Basic Plots

Scatter and box plots with the base package

Plots

- Plots in R:
  - ✓ Plots of a single variable
  - ✓ Plots of two variables
  - ✓ Plots of three or more variables

Plots

- `plot` is generic function for plotting of **R** objects.
- For simple scatter plots, `plot.default` will be used. However, there are plot methods for many **R** objects, including functions, data.frames, density objects, etc.
- See `methods(plot)`

Plots: single variable

Scatter Plot

Do it yourself: Let us generate 100 random samples from a standard normal distribution, N(0,1):

```
> y <- rnorm(100, mean = 0, sd = 1) ↵
```

Produce a simple scatter plot:

```
> plot(y) ↵
```

Find out more about the `plot` function:

```
> ?plot ↵
```

Plots: single variable

Scatter Plot

Do it yourself: Try different plot types for y:

```
> plot(y, type = 'b') ↵
> plot(y, type = 'l') ↵
> plot(y, type = 'h')↵
```

Explain how different each plot is.

Plots: single variable

Scatter Plot

- Note: `type` is a plot option which allows you to choose between points “p”, bars “h”, line “l” and both points and line “b”.
- In general, options can be added in the **R** functions and are separated by “,”.
- Common options for the `plot` function and shared with other graphics functions are: `pch, xlab, ylab, xlim, ylim, cex, cex.lab, cex.axis, main` and `col.`
- You can set many of these globally with `par()`.

Plots: two variables

Scatter Plot

Do it yourself: Select the variables for “horse power” and “miles per gallon” from the “mtcars” data frame and plot them against each other:

```
> head(mtcars) ↵
> plot(mtcars$hp, mtcars$mpg) ↵
```

Note the $ sign. It selects a vector from the data frame `mtcars`.

Plots: two variables

Boxplot with one predictor

- You can use `boxplot()` to create a box and whiskers plot of a continuous variable affected by a predictor.

Do it yourself

```
> boxplot(mpg~am, data=mtcars) ↵
```

Plots: two variables

Saving your plot

- You can use `pdf()` or `tiff()` to save your plot. Any changes you make to graphics will not be saved.

Do it yourself

```
> pdf(file="myplot.pdf", 7, 7) ↲
> par(col='red') ↲
> boxplot(mpg~am, data=mtcars) ↲
> dev.off() ↲
```