Reflection on Program Results

Working on the Popular Vote Minimizer project was truly enlightening. Running my program on the 2012 election data, I could understand that a candidate could win the presidency with only **21.09%** of the popular vote. This means that the opposing candidate would be able to get almost **79%** and yet still lose the election-this shows a remarkable flaw in the Electoral College system.

I tested several other election years across different centuries as well:

- **1828 Election:** Minimum Popular Vote Percentage to Win = **16.22%**
- **1864 Election:** Minimum Popular Vote Percentage to Win = **18.59%**
- **1948 Election:** Minimum Popular Vote Percentage to Win = **16.07%**
- **1992 Election:** Minimum Popular Vote Percentage to Win = **21.94%**
- **2004 Election:** Minimum Popular Vote Percentage to Win = **21.68%**
- **2020 Election:** Minimum Popular Vote Percentage to Win = **21.56%**

Consistently, the results showed that a candidate could win the presidency with just about **16% to 22%** of the popular votes. This means, hypothetically, the majority of voters (**78% to 84%**) could prefer one candidate, yet the other candidate could still win due to the Electoral College system.

With further review, I could notice that the strategy for minimizing the popular vote while maximizing electoral votes wasn't just focusing on states with the highest electoral votes or those with the best electoral-to-population ratios. Instead, it was a blend of both small and large states. For example, in the 2012 election, the states contributing to the minimum popular vote included both California, with its massive 55 electoral votes, and smaller states like Wyoming, with just 3 electoral votes but a small voting population.

This blend suggests that a candidate could strategically target selected states to reach the necessary 270 electoral votes while minimizing the total popular votes needed. The fact that such a small percentage of the popular votes could possibly decide an election seems to run contrary to the democratic principle of "one person, one vote."

If I were to make policy recommendations based on these observations, I would consider the following:

1. States could probably allocate their electoral votes proportionally based on the popular vote within the state, rather than the current winner-takes-all system used by most states.

Benefits:

- Proportional allocation would ensure that the views of any state minority are represented in the Electoral College.
- This method would reduce the chance of a candidate becoming the president without earning a majority of the popular votes.
- Voters in states dominated by one party might feel more motivated to vote if they know their vote could influence electoral outcomes.

Challenges:

- Implementing proportional allocation could complicate the election process and require significant changes to state laws.

This project made me appreciate the complexity of the US electoral system. It also reminded me of how data analysis and computational tools can be used to shed light on some of the important issues facing society.