IC150P Computation for Engineers Lab

Odd Semester, 2017
Assignment sheet no. 02, Batch – Wednesday Topic:Functions-1

OBJECTIVES:

- To perform interactive input through keyboard and produce formatted output on screen
- To get started with defining and implementing user defined functions

ASSIGNMENT PROBLEMS:

Task-1: Write a C-function that receives marks received by 5 student in 3 subjects and return the overall percentage. Call this function from main() and print the mark sheet in main as shown below. All the inputs need to be entered by the user through keyboard at run-time.

Student Name	**Marks Obtained in Physics**	**Marks obtained in Maths**	**Marks obtained in Chemistry**	**Maximum Marks obtained**	**Maximum Marks**
Ajay	70	60	50	180	300

Task-2: Write a C-function to compute the distance between two points dist(x1,y1,x2,y2). Use this function to develop another function that will compute the area of the triangle whose vertices are A(x1,y1), B(x2,y2) and C(x3,y3). You can use Heron's formula to compute the area, the formula is as follows where a, b, c are the lengths of sides of triangle.

$$Area = \sqrt{p(p-a)(p-b)(p-c)}$$

where p is half the perimeter, or $\frac{a+b+c}{2}$

Task-3: A soccer ball of diameter D metres rolls without slipping. Write a C-function that returns how many revolutions has the soccer ball turned as it moves a linear distance of L metres.

Let L_1 be the distance ball travels in 1 turn

$$L_1 = 2\Pi\left(\frac{D}{2}\right)$$

To travel L distance, the ball has to take N turns which can be calculated as

$$N = \frac{L}{L_1}$$

NOTE:

- Each task carries 2 marks
- You are required to bring pseudo codes (and not full programs) for each of the tasks written in a notebook to the lab session and present them to the Instructors/TAs for evaluation
- The codes need to be created from scratch while you are in lab

REMEMBER:

- To use spaces and indentation to improve the readability of your code
- To add a comment block at the top of your code file stating your name, roll no., assignment and task no.
- To provide comments at appropriate places to aid lucid comprehension of modules