Assignment Set 1–A
Due April 8th

1.1 Write a program that asks for 3 integers and checks (using a separate function) whether they represent sides of a right triangle in any combination of the three values. If they do, it prints the three numbers and identifies the hypotenuse, otherwise states that this is not a right triangle.

1.2 - Optional; only for extra credit Write a program that asks the user (i) for two integers, (ii) to choose between two operations (sum or product) each represented by a different integer, (iii) for the result of the chosen operation on the two numbers. If the answer provided by the user is correct, print "Right!" otherwise print "Wrong!" along with the correct answer. NOTE: Use two separate functions, each of which calculates the sum and the product, respectively.

1.3 Write a program that asks the user for a positive integer number, finds out whether the number is (i) even or odd, (ii) a perfect square, and prints the answer to each of the two questions.

1.4 Write a program that: (i) asks the user for a non-negative integer number, e.g., N, (ii) calculates its factorial, i.e., \( N! = N \times (N-1) \times (N-2) \times \ldots \times 1 \), (iii) writes to the screen the values of N and its factorial in two columns, (iv) repeats steps (i)-(iii) until the user gives a negative number. Use a separate function that takes N as input and returns its factorial.

- NOTE that the factorial of 0 is defined to be equal to 1 and write the code in such a way that it can account for the possibility that the user gives 0 as the value of N.

1.5 Write a program with an infinite loop that keeps asking the user for a non-zero integer number and (i) if the number provided in non-zero, then the program uses a loop structure to change (decrease or increase depending on what is appropriate) the input number by 1 iteratively until it is equal to 0, and prints all integers between the input number and zero (including 0), and (ii) if the number is equal to zero does nothing.

NOTE:

- All print outs should be accompanied by some text, i.e., numbers should be incorporated in sentences that explain what the numbers are.
Format Requirements for Assignments

For every code you write – no matter how small – as a class assignment:

- Include a multiple-line comment at the top with the following information:
  - The name of the assignment
  - Your name
  - The date you turned in the code

- Insert comments throughout the code: just before every main code element, like a function, a conditional statement, a loop, a set of variable assignments, or print statements etc.

- Turn in a print-out of the code along with print-outs of all possible program outputs both in data and graph form, whenever applicable. Also turn in your answers asked as part of the assignments.

- E-mail me all the source-code files. In the subject line remember to include (i) your name, (ii) the name or number of the exercise.