

Becoming a .NET Developer

Understanding Object Oriented Programming

Jan-Erik Sandberg
www.jan-erik.com



pluralsight 
hardcore dev and IT training

Agenda

- The Computer
- The Four Basic Concepts of Programming
- Object Oriented Programming
- Understanding Classes
- Pseudo Program
- Summary

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

The Computer

- On or Off
- Reading instructions
- The compiler

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

The Four Basic Concepts of Programming

- Variables
- Commands
- Control structures
- Data structures

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Variables



Life count

= 4

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Variable Types

- Boolean
- Integer
- Double
- String



**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Commands

- Setting / Clearing
- Mathematical operations
- Calling other parts of the program

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Control Structures

- Control the flow
- Selection
- Iteration

```
if  
Name = Peter  
then  
allow access  
else  
deny access
```

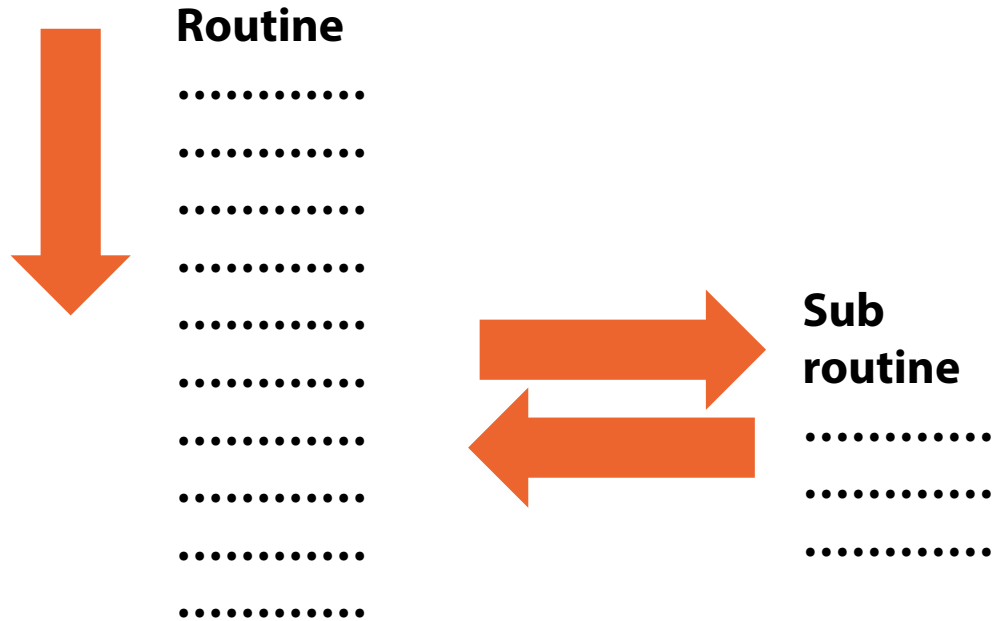
```
for X = 1 to 5  
Display "Are we there yet?"  
end for
```

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Routines



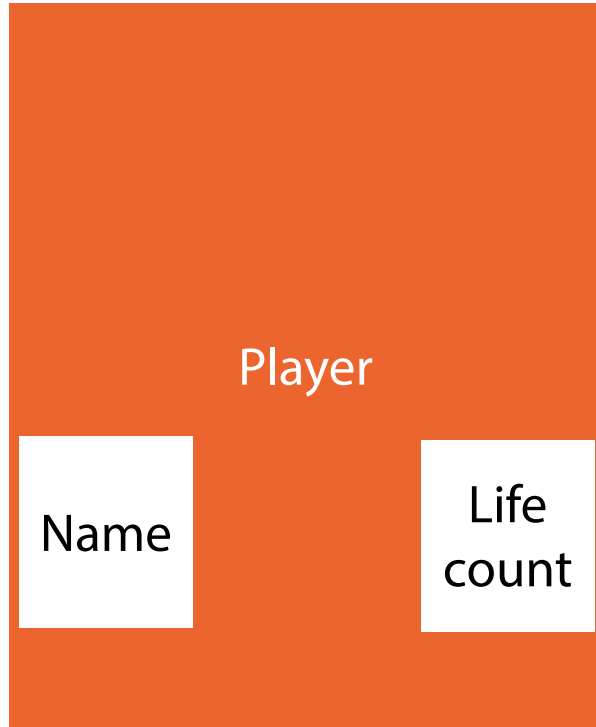
**Do Not Place Anything
in This Space**

(Add watermark during
editing)

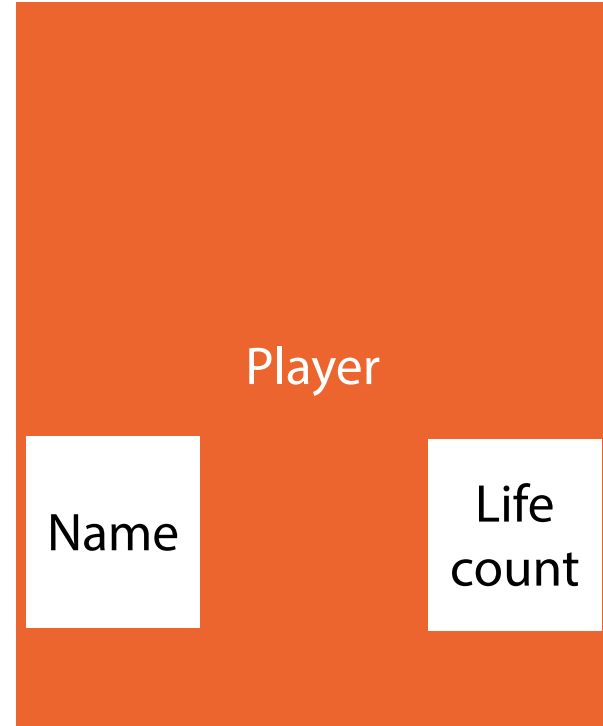
Note: Warning will not appear
during Slide Show view.

Data Structures

Definition



Instance



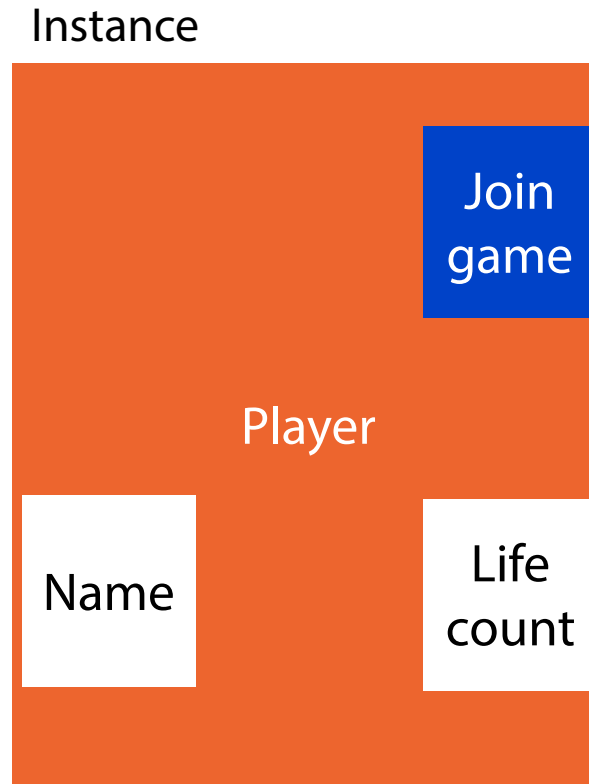
**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Object Oriented Programming

- Everything is objects
- `Player1.Name = "Max"`

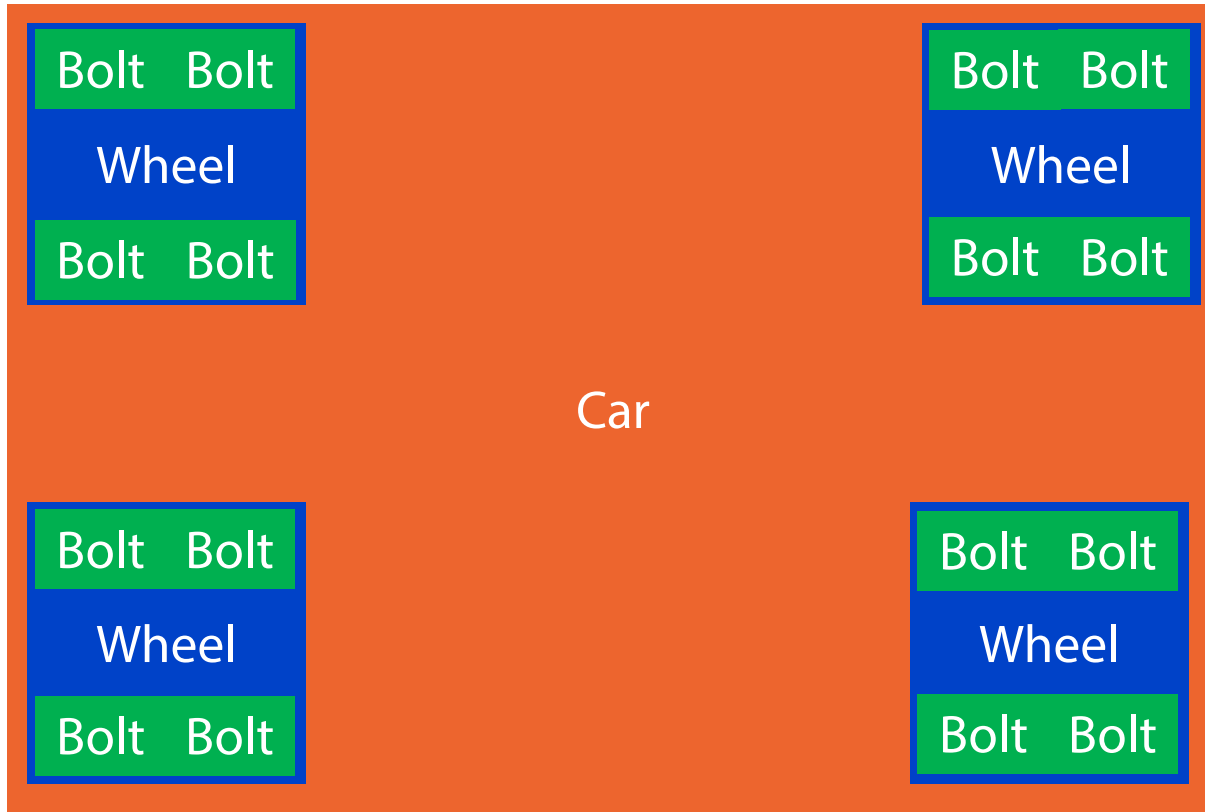


**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Object Graphs



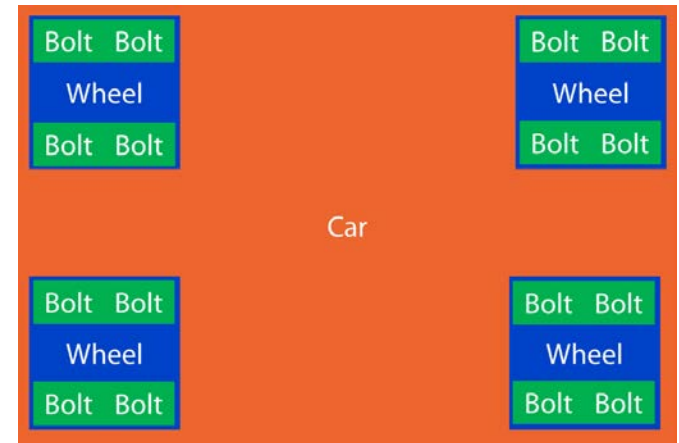
**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Classes

- Properties
- Methods
- Constructor



**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Interfaces

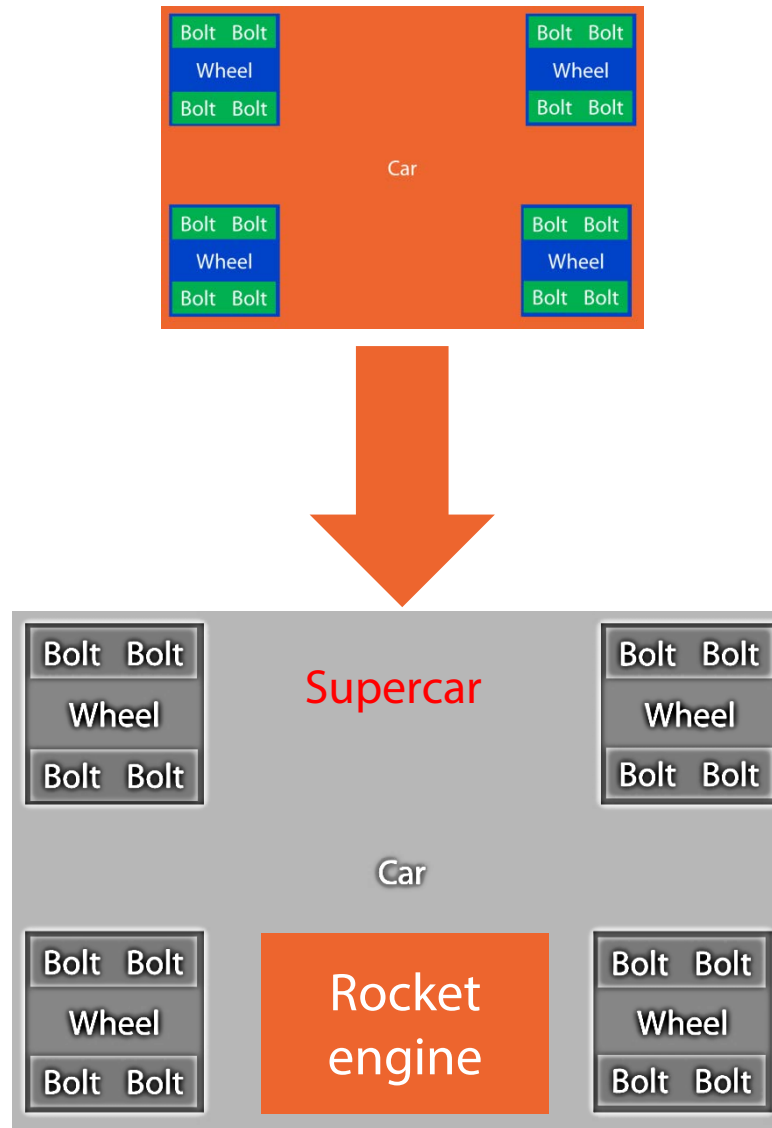
- Description
- Cannot create instances directly from interfaces

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Inheritance



**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Inheritance

- Single inheritance
- Multiple inheritance
- Base class
- Sub class

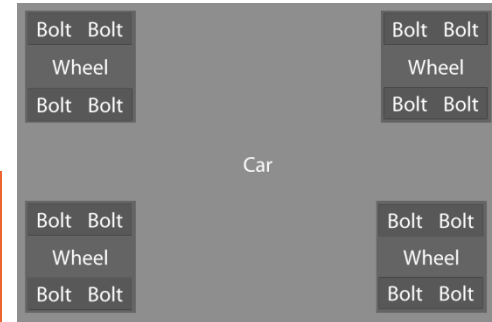
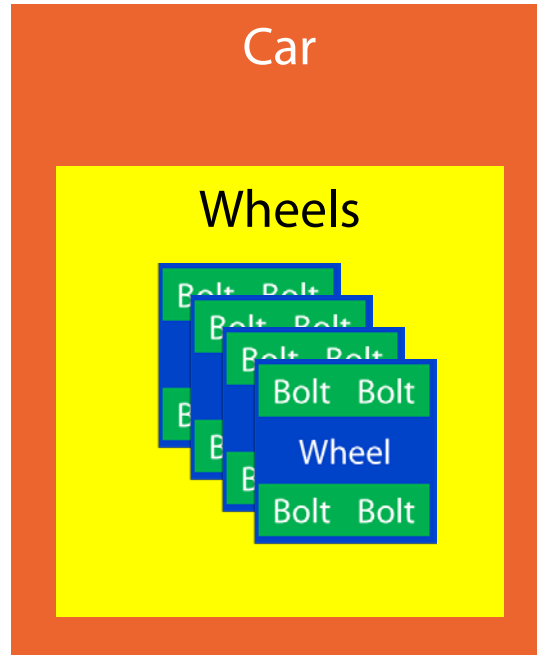
**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Collections

- Container
- Lists
- Arrays



**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Converting Objects

TextToDisplay
(string)
"Your IQ is: "



CalculatedIQ
(string)
148



CalculatedIQ
(integer)
148



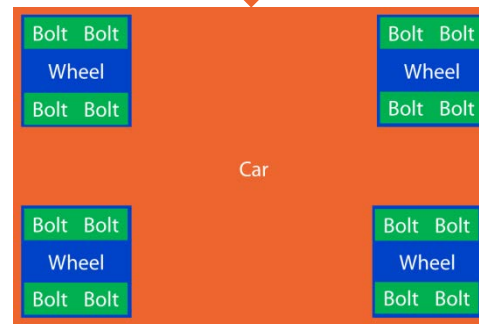
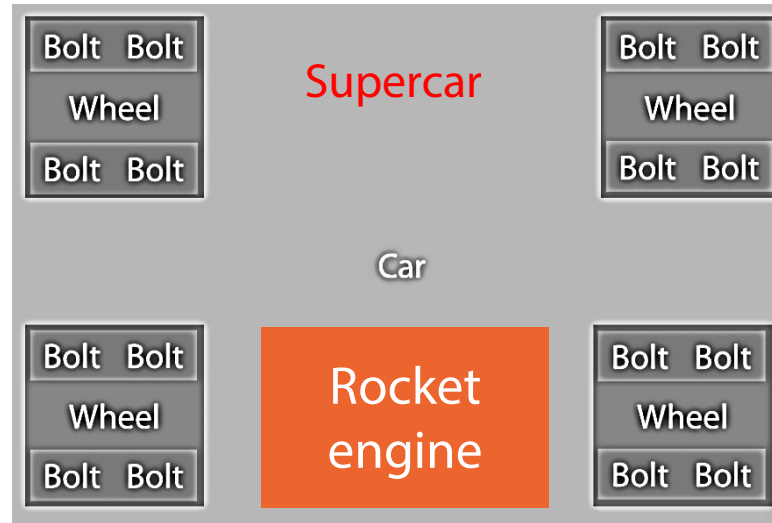
TextToDisplayWithIQ
(string)
"Your IQ is: 148"

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Converting Complex Objects



**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Example

- High level
- Focus on concept

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

The Wheel Class

```
class Wheel
{
    Steer(bool direction)
    {
        if direction = false
        then
            steerLeft()
        else
            steerRight()
    }
}
```

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

The Car Class

```
class Car
{
    list<wheel> wheels
}
```

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

The Supercar Class

```
class SuperCar inherits Car
{
RocketEngine engine
}
```

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

The Program

```
class Program
{
    MySuperCar = new SuperCar()
    MySuperCar.Wheels.Add(new Wheel)
    MySuperCar.Wheels.Add(new Wheel)
    MySuperCar.Wheels.Add(new Wheel)
    MySuperCar.Wheels.Add(new Wheel)
    SteerAllWheelsLeft(MySuperCar)
}
```

```
void SteerAllWheelsLeft(Car
    carToSteer)
{
    For each Wheel in Car.Wheels
    {
        Wheel.Steer(false)
    }
}
```



**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Summary

- The Computer
- The Four Basic Concepts of Programming
- Object Oriented Programming
- Understanding Classes
- Pseudo Program

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.