# Assignment for Factory Method Design Pattern in C#

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1) Design a system to handle the shapes: circles, ellipses, rectangles and squares. Use the Factory Method design pattern according to the instructions given below. Read all the steps carefully before you begin answering the questions.

   a) The interface should have two method prototypes for computing the area and perimeter of the shapes.

   b) Create classes for each of the shapes. You should use inheritance appropriately.

   c) The object should be created based on the user inputs as shown in table below.

   | User input | Object type |
   | --- | --- |
   | c | Circle object |
   | r | Rectangle object |
   | s | Square object |
   | e | Ellipse object |

   d) Create a circle object with the radius = 7.

   e) Compute the area and perimeter of the circle object created in (1) (d) above.

## Note:

1. Circle of radius = r.

   a. Area $= \pi r^2$

   b. Perimeter $= 2\pi r$

2. Ellipse of radii a and b.

   a. Area $= \pi ab$

   b. Perimeter $= 2\pi \sqrt{\{(a^2+b^2)/2\}}$