Homework1:

Due Date: Homework1 is due by 11:59 PM on Wednesday, September 30, 2020.

Submit your work (the .java source code files ONLY, not the compiled .class files!) through the "Homework1" link on Blackboard. You may submit unlimited number of times; we will only grade the last/latest submission attempt, but be sure to attach all of your files to each submission attempt. Be sure to include your name and Stony Brook ID number in a comment at the beginning of each file that you submit.

Instructions: This assignment is worth 40 points (10 points per program).

1. Write a program that reads three non-zero positive values entered by the user and determine and prints whether they could represent the sides of a right triangle.
   Sample run:
   Side1:3
   Side2:3
   Side3:3
   Output: Input sides do not represent a right triangle!

   Side1:3
   Side2:4
   Side3:5
   Output: Input sides represent a right triangle! [**Hint: use Pythagorean theorem:** https://en.wikipedia.org/wiki/Pythagorean_theorem]

2. A palindrome is a sequence of characters that reads the same backward as forward. For example, each of the following five-digit integers is a palindrome: 12321, 55555, 45554, and 11611. Write a program that reads five-digit integer and determines whether it is a palindrome. If the number is not five digit long, display an error message and allow the user to enter a new value. [**Note: Do not convert integer value into a String for this purpose, work on the original integer value.**]

3. Write a program that prompts the user to enter an integer and determine whether it is divisible by 5 and 6, whether it is divisible by 5 or 6, and whether it is divisible by 5 or 6, but not both. Here is a sample run of the program:
   Enter an integer: 10
   Is 10 divisible by 5 and 6? false
   Is 10 divisible by 5 or 6? true
   Is 10 divisible by 5 or 6, but not both? true

4. Write a program that reads a sentence from the keyboard. The sentence has been encrypted so that the message consists of only the first five characters with even-numbered indexes (indices). All other characters should be discarded. Encrypt the sentence and output the result. For example, if the user inputs "*Hiejlzl3ow*", your output should be "*Hello*".