# Lab: Interfaces and Abstraction

Problems for exercises and homework for the ["CSharp OOP Basics" course @ Software University](https://softuni.bg/courses/csharp-oop-basics)

You can check your solutions here: [Judge](https://judge.softuni.bg/Contests/705/Interfaces-and-Abstraction-Lab)

## Shapes

**NOTE**: You need a public StartUp class with the namespace Shapes.

Build hierarchy of interfaces and classes:



You should be able to use the class like this:

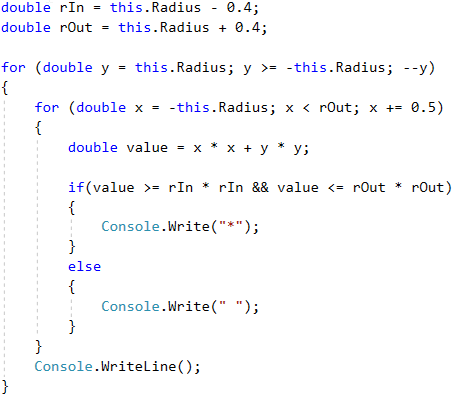
|  |
| --- |
| StartUp.cs |
| var radius = int.Parse(Console.ReadLine());  IDrawable circle = new Circle(radius);  var width = int.Parse(Console.ReadLine());  var height = int.Parse(Console.ReadLine());  IDrawable rect = new Rectangle(width, height);  circle.Draw();  rect.Draw(); |

### Examples

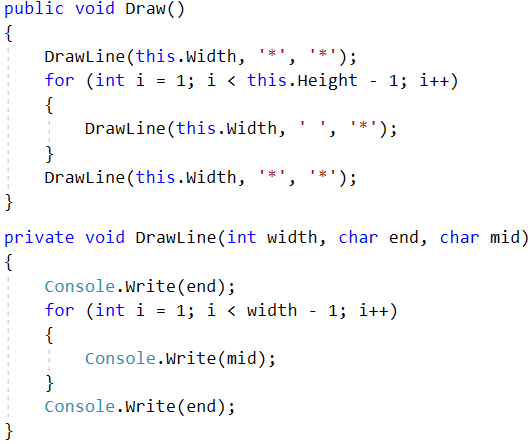
|  |  |
| --- | --- |
| **Input** | **Output** |
| 3  4  5 | \*\*\*\*\*\*\*  \*\* \*\*  \*\* \*\*  \* \*  \*\* \*\*  \*\* \*\*  \*\*\*\*\*\*\*  \*\*\*\*  \* \*  \* \*  \* \*  \*\*\*\* |

### Solution

For circle drawing you can use this algorithm:



For rectangle drawing algorithm will be:



## Cars

**NOTE**: You need a public StartUp class with the namespace Cars.

Build a hierarchy of interfaces and classes:



Your hierarchy must be used with this code:

|  |
| --- |
| StartUp.cs |
| ICar seat = new Seat("Leon", "Grey");  ICar tesla = new Tesla("Model 3", "Red", 2);  Console.WriteLine(seat.ToString());  Console.WriteLine(tesla.ToString()); |

### Examples

|  |
| --- |
| **Output** |
| Grey Seat Leon  Engine start  Breaaak!  Red Tesla Model 3 with 2 Batteries Engine start  Breaaak! |