Indian Institute of Technology Kharagpur

AUTUMN Semester, 2015
COMPUTER SCIENCE AND ENGINEERING

CS19001: Programming and Data Structure Laboratory

Assignment − 1

Full Marks: 10

Time allowed: 3 hours

INSTRUCTIONS: Please see the questions and write C programs step by step. Ensure proper indentations to improve the readability of your code. All these features are necessary and absence will lead to deduction of marks.
Please do not forget to upload files to *Moodle* before you leave.

Evaluation of Expressions

1. Write a program to interactively ask for your name and age, and respond with:

   Hello name*, next year you will be* nextage*,*

   where nextage = age + 1.

   (2 marks)

2. A square is made by bending a single piece of wire. If we make a circle out of this wire, what will be radius and area of the circle? Assume the value of "pi" to be 3.14. The user will input the length of one side of the square, and the output will be the radius of the circle and area of the circle, with the messages *Radius of the circle is:* and *Area of the circle is:* .

   (2 marks)

3. Given two integers stored in variables C and D, interchange (swap) the contents of C and D. DO NOT USE ANY TEMPORARY VARIABLE. The program should print *Input the variables C and D*, and the output will be *Value of C after swap:* , and *Value of D after swap:* .

   (3 marks)

4. Suppose you are given the coordinates of the three vertices of an equilateral triangle on the Cartesian plane. Calculate the coordinates of the centre and the area of the circle inscribed in the triangle. Assume the value of "pi" to be 3.14. The program should print the messages *input: coordinates of the vertices of the triangle*, and *output: Coordinates of incentre:*, and *Area of the incircle:*

   (3 marks)

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