CS 101 Introduction to ComputING

Section G

Assignment 5 – WRITING C++ functions

DUE: 21ST october, 2014.

**note:** Make a folder and rename it to your roll number. **Make only one source file.** Put your c++ file along with the .exe file in the same folder and submit it on xeon. You have to submit on Tuesday so make sure you do it before the labs close.

**PROBLEM 1**

Write two functions called menu and takeAction. The menu function should print different options for the user on screen. The output should look something like this:

Enter your choice:

‘A’ for problem 2

‘B’ for problem 3

‘C’ for problem 4

‘X’ to exit

The return value of the menu function should be the response of the user. The takeAction function should take as parameter the response of the user and take action against the different menu options.

This menu is to be repeated after each response till the user presses ‘X’. The function menu should return the response of the user to the caller. Now make sure that the functions for problem 2,3 and 4 are called when the user makes the corresponding input.

**PROBLEM 2**

The square of hypotenuse length of a right angle triangle is given by the sum of squares of side1 and side2 of the triangle. Write a program that prints all the valid combinations of squares of side1, side2 and hypotenuse. Side1 and side2 lengths should be less than 50. For example your program should print (side1,side2,hypotenuse):

1,1,sqrt(2)

1,2,sqrt(5)

1,3,sqrt(10) …

**PROBLEM 3**

Print the coordinates of a circle whose center is at (*cx*,*cy*). The radius *r* and coordinates of the center of the circle is an input to the function via parameters. (The user can input the parameters via the takeAction function of problem 1). You can use cout in this function as it is a specialized function for outputting coordinates.

HINT: Suppose the center of the circle is (0,0), then if we know the *x*-coordinate of a circle then the *y*-coordinate is given by: sqrt(*r*\**r*-*x*\**x*). The *x*-coordinate can vary from –*r* to *r* if the circle is centered at (0,0). For a circle with center (40,10) add 40 to the x-coordinate and 10 to the *y* coordinate.

**PROBLEM 4**

Write a function to convert a decimal number to binary. The decimal number should be the input parameter and the user can input it in the takeAction function.