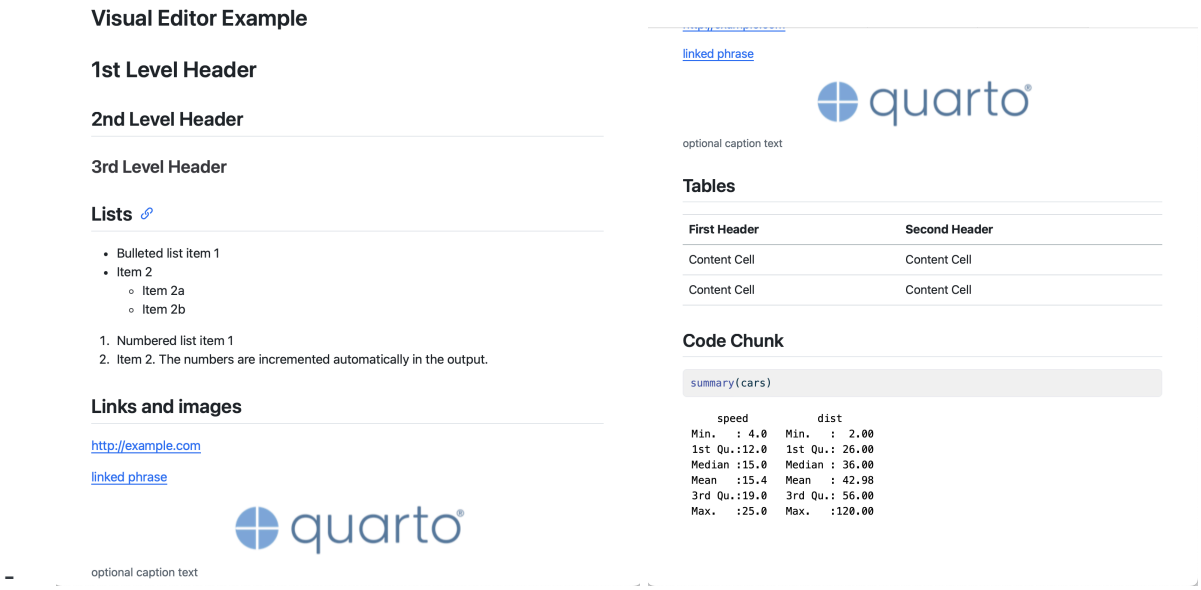
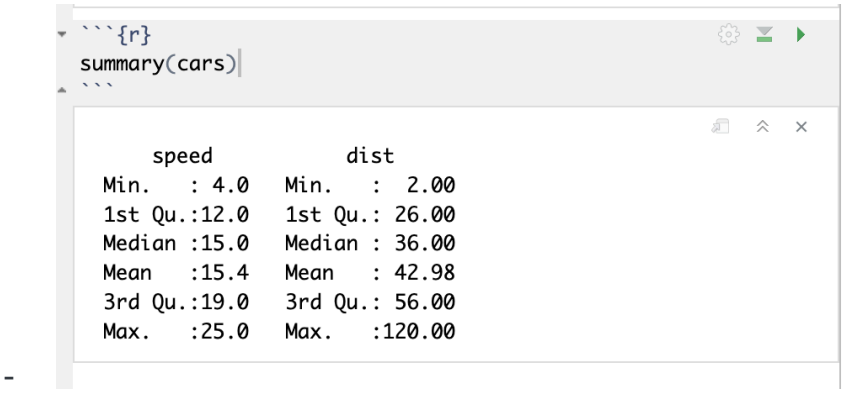
28.3.1 Exercises

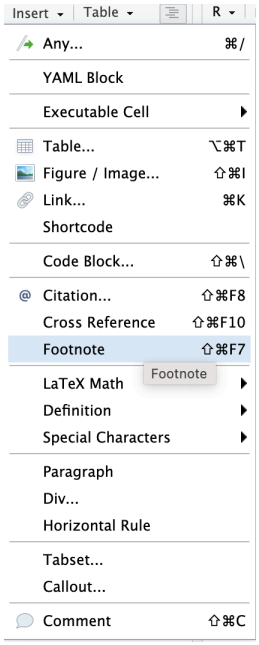
1. Re-create the document in Figure 28.5 using the visual editor.



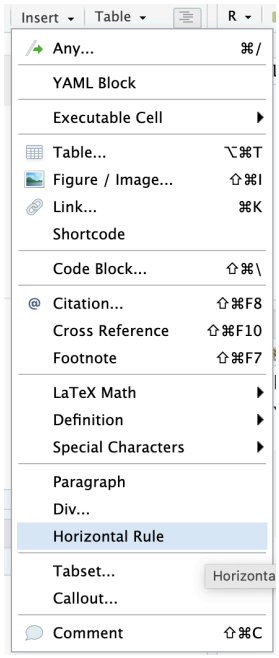
2. Using the visual editor, insert a code chunk using the Insert menu and then the insert anything tool.



3. Using the visual editor, figure out how to:
    1. Add a footnote.



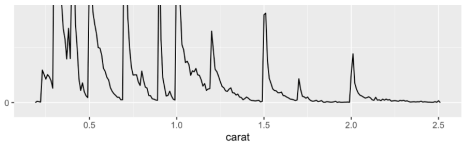
2. Add a horizontal rule.



3. Add a block quote.

> example for blockquote

4. In the visual editor, go to Insert > Citation and insert a citation to the paper titled Welcome to the Tidyverse using its DOI (digital object identifier), which is 10.21105/joss.01686. Render the document and observe how the reference shows up in the document. What change do you observe in the YAML of your document?




```
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  
```

> example for blockquote

The Tidyverse is a collection of R packages designed for data science.(Wickham et al. 2019)

References

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy McGowan, Romain François, Garrett Grolemund, et al. 2019. "Welcome to the Tidyverse." *Journal of Open Source Software* 4 (43): 1686. https://doi.org/10.21105/joss.01686.

-

- When I added the citation using the DOI, Quarto automatically updated the YAML at the top of my .qmd file by adding the line bibliography: references.bib. This basically tells Quarto where to look for the source details so it can format the citation properly in the document. Without that line, the citation wouldn't show up right, and there wouldn't be a references section at the bottom when I rendered the file.

28.4.1 Exercises

1. Practice what you've learned by creating a brief CV. The title should be your name, and you should include headings for (at least) education or employment. Each of the sections should include a bulleted list of jobs/degrees. Highlight the year in bold.

Anoushka Gurung

Education

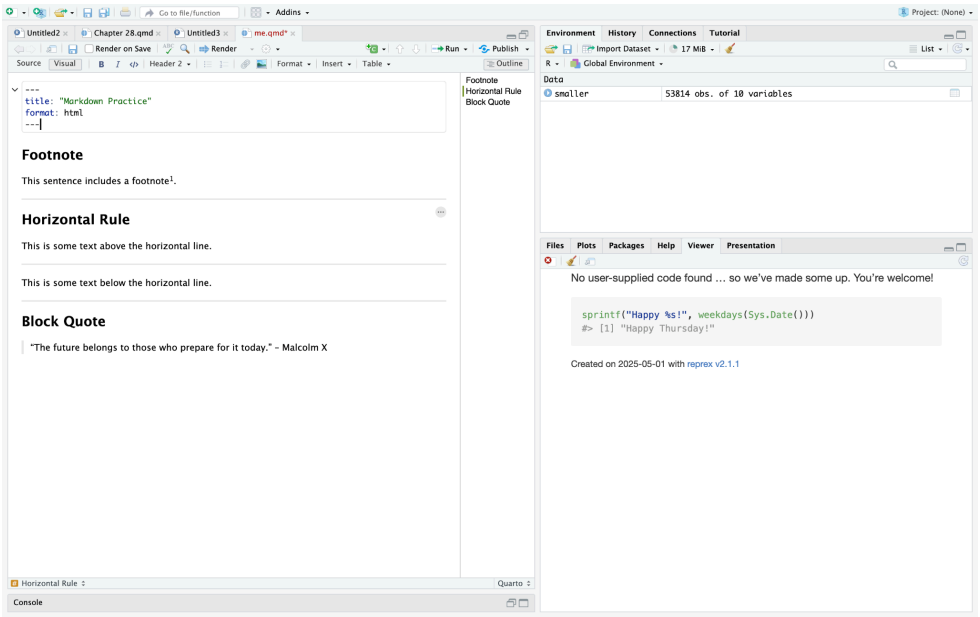
- **2026**: B.S. in Data Analytics - Business & Communication Studies, Augustana College
- **2021**: A level High School Diploma, Kathmandu GEMS College

Employment

- **2024**: Access Control Student Worker
- **2023**: Art department Student Worker

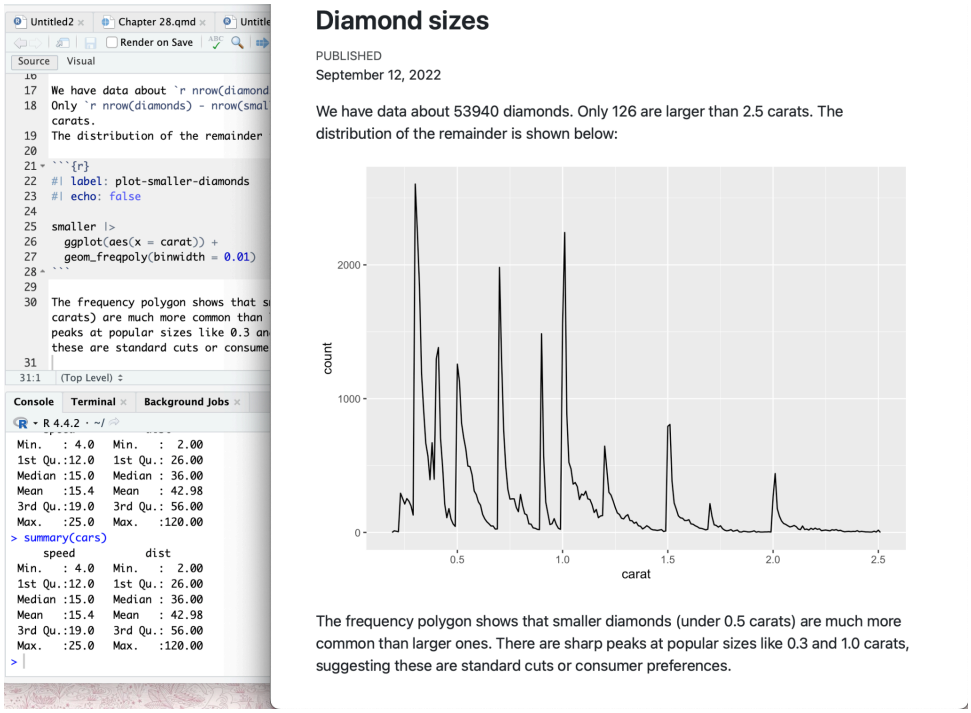
-

2. Using the source editor and the Markdown quick reference, figure out how to:
    1. Add a footnote.
    2. Add a horizontal rule.
    3. Add a block quote.



-

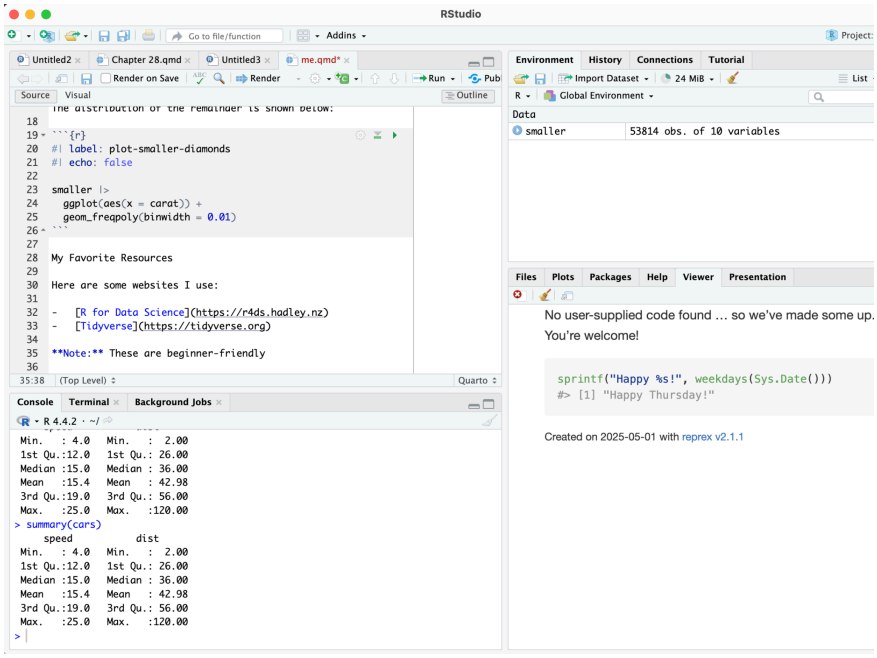
3. Copy and paste the contents of `diamond-sizes.qmd` from https://github.com/hadley/r4ds/tree/main/quarto in to a local R Quarto document. Check that you can run it, then add text after the frequency polygon that describes its most striking features.



-

4. Create a document in a Google doc or MS Word (or locate a document you have created previously) with some content in it such as headings, hyperlinks, formatted text, etc. Copy the contents of this document and paste it into a Quarto document in the visual editor. Then, switch over to the source editor and inspect the source code.

-



28.5.5 Exercises

1. Add a section that explores how diamond sizes vary by cut, color, and clarity. Assume you're writing a report for someone who doesn't know R, and instead of setting `echo: false` on each chunk, set a global option.

Diamond Size by Cut, Color, and Clarity

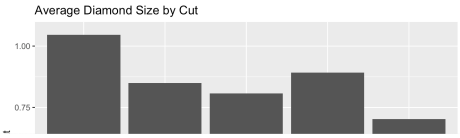
```
knitr::opts_chunk$set(echo = FALSE)
library(ggplot2)
library(dplyr)
```

```
Attaching package: 'dplyr'

The following objects are masked from 'package:stats':

    filter, lag

The following objects are masked from 'package:base':

    intersect, setdiff, setequal, union
```

Diamond Size by Cut, Color, and Clarity

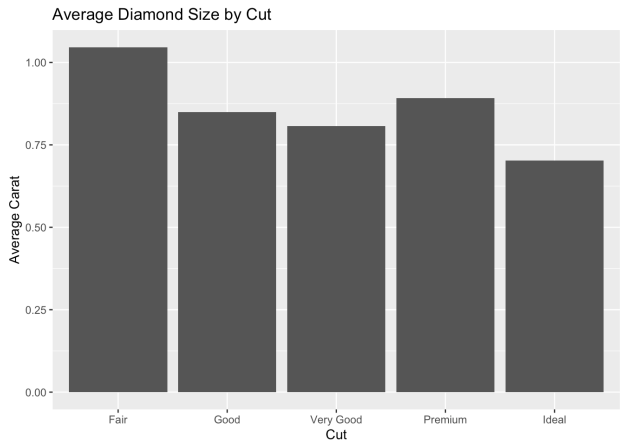
This section explores how the size of diamonds changes depending on their cut, color, and clarity. The goal is to help someone who doesn't know R understand which types of diamonds tend to be larger.

Average Diamond Size by Cut

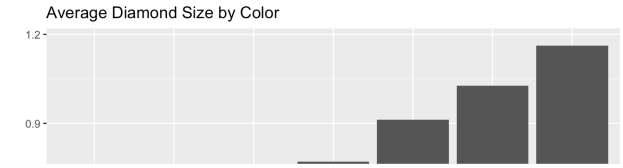


-

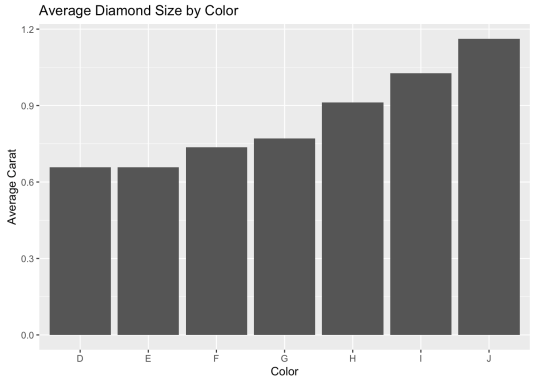
Average Diamond Size by Cut



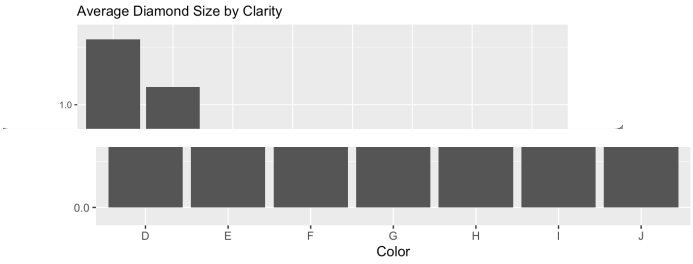
Average Diamond Size by Color



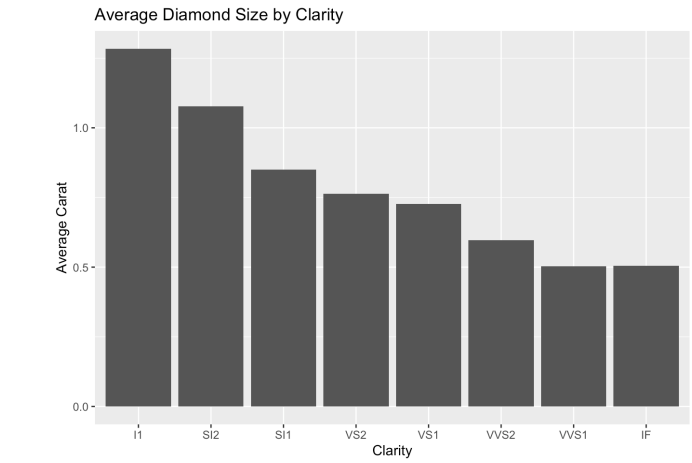
Average Diamond Size by Color



Average Diamond Size by Clarity



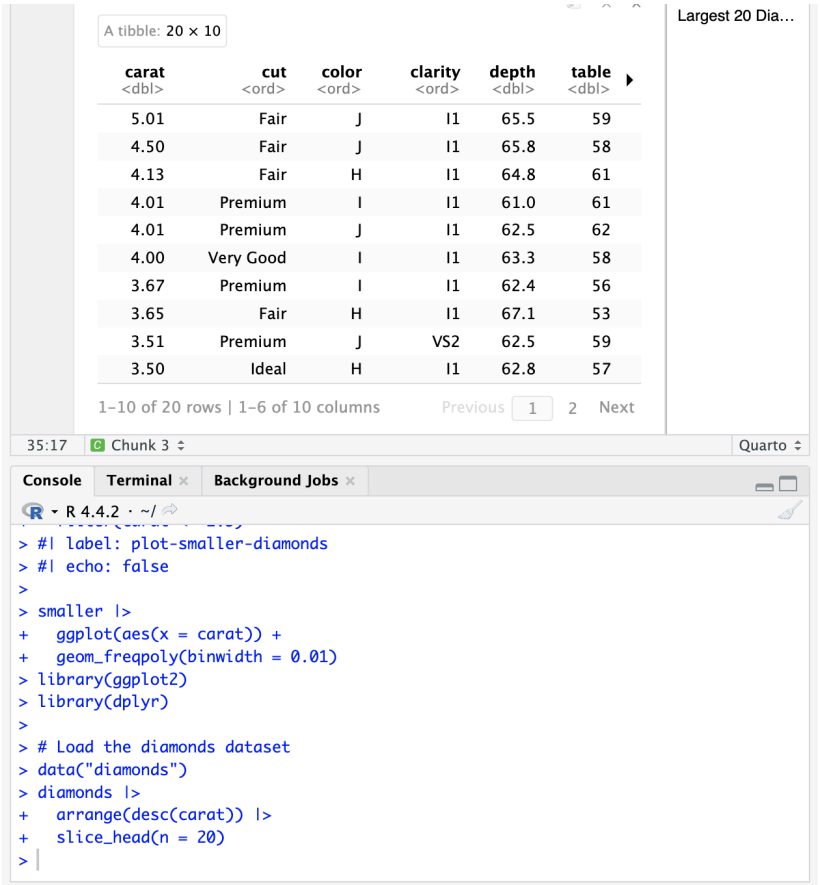
Average Diamond Size by Clarity



2. Download `diamond-sizes.qmd` from https://github.com/hadley/r4ds/tree/main/quarto. Add a section that

describes the largest 20 diamonds, including a table that displays their most important attributes.

-



3. Modify `diamonds-sizes.qmd` to use `label_comma()` to produce nicely formatted output. Also include the percentage of diamonds that are larger than 2.5 carats.

Nicely Formatted Output and Percentage

```
library(scales)
library(ggplot2)
library(dplyr)
```

```
Attaching package: 'dplyr'

The following objects are masked from 'package:stats':

    filter, lag

The following objects are masked from 'package:base':

    intersect, setdiff, setequal, union
```

```
data("diamonds")


# Show the top 10 largest diamonds with comma-formatted carat values
diamonds |>
  arrange(desc(carat)) |>
  slice_head(n = 10) |>
  mutate(
    carat = label_comma()(carat)
  )
```

```
# A tibble: 10 × 10
   carat cut       color clarity depth table price     x     y     z
   <chr> <ord>     <ord> <ord>   <dbl> <dbl> <int> <dbl> <dbl> <dbl>
 1 5.010 Fair      J     I1       65.5    59 18018 10.7  10.5   6.98
 2 4.500 Fair      J     I1       65.8    58 18531 10.2  10.2   6.72
 3 4.130 Fair      H     I1       64.8    61 17329 10     9.85  6.43
```

```
diamonds |>
  arrange(desc(carat)) |>
  slice_head(n = 10) |>
  mutate(
    carat = label_comma()(carat)
  )
```

```
# A tibble: 10 × 10
   carat cut       color clarity depth table price     x     y     z
   <chr> <ord>     <ord> <ord>   <dbl> <dbl> <int> <dbl> <dbl> <dbl>
 1 5.010 Fair      J     I1       65.5    59 18018 10.7  10.5   6.98
 2 4.500 Fair      J     I1       65.8    58 18531 10.2  10.2   6.72
 3 4.130 Fair      H     I1       64.8    61 17329 10     9.85  6.43
 4 4.010 Premium   I     I1       61      61 15223 10.1  10.1   6.17
 5 4.010 Premium   J     I1       62.5    62 15223 10.0   9.94  6.24
 6 4.000 Very Good I     I1       63.3    58 15984 10.0   9.94  6.31
 7 3.670 Premium   I     I1       62.4    56 16193  9.86  9.81  6.13
 8 3.650 Fair      H     I1       67.1    53 11668  9.53  9.48  6.38
 9 3.510 Premium   J     VS2      62.5    59 18701  9.66  9.63  6.03
10 3.500 Ideal     H     I1       62.8    57 12587  9.65  9.59  6.03
```

```
# Calculate percentage of diamonds larger than 2.5 carats
big_diamonds <- diamonds |>
  filter(carat > 2.5)

percent_large <- nrow(big_diamonds) / nrow(diamonds) * 100

# Display nicely
paste0("About ", round(percent_large, 2), "% of diamonds are larger than 2.
```

```
[1] "About 0.23% of diamonds are larger than 2.5 carats."
```

28.6.3 Exercises

1. Open `diamond-sizes.qmd` in the visual editor, find an image of a diamond, copy it, and paste it into the document. Double click on the image and add

a caption. Resize the image and render your document. Observe how the image is saved in your current working directory.

- As I opened the `diamond-sizes.qmd` file in the Visual Editor in RStudio. Then, I searched for a diamond image online using Google Images. I copied the image directly and pasted it into the Quarto document using Cmd + V (since I'm on a Mac).
- Once the image was pasted, I clicked on it, and an image formatting window popped up. In the caption box, I typed:
  "An example image of a diamond."
  Then I adjusted the width to 300 pixels to make it fit better in the document.
- After that, I clicked Render. Quarto automatically saved the image to my working directory in a subfolder named something like `diamond-sizes_files/`. When I viewed the final rendered HTML file, I saw that the image was included with the caption underneath it and resized exactly as I had set.
- This exercise helped me understand how Quarto handles images pasted into a `.qmd` file and how to add useful annotations and formatting to them through the visual editor.
-

2. Edit the label of the code chunk in `diamond-sizes.qmd` that generates a plot to start with the prefix `fig-` and add a caption to the figure with the chunk option `fig-cap`. Then, edit the text above the code chunk to add a cross-reference to the figure with Insert > Cross Reference.

- I opened diamond-sizes.qmd, found the plot chunk, and added a label fig-diamond-size and a caption using fig-cap="Distribution of Diamond Sizes". Above the chunk, I wrote @fig-diamond-size to cross-reference it. When I rendered the document, the figure showed with a caption and the reference turned into a clickable link.

3. Change the size of the figure with the following chunk options, one at a time, render your document, and describe how the figure changes.

1. `fig-width: 10`
2. `fig-height: 3`
3. `out-width: "100%"`
4. `out-width: "20%"`

- To answer this question, I added a cross-reference to a table by labeling the code chunk that creates it with tbl- at the beginning. For example, I used:
- {r tbl-largest-diamonds, tbl-cap="Top 10 Largest Diamonds"}
- Then, in the text above the table, I wrote:
- As shown in @tbl-largest-diamonds, these are the biggest diamonds in the dataset.
- After rendering the document, the @tbl-largest-diamonds turned into a clickable reference to the table, and the caption appeared under the table just like it does for figures.