Lab 5

Instructions: Complete the steps below. Be sure to show your code to one of the lab TAs before you leave, so that you can receive credit for this lab. You must also upload a copy of all your source code (.java) files to the link on Blackboard by **11:59 PM on February 18 (Monday), 2019 for L01 and by 11:59 PM on February 19 (Tuesday) 2019, for L02-L06**.

1. Write down a program for computing the factorial for a positive integer input. You should prompt the user to input a positive integer.

   Factorial of a positive integer x is defined as:
   $$Factorial(x) \ = \ 1 * 2 * 3 * \dots * (x - 1) * x$$

   Enter a positive integer: 7
   Factorial is : 5040

   Enter a positive integer: 10
   Factorial is : **3628800**

2. A regular polygon is an n-sided polygon in which all sides are of the same length and all angles have same degree (i.e., the polygon is both equilateral and equiangular). The formula for computing the area of a regular polygon is:
   $$Area = \frac{n \times s^2}{4 \times \tan(\frac{\pi}{n})}$$

   Here, s is the length of the side. Write a program that prompts the user to enter the number of sides and their length of a regular polygon and display its area. Here is a sample run:

   Enter the number of sides : 5
   Enter the side : 6.5
   The area of the polygon is 72.69017017488385

Grading Guidelines: This lab is graded on a scale of 0-6 points, assigned as follows:

- **0 points:** Student is absent or does not appear to have completed any work for the lab
- **2 point (2*1):** Student has written the program, but it has errors.
- **4 points (2*2):** Student has written the program it compiles without error, but it does not produce the correct output.
- **6 points (2*3):** Student has written the program and it compiles and runs correctly, without any errors.