

**Coding Bootcamp 4**

**Exercise 2 – C# Stream**

1. Define an abstract class Shape with a protected member that describes the color of the shape (can be an enum). Create a public property that returns the color to the user. Also create two methods, a public method to set the color and an abstract method string GetInfo() to return the objects' info to the user.

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| > Shape of color Red. |

Example output 1- Result of Shape GetInfo() method

1. Define a derived class Rectangle with two protected members for the width and the height of the rectangle. The Rectangle object must be immutable. Define a constructor to initialize the Rectangle object. Create two public properties that return the width and the height to the user. Create a virtual method void GetArea() that calculates the total area of the Rectangle. Also implement the abstract method string GetInfo().

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| > Rectangle of color Red, width 15 and height 24. |

Example output 2 - Result of Rectangle GetInfo() method

1. Create a derived class Square. This class extends the Rectangle class and cannot be inherited. Implement the string GetInfo() method to return the rectangles’ info to the user.

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| > Square of color Red and side length 20. |

Example output 3 - Result of Square GetInfo() method.

1. Rectangle and Square classes must have a private field of type string that stores the objects' name (eg. Rectangle, Square).
2. Override the ToString() method for Shape, Rectangle and Square. The result of the ToString() method can be the same with the result of the GetInfo() method.

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| > Shape of color Red.  > Rectangle of color Red, width 15 and height 24.  > Square of color Red and side length 20. |

Example output 4 - Result of ToString() method when called from Shape, Rectangle and Square

1. Each class (Rectangle and Square) should implement the IComparable and IEquitable<T> interfaces.
2. Initialize sample objects to test the implemented functionality. Store the objects to a List<T> and verify that Sort() method is working properly.