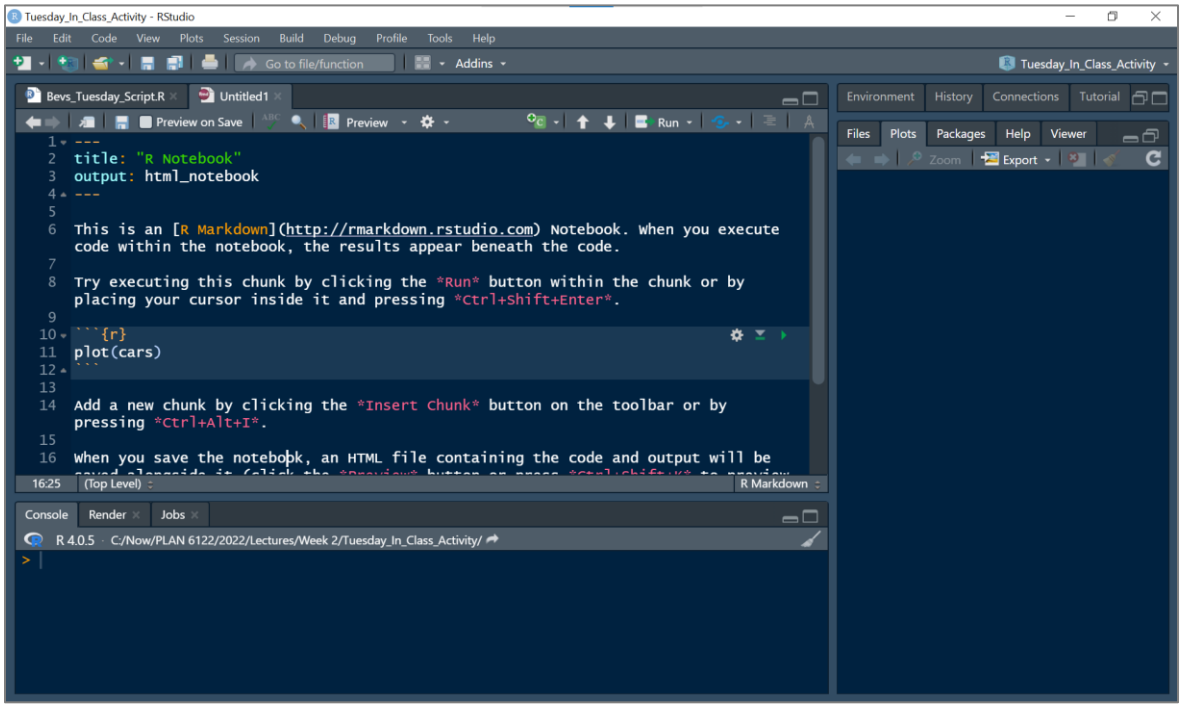
OVERVIEW

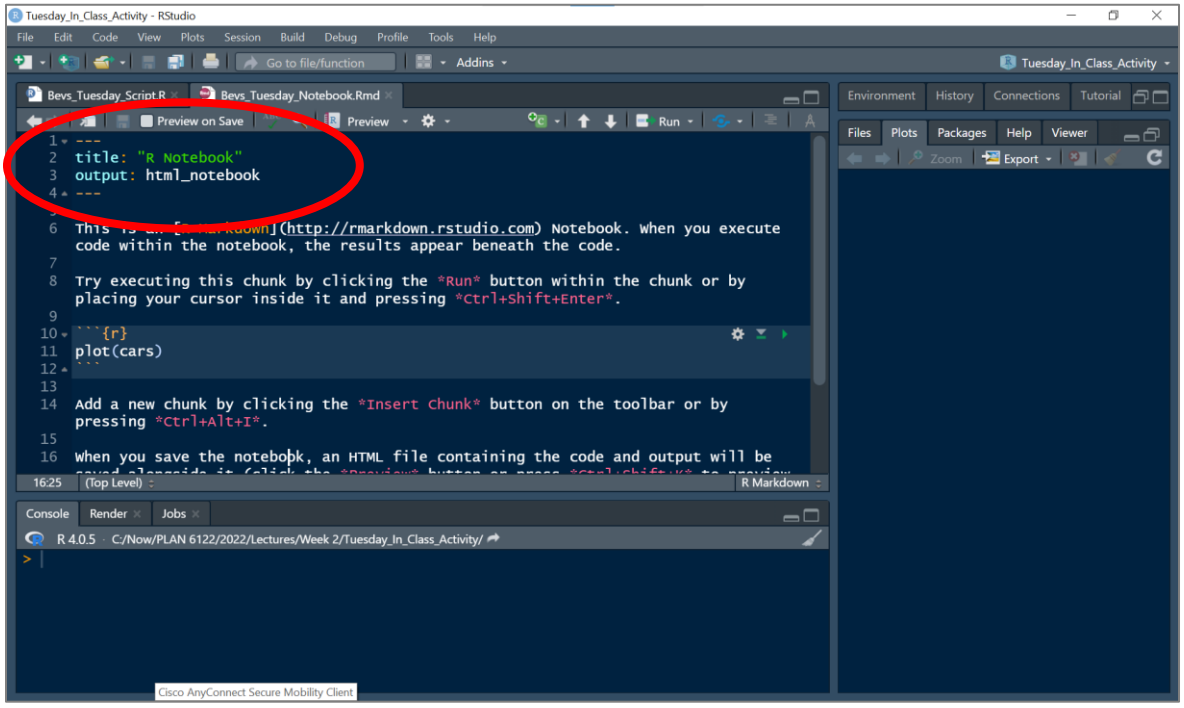
This in-class exercise offers a first introduction to the R Markdown data format described in the assigned readings and discussed in today's lecture. Because this is an in-class exercise, there is nothing you need to submit. The goal is to build familiarity with R Markdown as an alternative to R scripts this semester.

CREATE AND KNIT AN R NOTEBOOK

If you closed RStudio after the preceding activity, re-open the **R Project** you created for today's session. Create a new **R Notebook** by selecting this option from the **New File** button list  and the template shown below will appear:



Give it a name and note that because we are working within an **R Project** the default is to save this notebook to the project directory.



At the very top of the notebook we have the YAML or "Yet Another Markdown Language" header which begins and ends with three dashes --- and at the very least, specifies the title and output format when the document is rendered by the knitr package. As an aside, there is an interview with the creator of the knitr package available here. There can be other options specified in the YAML, particularly if you are rendering to a format other than HTML (see the assigned reading from today).

Image: RStudio

Below the YAML is where the Markdown sections typically begin. These are sections of text that usually explain or contextualize the code and graphics and are formatted using Markdown syntax.

- #: a header element.
- **: bold text.
- *: italic text.
- ` : code blocks.

Finally, code chunks are where the R code lives in an **R Notebook**. These are easy to spot because they always have three backticks followed by {r} as shown below:

```
```{r chunk-name-with-no-spaces}
code goes here
```
```

Once we have loaded a dataset, we can use the dim, summary, or head functions to get a sense of its contents.

```
dim(txhousing)
summary(txhousing)
head(txhousing)
```

We now know that there are 8,602 rows and 9 columns in this dataset, that several attributes (columns) have missing data (NA values), and we can see the names of those 9 attributes.

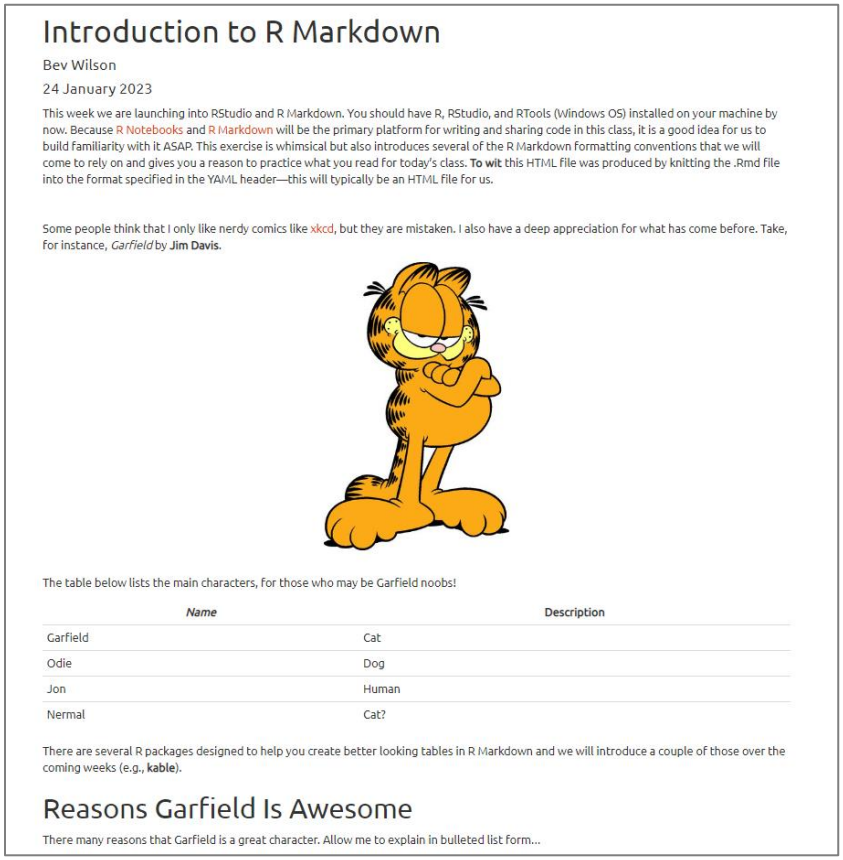
When you execute code within the notebook, the results appear beneath the code (unless you set the chunk options to behave differently). When you save the notebook, an HTML file containing the code and output will be saved alongside it (click the **Preview** button or press Ctrl+Shift+K to preview the HTML file).

The preview shows you a rendered HTML copy of the contents of the editor. Consequently, unlike **Knit**, **Preview** does not run any R code chunks. Instead, the output of the chunk when it was last run in the editor is displayed.

*** **Your turn**: Add some additional elements to the YAML header in your R Notebook, then experiment with text formatting in a Markdown section:

- Add the following to the YAML header:
  - title: The title of your document. Note, this is not the same as the file name.
  - author: Your name.
  - date: This is the date that the file is created.
- Enter some text in the section underneath the YAML. It can be whatever you like but experiment with the R Markdown syntax elements here;
- Use the Knit button to render your notebook as HTML. Inspect the results and make modifications, as needed.

Your task is to recreate the HTML file included in the folder you downloaded and unzipped—you can also find it here.



Introduction to R Markdown

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24 January 2023

This week we are launching into RStudio and R Markdown. You should have R, RStudio, and RTools (Windows OS) installed on your machine by now. Because R Notebooks and R Markdown will be the primary platform for writing and sharing code in this class, it is a good idea for us to build familiarity with it ASAP. This exercise is whimsical but also introduces several of the R Markdown formatting conventions that we will come to rely on and gives you a reason to practice what you read for today's class. **To wit** this HTML file was produced by knitting the .Rmd file into the format specified in the YAML header—this will typically be an HTML file for us.

Some people think that I only like nerdy comics like xkcd, but they are mistaken. I also have a deep appreciation for what has come before. Take, for instance, *Garfield* by **Jim Davis**.

The table below lists the main characters, for those who may be Garfield noobs!

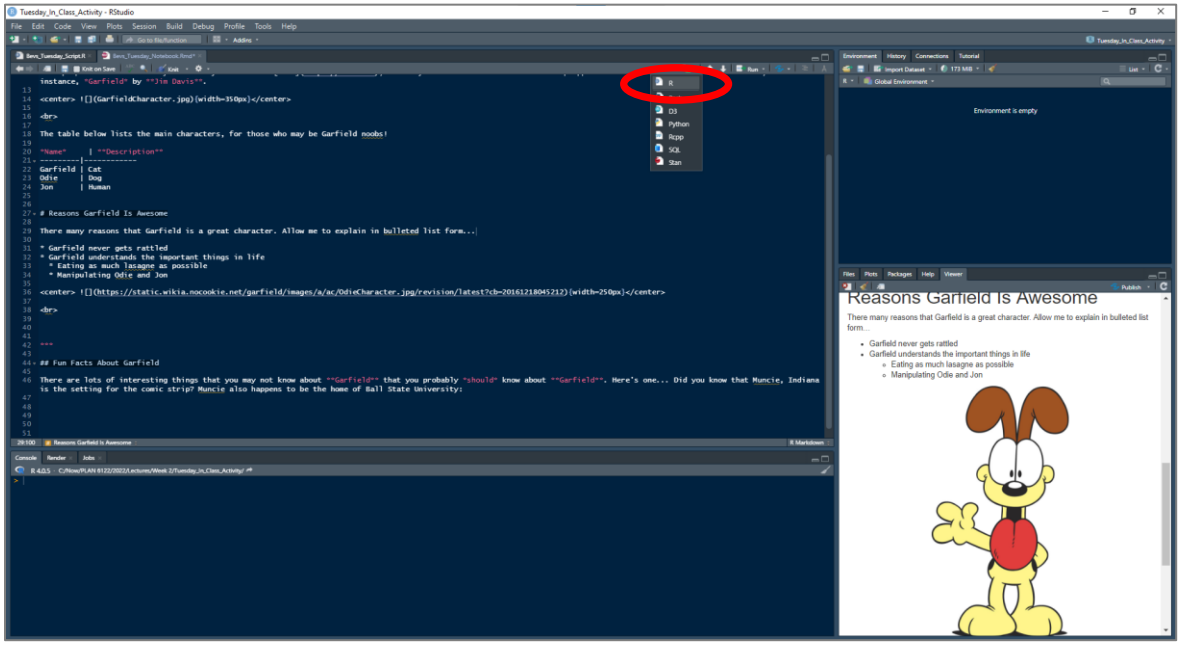
Name	Description
Garfield	Cat
Odie	Dog
Jon	Human
Nermal	Cat?

There are several R packages designed to help you create better looking tables in R Markdown and we will introduce a couple of those over the coming weeks (e.g., **kable**).

Reasons Garfield Is Awesome

There many reasons that Garfield is a great character. Allow me to explain in bulleted list form...

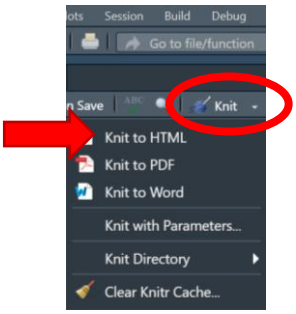
Completing this assignment will involve inserting Markdown sections and code chunks. You can use the **Insert a new code chunk** button circled below and choose R in order to insert code:



Paste or type text and code from the HTML file to quickly build out your R Notebook. You have all the images you need in the .zip folder[1] and remember how we insert an image that is stored locally or on the web:

```
![alt text here](path-to-image-here)
```

When you are ready, use the **Knit** button to generate an HTML file of the rendered R Notebook you have created.



This HTML file will appear in the **Viewer** tab (lower right corner of RStudio), but you can use the **Show in new window** button to move it to your web browser!

[1] The Odie image should be linked directly from the web using this URL https://static.wikia.nocookie.net/garfield/images/a/ac/OdieCharacter.jpg/revision/latest?cb=20161218045212