Visualize

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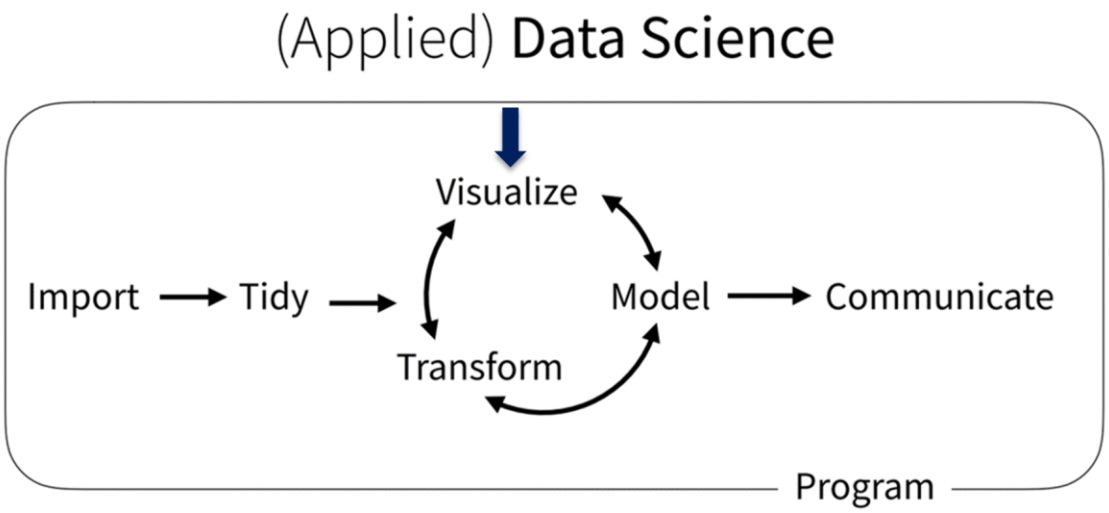
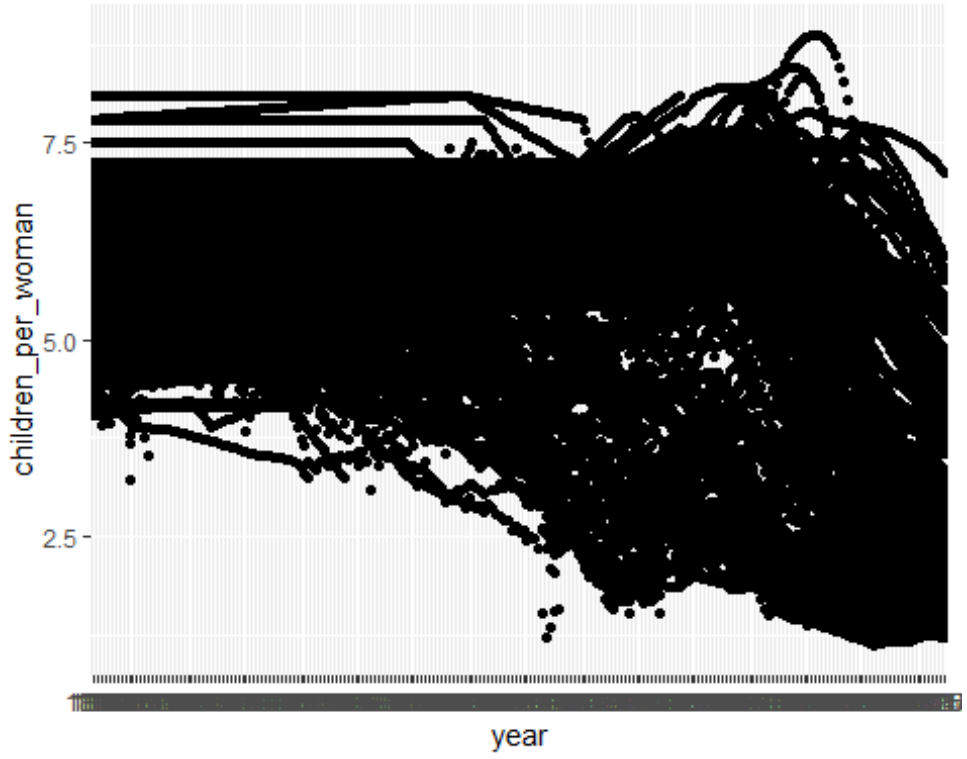


5) Visualize the data

Once your data are in the right format, then it is helpful to visualize them with graphs.

To do that, we'll use *ggplot()*, which is included in the *tidyverse* package. Let's try that by plotting children_per_woman on the y-axis and year on the x-axis.

```
ggplot(total_fertility_long, aes(x=year, y=children_per_woman))+
  geom_point()
```




```
#this code says "plot the dataset total_fertility_long with the following aesthetics: x-axis is year, y-axis is children_per_woman". The second line tells the R how to add the data. In this case we're adding it as a bunch of points, one for each data point.
```

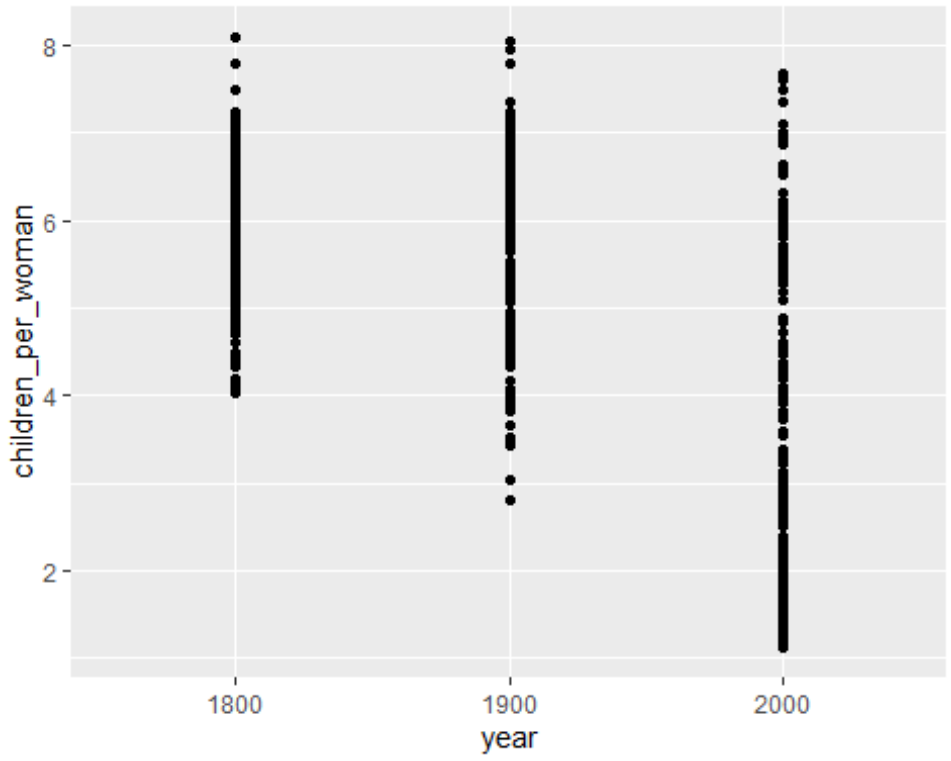
Can you interpret this graph? Sure, it's pretty ugly, but it's a nice first step. Everything after this first step is usually just adding things to make th graph more interpretable. There are a bunch of ways to do this. Here's a cheatsheet of all the things you can do with *ggplot()*. https://www.rstudio.com/wp-content/uploads/2015/03/ggplot2-cheatsheet.pdf

Let's clean it up by only plotting the years 1800, 1900, and 2000. First make a dataset that only contains those years.

```
tot_fert_3years <- total_fertility_long %>%
  filter(year == 1800|year == 1900| year == 2000)
```

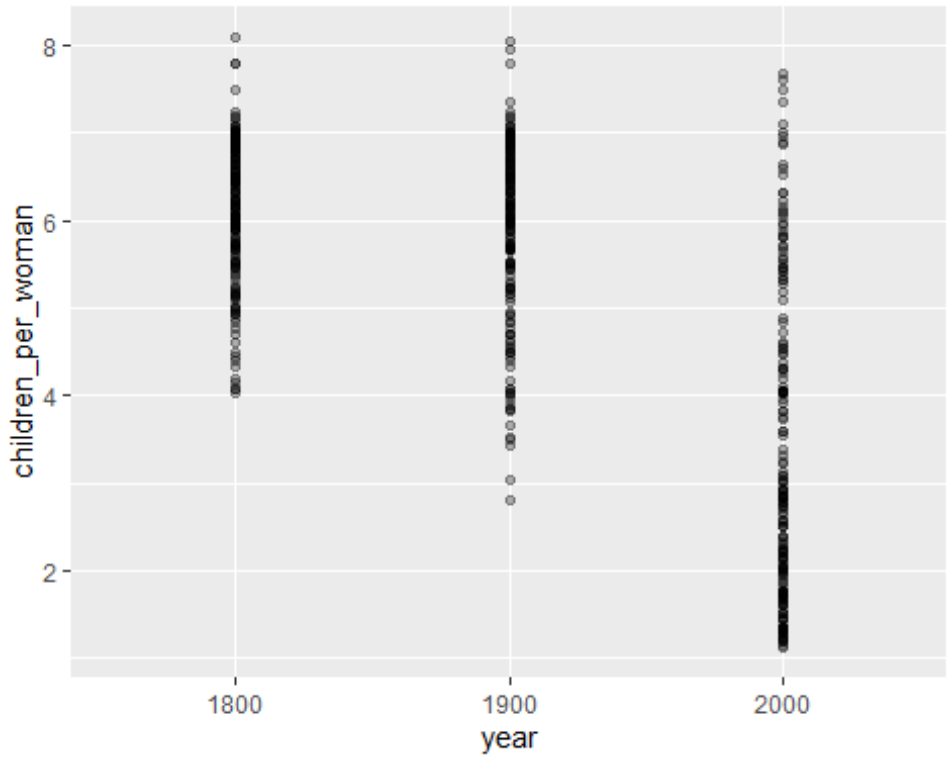
Then use the same plotting code, but now with the tot_fert_3years data.

```
ggplot(tot_fert_3years, aes(x=year, y=children_per_woman))+
  geom_point()
```



That's better, but still a bit hard to see. Let's change the formatting of the dots to make things clearer.

```
ggplot(tot_fert_3years, aes(x=year, y=children_per_woman))+
  geom_point(alpha = 0.3)
```


children_per_woman
8
6
4
2
1800
1900
2000
year