**Analysis report**

My research included analyzing US presidential election popular vote data and census population data from 1856 to 2020. The data retrieved for my analysis included US population since 1910 from the US Census Bureau and statistical data from the Federal Election Commission. The data sets were saved in csv format and loaded into Pandas DataFrames, cleaned by dropping unnecessary columns, replacing NaN values with 0, and converting values to integers.

The analysis finds that Republican vote increases have a moderate positive correlation of 0.35 with population increases, while Democratic vote increases have almost no correlation at -0.05. This indicates Republican popular vote tends to increase more as population increases compared to Democrats. I observed consistent US population growth from 1910 to 2020.

Further analysis calculates the proportion of Democratic and Republican votes to total population over time. Both proportions significantly change over time, indicating the popular vote is not directly proportional to population size for either party. When conducting my calculations factoring the proportional rate into my proportion difference code, I received a vote to population proportion rate of 25% and 10% for Democratic and Republican votes respectively.

In summary, the analysis shows Republican popular vote growth has a stronger link to population size compared to Democrats historically, but overall the popular vote is not simply proportional to population changes. More detailed regression analysis would help further quantify and explain the relationships between population, year, and party vote percentages, including factoring in voter turnout, the electoral vote, and factoring in individuals who are not eligible to vote in the US population.