Introduction to R

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2021-07-14

This document was made using R-Markdown.

This document was also made using R-Markdown.

Job Candidate

PhD candidate in Economics

Big Ten University

cv

Biography

Job candidate is a doctoral candidate in economics at Big Ten University. Job candidate has research interests in health and environmental economics and will be available for interviews for the 2020-2021 job market.

Interests

- Health economics
- Environmental economics

Education

- PhD in Economics, 2021 (Expected)
  Big Ten University
- MS in Economics, 2017
  Big Ten University
- BA in Economics, 2016
  Liberal Arts College

This document was also made using R-Markdown.

scul 0.2.0.0 Tutorial Functions Paper

Synthetic Control Using Lasso (scul)

This repository contains the R package `scul` that is used in Hollingsworth and Wing (2020) *"Tactics for design and inference in synthetic control studies: An applied example using high-dimensional data."* https://doi.org/10.31235/osf.io/fc9xt

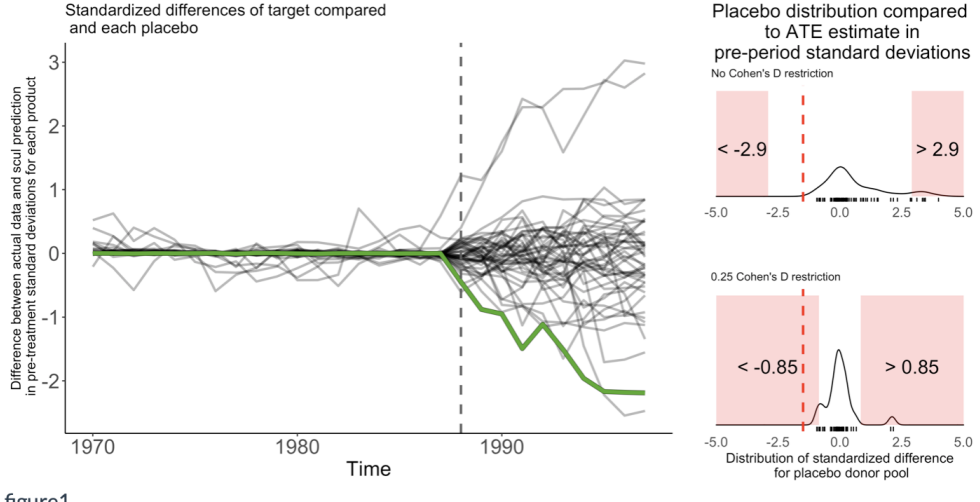


figure1

Links

Browse source code at https://github.com/hollina/scul/

Report a bug at https://github.com/hollina/scul/issues/

License

Full license

MIT + file LICENSE

Developers

Alex Hollingsworth

Author, maintainer

Dev status

build passing

lifecycle experimental

License MIT

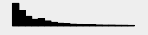
Installation

```
# Install development version from GitHub (CRAN coming soon) using these two lin
es of code
```

Summary statistics table

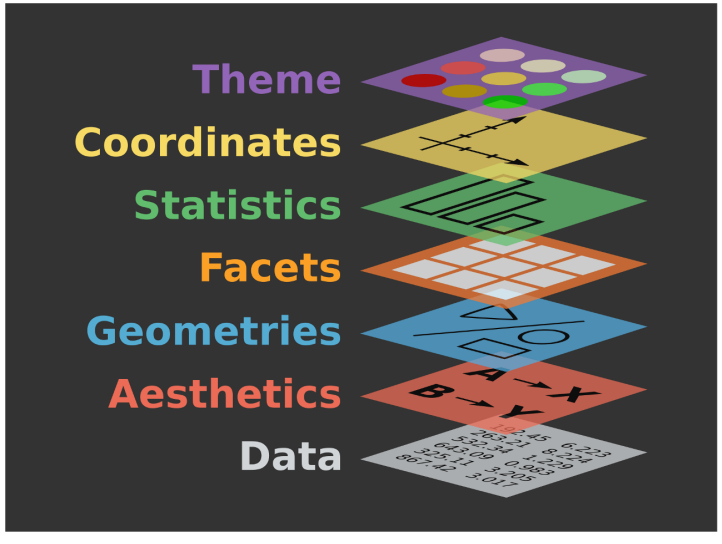
Now we can use the `datasummary_skim` function.

```
datasummary_skim(diamonds)
```

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max	
carat	273	0	0.8	0.5	0.2	0.7	5.0	
depth	184	0	61.7	1.4	43.0	61.8	79.0	
table	127	0	57.5	2.2	43.0	57.0	95.0	
price	11602	0	3932.8	3989.4	326.0	2401.0	18823.0	
x	554	0	5.7	1.1	0.0	5.7	10.7	
y	552	0	5.7	1.1	0.0	5.7	58.9	
z	375	0	3.5	0.7	0.0	3.5	31.8	

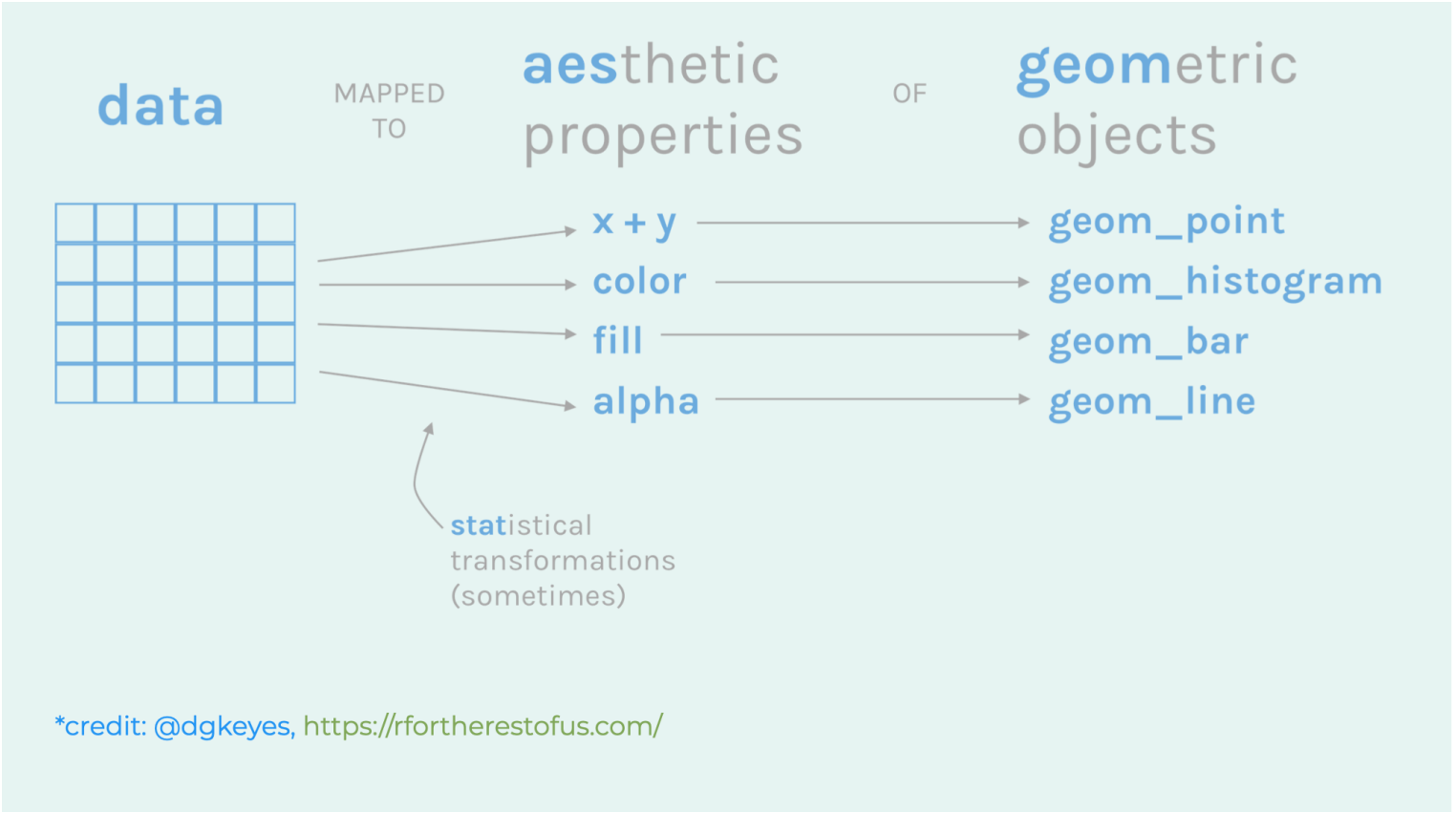
Graphing with `ggplot`

grammar of **g**raphics **plot**



Graphing with `ggplot`

grammar of **g**raphics **plot**



Graphing with `ggplot`

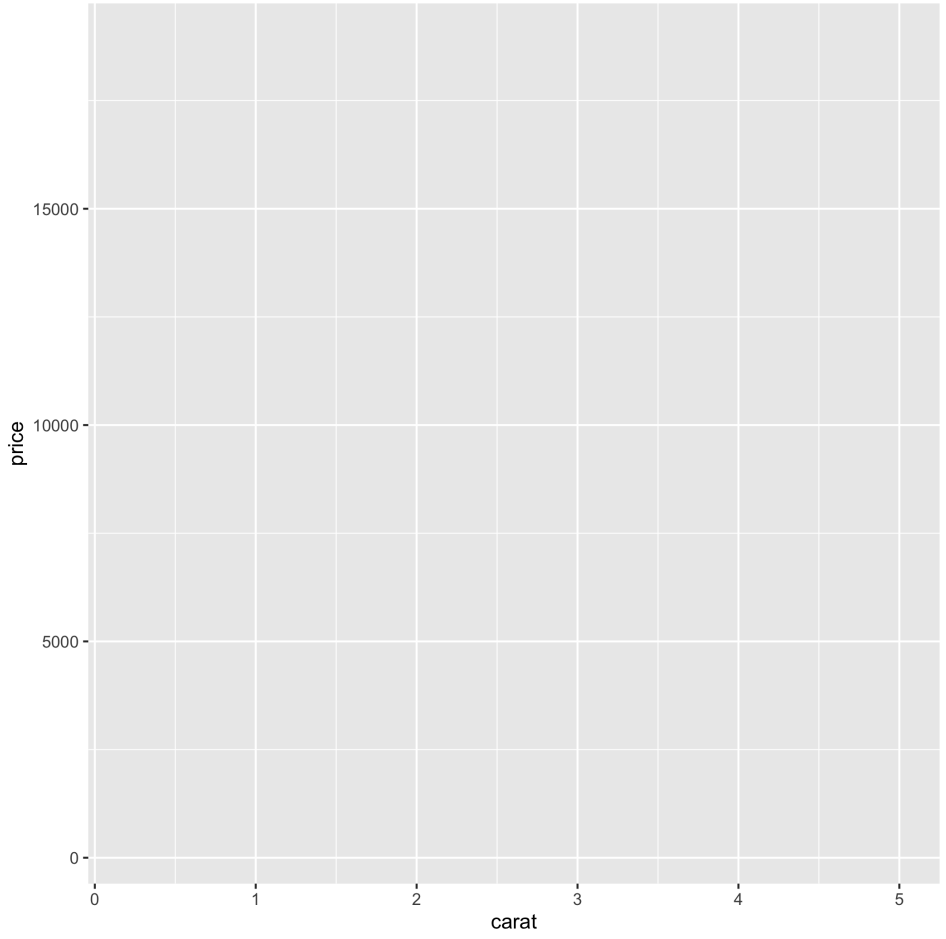
```
ggplot(data = diamonds)
```

First add data

Graphing with `ggplot`

```
ggplot(data = diamonds,
       aes(y = price, x = carat))
```

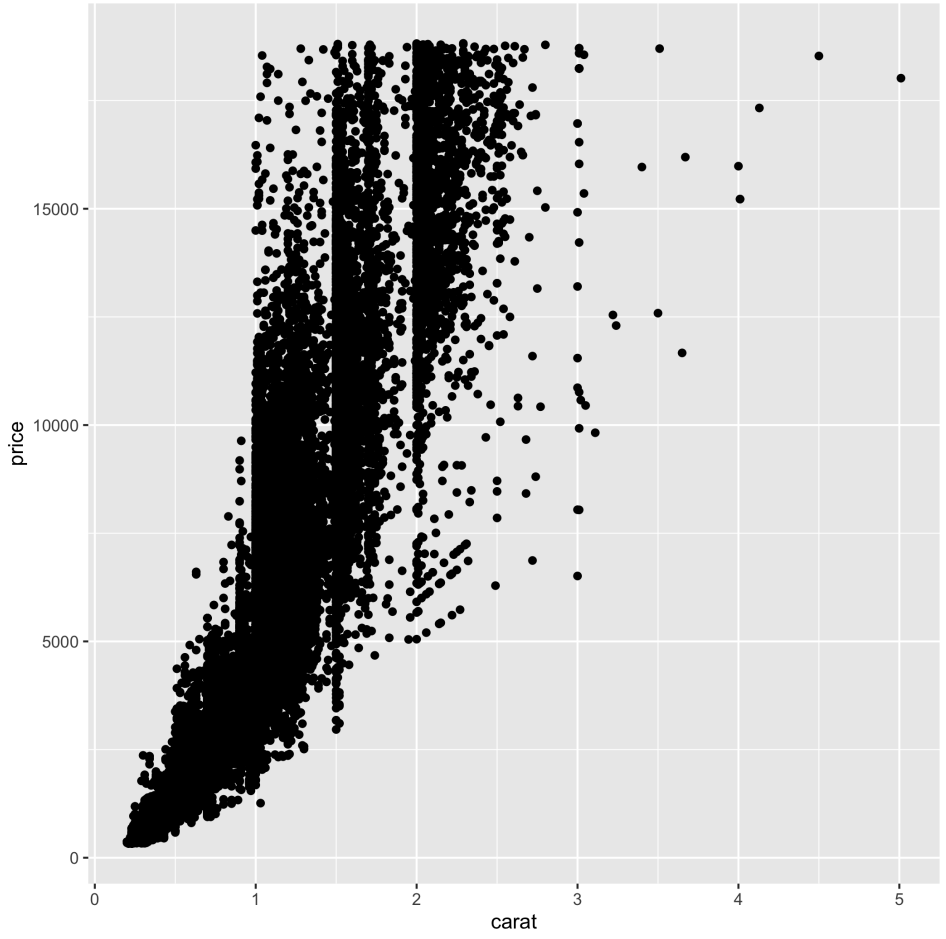
Second add aesthetics



Graphing with `ggplot`

```
ggplot(data = diamonds,
       aes(y = price, x = carat)) +
    geom_point()
```

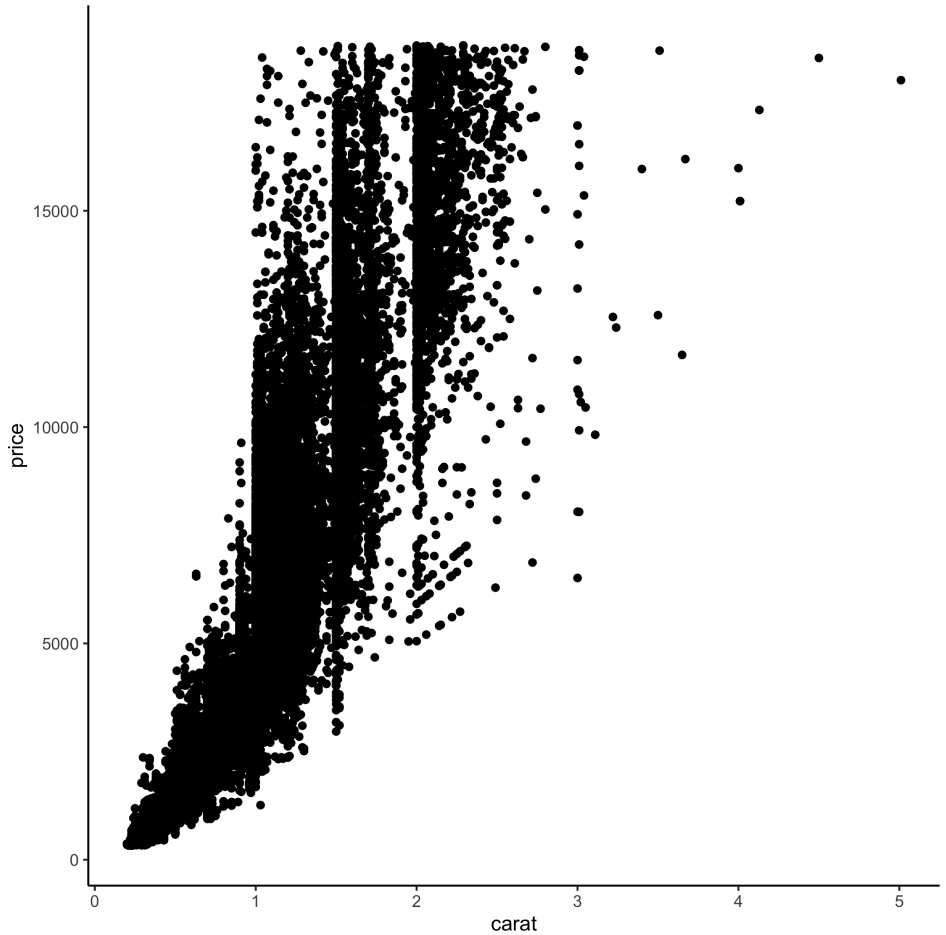
Third add geometry



Graphing with `ggplot`

```
ggplot(data = diamonds,
       aes(y = price, x = carat)) +
    geom_point() +
    theme_classic()
```

Fourth add theme

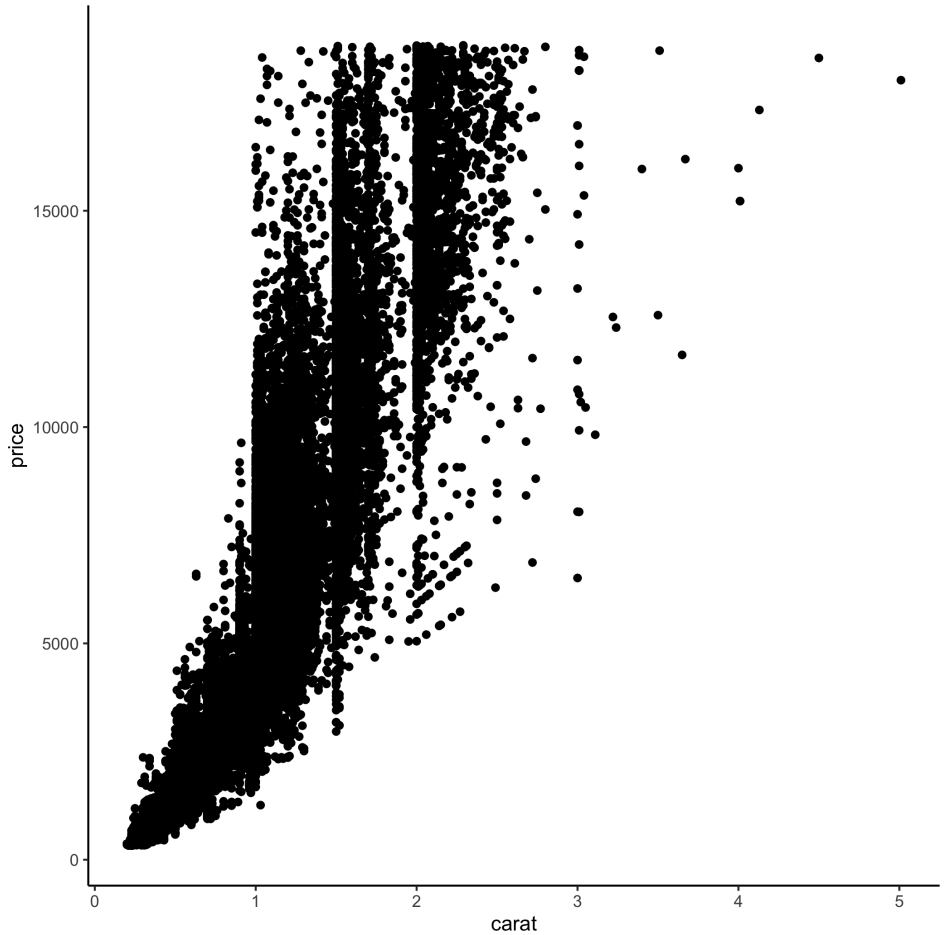


Graphing with `ggplot`

```
base_plot = ggplot(data = diamonds,
                   aes(y = price, x = carat
    geom_point()

base_plot +
  theme_classic()
```

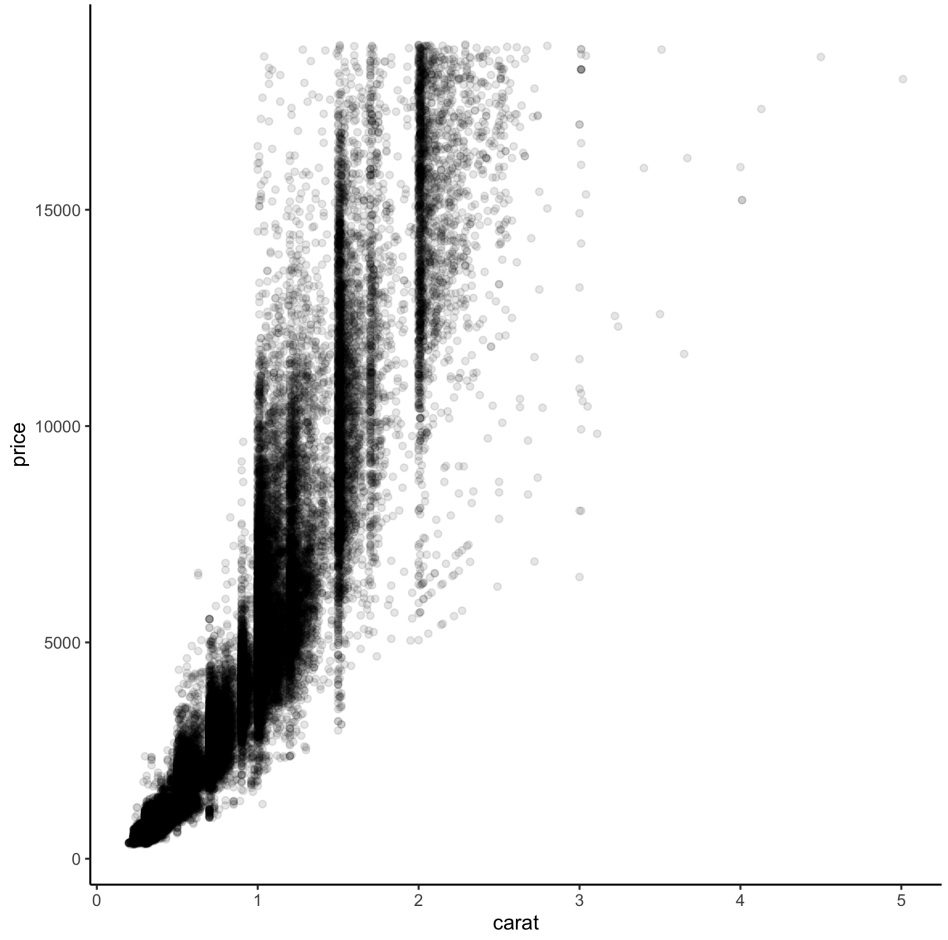
Alternative way of making changes to a "base" plot



Graphing with `ggplot`

```
ggplot(data = diamonds,
       aes(y = price, x = carat)) +
    geom_point(alpha = .1) +
    theme_classic()
```

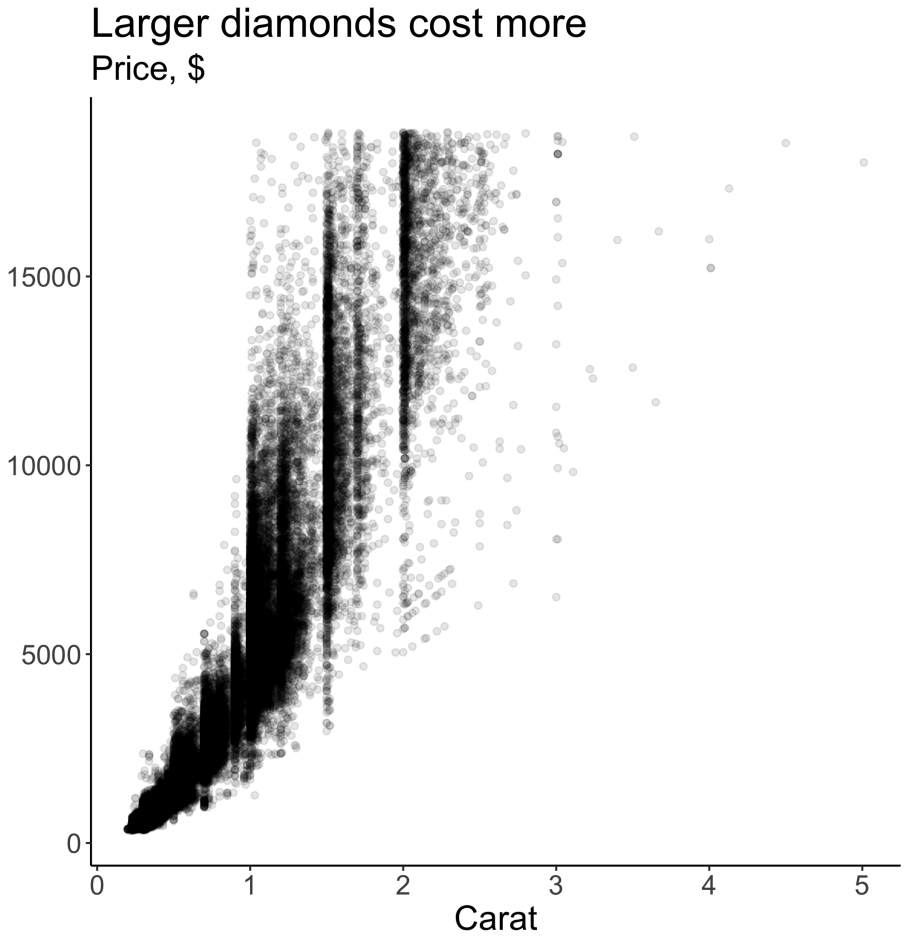
Exploring geometry options



Graphing with `ggplot`

```
ggplot(data = diamonds,
       aes(y = price, x = carat)) +
    geom_point(alpha = .1) +
    theme_classic() +
    theme(text = element_text(size = 18)) +
    labs(title = "Larger diamonds cost more
         subtitle = "Price, $",
         y = "",
         x = "Carat")
```

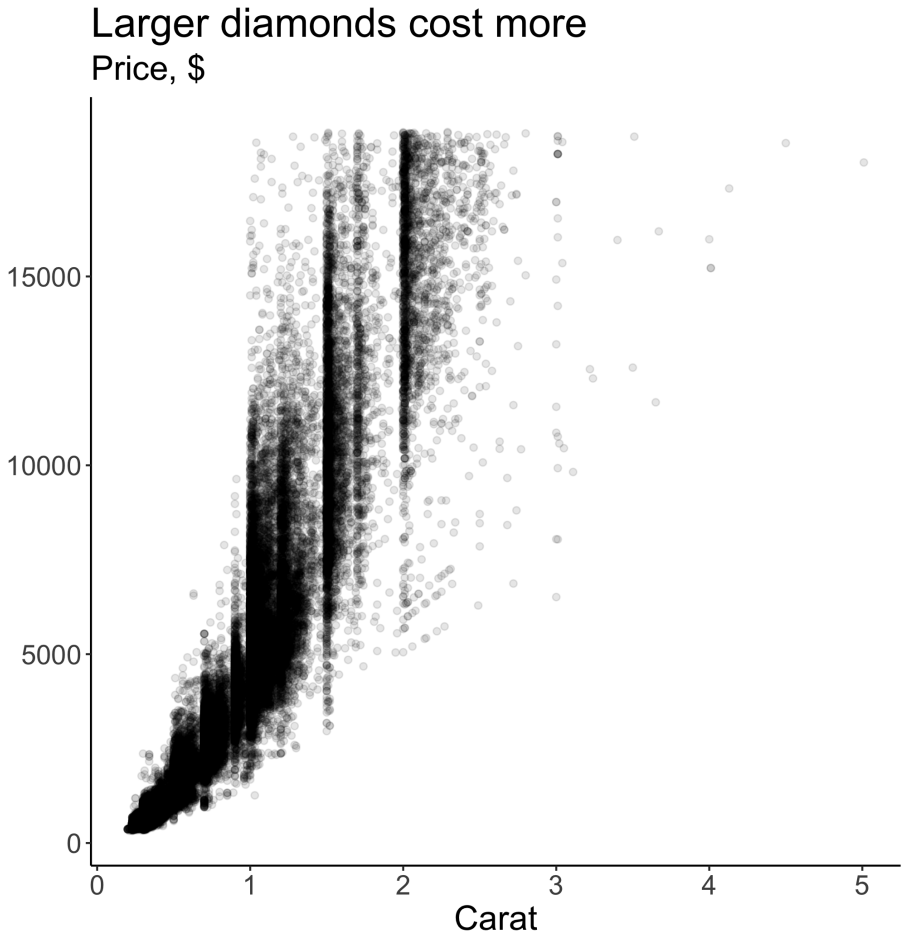
Change text size



Graphing with ggplot

```
ggplot(data = diamonds,
       aes(y = price, x = carat)) +
    geom_point(alpha = .1) +
    theme_classic() +
    theme(text = element_text(size = 18)) +
    labs(title = "Larger diamonds cost more
          subtitle = "Price, $",
          y = "",
          x = "Carat")
```

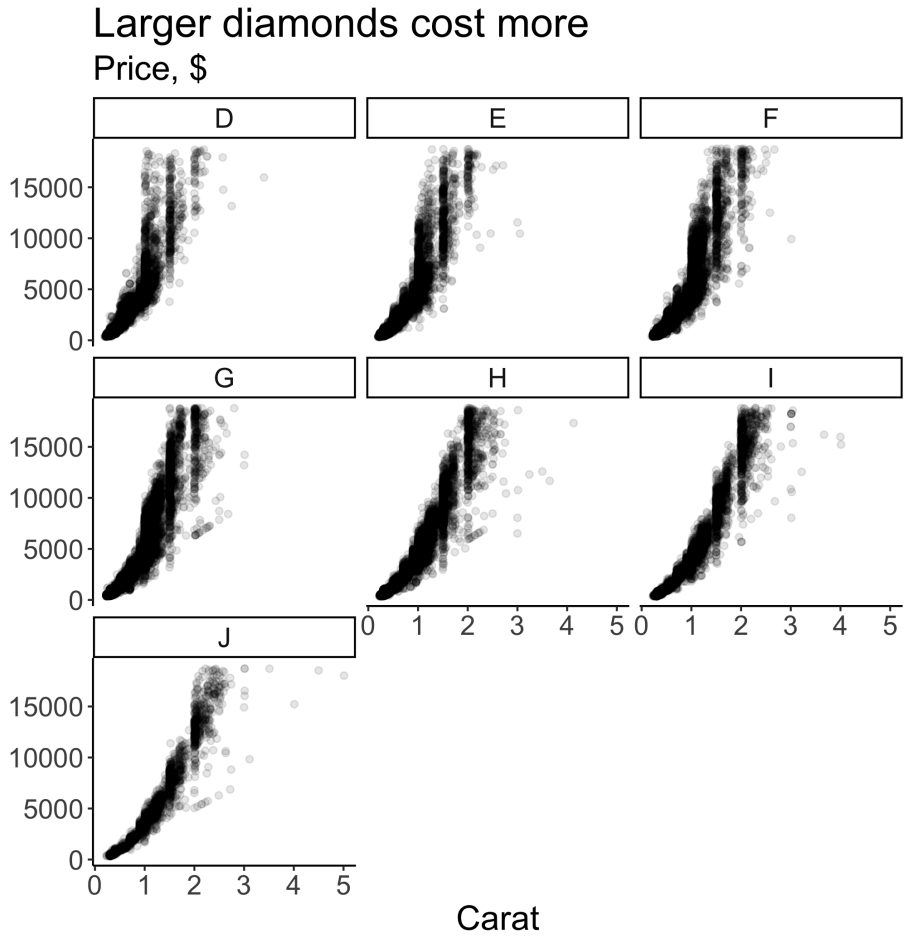
Change text options



Graphing with ggplot

```
ggplot(data = diamonds,
       aes(y = price, x = carat)) +
    geom_point(alpha = .1) +
    facet_wrap(~color) +
    theme_classic() +
    theme(text = element_text(size = 18)) +
    labs(title = "Larger diamonds cost more
         subtitle = "Price, $",
         y = "",
         x = "Carat")
```

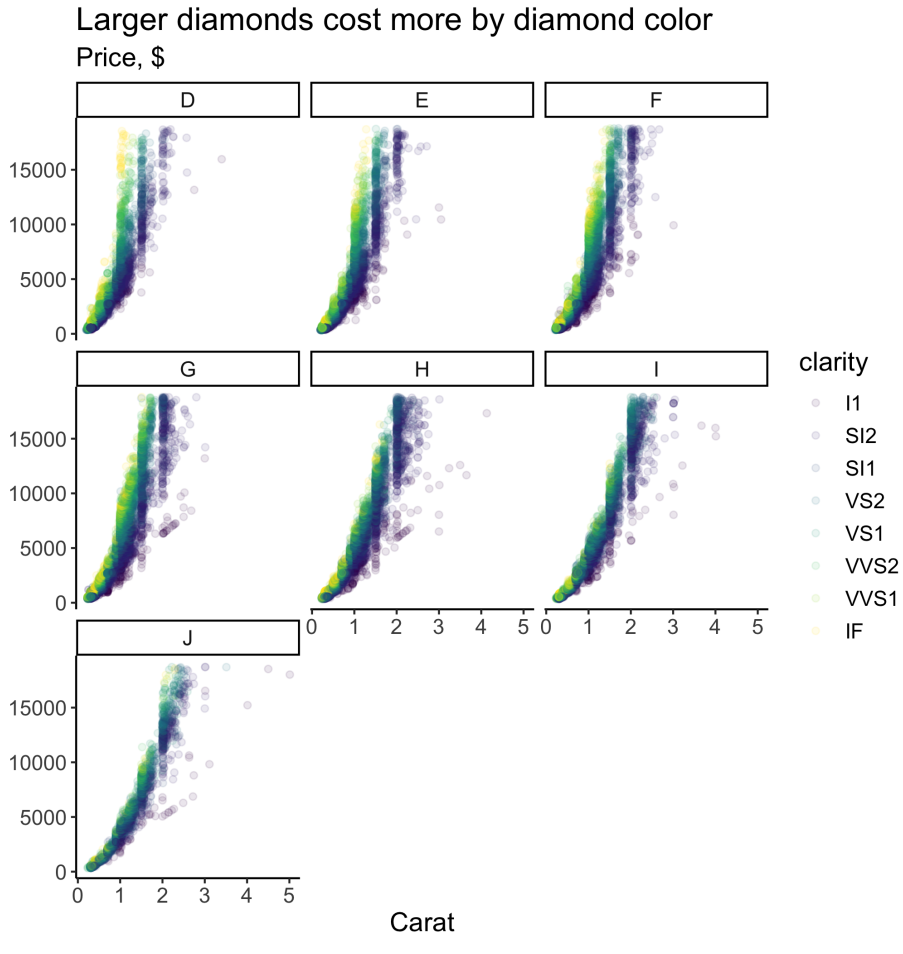
Add facets



Graphing with `ggplot`

```
ggplot(data = diamonds,
       aes(y = price, x = carat, color = cl
    geom_point(alpha = .1) +
    facet_wrap(~color) +
    theme_classic() +
    theme(text = element_text(size = 14)) +
    labs(title = "Larger diamonds cost more
         subtitle = "Price, $",
         y = "",
         x = "Carat")
```

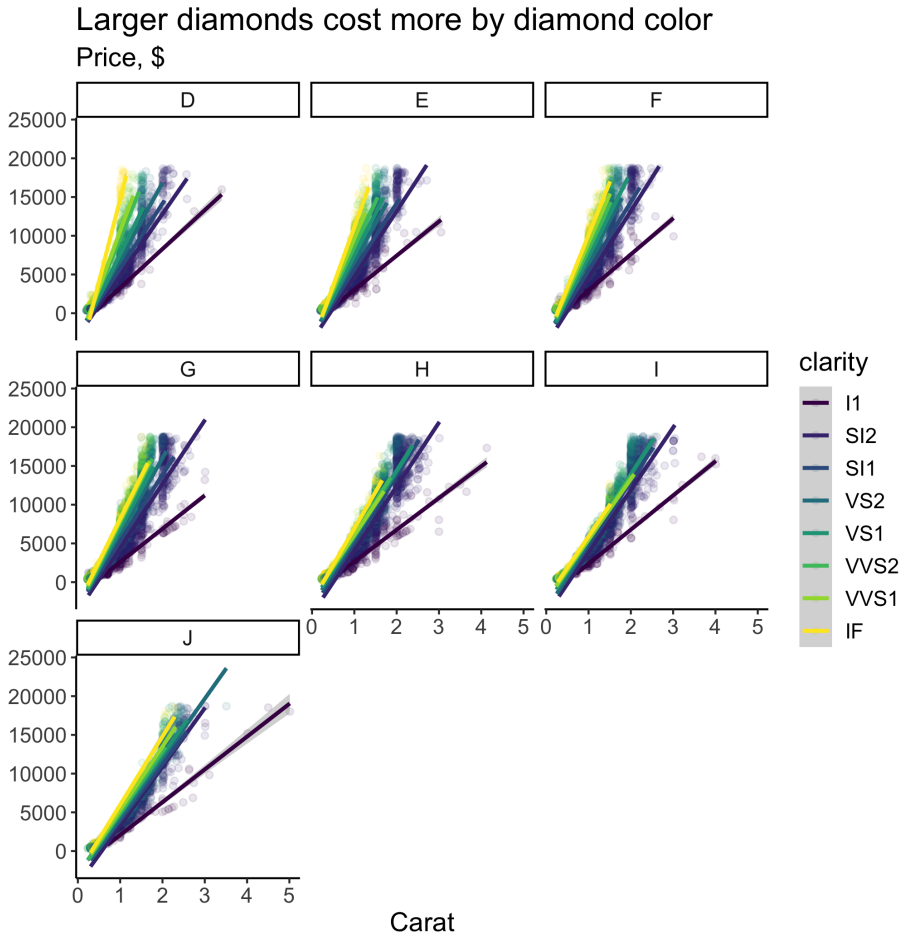
Add color to points based on clarity of diamond



Graphing with `ggplot`

```
ggplot(data = diamonds,
       aes(y = price, x = carat, color = cl
    geom_point(alpha = .1) +
    facet_wrap(~color) +
    geom_smooth(method = "lm") +
    theme_classic() +
    theme(text = element_text(size = 14)) +
    labs(title = "Larger diamonds cost more
         subtitle = "Price, $",
         y = "",
         x = "Carat")
```

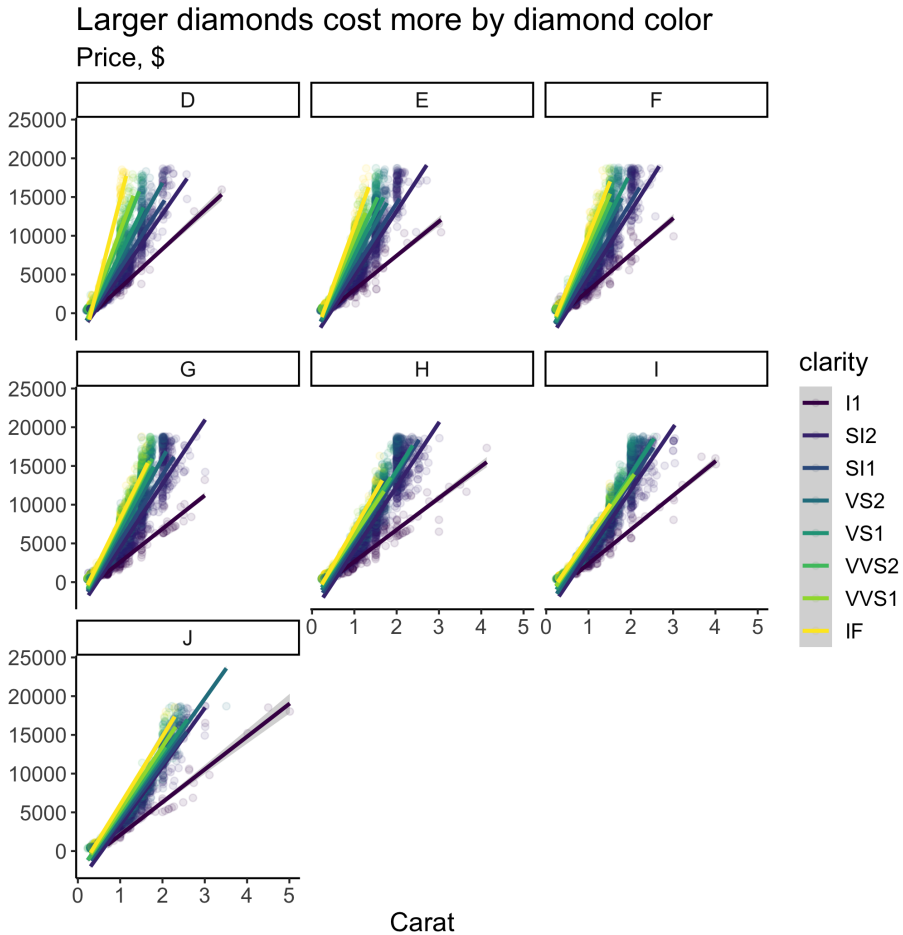
Add regression line



Graphing with `ggplot`

```
ggplot(data = diamonds,
       aes(y = price, x = carat, color = cl
    geom_point(alpha = .1) +
    facet_wrap(~color) +
    geom_smooth(method = "lm") +
    theme_classic() +
    theme(text = element_text(size = 14)) +
    labs(title = "Larger diamonds cost more
         subtitle = "Price, $",
         y = "",
         x = "Carat")
```

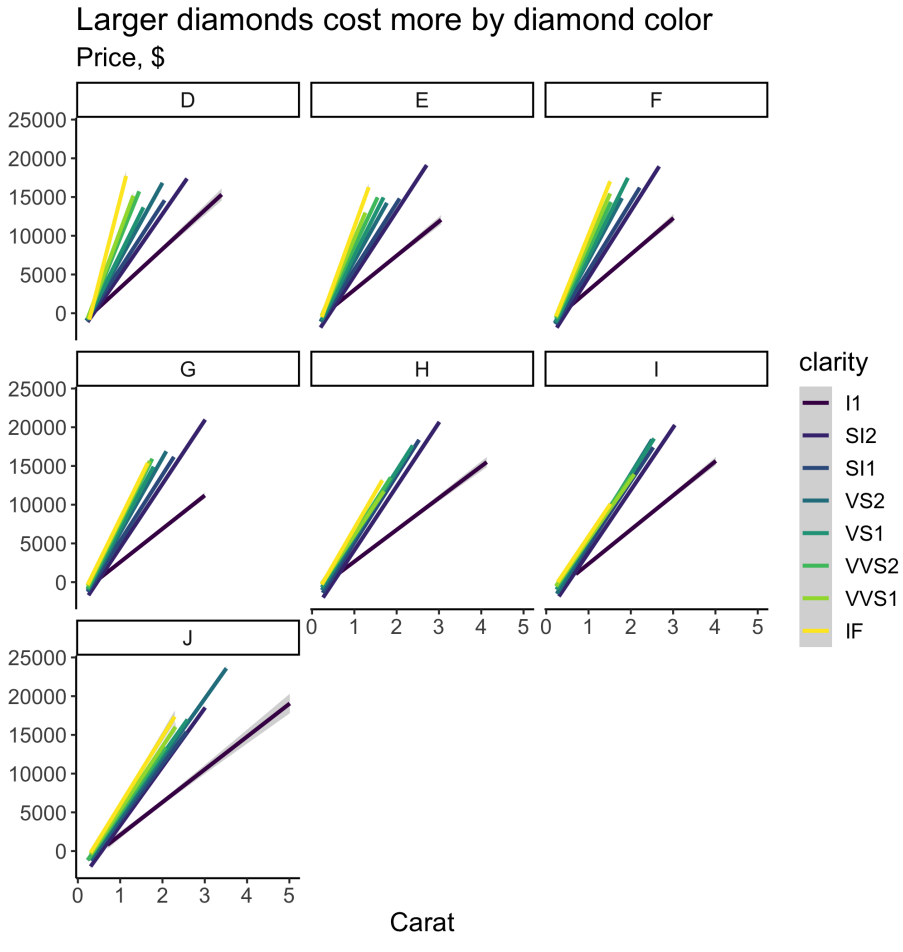
De-clutter by removing points



Graphing with `ggplot`

```
ggplot(data = diamonds,
       aes(y = price, x = carat, color = cl
    facet_wrap(~color) +
    geom_smooth(method = "lm") +
    theme_classic() +
    theme(text = element_text(size = 14)) +
    labs(title = "Larger diamonds cost more
         subtitle = "Price, $",
         y = "",
         x = "Carat")
```

De-clutter by removing points

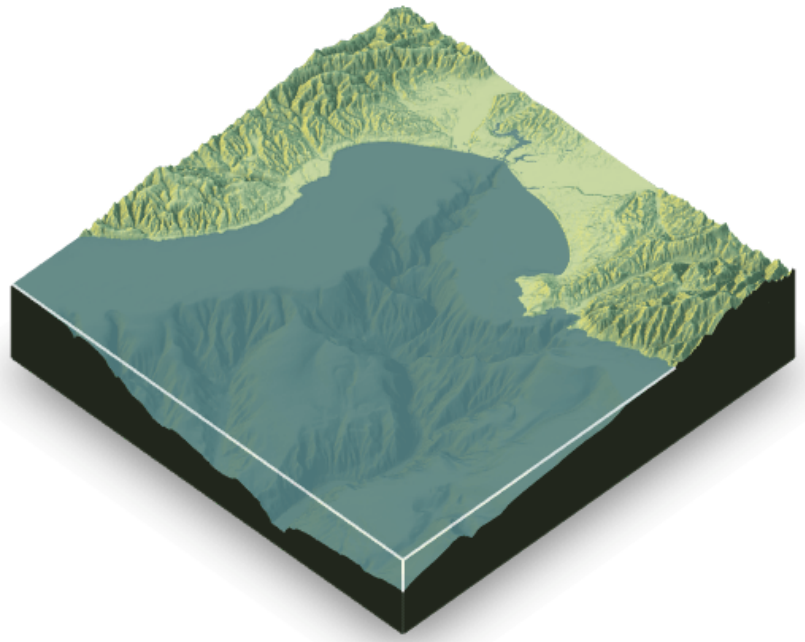


Let's switch over to an R-Markdown document

Also look. Some latex

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} \exp\left(-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2\right)$$

And oh yea, this was made in R too.



- Check out `rayshader` if you want to make your own awesome map, 2D, and 3D visualization.
- Source of image: https://wcmbishop.github.io/rayshader-demo/