MCA 2nd SEMESTER

203 : Programming in .Net

Practical Assignment – 3

1 Create a class **Rectangle**. The class has attributes **length** and **width**, each of which defaults to 1. It has member functions that calculate the **perimeter** and the **area** of the rectangle. It has *set* and *get* routines for both **length** and **width**. The *set* routine should verify that **length** and **width** are each floating-point numbers larger than 0.0 and less than 20.0. Develop an appropriate application that makes use of this class.

2 Create a more sophisticated **Rectangle** class than the one you created in Problem 1. This class stores only the Cartesian coordinates of the four corners of the rectangle. The constructor calls a *setR* function that accepts four sets of coordinates and verifies that each of these is in the first quadrant with no single x or y coordinate larger than 20.0. The *setR* function also verifies that the supplied coordinates do, in fact, specify a rectangle. Member functions calculate the **length**, **width**, **perimeter** and **area**. The length is the larger of the two dimensions. Include a predicate function **square** that determines if the rectangle is a square.Develop an appropriate application that makes use of this class.

3 Develop a basic calculator by creating an instance of the class core_calculator. Inherit the core_calculator class into scientific_calculator class and use it to develop an application for a scientific calculator.

4 Develop a class tic tac toe and develop an application using it to simulate a tic tac toe game.

5 Create classes using real world entities which use all the keywords available in C# with regards to inheritance.

6 Demonstrate Dynamic Polymorphism by taking an example involving real world entities.

7 Demonstrate the usage of interface taking an example which removes anomalies of multiple inheritance.

8 Demonstrate the usage of Delegates.