R-Overview2

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What is R?

> R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS.

- From R's home page:
- R itself has several components - not unlike Python, which many of you are familiar with.
- **Base R** is the foundational component of the environment.
- If we *only* install this, we could:
  - Load data
  - Conduct some statistical analyses - including regression.
  - Save our results.
- We couldn't:
  - Connect to databases or APIs.
  - Conduct more in-depth analyses.
  - Create publication-ready plots.
  - . . . and much more.
- We extend R with **packages** that we can install from inside the R environment.
- Most packages live on CRAN
- As of this writing there are 7,649 packages.
- They're installed by invoking `install.packages("<package_name")`
- They're made available inside an R session using `library(<package_name>)`
- R works much better with an IDE that allows scripting, displays outputs - including plots.
- The preferred IDE is **RStudio**
- It's an open-source IDE that makes R development **MUCH** easier.

Where can I get R?

- For the work we'll do tonight, we need to install both base R and RStudio:
- Base R lives at http://r-project.org
  - At the top of the page, select the OS where you'll install R. Precompiled binaries are available for Windows, OS X, and various flavors of Linux.
  - The current version is **R 3.2.3 "Wooden Christmas Tree"** and was released on 10-December-2015.
  - It's wise to keep your R installation up to date.
- RStudio lives at RStudio's site.
  - Select Products > RStudio > Desktop, or simply click this link and download the open source edition.
- Any additional packages we need, we can install as needed.

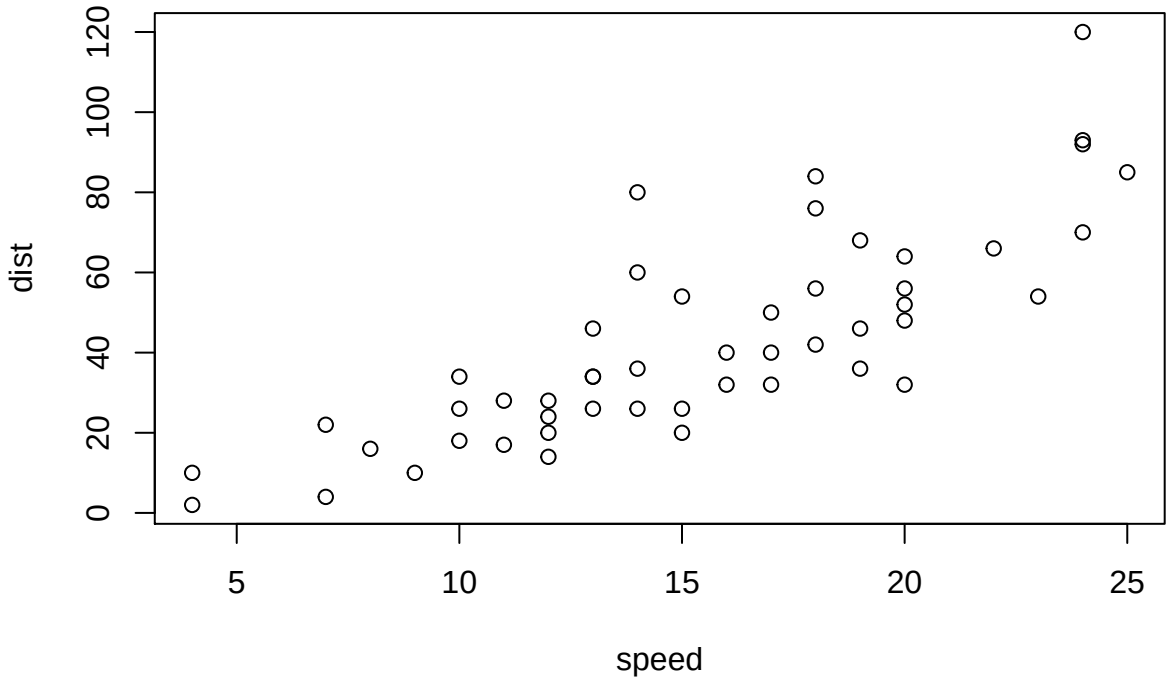
This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed           dist
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00
```

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.