there is none open, otherwise an existing window is readied to hold the new plot.
- **plot.window()** : sets the limits for the x and y coordinates in the graph. xlim and ylim are x and y ranges
- **abline(6,1)** :draws a line with intercept 6 and slope 1 across the graph.

```
#draws vertical lines at the x values
 abline(v=1:4)
#draws horizontal lines across the plot at y values
 abline(h=1:4)
#lty   and twd control the line type and line width
```

- **axis(1)** draws the x-axis.
- **axis(2)** draws the y-axis.
- **title()** : used to add annotation.
- **box()** : draws a box around the graph

Drawing Straight Lines Across A Plot

```
#draws vertical lines at the x values
 abline(v=1:4)

 #draws horizontal lines across the
   plot at y values
 abline(h=1:4)
```

plot

Adding Points To A Plot

points(x, y)

Adding Connected Line Segments To A Plot

lines(x, y)

Pie charts

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

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

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

Give the chart file a name.

- jpeg(file = “chart1.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)))

Bar Plot

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

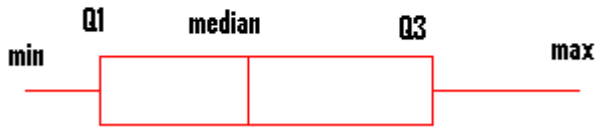
Box Plot

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

- 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.

Box Plot

- A simple way of representing statistical data on a plot in which a rectangle is drawn to represent the second and third quartiles, usually with a vertical line inside to indicate the median value. The lower and upper quartiles are shown as horizontal lines either side of the rectangle.



Histogram

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

Line Graphs

- plot(v,type,col,xlab,ylab)
- v is a vector containing the numeric values.
- type takes the value "p" to draw only the points, "i" to draw only the lines and "o" to draw both points and lines.
- xlab is the label for x axis.
- ylab is the label for y axis.
- main is the Title of the chart.
- col is used to give colors to both the points and lines.

Scatter Plots

- plot(x, y, main, xlab, ylab, xlim, ylim, axes)
- x is the data set whose values are the horizontal coordinates.
- y is the data set whose values are the vertical coordinates.
- main is the tile of the graph.
- xlab is the label in the horizontal axis.
- ylab is the label in the vertical axis.
- xlim is the limits of the values of x used for plotting.
- ylim is the limits of the values of y used for plotting.
- axes indicates whether both axes should be drawn on the plot.