Bryan Wong

805111517

Professor Stahl

CS31

January 7, 2019

Project 1 Report

**original.cpp -** Inputs that create incorrect, unusual, or nonsensical results:

- Inputting negative integers can cause the outputted percentage of votes to be reported as negative

- If the total number of votes is calculated to be 0 by using negative numbers of votes, the percentages of votes will be outputted as inf% or -inf%, depending on sign

- If the inputted number of votes for each party are all 0, the percentage of votes will be outputted as nan%

- If the inputted number of Democratic votes and Republican votes are equal, the program will still report the Democrats as winning control

- If the percentage of Independent votes is larger than the other parties’, the party that received the next greatest percentage of votes will still be outputted as winning control

**logic\_error.cpp -** I introduced two logic errors to the program that were able to be compiled but returned improper outputs. The first error involved not including Republican votes (republicanSeats) in the total number of votes (total). This resulted in the outputted percentage of votes for each party (pctRep, pctDem, pctInd) to be incorrect and usually greater than the actual value. This could result in outputted percentage values to be greater than 100% , or for the sum of percentages to not add up to 100%. The second error involved miscalculating the percentage of Independent party votes (pctInd), making the outputted percentage ten times the actual value. This was accomplished by multiplying the ratio of votes by 1000 instead of 100.

**compile\_error -** I introduced two compile errors to the program that prevented the code from being able to be built and run. The first error involved not declaring the int variable republicanSeats. This resulted in the three following statements involving the variable to cause compile errors. These were recognized as 3 instances of a Semantic Issue that said “Use of undeclared identifier”. The second error was not using a semicolon to close the statement outputting ”How many seats are held by Democrats? “. This resulted in a parse error that said “expected ‘;’ after expression.