CS 501B – Introduction to JAVA Programming
Fall 2023 Semester
Due: 09/22/2023 Friday at 11:59 PM

Instructions:

1. You are not allowed to use any package/library unless stated otherwise.
2. A skeleton Assignment1.java file is attached as a stub of code.
3. You are required to make the necessary changes in the Assignment1.java file.
4. We will be testing your code on hidden test cases.
5. Test your code with your own test cases.
6. Please comment your name and CWID in the first two lines of the Assignment1.java file.
7. Add comments in your code about what you are doing.
8. You are required to zip only Assignment1.java file as FirstName_LastName_Assignment#.zip (Ex: Roushan_Kumar_Assignment1.zip).
9. This assignment covers topics from weeks 1 ,2 and 3.
10. Students are not allowed to collaborate with classmates and any other people outside. All work must be done individually. Any work having evidence of showing academic dishonesty violation is subjected to zero for the assignment.

Penalty:

1. 10 marks will be deducted for invalid format of file / assignment submission.
2. If you submit after the due date then 10 marks will be deducted for every day after the due day.
3. If you submit an assignment after two weeks from the due date then you will get zero marks.

Questions:
Each question carries **25** points and total points is **100.**

1. Complete the method **`calculateHypotenuse(double side1, double side2)`** that calculates the hypotenuse of a right-angled triangle given the lengths of the other two sides. Using the `Math` class, the result should be rounded to two decimal places.

   Example 1:
   Input: calculateHypotenuse(3.0, 4.0)
   Output: 5.0

   Example 2:
   Input: calculateHypotenuse(5.0, 12.0)
   Output: 13.0

2. Complete the method **`convertCharacterCase(char inputChar)`** that returns the converted character: if the input character is lowercase, it should return its uppercase equivalent; if it's uppercase, it should return its lowercase version. If it's neither, it should return the original character.

   Example 1:
   Input: convertCharacterCase('a')
   Output: 'A'

   Example 2:
   Input: convertCharacterCase('Z')
   Output: 'z'

   Example 3:
   Input: convertCharacterCase('1')
   Output: '1'

3. Complete the method **`reverseString(String input)`** that returns the reversed version of the given string.

   Example 1:
   Input: reverseString("hello")
   Output: "olleh"

   Example 2:
   Input: reverseString("Java")
   Output: "avaJ"

   Example 3:
   Input: reverseString("OpenAI")
   Output: "IAnepO"

4. Complete the method **`sumFirstTenFibonacci()`** that calculates and returns the summation of the first 10 Fibonacci numbers. The Fibonacci sequence starts with the numbers 0 and 1, and each subsequent number is the sum of the two preceding ones. Use loops to compute the sum.