ProMath Application

You are developing an application using C# and Visual Studio that will be used by students all over the world.

Create a Console application with classes that will properly represent the following constructs.

# Requirements

1. Define a Shape object, where the object is any two-dimensional figure, and has the following characteristics: a name, perimeter, and a surface area.
2. Define a Circle object which retains the characteristics of a Shape. The calculations for a circle are:
   1. Area of circle = Pi\*R\*R where R=Radius, Pi=3.14
   2. Perimeter (circumference) of circle = 2\*Pi\*R where R=Radius, Pi=3.14
3. Define a Triangle object which retains the characteristics of a Shape. The name of the triangle should consider if it is equilateral (all 3 sides are the same length), isosceles (only 2 sides are the same length) or scalene (no 2 sides are the same).
   1. Area of triangle = (Height \* base) / 2
   2. Perimeter of triangle = a + b +c
4. Define 2 different quadrilaterals, a Square and Rectangle which retains the characteristics of a Shape. The name should consider if all sides are the same length.
   1. Area of Square/Rectangle = width\*length
   2. Perimeter of Square/Rectangle = (width + length) \* 2
5. We want to be able to sort a collection of Shapes by Area or Perimeter. Define methods/classes/interfaces that support this scenario and provide an example in Main.
6. We want to be able serialize/store shapes in various formats on disk. Define methods/classes/etc that support this scenario and provide an example in Main (XML/JSON/Binary/etc pick **one**)
7. We want to be able track (in-memory) the number of Shape objects created (per class) Define methods/classes/etc that support this scenario and provide an example in Main.
8. Demonstrate understanding of Solid principles and design patterns.
9. Demonstrate understanding of testing frameworks for writing unit tests.

# How to submit

Please upload the code for this project to GitHub and share the link.