# M2.3: Data Visualization

# Barcharts

A bar chart represents data in rectangular bars with length of the bar proportional to the value of the variable. R uses the function **barplot()** to create bar charts. R can draw both vertical and Horizontal bars in the bar chart. In bar chart each of the bars can be given different colors.

**Syntax**

The basic syntax to create a bar-chart in R is —

```
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.

A simple bar chart is created using just the input vector and the name of each bar.

The below script will create and save the bar chart in the current R working directory.

```
# 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()
```

**Bar Chart Labels, Title and Colors**

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The features of the bar chart can be expanded by adding more parameters. The **main** parameter is used to add **title**. The **col** parameter is used to add colors to the bars. The **args.name** is a vector having same number of values as the input vector to describe the meaning of each bar.

The below script will create and save the bar chart in the current R working directory.

```
# 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()
```

## Group Bar Chart and Stacked Bar Chart

We can create bar chart with groups of bars and stacks in each bar by using a matrix as input values.

More than two variables are represented as a matrix which is used to create the group bar chart and stacked bar chart.

```
# 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 = "mo
nth", ylab = "revenue", col = colors)

# Add the legend to the chart
```

```
legend("topleft", regions, cex = 1.3, fill = colors)

# Save the file
dev.off()
```

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