## Step 5

*Using the program as given, without changing it in any way, run it with input integers that cause it to produce incorrect, unusual, or nonsensical output. (Notice we're saying to try input integers, not input like 124765.23 or school.)*

input: **400, 500, 600**

output: **125.0%, 150.0%, Brian win**

The input is nonsensical because the sum of people who voted for the respective candidates are more than the total number of voters. This produces an incorrect output of percentages > 100%.

input: **0, 0, 0**

output: **nan%, nan%, Brian win**

The input and output are unusual because nobody voted. This leads the program to calculate 0/0, which is expressed as “nan” in the output. This also produced an incorrect prediction of election result: it says Brian will win while the votes they got are essentially equal.

## Step 6

*Starting from the program as given, introduce into the source code at least one error that someone might make that, while not preventing a successful build, causes the program when it runs to produce incorrect results from reasonable input.*

Logic error 1:

**line 20**, changed from

**double pctGavin = 100.0 \* forGavin / numberSurveyed;**

to **double pctGavin = forGavin / numberSurveyed \* 100;**

This caused incorrect results because integers “forGavin” and “numberSurveyed” are not converted to decimals before the calculation. pctGavin = 0 as a result.

Logic error 2:

**line 24**, removed **cout.precision(1);**

This caused incorrect results because instead of printing results rounded to 1 decimal place, the program now prints to 6 decimal place, which is the default setting.

## Step 7

*Again starting from the program as given, introduce at least two distinct types of mistakes that someone might make, each of which would cause the program to fail to compile correctly.*

Compile error 1:

line 14, undeclared variable “forGavin”. The variable is only declared in line 18, after “cin”.

Compile error 2:

line 20, “;” is absent at the end of line.

Compile error 3:

line 5, missing line “using namespace std;” std absent in the subsequent lines also, e.g. “cin” —> “std::cin”