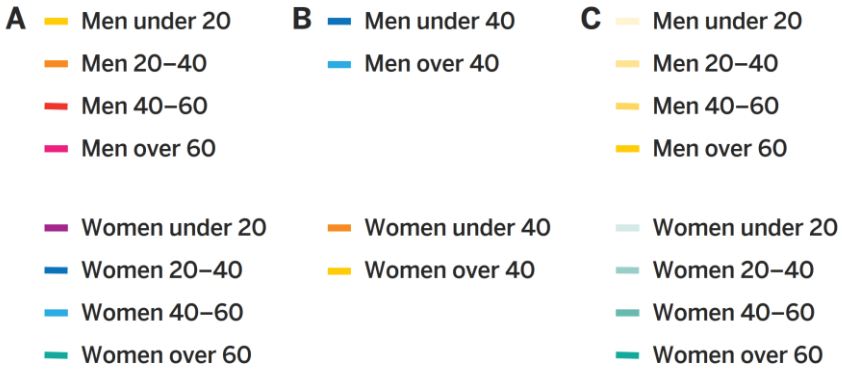
1 COLORS

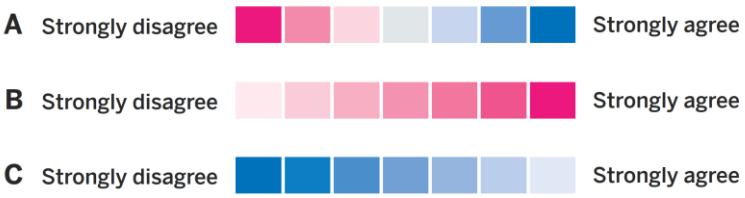
In a bar chart, you want to show comparisons between older and younger men and between older and younger women. Which color scheme do you use? Explain your choice.



2 LIKERT SCALE

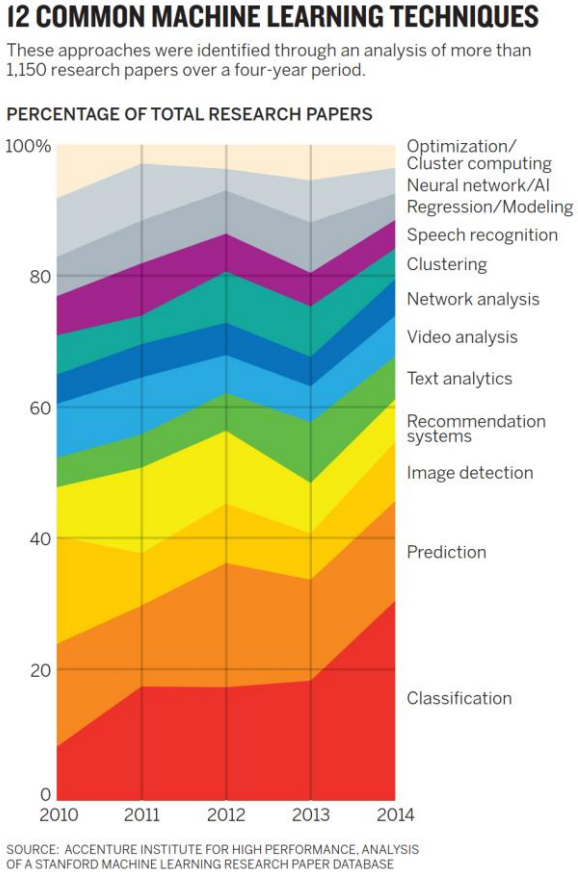
You want to show answers from a Likert-type scale that ranges from “strongly agree” to “strongly disagree.” Match each survey question below to the color scheme that would be best used to describe the results of that question.

I. Please rate your feeling about the following statement: I’m ready for the challenge of transforming this company.
II. Please rate your feeling about the following statement: Our leaders are ready for the challenge of transforming this company.
III. Please rate your feeling about the following statement: I believe in the company’s strategy.



3 Less Color

Find a logical way to reduce the amount of color in this stacked area graph.

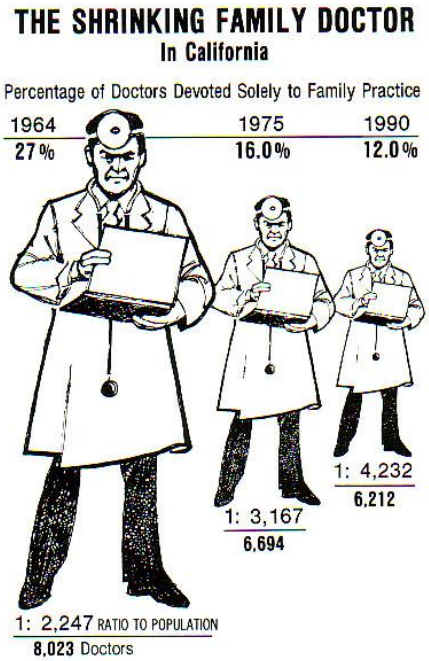


4 Data Ink

Why is the principle of minimizing “data ink” so important in an effective visualization? Give a scientific or engineering example of why this is important.

5 LIE FACTOR

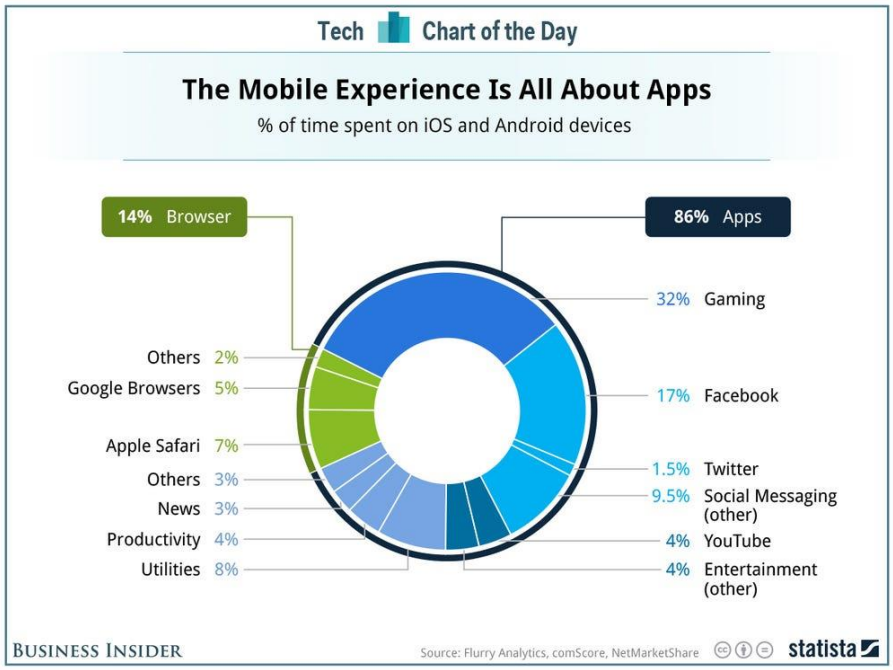
Calculate the lie factor for this graphic.



Los Angeles Times, August 5, 1979, p. 3.

6 REDESIGN

1. What questions does this visualization answer?
2. What marks and channels are used?
3. Does it violate Tufte's design principles? Which ones?
4. Why do you like / dislike this visualization?
5. Redesign this visualization! Provide some reasoning why your visualization is better.



https://www.businessinsider.com/the-mobile-web-is-dead-its-all-about-apps-2014-4

7 OLYMPIC GAMES IN HAMBURG?

A referendum on hosting the 2024 Summer Olympics was held in Hamburg on 29 November 2015.

Choice	Votes	%
✓ Yes	314,468	48.37%
✗ No	**335,638**	**51.63%**
Valid votes	650,106	99.77%
Invalid or blank votes	1,483	0.23%
Total votes	**651,589**	**100.00%**
Registered voters/turnout	1,300,418	50.11%

(source: https://en.wikipedia.org/wiki/2015_Hamburg_Olympics_referendum)

Create a visualization which suggests that **most people in Hamburg supported the Olympic games in Hamburg**. Think of Dieter Rams principles! The visualization should win any design competition! Provide the lie factor of your visualization with calculation.

8 MORE ALTAIR

Study the following parts of the Altair visualization and experiment!

Transformations

https://altair-viz.github.io/user_guide/transform/index.html

Binning and Aggregation

https://github.com/altair-viz/altair-tutorial/blob/master/notebooks/03-Binning-and-aggregation.ipynb

Compound charts

https://github.com/altair-viz/altair-tutorial/blob/master/notebooks/04-Compound-charts.ipynb

Always remember: Sometimes it is easier to start with an example.

https://altair-viz.github.io/gallery/index.html