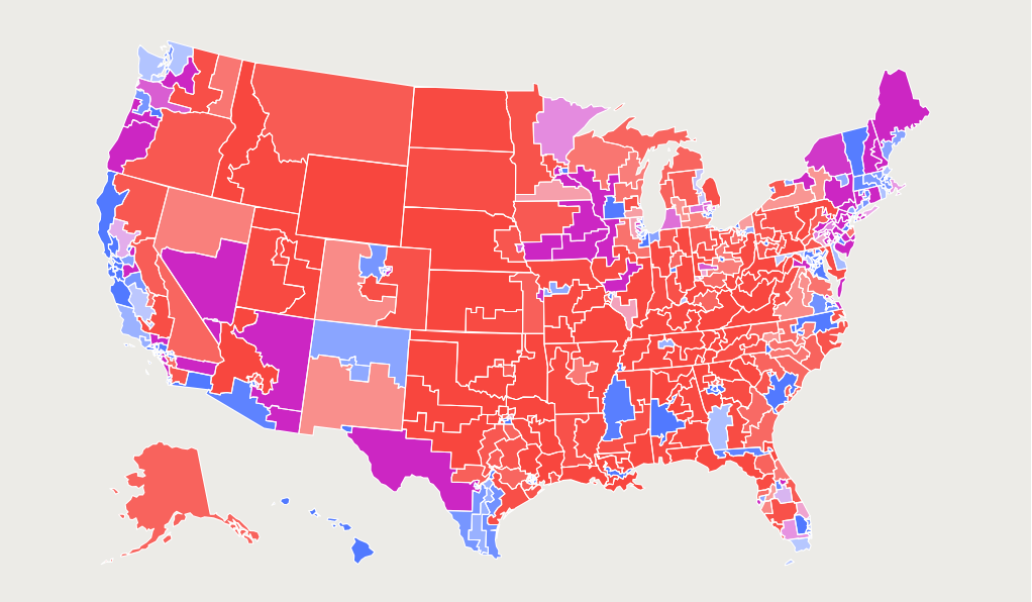
Detecting Gerrymandering

A DS 4002 Case Study by Ravza Aykan



Every 10 years, states redraw their voting district boundaries. Gerrymandering occurs when setting the boundaries of the electoral districts purposely favors specific political interests. Instead of representing the voters' political preferences, gerrymandering empowers politicians to choose their voters.

Gerrymandering can be accomplished in two ways: cracking and packing. Cracking searches for a large concentration of a specific demographic and splits them up between neighboring districts, diluting their power in their respective districts. Packing occurs when map drawers contain a specific group of people into a few districts. Although they maintain power in their district, the group's voting strength is weakened everywhere else.

In the latest redistricting cycle, the US Supreme Court ruled that gerrymandering, though decidedly unconstitutional, would not be subject to any federal judicial remedy, and has since taken steps to make it more difficult to prove racial gerrymandering.

You are a data scientist tasked with determining whether gerrymandering is present in various states of your choosing. In order to predict which states are gerrymandered, you will use image analysis techniques to determine the color composition of the districts within a state, analyzing maps for both the current district boundaries for each state, as well as hypothetical maps of the states if their district boundaries were to be redrawn to eliminate gerrymandering. You will then use inferential statistics to determine whether the differences in color composition proportions are significantly different between the two "versions" of each state.

Hendricks, T. (2021, December 10). Detecting and measuring gerrymandering with python. Medium. https://towardsdatascience.com/detecting-and-measuring- gerrymandering -with-python-f85a1315acd4

Bycoffe, A., Koeze, E., Wasserman, D., & Wolfe, J. (2018, January 25). The Atlas Of Redistricting. FiveThirtyEight. https://projects.fivethirtyeight.com/redistricting-maps/