**Chelsea Biala**

**CS31 Smallberg Lecture 1**

**Step 5**

Here are inputs to the original program that produced nonsensical results:

* The number input for numberSurveyed can be less than the sum of the numbers input for forJoe and forDonald. In this case, the program will output a percentage higher than 100 when stating what percentage will vote for each candidate.
* The number input for numberSurveyed can be 0. The output percentages will either be undefined (if inputs forJoe and forDonald are 0) or “infinite” (if those inputs are not 0).
* The numbers input for forJoe and forDonald add up to less than the number input for numberSurveyed. The output percentages will not add up to 100 (third party voting?).
* Any of the input integers are negative. This will result in a potentially negative percentage output.
* The numbers input for forJoe and forDonald are equal to each other. The output is that Donald will win, even though the vote was a tie.

**Step 6**

Here are the logic errors I introduced that built successfully but produced nonsensical results:

* pctJoe and pctDonald are no longer multiplied by 100. In failing to do this, these variables will be off by a factor of 100 and the final percentages will be rounded down to 0 (unless the user inputs for forJoe and forDonald are greater than that for numberSurveyed, in which case the final percentages will be off by a factor of 100).
* In the if statement at the end, I switched the “>” to a “<.” In most cases with logical user input, this error will not matter because both percentages will be 0. Joe will then win by default because of the aforementioned tie error. However, if the user inputs greater values for forJoe and forDonald than for numberSurveyed and the final percentages are positive, the man with a lower percentage will win.

**Step 7**

Here are the syntax errors I introduced that prevented the program from building successfully:

* I deleted the line of code “int numberSurveyed,” which produced the error “Use of undeclared identifier ‘numberSurveyed’.” If one fails to declare a variable, it cannot be used later in the program.
* I added a “)” in line 29 of the code and received the error “Extraneous ')' after condition, expected a statement.” Even the smallest of typos can cause a program not to compile.