Exercise 1: Create an R Markdown file

1. Open RStudio on your computer
2. File > New File > R Markdown
3. Select HTML
4. Title it “HelloWorld”
5. Click the save button. Save as “HelloWorld”
6. Click “Knit Html” to see it render as an HTML file

Change Your Global Chunk Option

Try setting your global chunk option to the following. Each time, knit the code to see changes.

```
knitr::opts_chunk$set(echo = FALSE)
```

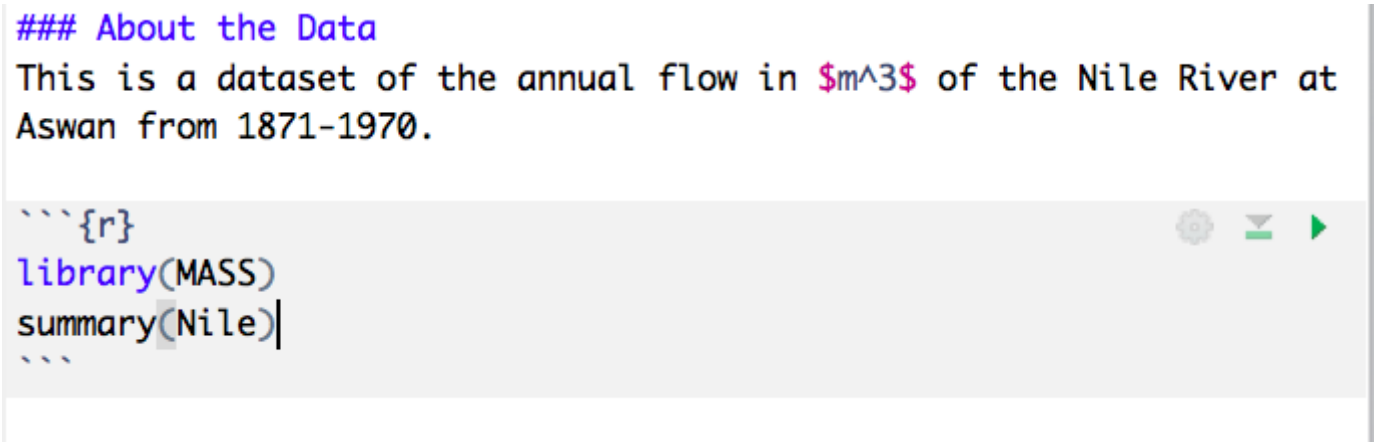
```
knitr::opts_chunk$set(eval = FALSE)
```

Knit as a Microsoft Word Doc

Change `output: html_document` to `output: word_document` . Click Knit and see what happens. If you have Microsoft Word, your new document should open in Word.

```
---
title: "Hello World"
author: "Alison Blaine"
date: "10/11/2017"
output: word_document
---
```

Exercise 2: Open Nile.Rmd file



Overview of Nile.Rmd

This document is about the annual flow (in m^3) of the Nile River at Aswan from 1871–1970.

Inside your code chunk should be two commands:

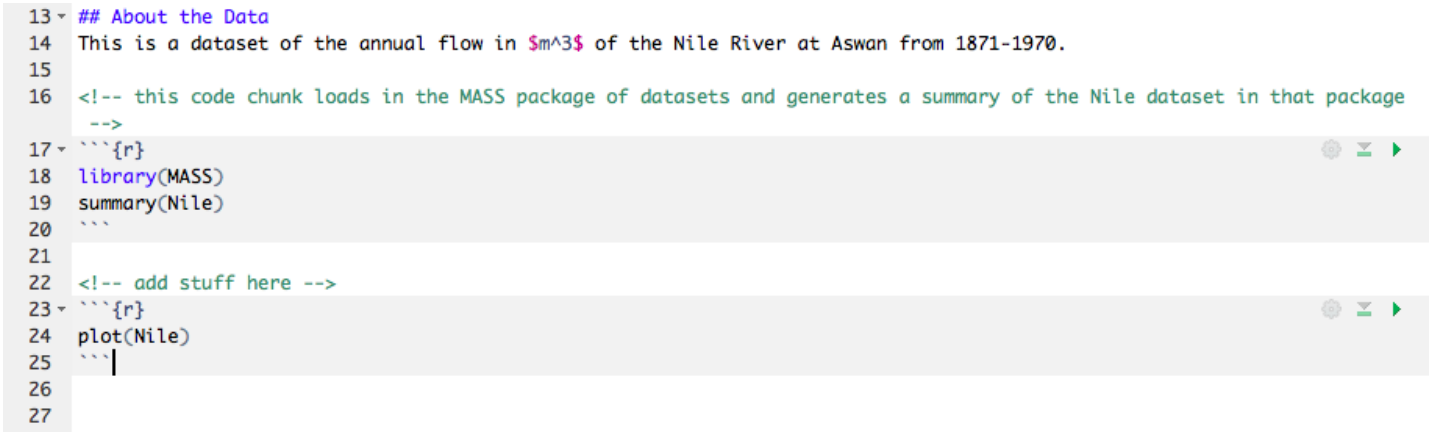
```
library(MASS)
summary(Nile)
```

`library(MASS)` - loads the MASS library of sample datasets
`summary(Nile)` - shows the statistical summary of the data set

Add a plot

Skip a line and then **create a new R code chunk** under the previous one. Add a plot inside the chunk with the following command:

```
plot(Nile)
```



Title the Plot

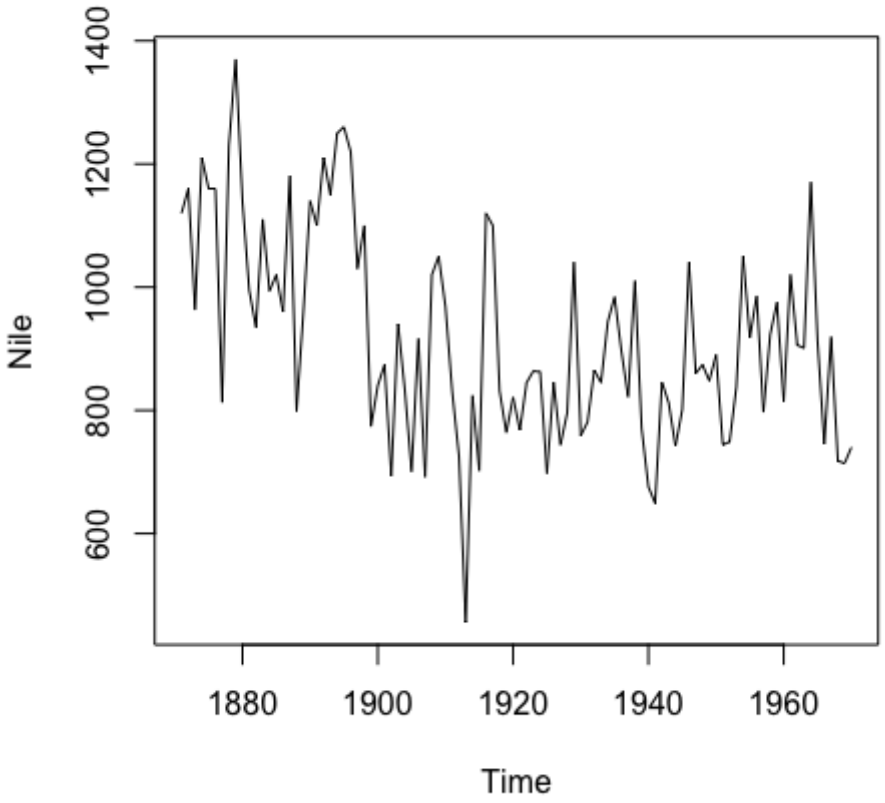
Before the code chunk you just added, include an h2 header title “Flow over time”.

```
## Flow Over Time
```

Resize the plot by adding a chunk option

Knit when you’re finished!

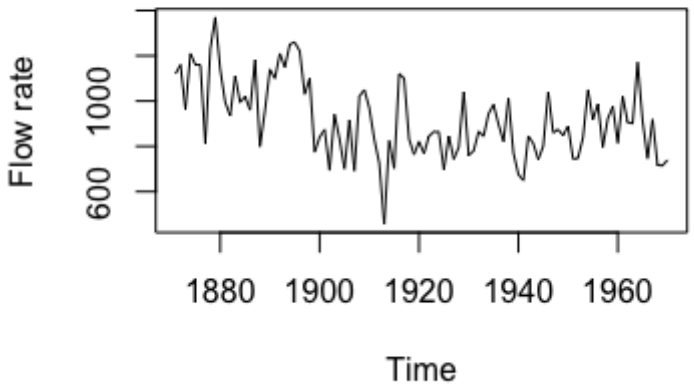
```
21
22  <!-- add stuff here -->
23  ## Flow over Time
24  ```{r fig.width=5, fig.height=5, echo=FALSE}
25  plot(Nile)
26  ```
27
```



Fix the y-axis label

Add ylab="Flow rate" inside of your plot function to change the y axis label:

```
plot(Nile, ylab="Flow rate")
```



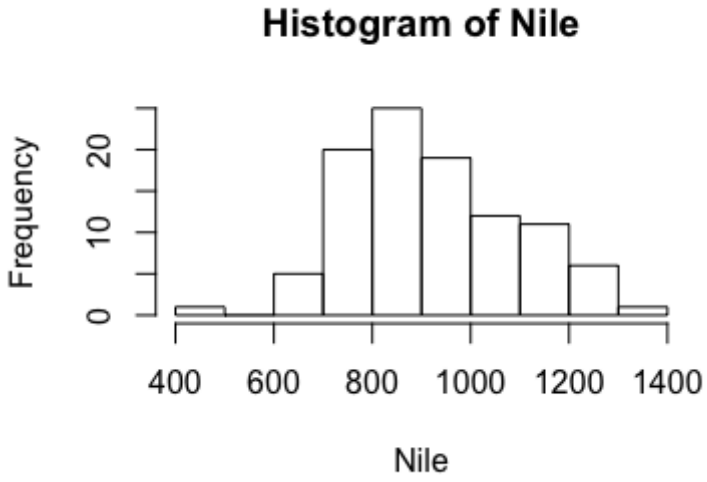
Create a new section

Create an h2 header called “Distribution”.

```
## Distribution
```

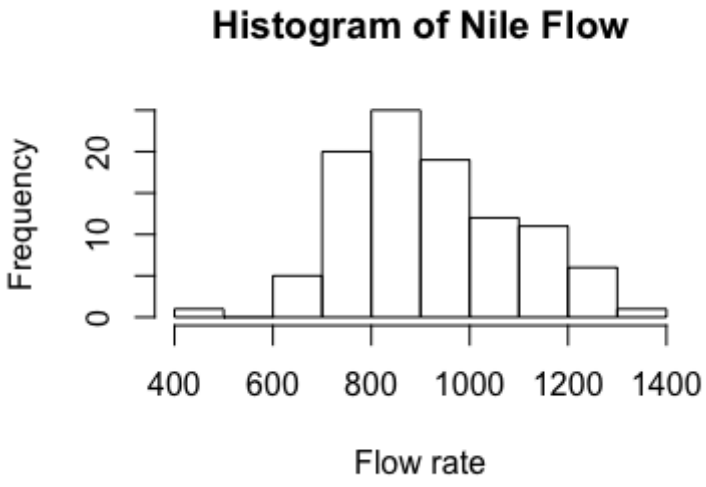
Add a Histogram

```
hist(Nile)
```



Fix the Histogram title and x-axis label

```
hist(Nile, main="Histogram of Nile Flow", xlab="Flow rate")
```



Add a Floating Table of Contents

```
---
title: "Measuring Nile Flow"
author: "Your Name Here"
date: "October 24, 2017"
output:
    html_document:
      toc: true
      toc_float: true
---
```

Convert Your Document into a Slide Presentation

Pandoc will allow you to convert your html file into a slide presentation.

```
---
title: "Measuring Nile Flow"
author: "Your Name Here"
date: "October 24, 2017"
output: ioslides_presentation
---
```

Including Shiny in R Markdown

- Shiny is an R framework for creating interactive web applications.
- Shiny widgets and apps can be embedded into an R markdown file, or exist as stand-alone applications.
- Lots of tutorials exist for creating Shiny applications or Shiny widgets embedded in R Markdown documents.

Here are some good ones:

- Shiny R Studio tutorial (https://shiny.rstudio.com/articles/interactive-docs.html)
- How to Build a Shiny App (http://shiny.rstudio.com/tutorial/)

Exercise 3: Open Shiny_Nile.Rmd

File > New File > R Markdown > Shiny > Shiny Document

```
output: html_document
runtime: shiny
```

Shiny documents have “Run Document” buttons. Click this to render the document.

When you save the file, you’ll notice that the “Run Document” button appears

Shiny Code Chunk

After the line plot code, the highlighted code chunk to create an interactive histogram.

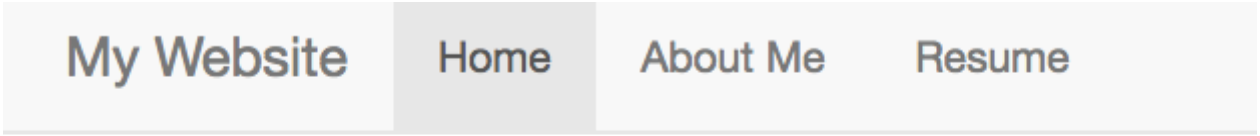
```
# create dropdown selector for histogram
inputPanel(
  selectInput("n_breaks", label= "Bins", c(10, 20, 30, 40), selected = 10)  #creates a d
ropdown selector
)

# create histogram
renderPlot({
hist(Nile, xlab= "Measurement", probability = TRUE, breaks = as.numeric(input$n_breaks),
 col="deepskyblue3", main="Histogram of Nile Flow")
})
```

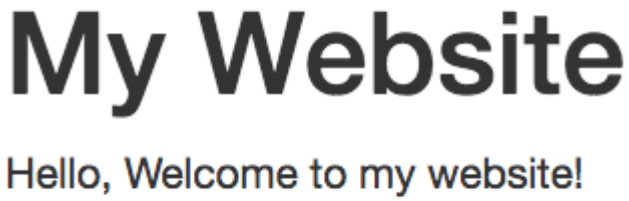
Run the document. The histogram will update when a new value is selected from the dropdown menu.

Creating a Simple Website

To create a simple, static website with R Markdown, you need the following files:

- _site.yml
- an .Rmd file for every page





Rendering Your Website

Navigate inside the directory that contains _site.yml and index.Rmd and set your working directory. Click More > Set as Working Directory.

Type this the console and hit enter:

```
rmarkdown::render_site()
```