CS31 Project 1 report

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Compiler:Xcode

**Step 5, the original.cpp:**

Input for variable “numberOfCommuters”: 1,000,000,000,000 (without the comma)

After I implemented the input, the compiler skipped the whole block of code, and prints “Fewer than half the commuters drove alone”. Explanation: It’s an integer, but the memory stored is too big for int therefore the results the compiler produces are unusual. A possible way to fix this is to use “long” instead of “int”.

Input for variable “numberOfComuters” : 10

Input for variable “soloDrivers”: 5

After I implemented the input, the compiler prints either cout message randomly. In this case, however, exactly half of the commuters drove alone. The output is illogical (plus the program runs successfully without bugs), therefore it should count as logical error. One way to fix this is to add “(or equal)” at the end of the message “fewer than half the commuters drove alone”. Then I changed the if condition statement to “soloDrivers<=numberOfCommuters/2”.

**Step 6, the logic\_error.cpp:**

Logic error satisfies two conditions:

1. builds/runs successfully.

2. produces incorrect results from reasonable output.

The first error:

I changed the if condition statement to “soloDrivers<numberOfCommuters/3”, and it produces a logical error because while the program builds/runs successfully, when I input 100 for numberOfComuters and 50 for soloDrivers, it gives me “More than half the commuters drove alone”. This is because since 50 is not smaller than 33, therefore it goes to the execution under the “else” block.

The second error:

I switched the two cout outputs “More than half the commuters drove alone” and “Fewer than half the commuters drove alone”. Now, when I input 100 for numberOfCommuters and 30 for soloDrivers, it shows that “More than half the commuters drove alone”. Since it builds/runs successfully and produces incorrect result given reasonable input, it’s a logical error.

**Step 7, the compile\_error.cpp:**

Compile error satisfies the following condition:

The compiler displays errors.

The three errors in the program/file are:

1. lack of “;” after “using namespace std”.

The compiler says “Expected ‘;’ after namespace name”. This is a rule.

2. the “<<” after cout is reversed to “>>”.

The compiler says “Invalid operands to binary expression”, because of the syntax error. I think cout and ‘<<’ are compiled together. If the operator ‘<<’ is changed, then the compiler might not recognize the object “cout” (because the originally colored ‘cout’ faded after I changed to ‘>>’).

3. The class name (iostream) in the header is wrong.

The compiler displays a lot of messages like “identifier not recognized”. Using the wrong library, the compiler doesn’t recognize those objects in the file anymore.

\*Note: I colored some keywords to make it easier to read.