A logic error occurs when I input 100 for the number of ice cream lovers surveyed, 50 for the number of people who prefer chocolate, and 50 for the number of people who prefer vanilla. Despite the percentages being 50% for both chocolate and vanilla, the program still outputs: “Vanilla is more popular than chocolate.” This output is incorrect and unreasonable, so I added a case in which neither chocolate nor vanilla is preferred over the other to fix the logic error. After checking if preferChocolate is greater than preferVanilla, the program also checks if the reverse is true. When neither of the cases is true, the program now outputs: “Both flavors are equally popular.”

For the compile error, I removed the namespace from the program. This causes several errors that state “cin,” “cout,” and “endl” are undeclared identifiers. This happens because the namespace is a collection of name definitions. Since the namespace is omitted, names such as “cout” and “endl” are not defined and not available to the program.

Another compile error I introduced is the removal of a semicolon after the line: “int numberSurveyed.” This causes a syntax error that prevents the program from compiling. The compiler does not know if the statement is complete and has no way to guess the intent of the programmer. Therefore, the compiler produces a syntax error that states “int” should be preceded by “;” A simple mistype such as omitting a semicolon can cause confusing errors or even multiple errors depending on how many lines the compiler processes after the missing semicolon.