Data Visualization with Esquisse

Esquisse Package

```
# install.packages("esquisse")
library(esquisse)
```

Esquisse Package

The `esquisse` package is helpful for getting used to creating plots in R.

It is an interactive tool to help you in RStudio.

It's super **nifty**!

First, get some data..

We can use the CO heat-related ER visits dataset. This dataset contains information about the number and rate of visits for heat-related illness to ERs in Colorado from 2011-2022, adjusted for age.

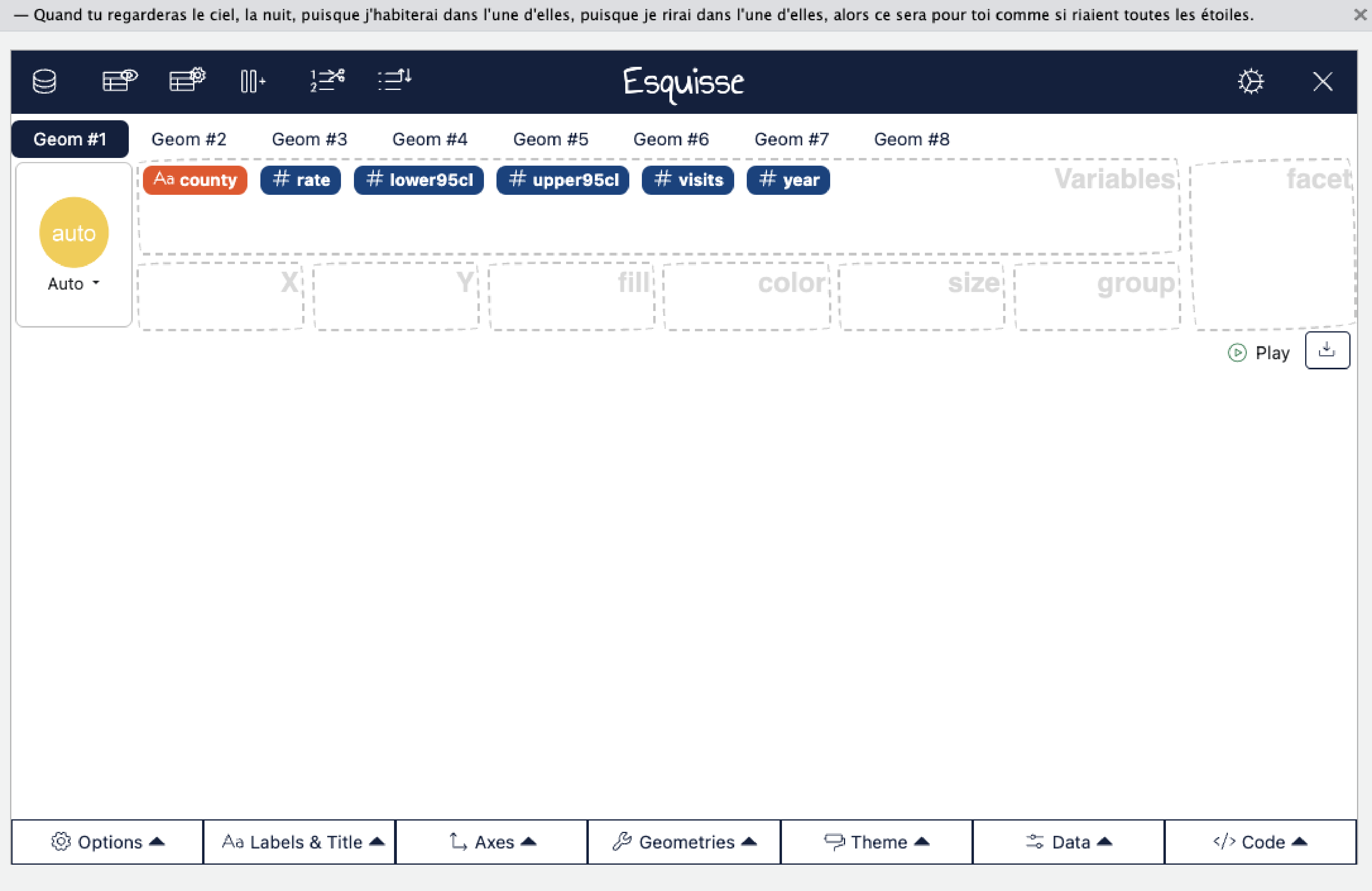
```
er <-
  read_csv("https://daseh.org/data/CO_ER_heat_visits.csv")

head(er)
```

```
## # A tibble: 6 × 6
##   county  rate lower95cl upper95cl visits  year
##   <chr>  <dbl>     <dbl>     <dbl>  <dbl> <dbl>
## 1 Adams   6.73     NA          9.24     29  2011
## 2 Adams   4.84      2.85     NA          23  2012
## 3 Adams   6.84      4.36      9.31     31  2013
## 4 Adams   3.08      1.71      4.85     15  2014
## 5 Adams   3.36      1.89      5.23     16  2015
## 6 Adams   8.85      6.12     11.6        42  2016
```

Starting a plot

Using the `esquisser()` function you can start creating a plot for a `data.frame` or `tibble`. That's it!

```
esquisser(er)
```



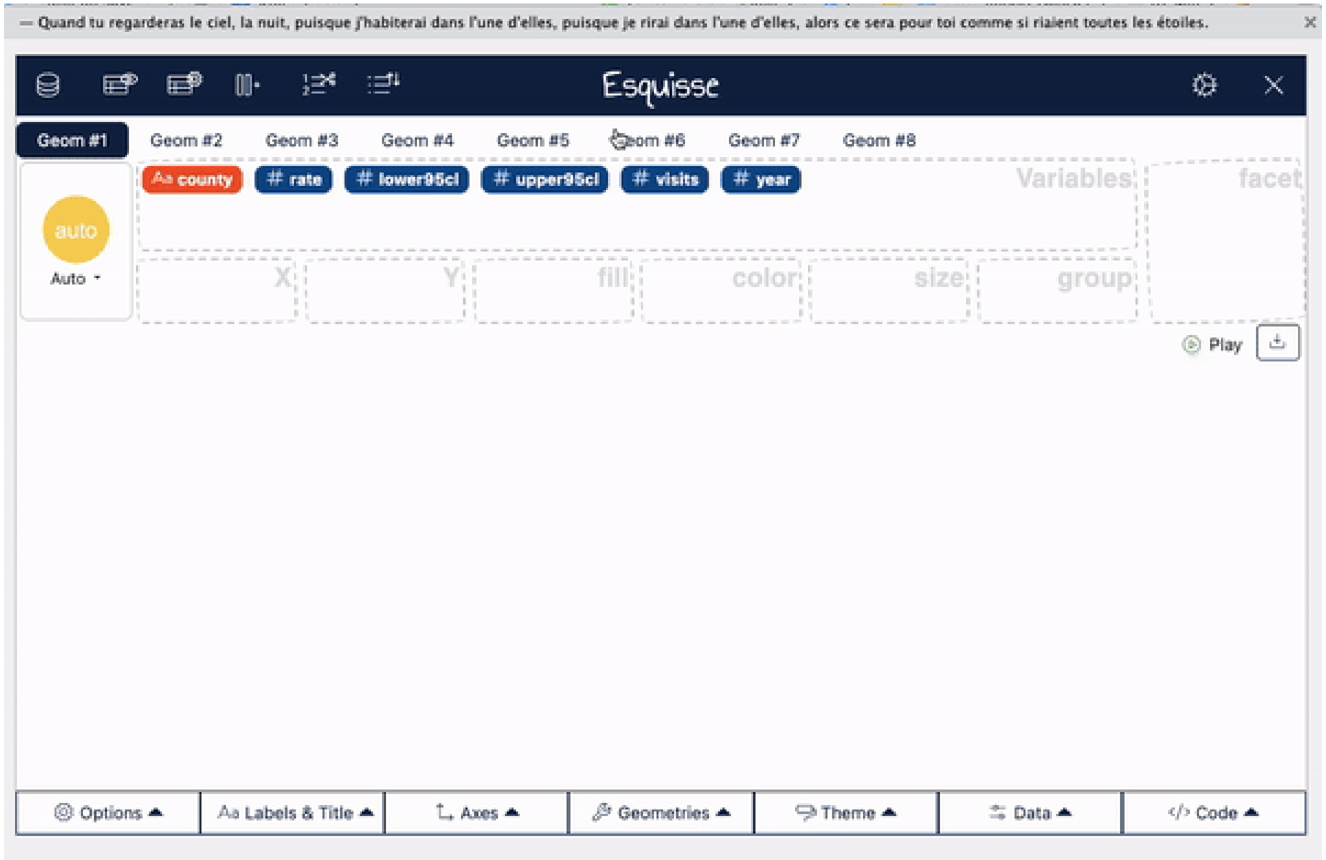
— Quand tu regarderas le ciel, la nuit, puisque j'habiterai dans l'une d'elles, puisque je rirai dans l'une d'elles, alors ce sera pour toi comme si riaient toutes les étoiles.

Show the plot in the browser

```
esquisse::esquisser(er, viewer = "browser")
```

Select Variables

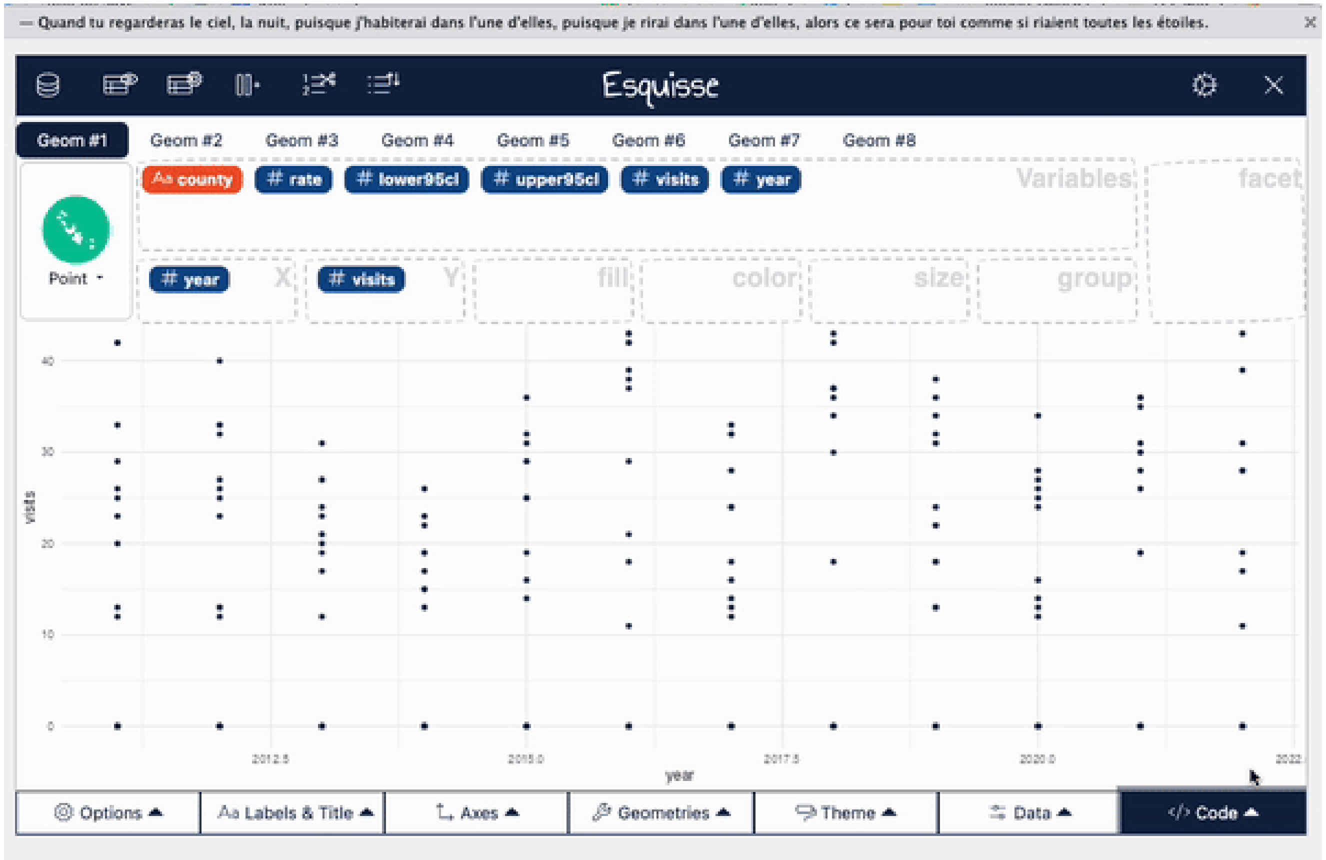
To select variables you can drag and drop variables to the respective axis that you would like the variable to be plotted on.



— Quand tu regarderas le ciel, la nuit, puisque j'habiterai dans l'une d'elles, puisque je rirai dans l'une d'elles, alors ce sera pour toi comme si riaient toutes les étoiles.

Find code

To select variables you can drag and drop variables to the respective axis that you would like the variable to be plotted on.



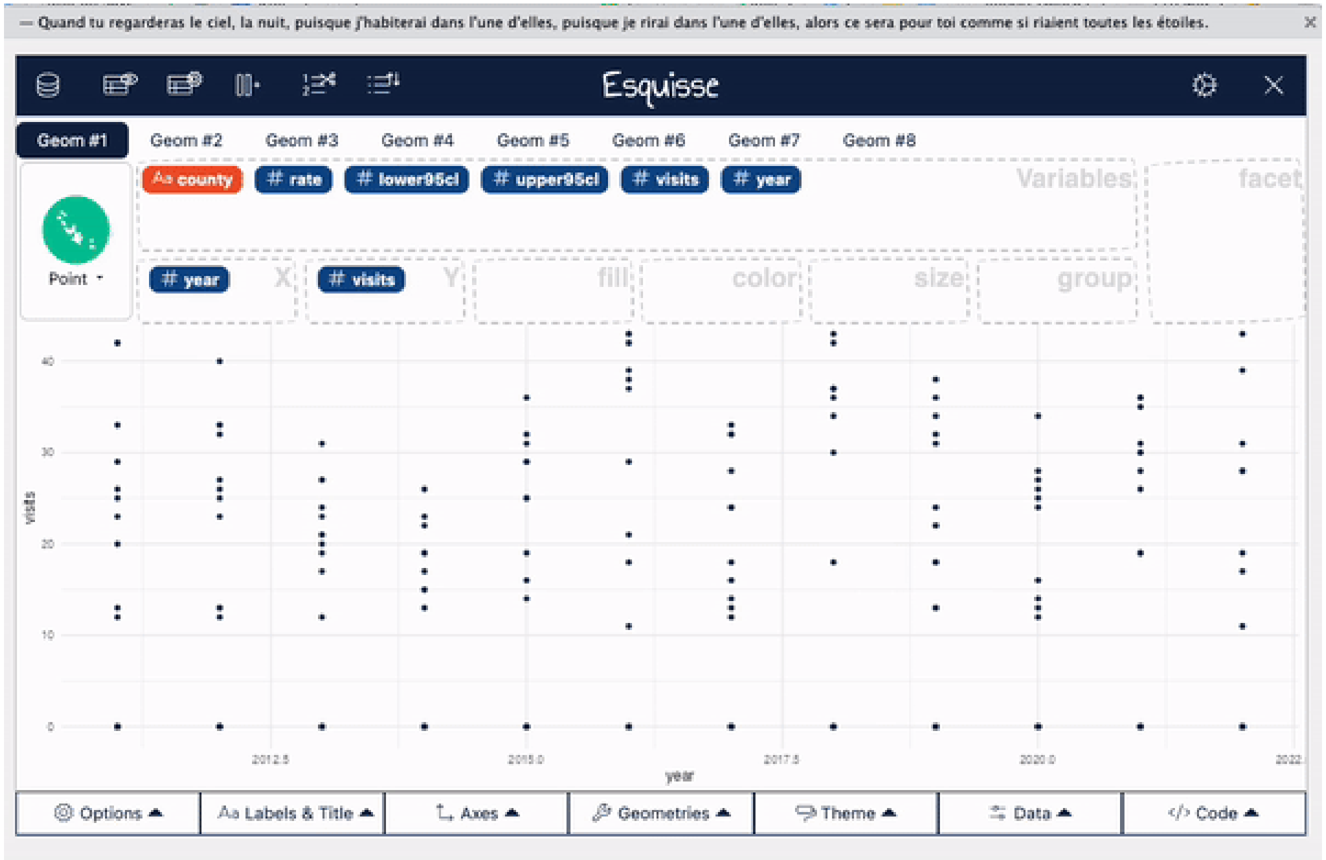
— Quand tu regarderas le ciel, la nuit, puisque j'habiterai dans l'une d'elles, puisque je rirai dans l'une d'elles, alors ce sera pour toi comme si riaient toutes les étoiles.

year X

visits Y

Change plot type

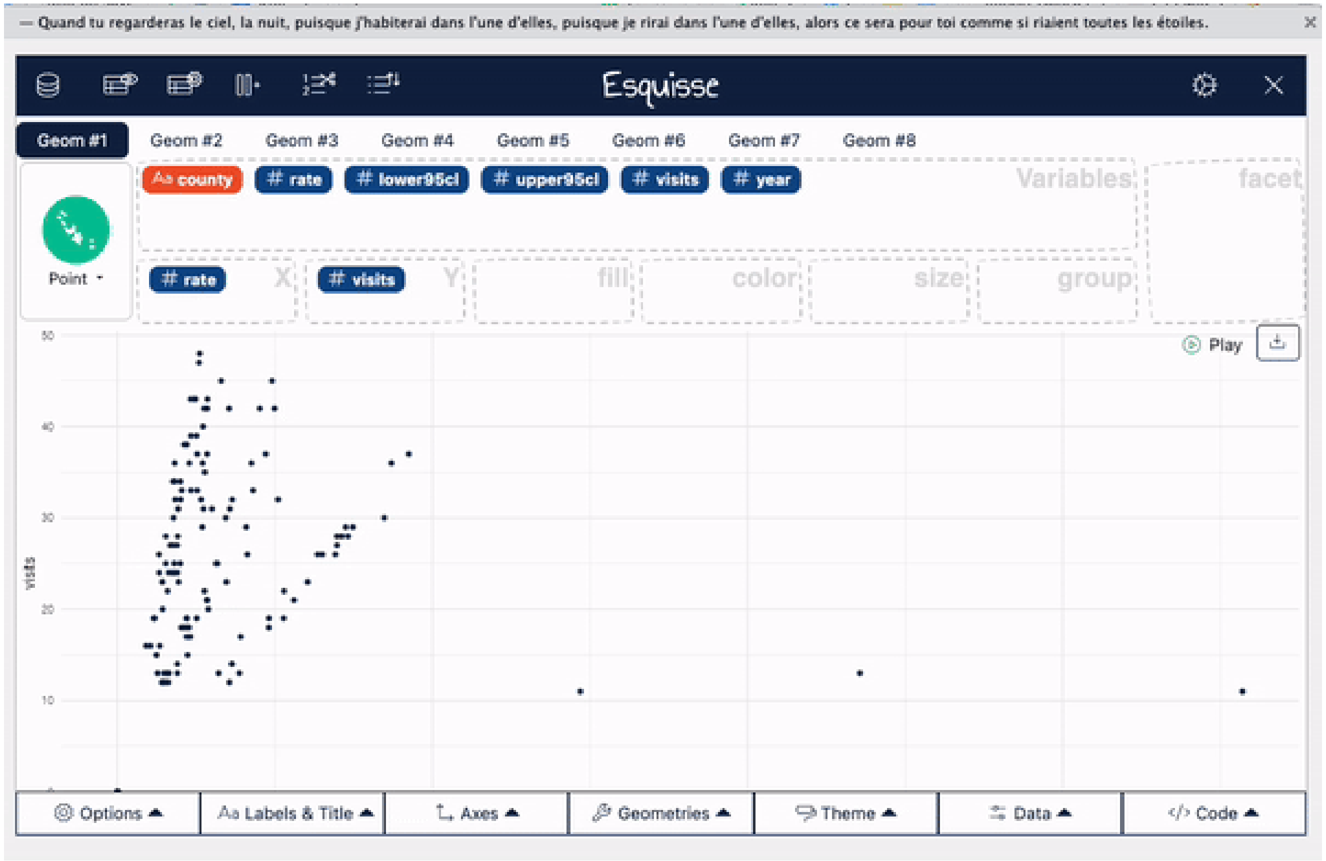
`esquisse` automatically assumes a plot type, but you might want to change this.



— Quand tu regarderas le ciel, la nuit, puisque j'habiterai dans l'une d'elles, puisque je rirai dans l'une d'elles, alors ce sera pour toi comme si riaient toutes les étoiles.

Add Facets

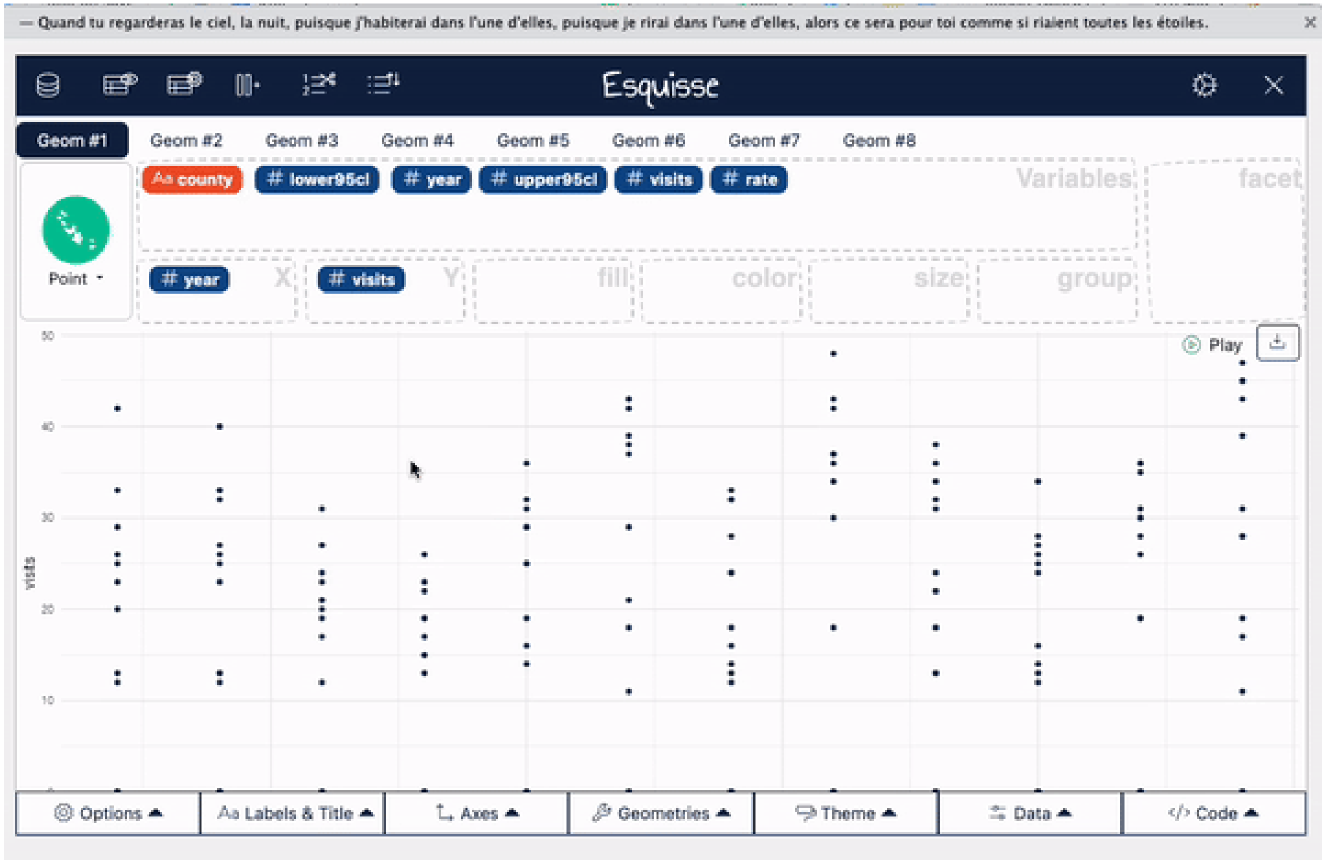
Facets create multiple plots based on the different values of a variable.



— Quand tu regarderas le ciel, la nuit, puisque j'habiterai dans l'une d'elles, puisque je rirai dans l'une d'elles, alors ce sera pour toi comme si riaient toutes les étoiles.

Add size

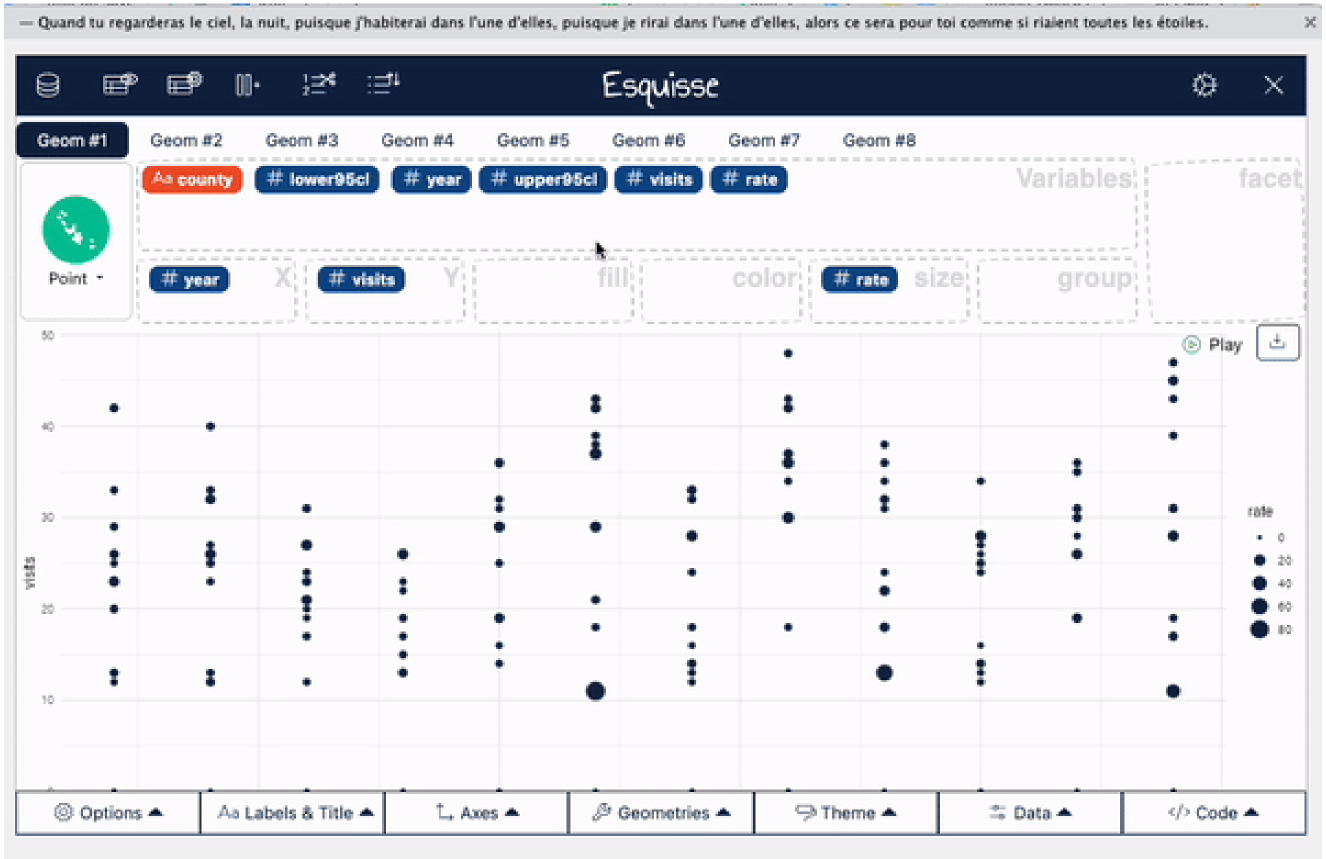
Sometimes it is useful to change the way points are plotted so that size represents a variable. This can especially be helpful if you need your plot to be black and white.



— Quand tu regarderas le ciel, la nuit, puisque j'habiterai dans l'une d'elles, puisque je rirai dans l'une d'elles, alors ce sera pour toi comme si riaient toutes les étoiles.

Add color

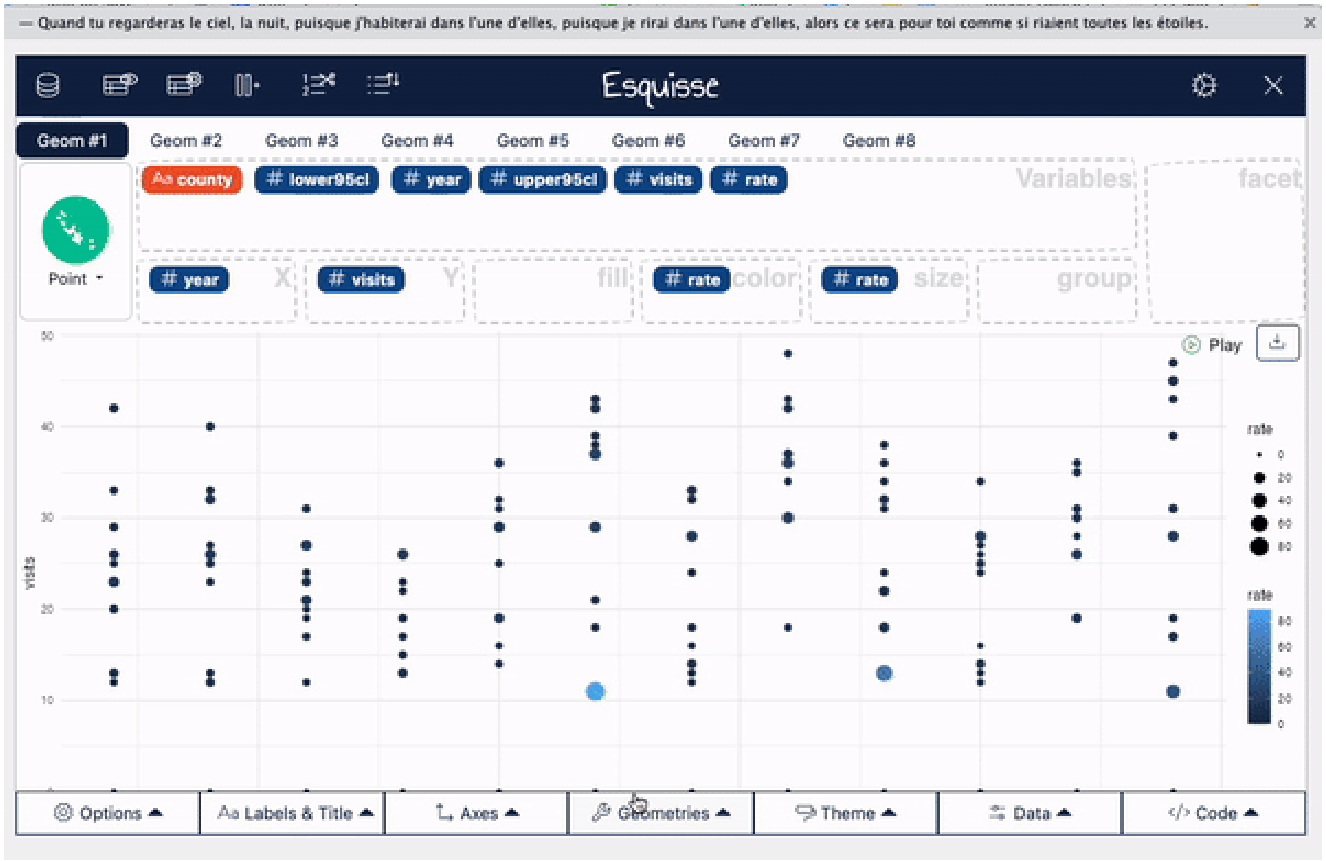
For plots with points use the color region to change coloring according to a variable. (use “fill” for bar plots)



— Quand tu regarderas le ciel, la nuit, puisque j'habiterai dans l'une d'elles, puisque je rirai dans l'une d'elles, alors ce sera pour toi comme si riaient toutes les étoiles.

Appearance

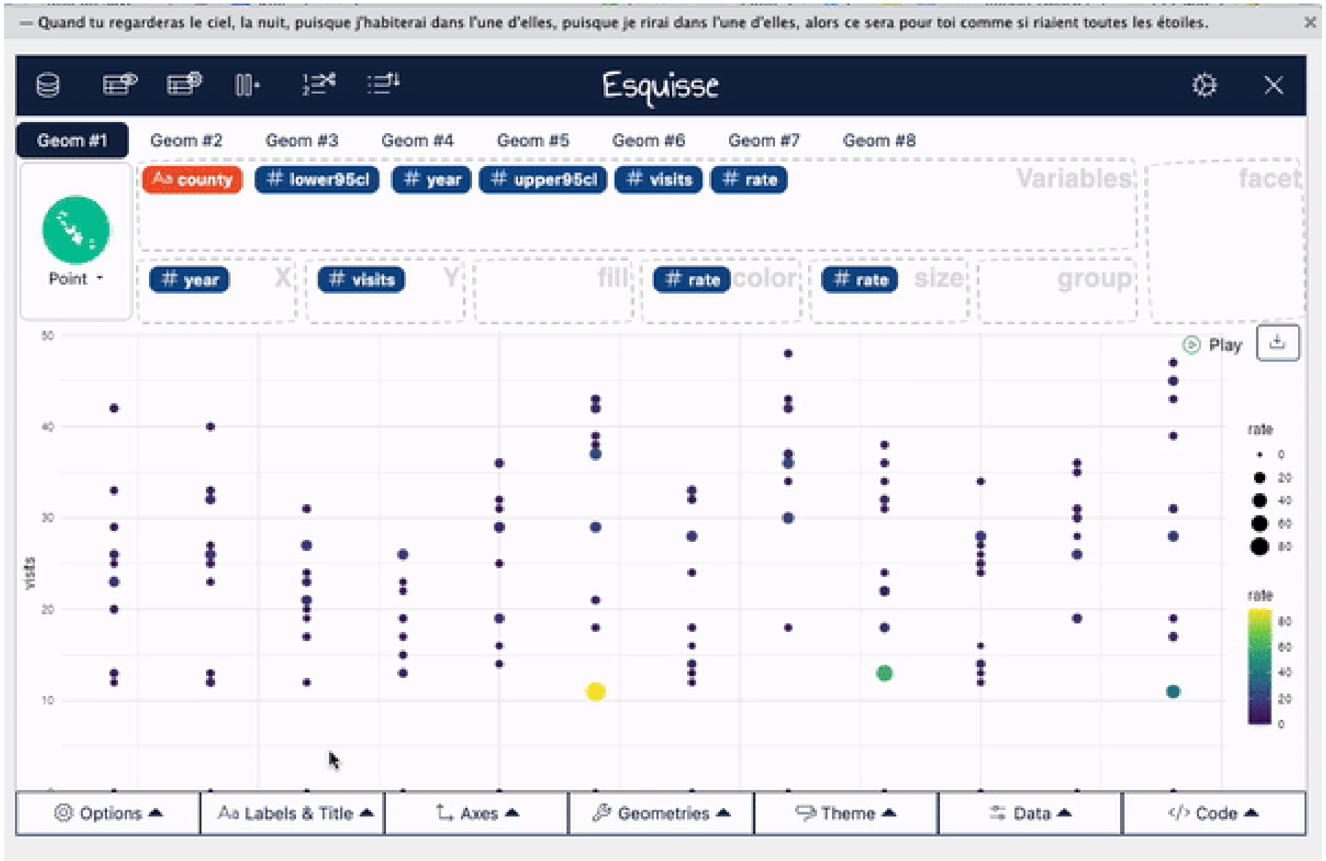
You can change the overall appearance with “Geometries” and “Theme”.



— Quand tu regarderas le ciel, la nuit, puisque j'habiterai dans l'une d'elles, puisque je rirai dans l'une d'elles, alors ce sera pour toi comme si riaient toutes les étoiles.

Change titles

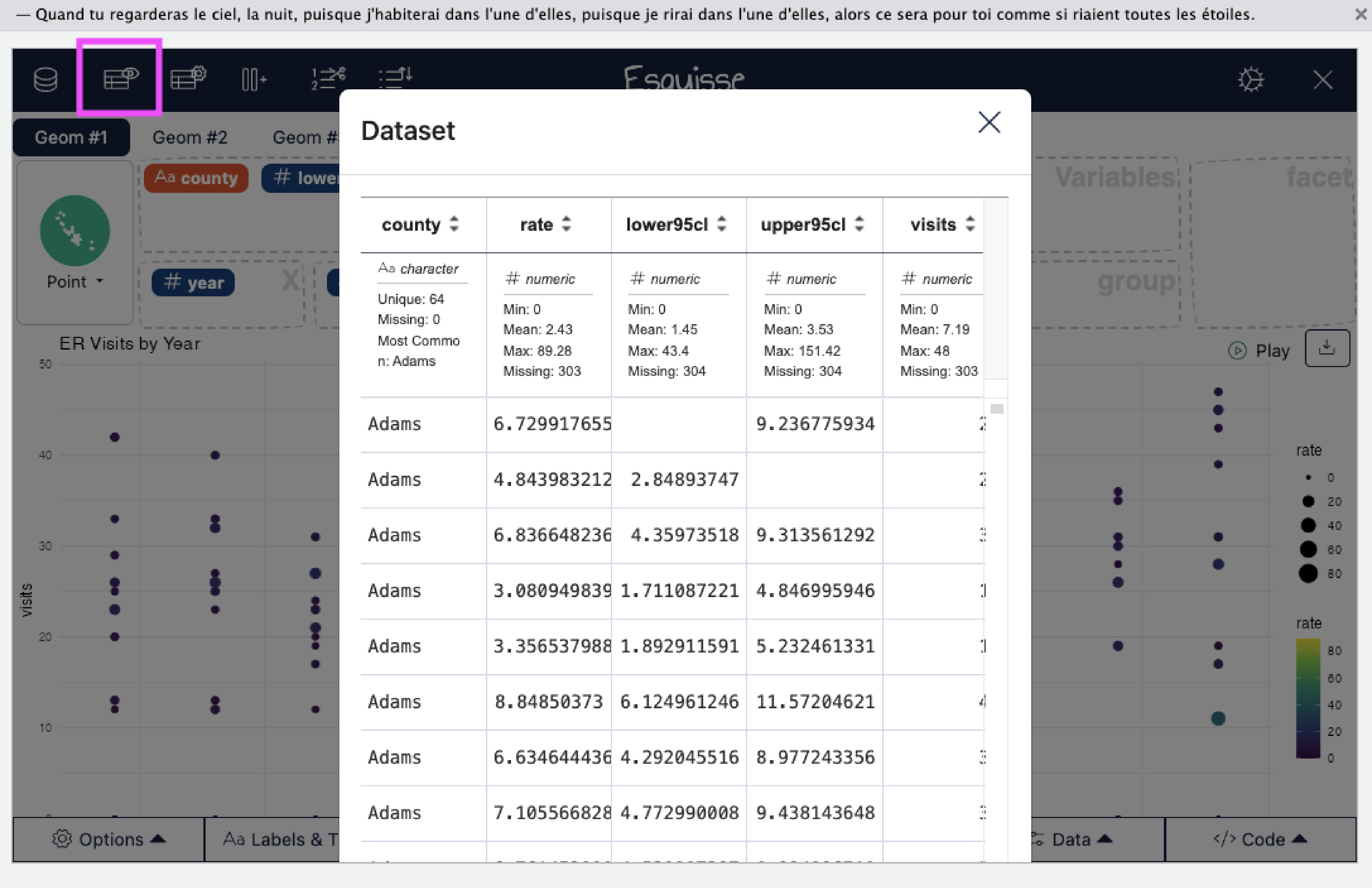
To change titles on your plot, use the “Labels & Titles” tab.



— Quand tu regarderas le ciel, la nuit, puisque j'habiterai dans l'une d'elles, puisque je rirai dans l'une d'elles, alors ce sera pour toi comme si riaient toutes les étoiles.

View data

You can also easily view data



— Quand tu regarderas le ciel, la nuit, puisque j'habiterai dans l'une d'elles, puisque je rirai dans l'une d'elles, alors ce sera pour toi comme si riaient toutes les étoiles.

Dataset

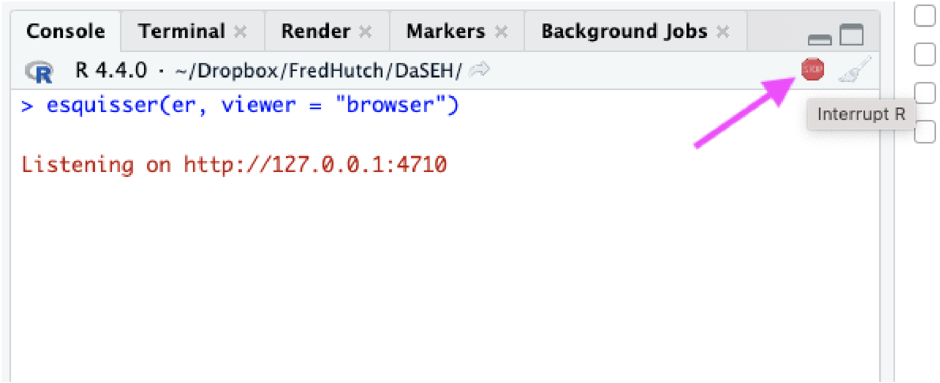
county	rate	lower95cl	upper95cl	visits
Aa character Unique: 64 Missing: 0 Most Common: Adams	# numeric Min: 0 Mean: 2.43 Max: 89.28 Missing: 303	# numeric Min: 0 Mean: 1.45 Max: 43.4 Missing: 304	# numeric Min: 0 Mean: 3.53 Max: 151.42 Missing: 304	# numeric Min: 0 Mean: 7.19 Max: 48 Missing: 303
Adams	6.729917655		9.236775934	2
Adams	4.843983212	2.84893747		2
Adams	6.836648236	4.35973518	9.313561292	3
Adams	3.080949839	1.711087221	4.846995946	1
Adams	3.356537988	1.892911591	5.232461331	1
Adams	8.84850373	6.124961246	11.57204621	4
Adams	6.634644436	4.292045516	8.977243356	3
Adams	7.105566828	4.772990008	9.438143648	3

Interrupting Esquisse

You’ll need to “interrupt” Esquisse to launch it with a new dataset.

1. Close the tab/window
2. Use the stop button to stop the Esquisse app

If you don’t see the stop button, you need to resize your window.



```
> esquisser(er, viewer = "browser")

Listening on http://127.0.0.1:4710
```

Wide & Long Data ?

Let’s look at why we might want long data using Esquisse.

```
library(tidyverse)
long_er <- er |>
  select(c("county", "year", "visits"))
glimpse(long_er)
```

```
## Rows: 768
## Columns: 3
## $ county <chr> "Adams", "Adams", "Adams", "Adams", "Adams", "Adams", "Adams", …
## $ year   <dbl> 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 202…
## $ visits <dbl> 29, 23, 31, 15, 16, 42, 32, 37, 36, 24, 35, 45, 0, 0, NA, 0, NA…
```

Wide Data

As a comparison, let’s also load a wide version of this dataset.

```
wide_er <- er |>
  select(county, visits, year) |>
  pivot_wider(names_from = county, values_from = visits)
```

Wide vs Long Data

```
head(long_er)
```

```
## # A tibble: 6 × 3
##   county  year visits
##   <chr>  <dbl>  <dbl>
## 1 Adams   2011     29
## 2 Adams   2012     23
## 3 Adams   2013     31
## 4 Adams   2014     15
## 5 Adams   2015     16
## 6 Adams   2016     42
```

```
head(wide_er)
```

```
## # A tibble: 6 × 65
##    year Adams Alamosa Arapahoe Archuleta  Baca  Bent Boulder Broomfield Chaff
##   <dbl> <dbl>   <dbl>    <dbl>     <dbl> <dbl> <dbl>   <dbl>      <dbl>   <db
## 1  2011    29       0       33         0     0     0      12         NA
## 2  2012    23       0       27         0     0    NA      13         NA
## 3  2013    31      NA       20         0     0     0      12         NA
## 4  2014    15       0       NA         0     0    NA      19         NA
## 5  2015    16      NA       31         0     0    NA      14         NA
## 6  2016    42      NA       39         0     0    NA      18         NA
## # ℹ 55 more variables: Cheyenne <dbl>, `Clear Creek` <dbl>, Conejos <dbl>,
## #   Costilla <dbl>, Crowley <dbl>, Custer <dbl>, Delta <dbl>, Denver <dbl>,
## #   Dolores <dbl>, Douglas <dbl>, Eagle <dbl>, Elbert <dbl>, `El Paso` <dbl>,
## #   Fremont <dbl>, Garfield <dbl>, Gilpin <dbl>, Grand <dbl>, Gunnison <dbl>,
## #   Hinsdale <dbl>, Huerfano <dbl>, Jackson <dbl>, Jefferson <dbl>,
```

Make a plot of visits by year for different counties

```
esquisser(wide_er) # only one county at a time? Tricky!
esquisser(long_er) # county as color, visits as y, year as x!
```

GUT CHECK!

Why use Esquisse?

A. Explore your data

B. Get a “head start” on your code

C. Both of these!

Some Alternatives to **esquisse**

- `ggquickeda`: https://smouksassi.github.io/ggquickeda/
- `ggraptR`: https://github.com/cargomoose/ggraptR/
- `autoplot` can be helpful for some packages (see this blog post)

Summary

- Use the `esquisser()` function on a dataset
- Use the `viewer = "browser"` argument to launch in your browser.
- Code from Esquisse can copied into code chunks to be generated in the "Plots" pane
- It's easier if your code is in "long" form!

Lab

- Class Website
- Lab
- Day 6 Cheatsheet

Image by Gerd Altmann from Pixabay