CSC 220 – Lab 5

Objective:
Write complete Java programs.

Java programs:

1. **Bits.** Write a program `Bits.java` that takes a command-line argument `N` and uses a `while` loop to compute the number of times you need to divide `N` by 2 until it is **strictly** less than 1. **Print out an error message if the integer `N` is negative.**

```
% java Bits 0                    % java Bits 8
0                                4

% java Bits 1                    % java Bits 16
1                                5

% java Bits 2                    % java Bits 1000
2                                10

% java Bits 4                    % java Bits -23
3                                Illegal input
```

2. Design and implement an application named `Swap.java` that reads a string and two index values from the user, then swaps the characters with the specified index values, and save the resulting string in a variable. The program should have an input verification loop ensuring that the specified index values are within range, and a loop that asks users if they want to run the program again.

Compiling and running Java programs (reminder):

1. Compile your programs using the command `javac filename`
   For example: `javac myProgram.java`
   If you receive errors during the compilation phase, re-edit the source code file and attempt to correct them.

2. Once a file successfully compiles, execute it using the `java` program.
   For example: `java MyProgram`

What to turn in:

1. JAR all your files, including `*.java` and `*.class` files into a file called `Lab5.jar`. When you're done, upload the JAR file to Canvas, under category `Lab5`.

2. If you do not complete the assignment before the end of the lab, you have until the deadline to complete the assignment and have your Jar file uploaded to Canvas. Canvas time rules! No extensions.

Hints:

Your work should be saved in a directory called `Lab5` that you create in directory `CSC220`.