Markdown and Network Plotting

Introduction

This is an R Markdown Notebook. The goal of RMarkdown Notebooks is to write documents and reports that intersperse text and code.

The text is written in markdown. It has lots of different formatting options. Just take a look at this document for example, such as the "Introduction header" or the links in this section.

Making documents

You can either interact with RMarkdown files within RStudio or "knit" them into finished documents. To create a finished document, click the "Knit" button in RStudio.

Exercise

Try knitting this document now. It should create a popup window that will be much prettier and easier to read.

Excercise

Create a new paragraph explaining what you hope to get out of this class. Create a header (Hint: the header for this section is called 'Making documents'). When you're done, knit the document again so you can see what your paragraph looks like in the finished document.

Excecuting Code

When you execute code within RStudio, the results appear beneath the code.

Try executing this chunk by clicking the *Run* button ▶ or by placing your cursor inside the code chunk it and pressing `Ctrl+Shift+Enter`.

Excercise

Run the code below in both ways

```r
x <- c(43,643,765)

print(paste("The mean of x is", mean(x)))
```

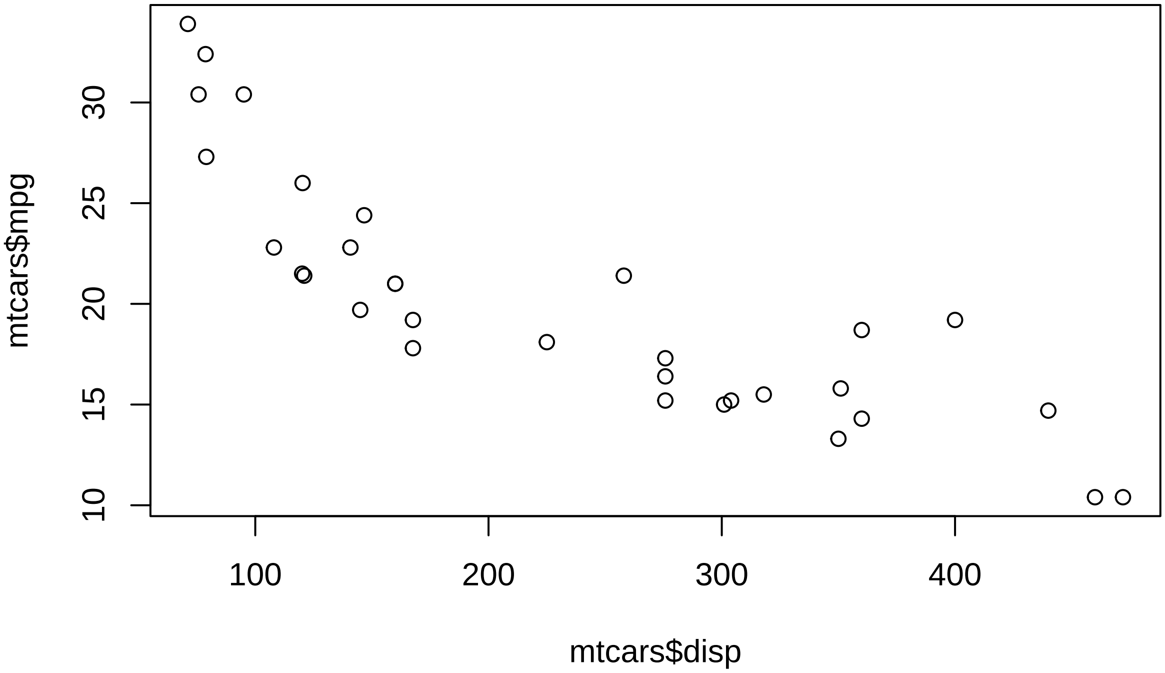
```
## [1] "The mean of x is 483.666666666667"
```

Writing code

Code that will be run is marked with three backticks (') followed by `{r}` and ends with three backticks. The simplest way to create a code block is to do `Ctrl+Alt+I` or to click the green `Insert` button ▶ at the top of the Markdown window.

By default, the code and the output will appear in the created document, but you can set `echo=FALSE` and it will just show the output. Typically, you would want to do this when you're creating a plot.

For example, the code below creates a scatterplot. For now, don't worry about what all of the code means - we'll come to that in later lessons.



Exercise

Create your own code block below, and copy and paste the following code into it: hist(iris$Petal.Length)

If you do it correctly, you should see a histogram plot (a figure with a bunch of vertical gray bars)

Packages

The last concept for today is "packages". A package is a collection of functions and/or data. For example, `igraph` and `tidygraph` are two packages that make it much, much easier to work with network data.

There are two steps to using a package. First, you need to install it. This downloads the package to your computer. *You only need to do this once.*

If you want to use a package in your code, you will need to load it. This brings it into R so that R can use it. This is done with the `library` command.

Exercise

Install the igraph package by copying and pasting the code below into the console (at the bottom left of RStudio) and hitting `Enter`

install.packages("igraph")

It should show a bunch of crazy messages while it installs, and take a couple of minutes. If it worked, then at the end it should say something like

```
DONE (igraph)
```

near the end, with no scary error messages.

Exercise

Now that igraph is loaded, let’s create our first network graph!!

Create a new code block, and copy and paste the following into it, and then run it.

```
library(igraph)

G = erdos.renyi.game(10, .6) plot(G)
```