Activity 3

Comp 11 - Summer Session — Decisions, decisions, decisions

With a partner(or two), discuss the following code sample and answer the questions below. The instructor and teaching assistants will let you discuss and then be around to answer questions.

3.1 Description

Work through the following questions below by filling in the values in the code.

```c
int main() {
    int a = 3;
    int b = 3;
    if (a > b) {
        b = 7;
    }
    // (1)
    // a = 
    // b = 
    if (a >= b) {
        b = 7;
        a = b;
    }
    // (2)
    // a = 
    // b = 
    return 0;
}
```

Listing 3.1: Control Statements 1

1Activities do not need to be returned to instructors, they are for your benefit.
```cpp
#include <string>
#include <iostream>

int main() {
    // Note, why can I not name the variable 'continue'
    char continueProgram = 'y';
    std::string user = "Michael";
    std::string secretCode = "";
    long countdown = 0;

    for (int i = 0; i < 100; i++) {
        countdown = countdown + 1;
    }

    // (1)
    // countdown = __________

    while (countdown > 0 && continueProgram == 'y') {
        countdown = countdown - 1;
        if (countdown <= 50) {
            continueProgram = 'n';
        }
    }

    // (2)
    // countdown = __________
    // continueProgram = ______

    int half = user.length() / 2;
    int counter = 0;
    for (char c : user) {
        counter = counter + 1;
        if (counter < half) {
            std::cout << c;
            secretCode = secretCode + c;
        } else {
            break;
        }
    }

    std::cout << secretCode << "\n";

    // (2)
    // counter = __________
    // secretCode = ______

    return 0;
}
```

Listing 3.2: Control Statements 2
3.2 Questions

1. What happens if a loop does not terminate in a program (i.e. the condition can be proved to always evaluate to true)?

2. Write a conditional statement with the $>$, $| |$, and $==$ signs that demonstrates the equivalent conditional statement to "if (a $\geq$ b)"

Listing 3.3: Control Statements 2

```cpp
#include <iostream>

int main()
{
    int a = 1;
    if (a==1){
        int b = 3;
        if (b==2){
            int c = 3;
        } else {
            int d = 4;
        }
        // (1) What is the value (if any) of c and d here?
        // ------------------------------------------
    } else if (a > 0){
        a = 37;
    }

    std::cout << a << "\n";
    // (2) What value would a print out here?
    // ------------------------------------------

    return 0;
}
```

Listing 3.4: Nesting