Dept. of CSE, Bennett University
ECSE379L – Programming Using C++

Lab Assignment – 9

In this lab, you will write a C++ program to solve the following problem.

(1) Create a class **ProblemSolution** with following characteristics

- First constructor accepts two integer parameters N1 and N2 and displays addition of 2 numbers.
- Second constructor accepts three integer parameters N1, N2 and N3 and displays addition of 3 numbers.

Input
10
20
45

where

- First line represents a value of N1.
- Second line represents a value of N2.
- Thrid line represents a value N3.

Output
30
75

(2) Define a class named **Rectangle** with following characteristics:

- Data members
  - double field **x** and **y** that specifies the center of the rectangle.
  - integer field **width** and **height** of the rectangle.

- Methods
  - The default constructor creates the default rectangle centered at (0,0) and width and height as 1.

- Another parameterized constructor has 4 parameters representing x, y, height and width values.
- getArea() - Returns area of rectangle.
- getPerimeter() - Returns perimeter of rectangle.
- contains(double x, double y) - returns true if the specified point (x,y) is inside the current rectangle.

Input

2.0
2.0
10
16
10.0
7.0

where,

- First two lines represent value **x** and **y** respectively which is a center of the custom rectangle.
- Third and fourth lines represent **height** and **width** of the custom rectangle respectively.
- Fifth and sixth lines represent **x** and **y** coordinates of a point to be which is to be checked.

Output

4
1
true
52
160
true

where,

- First three lines represent perimeter, area, and result of whether the point (0.5, 0.1) is inside the default rectangle. (this value will not change with change in test case)
- Fourth and fifth lines represent perimeter and area, respectively, of the custom rectangle created from user input.
- Sixth line represents whether given point is inside the custom rectangle.

(3) Create a **desctructor** of class ProblemSolution which will print "Destructor called".

Output

Destructor called

(4) Create a class named **Time** with following characteristics:

- It has private parameters **hour**, **minute**,**second**.
- Create a constructor which takes total time of day in seconds, converts into hour, minute and second and store in the respective private vairables. Use **long** data type as input argument.
- Create a method **getTime**() which returns time in 24- hour format (HH:MM:SS) as string.