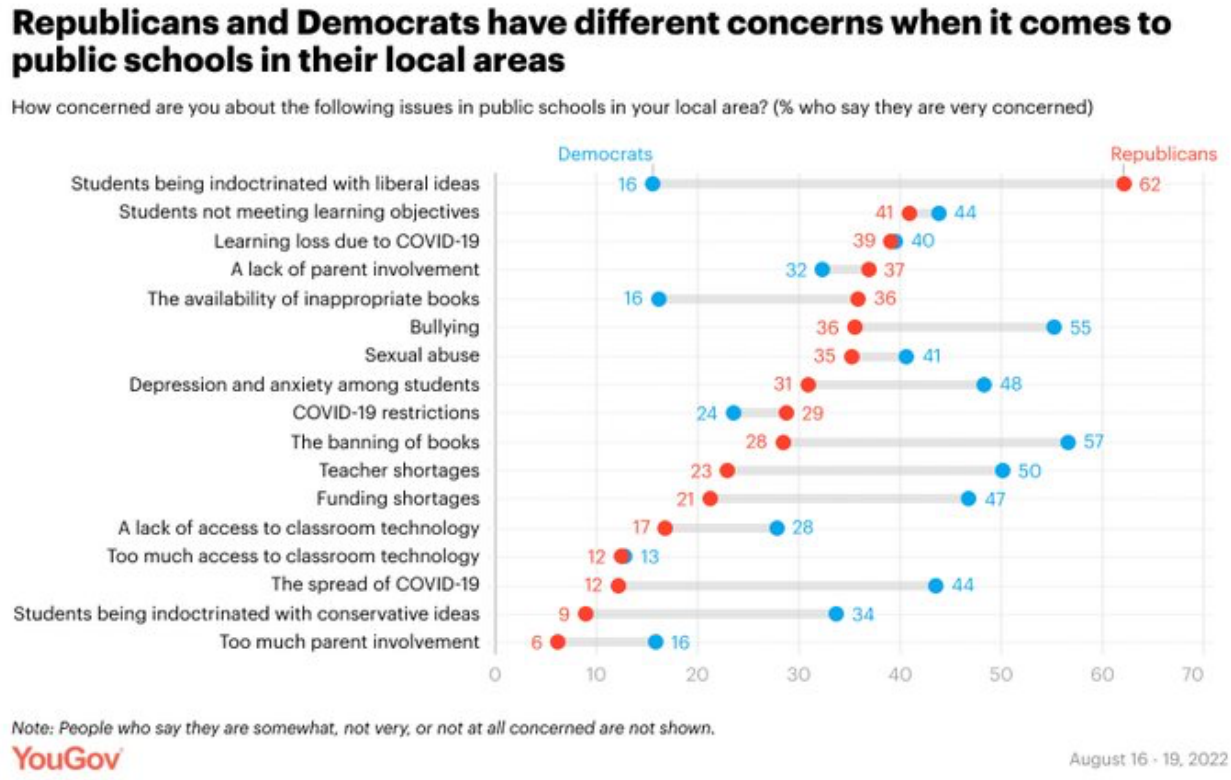
1. *Good & Bad* Visualizations

a. Search online for *one good and one bad* visualization.

Good visualization:

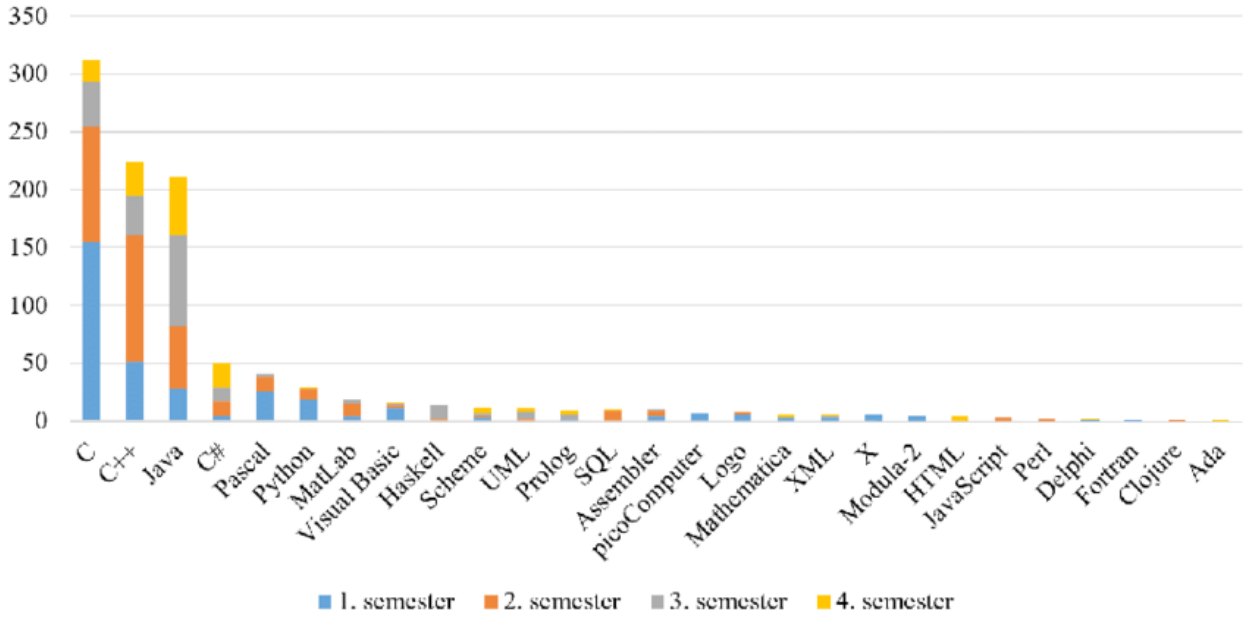


https://www.reddit.com/r/dataisbeautiful/comments/x36lhl/oc_republicans_and_democrats_disagree_over/

I found it on the Reddit group r/dataisbeautiful. It is titled “Republicans and Democrats disagree over problems facing local public schools,” and it is made by u/YouGov_Official.

I will give it a 5 on a scale of 1 to 5.

Bad visualization:



https://www.researchgate.net/figure/Programming-language-structure-at-European-universities_fig2_309176375

I found it on researchgate, in one publication named “Introductory Programming Subject in European Higher Education.” One of the authors is Veljko Aleksić, who created this visualization. (Aleksić, Veljko & Ivanovic, Mirjana. (2016). Introductory Programming Subject in European Higher Education. Informatics in Education. 15. 163-182. 10.15388/infedu.2016.09.)
I would give it 2 on a scale of 1 to 5.

b. Give a brief (one paragraph) critique for each visualization – why is it good or bad?

Good visualization:

I like it because it is clear, beautiful, and powerful. The graph shows the difference between republicans and democrats in a very direct way, by emphasizing the gray area between every two points. And its choice of color is easy to understand, as red traditionally represents republicans, and blue represents democrats. And by ordering items in this way, the contrast is sharp. A negative aspect might be there are too many words.
The authors try to explain the title: “Republicans and Democrats have different concerns when it comes to public schools in their local areas.” And they succeeded because the visualization shows the difference very clearly.
Honestly, I can’t think of any suggestion, except making the font a little bigger. But it would sacrifice the number of contents. Right now there are 17 items, I would suggest decreasing the number to 12, which will make it easier to read.

Bad visualization:

The subject itself is pretty interesting, but the creator is trying to put too much information in this graph. It's really hard to tell the difference starting from "Prolog." For example, for a language like UML, are more people taking it in 1st semester? 2nd semester? I can't really tell. Also, I feel like the choice of color is pretty arbitrary, and I wonder if it might cause extra problems for color-blind people. I am not color-blind, and it's already tough for me to read.
I feel like the author wants to show that C, C++, and Java are the most popular introductory programming languages, and C is the most popular for the first semester. Honestly, I don't see the point of listing languages like Fortran here, because they are old languages and there aren't that many people learning.
I would suggest, first, keeping the number of languages under 10. Or make separate plots for the popularity of languages in four different semesters. And reconsider the choice of colors.

2. *Exploratory vs. Explanatory* Visualizations

"You Draw It: How Family Income Predicts Children's College Chances"

I think this is an exploratory data analysis because it simply looks into the relationship between two variables: family income and percent of children who attended college. It provides us with the insight that such a relationship is positively linear, but not much else.
The authors tried to answer the question about the relationship between family income and the children's college chances.
I learned that this is a relatively linear relationship, which is quite surprising because I thought it would be exponential like it would be extremely hard for the poorest to go to college.
The audience could be average New York Times readers, who might not know much about the problem and would love to learn more.
I would say it has a message that children from rich families have more chances of going to college. So we need to be aware of such inequalities.

"An Interactive Visualization of Every Line in Hamilton"

It is explanatory, as it offers a narrative to the audience, and enables them to freely explore the lyrics of Hamilton by themselves. The audience can come up with their questions with this visualization since the author also provides a complete dataset.
The author is not just trying to answer one single question, but multiple ones. For example, she analyzes the relationship between Angelica and Alexander, two characters, using their lyrics. It seems to me that overall, the author is playing around with the idea of visualizing a musical, which is very creative and cool.
I learned from the visualization many interesting new findings about Hamilton the musical. I have listened to that musical for years, but this visualization helps me understand things I never

could with only listening: for example, how themes like “legacy” got repeated over time. Also, I figured out new possibilities for visualization!
This visualization could appeal to every fan of the musical: I sent the link to my best friend (also a big fan of Hamilton), and she found the visualization very exciting. For those who haven’t watched the musical, I am not sure how they would enjoy this.
I don’t think I can describe the message easily: I would say the author wants the audience to better enjoy the musical Hamilton.

“Bussed out – How America moves its homeless”

It is explanatory, as it is trying to persuade the audience why America’s homeless relocation programs aren’t that good. There are many graphs and plots from different perspectives.
The authors tried to answer the question of how the relocation programs work, and if they help those homeless people.
I learned from the visualization that the overall scale of relocation programs is larger than I thought. I also know more about the destinations of those travelers.
The audience of the visualization could also be the readers of The Guardian, who might be well-educated in general and have reading as a habit.
It has a message, basically that the country’s homeless relocation programs are considerable in size, but also might be unreasonable when they relocate homeless people to places with fewer opportunities and fail to consider individual hardships.