



# Starting on the right foot

[teach-shiny.rbind.io](https://teach-shiny.rbind.io)

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Mine Çetinkaya-Rundel

@minebocek

mine-cetinkaya-rundel

mine@rstudio.com

A photograph of a slice of cake on a white plate, with a fork and knife resting nearby. A napkin and a sprig of rosemary are also visible on the rustic wooden surface.

# Goal

Create, teach, and give / receive feedback  
on first three minutes of a Shiny workshop.



Which of the following four descriptions gives you a **better sense** of the final product?

(1)

# Pineapple and coconut sandwich cake

(2)

# Pineapple and coconut sandwich cake

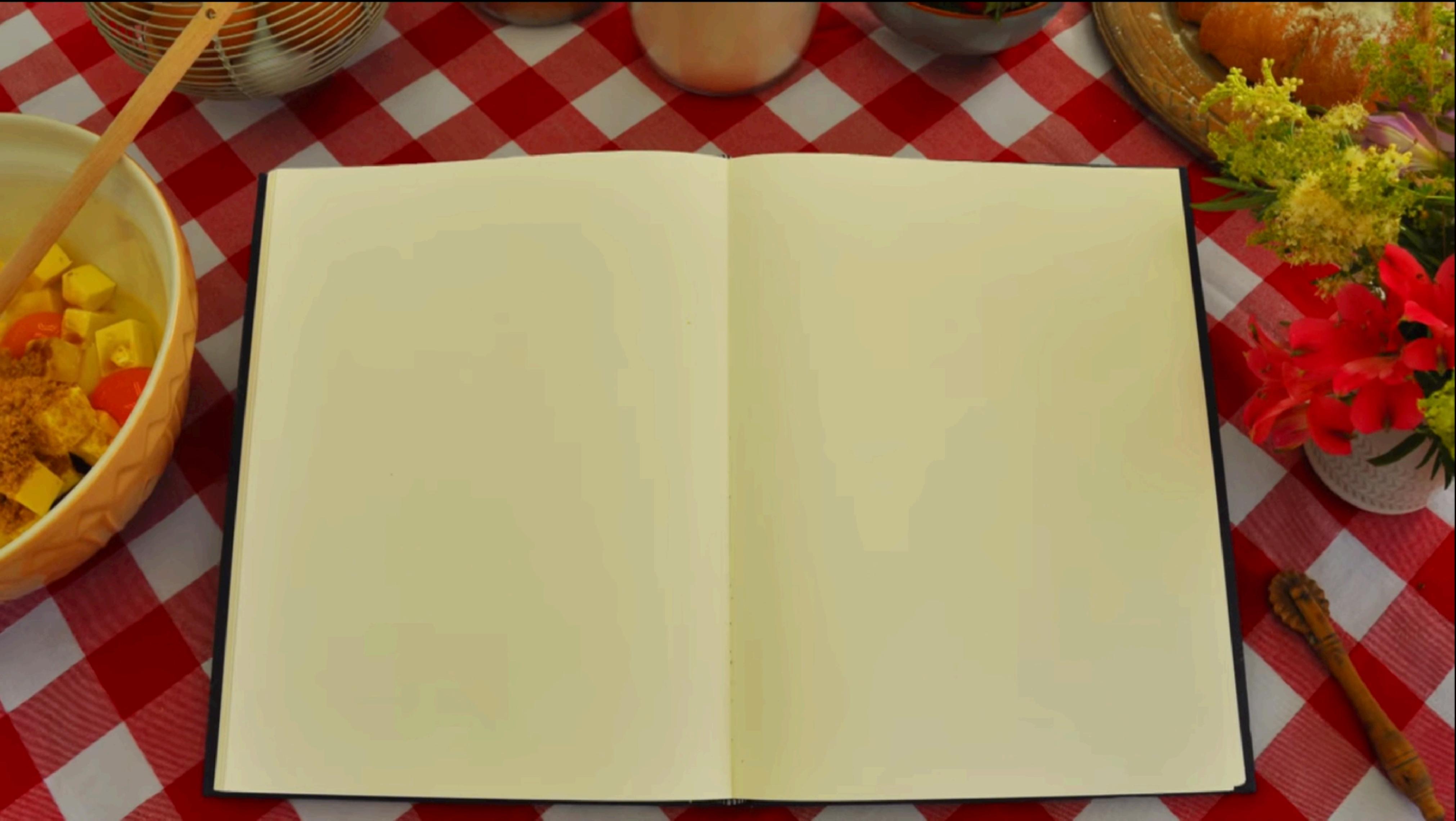


(3)

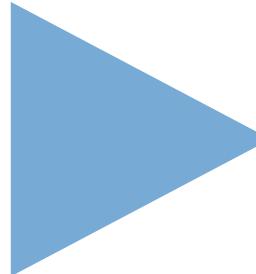
# Pineapple and coconut sandwich cake



(4)



# start



# with

# cake



Which of the following four descriptions would give your learners (who are new to Shiny) a **better sense** of the final product?

(1)

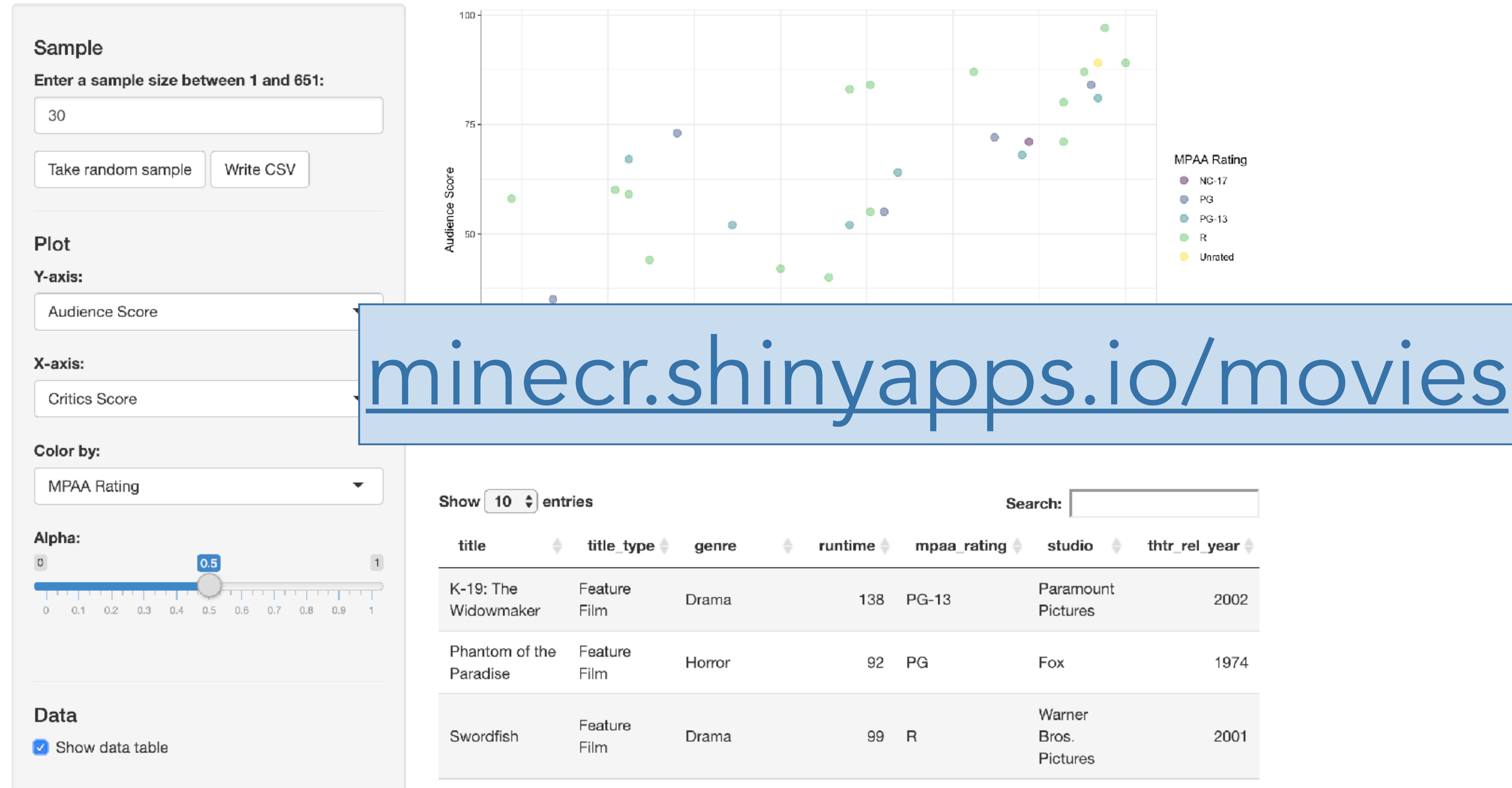
# What is Shiny?

- ▶ **shiny** is an R package that makes it incredibly easy to build interactive web applications with R.
- ▶ In a Shiny app, automatic "reactive" binding between inputs and outputs and extensive prebuilt widgets make it possible to build beautiful, responsive, and powerful applications with minimal effort.
- ▶ Today we will learn how to build Shiny apps, and along the way learn the basics of reactive programming.



(2)

## Movie browser



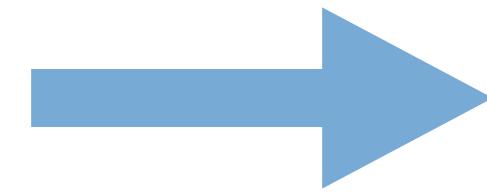


Which of the following two examples is more likely to be **interesting** for a wide range of learners?

(1)

# Uppercaser

Enter text to be converted to uppercase in  
the box below



# Uppercaser

Enter text to be converted to uppercase in  
the box below

HELLO WORLD

(2)

# Movie browser

**Sample**

Enter a sample size between 1 and 651:

[Take random sample](#) [Write CSV](#)

---

**Plot**

**Y-axis:** Audience Score

**X-axis:** Critics Score

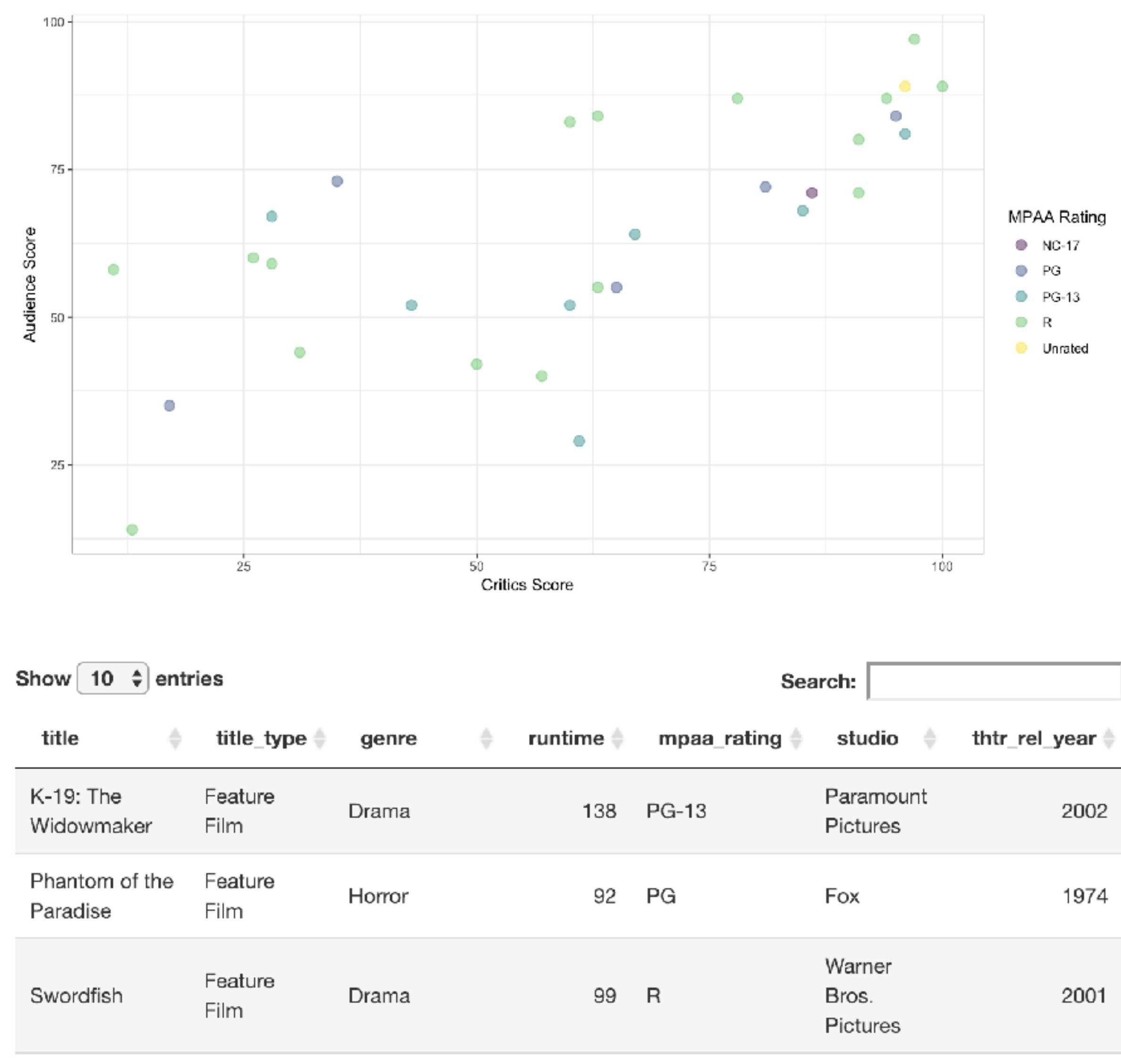
**Color by:** MPAA Rating

**Alpha:** 0.5

---

**Data**

Show data table



But let's focus on the task at hand...

The following is all we're asking students to do:

**Your turn**

The variable selected by default for the Y-axis of the plot is Audience Score. Update the app to make the default Y variable to be IMDB Score.

With great apps,  
comes a great amount of code...

...

```
# Select variable for y-axis
selectInput(inputId = "y",
            label = "Y-axis:",
            choices = c("IMDB rating" = "imdb_rating",
                       "IMDB number of votes" = "imdb_num_votes",
                       "Critics Score" = "critics_score",
                       "Audience Score" = "audience_score",
                       "Runtime" = "runtime"),
            selected = "audience_score"),
```

...

...

```
# Select variable for y-axis
selectInput(inputId = "y",
            label = "Y-axis:",
            choices = c("IMDB rating" = "imdb_rating",
                       "IMDB number of votes" = "imdb_num_votes",
                       "Critics Score" = "critics_score",
                       "Audience Score" = "audience_score",
                       "Runtime" = "runtime"),
            selected = "audience_score"),
```

...

...

```
# Select variable for y-axis
selectInput(inputId = "y",
            label = "Y-axis:",
            choices = c("IMDB rating" = "imdb_rating",
                       "IMDB number of votes" = "imdb_num_votes",
                       "Critics Score" = "critics_score",
                       "Audience Score" = "audience_score",
                       "Runtime" = "runtime"),
            selected = "imdb_rating"),
```

...

# Movie browser

## Movie browser

**Sample**

Enter a sample size between 1 and 651:

**Plot**

**Y-axis:** Audience Score

**X-axis:** Critics Score

**Color by:** MPAA Rating

**Alpha:** 0.5

**Data**

Show data table

**Sample**

Enter a sample size between 1 and 651:

**Plot**

**Y-axis:** IMDB rating

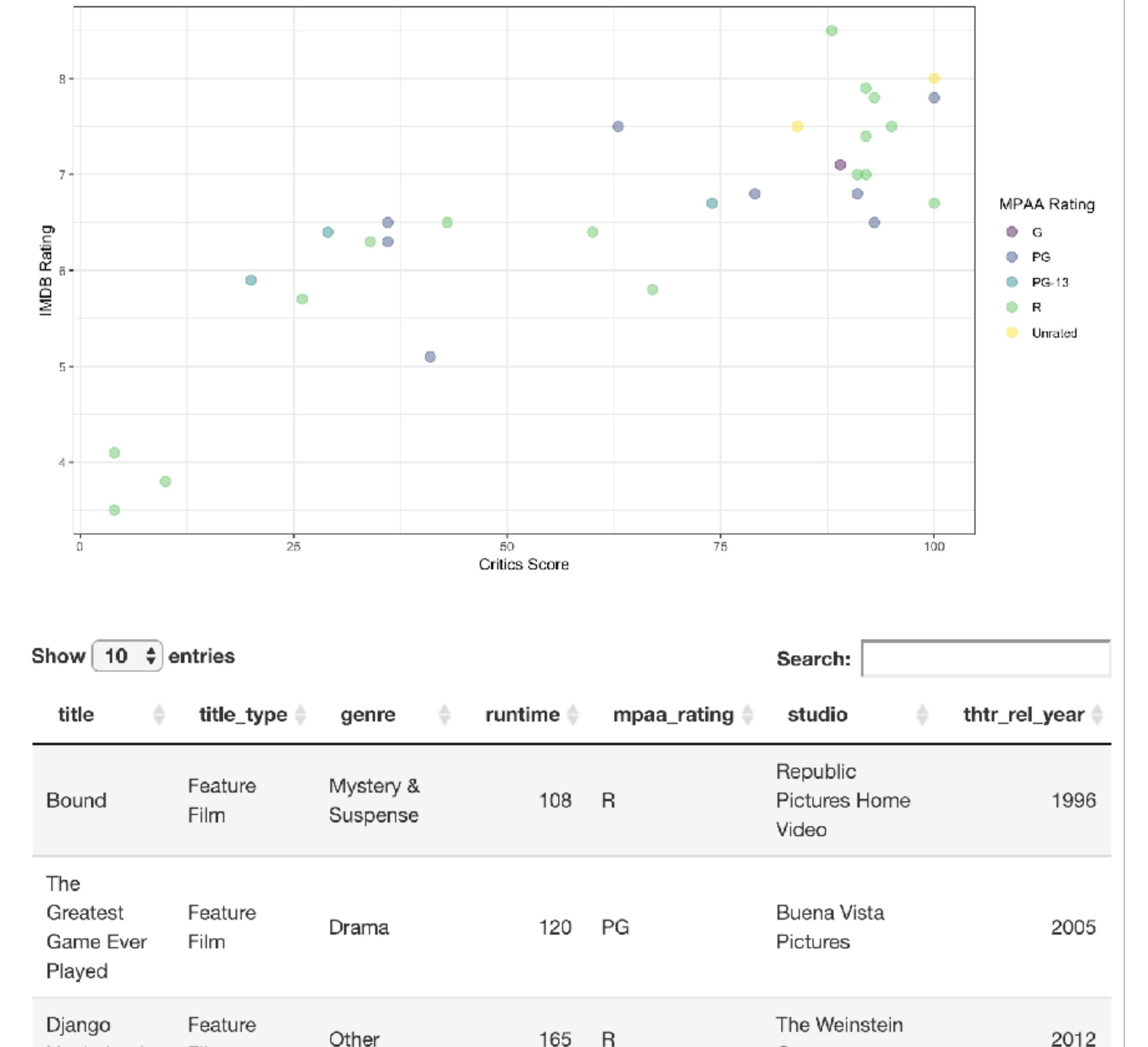
**X-axis:** Critics Score

**Color by:** MPAA Rating

**Alpha:** 0.5

**Data**

Show data table



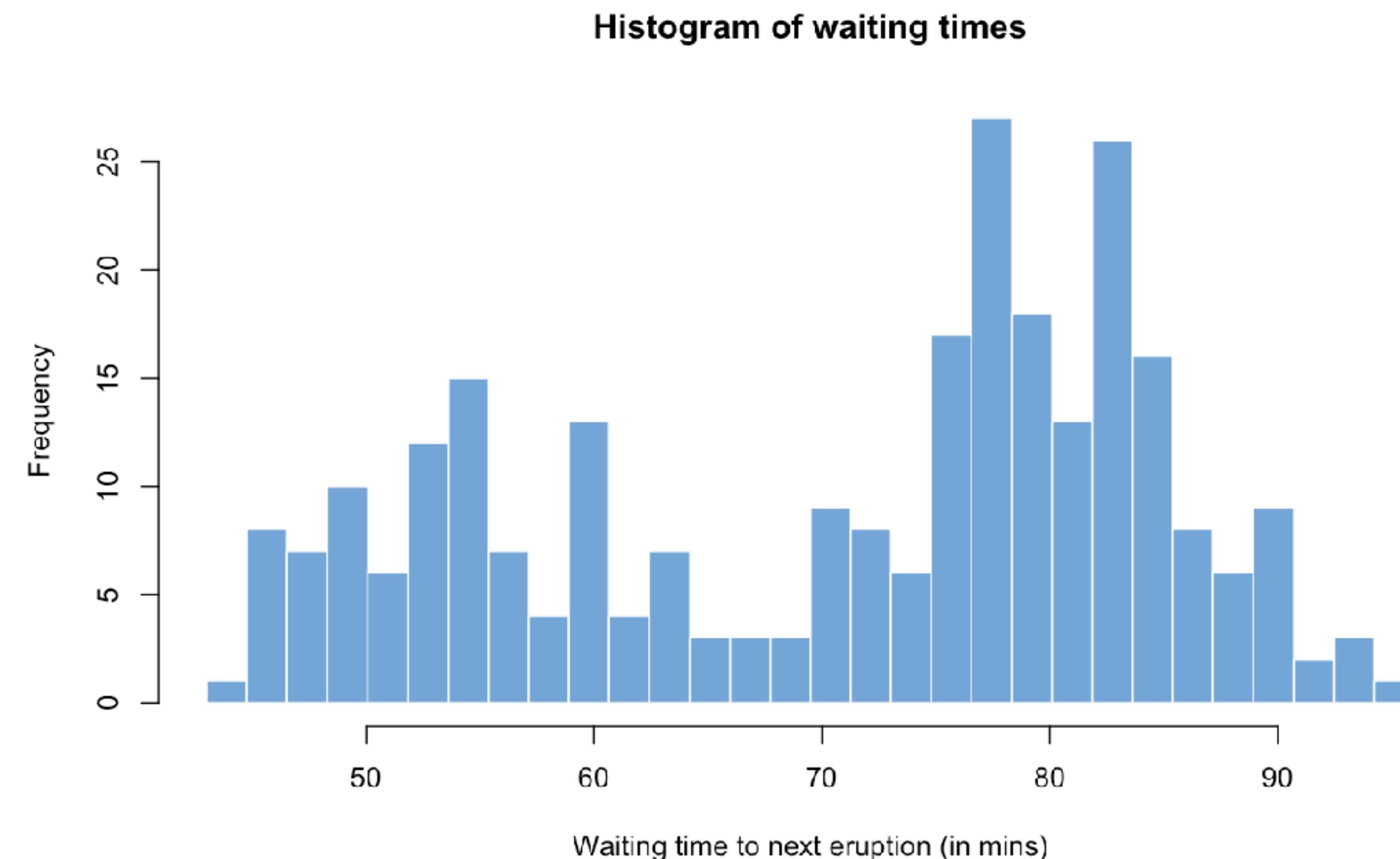
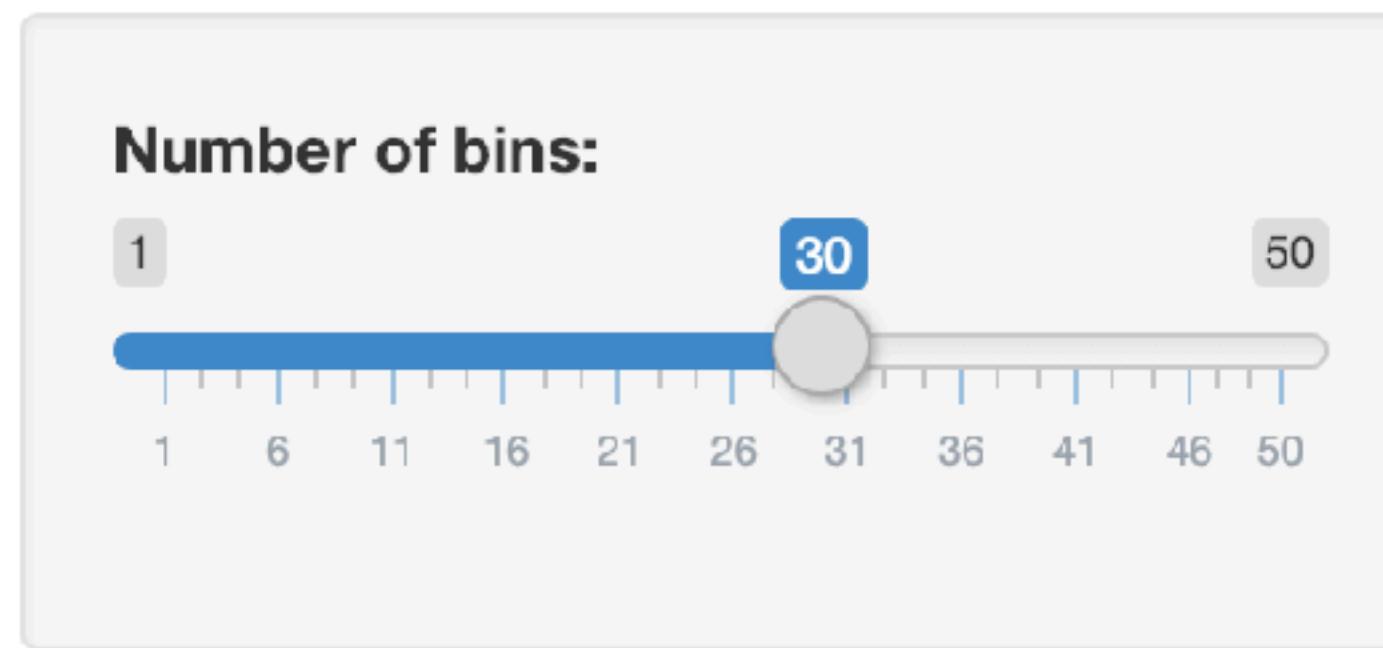
**skip  
▶ baby  
steps**



Which of the following two visualizations is more likely to **motivate** learners to want to learn more?

(1)

# Hello Shiny!



(2)

# Movie browser

**Sample**

Enter a sample size between 1 and 651:

[Take random sample](#) [Write CSV](#)

---

**Plot**

**Y-axis:**

Audience Score

**X-axis:**

Critics Score

**Color by:**

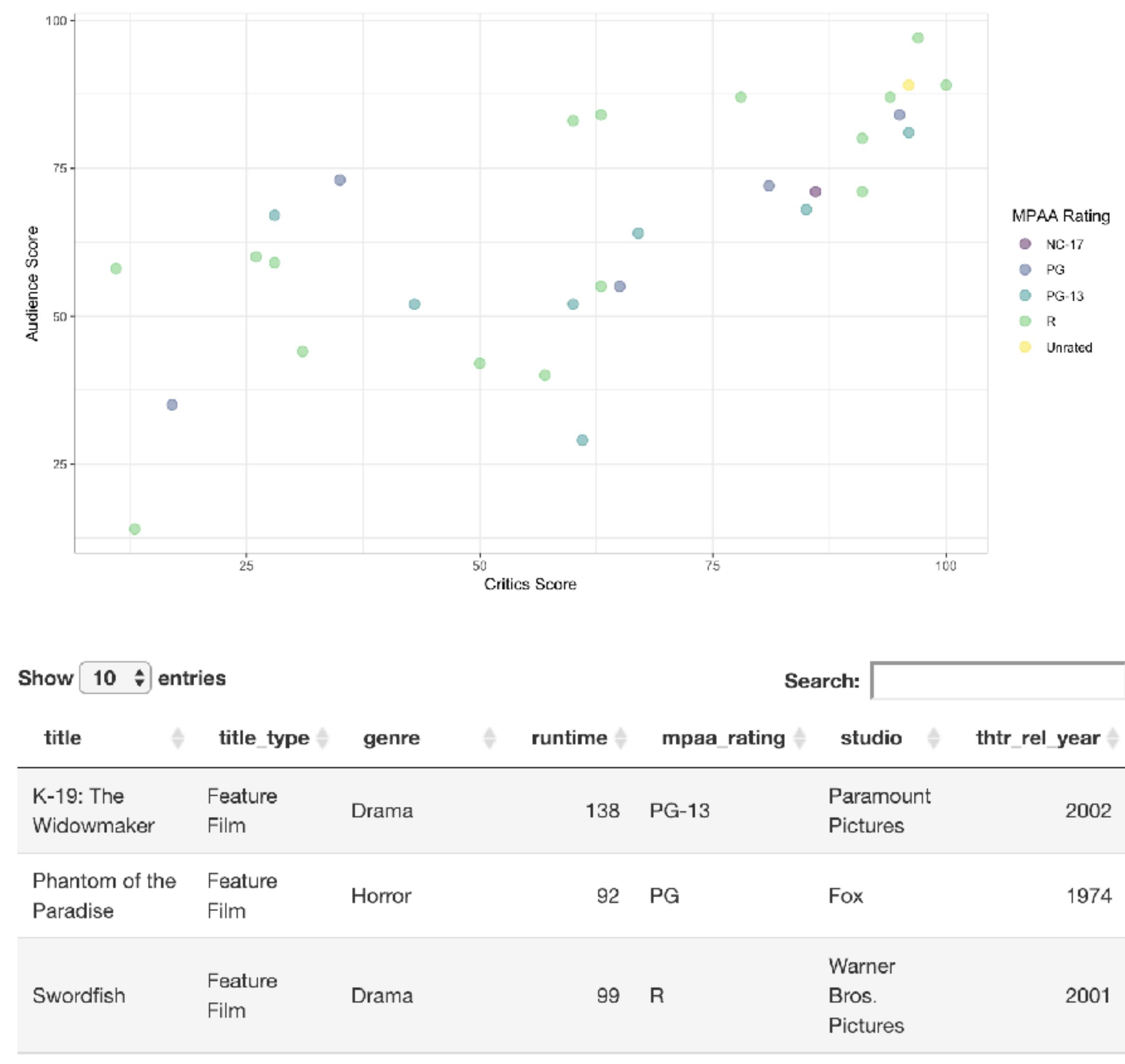
MPAA Rating

**Alpha:**

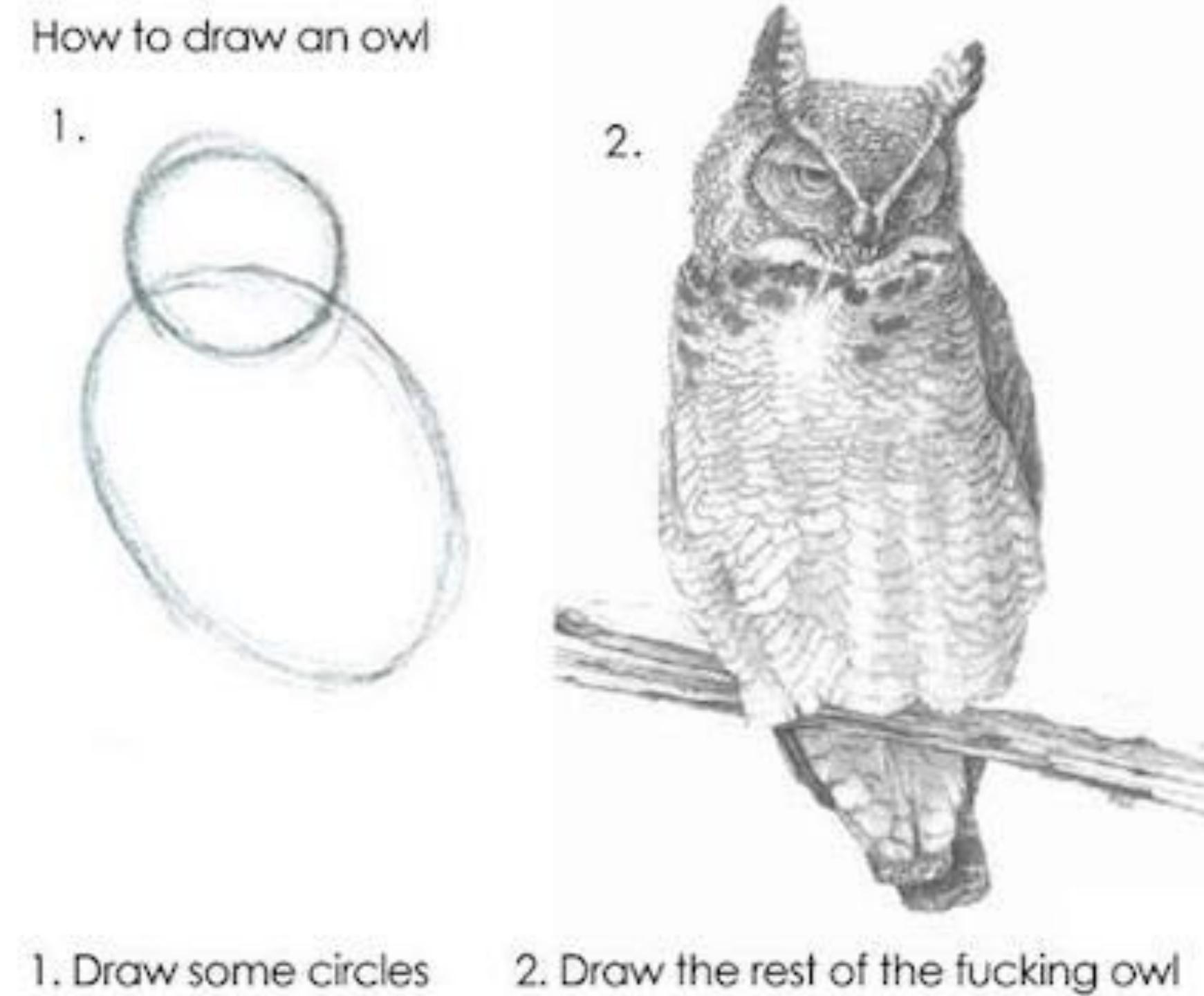
0 0.5 1

**Data**

Show data table

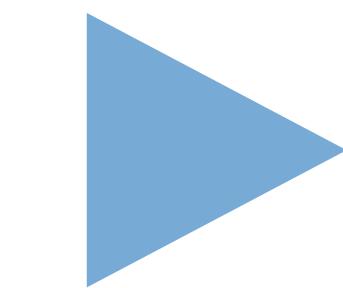


Non-trivial examples can be motivating,  
but need to avoid !

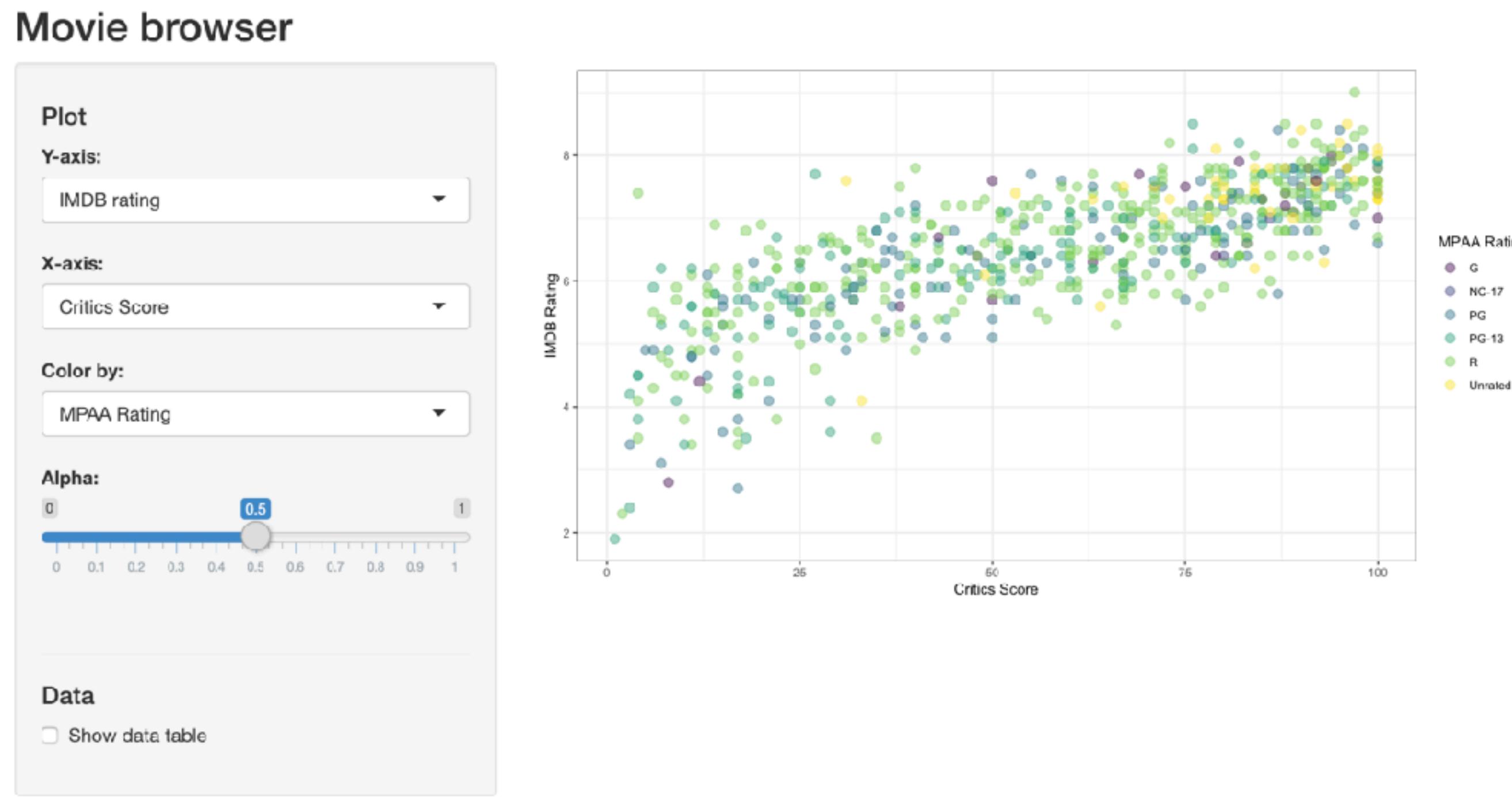


*more on this later today...*

hide  
the  
veggies



# Suppose you start with an app like this...



and ask students to add functionality take a random sample (of size input by the user) and plot it

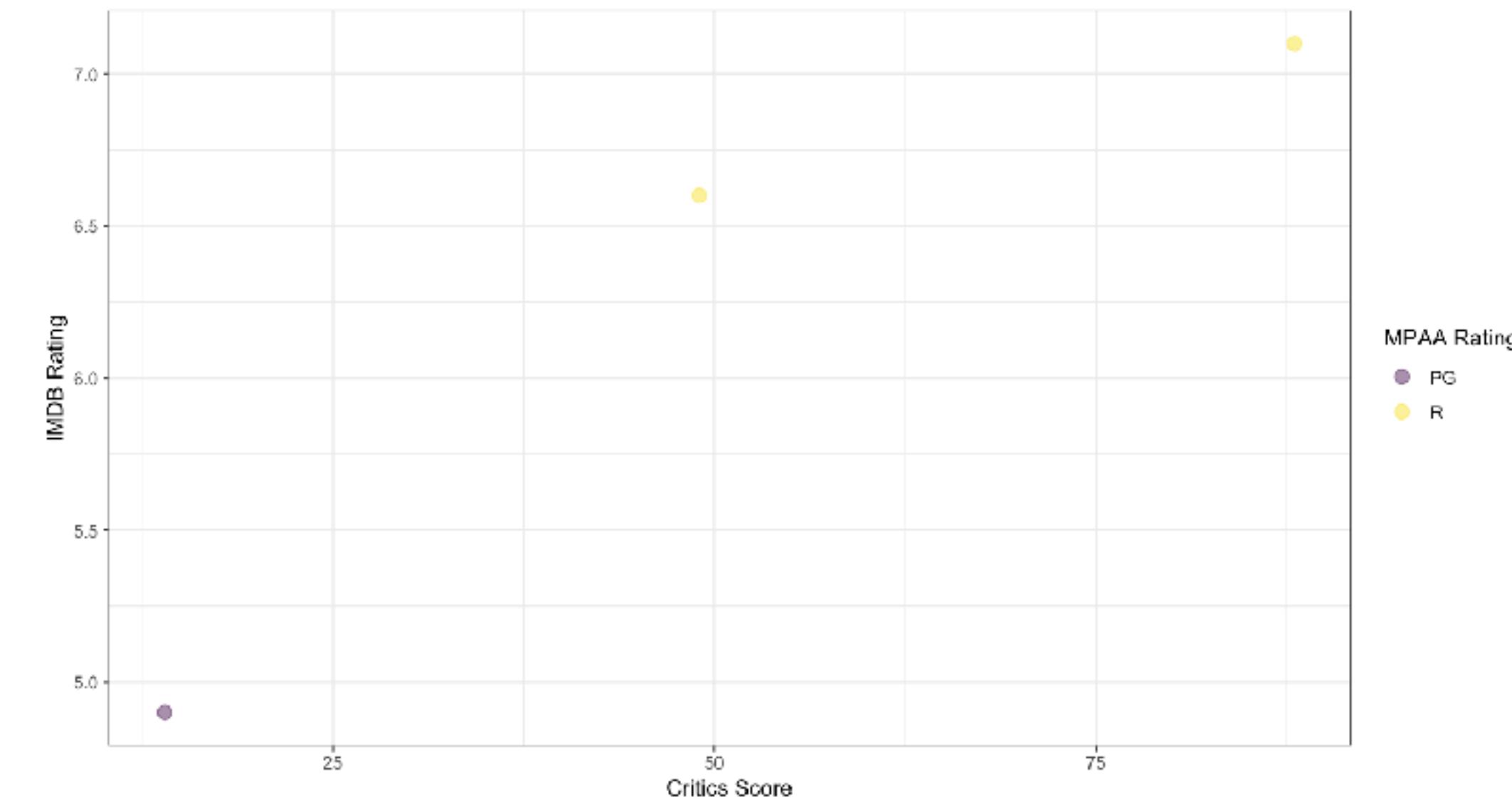
# What is ~~wrong~~ unideal about this solution?



## Movie browser

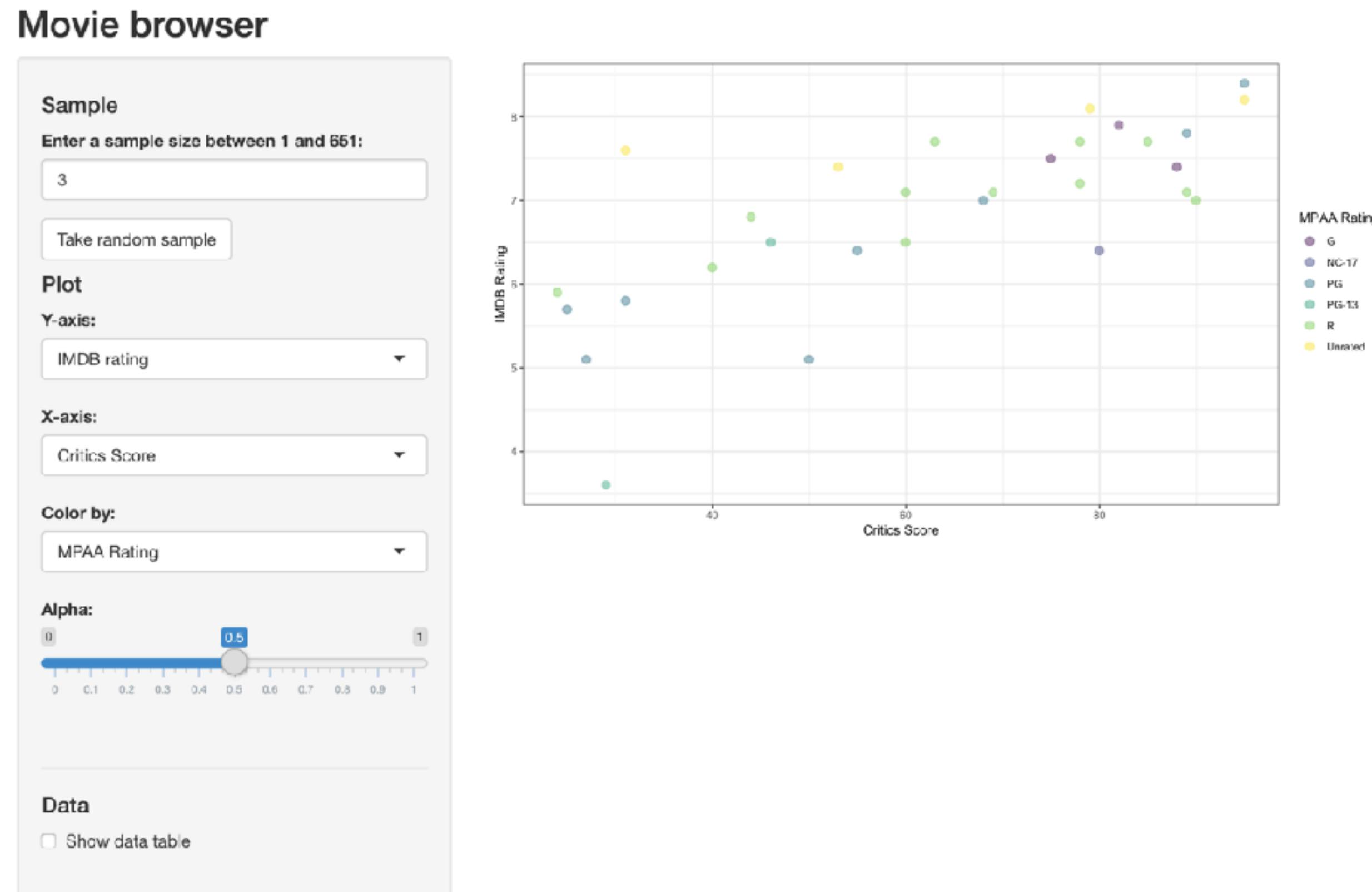
**Sample**  
Enter a sample size between 1 and 651:

**Plot**  
**Y-axis:** IMDB rating  
**X-axis:** Critics Score  
**Color by:** MPAA Rating  
**Alpha:** 0.5  
 Show data table



Students will encounter  
lots of new challenges along the way —  
let that happen,  
and then provide a solution

# A better approach uses actionButton() and eventReactive()



now there's a good motivation  
for introducing these not-so-simple concepts



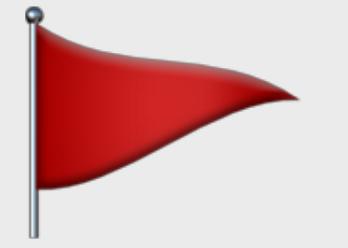
**start with cake**



**skip baby steps**



**hide the veggies**



# Your turn

- ▶ **Impromptu workshop** 🎉: Get in groups of three and run the first 3 minutes of a workshop for an audience of Shiny novices.
- ▶ You will first have 3 minutes to prepare your presentation. Keep it simple, and focus on how to start.
- ▶ At the end of each mini-presentation, spend 2 minutes giving feedback at least one strength and at least one area of improvement for the workshop beginning.

Think

3m 00s

Present

3m 00s

Discuss

2m 00s



# Discussion

What worked, what didn't?  
What was easy to accomplish,  
what wasn't so much?

# Today's goal

Use principles introduced in the workshop (yesterday + today)  
to build a 5-minute workshop snippet,  
including slides and/or other relevant teaching materials.  
Deliver it, and get feedback.