

Review of ggplot with Social Service Agency Data

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2020-01-29

1 Make Sure You Have Installed ggplot! (1 Time)

```
install.packages("ggplot2")
```

2 Call Library (Each Time)

```
library(ggplot2)
```

3 Simulated Data

Table 1: Table continues below

ID	age	gender	program	mental_health_T1	mental_health_T2
3966	39.64	Female	Program B	92.93	112.7
4298	20.36	Female	Program A	85.63	98.18
4165	30.78	Male	Program C	91.94	92.05
3801	35.1	Male	Program B	99.83	101.9
4243	30.26	Female	Program B	98.05	103.7
4396	20.54	Female	Program B	97.1	110.2

latitude	longitude
42.19	-83.78
42.28	-83.67
42.28	-83.7
42.18	-83.86
42.4	-83.82
42.39	-83.56

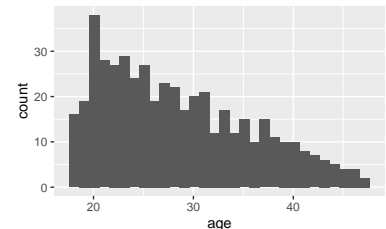
4 Basic ggplot

ggplot consists of the data, an aesthetic, geometrie(s), and options.

<https://agrogan1.github.io/R/introduction-to-ggplot2/a-simple-quick-example.html>

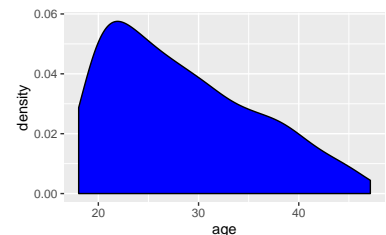
4.1 Histogram

```
ggplot(data = clients, # data I am using
       aes(x = age)) + # what I am graphing
  geom_histogram() # how I am graphing it
```



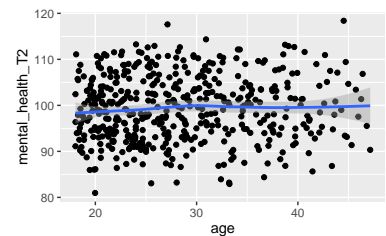
4.2 Density

```
ggplot(data = clients, # data I am using
       aes(x = age)) + # what I am graphing
  geom_density(fill = "blue") # how I am graphing it
```



4.3 Scatterplot With Smoother

```
ggplot(data = clients, # data I am using
       aes(x = age, # what I am graphing
           y = mental_health_T2)) +
  geom_point() + # how I am graphing it
  geom_smooth() # how I am graphing it
```



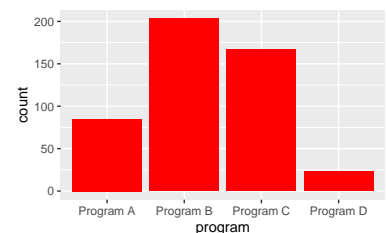
5 Bar Charts Are Tricky

https://agrogan1.github.io/myposts/bar_charts_in_ggplot2.html

5.1 Bar Chart Counting Up Observations

Simple bar chart counting up a *categorical* variable.

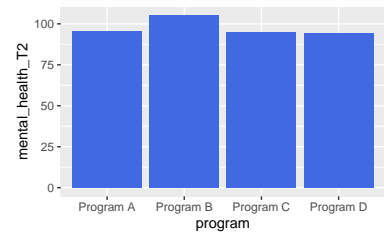
```
ggplot(data = clients, # data I am using
       aes(x = program)) + # what I am graphing
  geom_bar(fill = "red") # how I am graphing it (counting up)
```



5.2 Bar Chart of Means

Bar chart of means of a *continuous* variable by a *categorical* variable.

```
ggplot(data = clients, # data I am using
       aes(x = program, # what I am graphing
           y = mental_health_T2)) + # what I am graphing
  stat_summary(fun.y = mean, # summarizing y
              geom = "bar", # with bars
              fill = "royalblue")
```

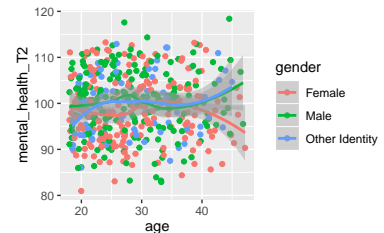


6 Get Some Extra Information on the Graph!

6.1 Add information to the aesthetic.

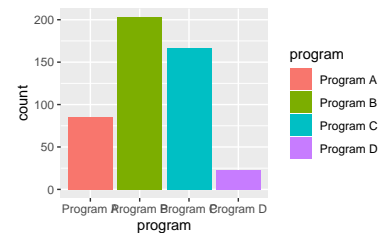
Color as information.

```
ggplot(data = clients, # data I am using
       aes(x = age, # what I am graphing
           y = mental_health_T2, # what I am graphing
           color = gender)) + # adding info to aesthetic
  geom_point() + # how I am graphing it (counting up)
  geom_smooth() # how I am graphing it (counting up)
```



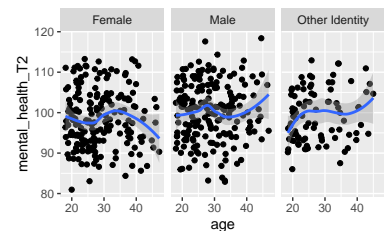
Try adding *color as information* with one of the bar charts from earlier.

```
ggplot(data = clients, # data I am using
       aes(x = program, # what I am graphing
           fill = program)) + # what I am graphing
  geom_bar() # how I am graphing it (counting up)
```



6.2 Facet Wrap (Small Multiples)

```
ggplot(data = clients, # data I am using
       aes(x = age, # what I am graphing
           y = mental_health_T2)) + # what I am graphing
  geom_point() + # how I am graphing it
  geom_smooth() + # how I am graphing it
  facet_wrap(~gender) # facet wrap on gender
```



6.3 Both!

```
ggplot(data = clients, # data I am using
       aes(x = age, # what I am graphing
           y = mental_health_T2, # what I am graphing
           color = gender)) + # what I am graphing
  geom_point() + # how I am graphing it
```

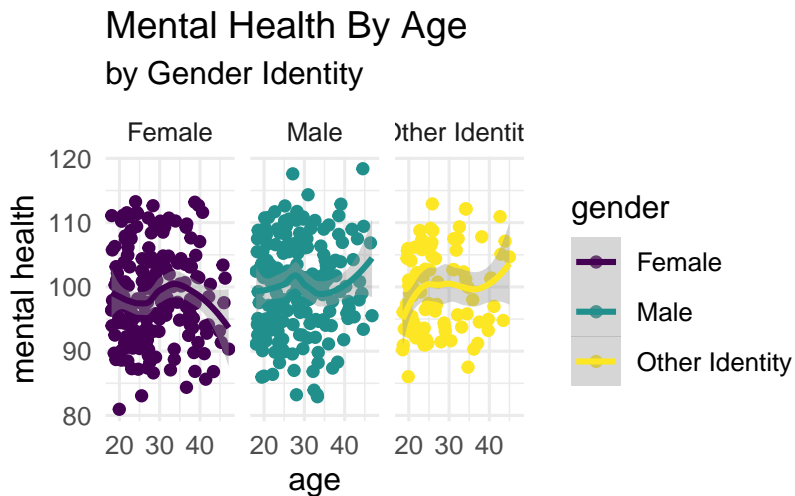
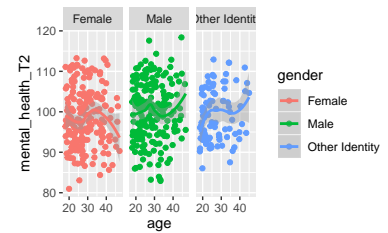
```
geom_smooth() + # how I am graphing it
facet_wrap(~gender) # facet wrap on gender
```

7 Add Labels and Options

<https://jrnold.github.io/ggthemes/>

```
library(ggthemes) # for themes
```

```
ggplot(data = clients, # data I am using
       aes(x = age, # what I am graphing
           y = mental_health_T2, # what I am graphing
           color = gender)) + # what I am graphing
  geom_point() + # how I am graphing it
  geom_smooth() + # how I am graphing it
  facet_wrap(~gender) + # facet wrap on gender
  labs(title = "Mental Health By Age",
       subtitle = "by Gender Identity",
       x = "age",
       y = "mental health") +
  scale_color_viridis_d() + # beautiful colors!
  theme_minimal()
```



7.1 Lots Of Things Are Possible!

<https://agrogan1.github.io/dataviz/how-to-choose-a-chart/how-to-choose-a-chart-v3.html>

<https://agrogan1.github.io/R/introduction-to-ggplot2/background.html>