***Project 1 - October 9, 2012***

***Step 5 - original.cpp***

I tried inputting several integers to test if it was running as expected. I tried several different inputs, such as 100 surveyed, 60 votes for Obama, and 40 for Romney. These kinds of inputs worked as expected, and for this input, gave the output, "40.0% say they will vote for Obama. 60.0% say they will vote for Romney. Romney is predicted to win the election."

Using the original program, I tried several inputs that produced incorrect or nonsensical results. One such input was 50 surveyed and 100 voters for both Obama and Romney. That gave the result that 200.0% would vote for both Obama and Romney. Another nonsensical result was when negative numbers of surveyors or voters was input. It would give negative percents of voters. When negative surveyors and voters was input, it would give an incorrect percent of positive voters. A different incorrect result is given when they have the same number of voters. Although it should be a tie, the program predicts that Romney will win the election.

***Step 6 - logic\_error.cpp***

For the logic error, I created an error that may produce incorrect results from a reasonable input. I changed the variables pctObama and pctRomney from double variables to int variables. Then, I changed the comparison in the if, else statement to compare pctObama and pctRomney instead of forObama and forRomney. This can output an incorrect result in certain situations. For example, if there are 1000 surveyors and 495 voted for Obama, while 490 voted for Romney, it will predict that Romney will win, which is incorrect. This occurs because the percents will be calculated in integers, which truncates anything after the decimal point. Although the actual percents are 49.5% and 49.0%, both will be stored as 49. The second logic error occurs in the if, else statement. When the numbers are equal, it will predict that Romney will win, even though it would be a tie. Because both the numbers are stored as 49, the program will predict that Romney will win the election even though Obama has more votes during the survey.

***Step 7 - compile\_error.cpp***

The two mistakes that I added to the program that prevented it from compiling were including an unusable character in the identifier and by inserting a space between "<<". Instead of calling it forObama, I changed it to #forObama, which could be an easily made mistake. This created an error in compilation because it does not start with a letter or underscore, and uses a "#" symbol, which is not allowed. This created seven errors, the main one being "# not expected here", which lead to the "identifier 'forObama' is undefined" in the rest of the program whenever forObama showed up. Adding a space between the "<<" created two errors. The first was a syntax error with '<' and the second was that it expected an expression since the compiler expected '<' to mean less than. When both mistakes were made at the same time, all of the errors showed up under the error list.