Becoming a .NET Developer

Understanding Object Oriented Programming

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hardcore dev and IT training

Agenda

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

The Computer

- On or Off
- Reading instructions
- The compiler

The Four Basic Concepts of Programming

- Variables
- Commands
- Control structures
- Data structures

Variables

Life count

= 3

Variable Types

- Boolean
- Integer
- Double
- String

Commands

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

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
```

Routines

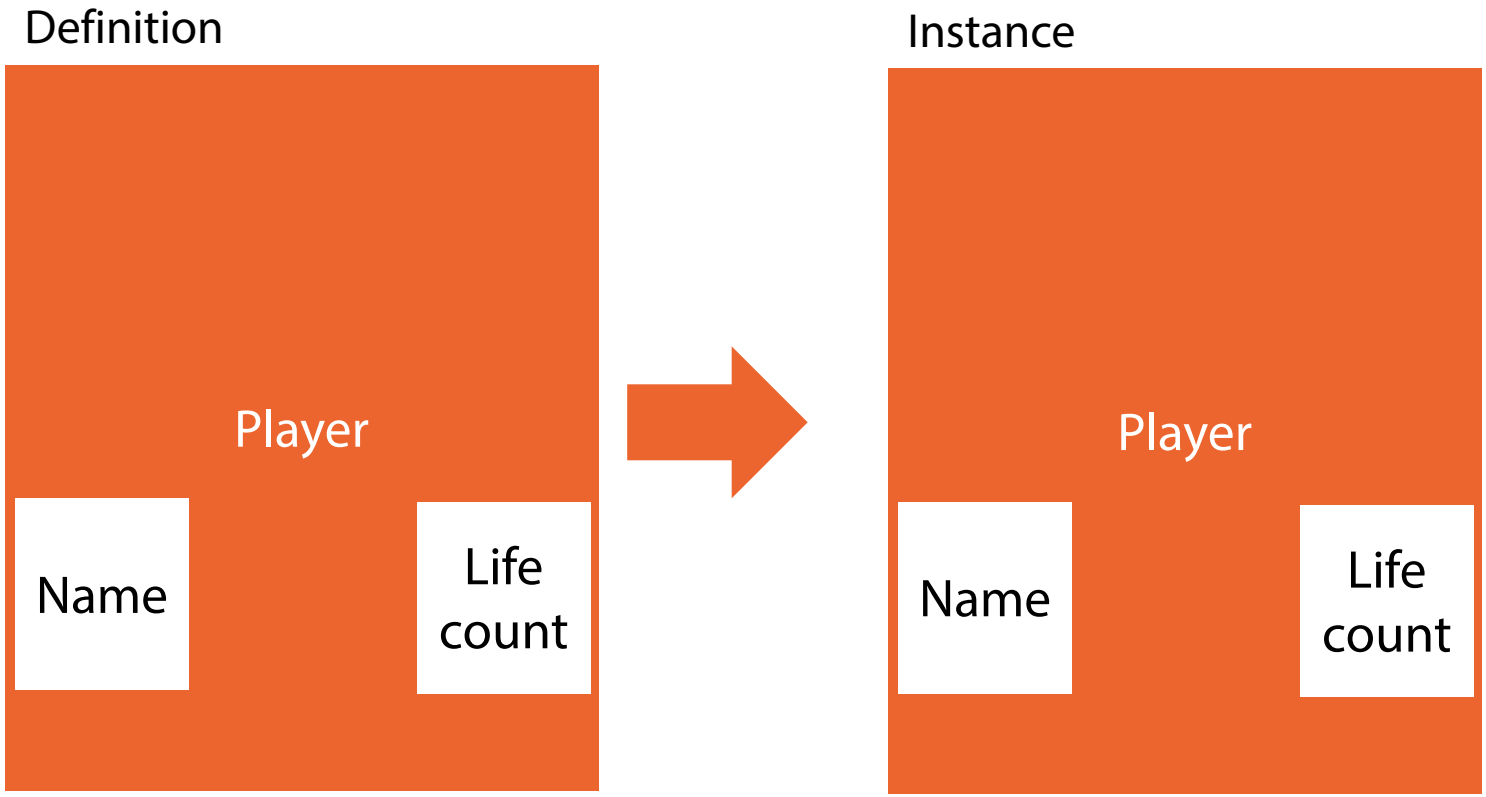
Routine

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Sub routine

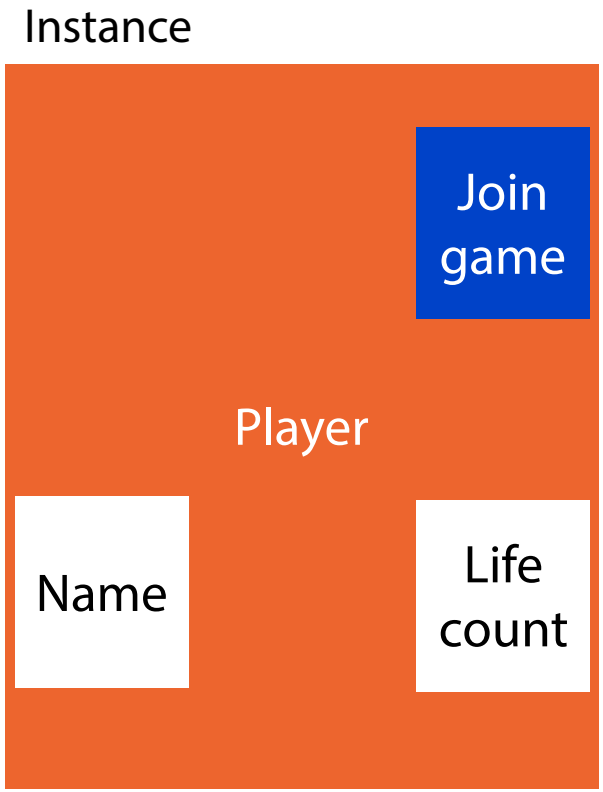
.....
.....
.....

Data Structures

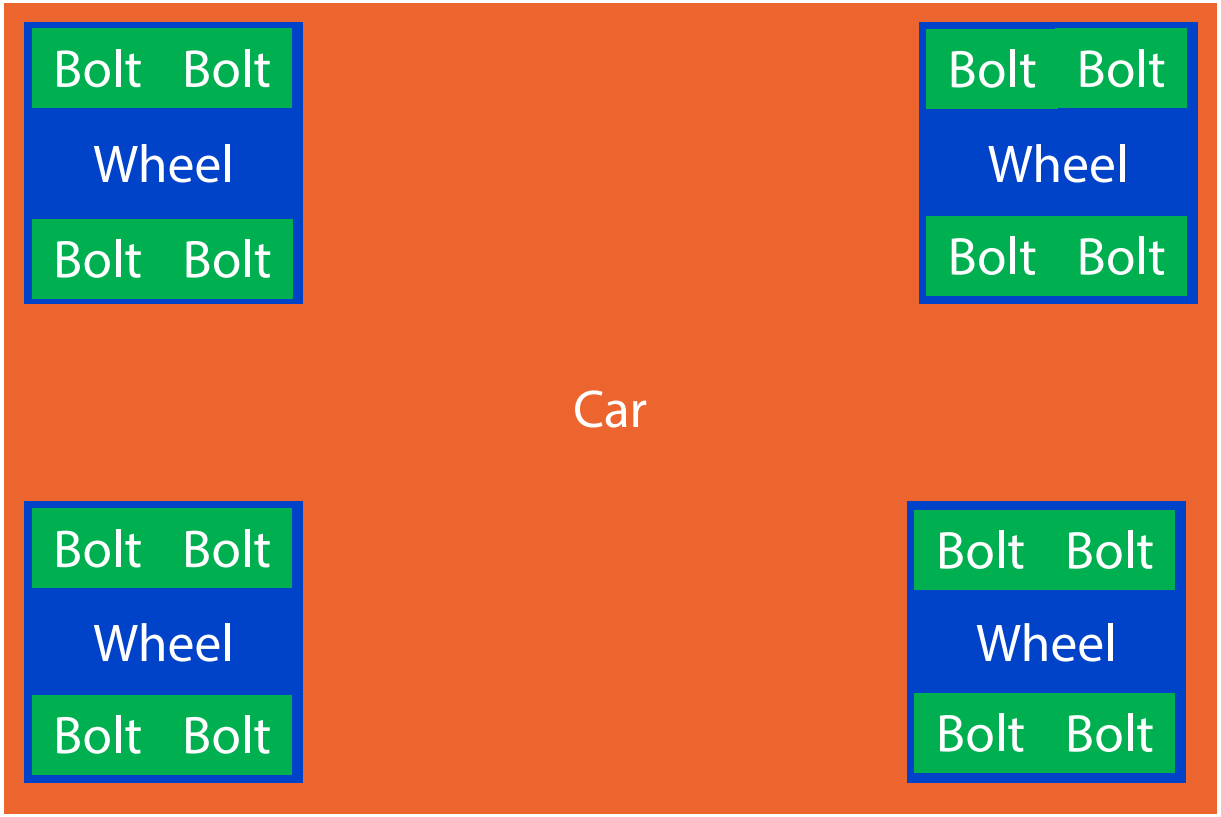


Object Oriented Programming

- Everything is objects
- Player1.Name = “Max”

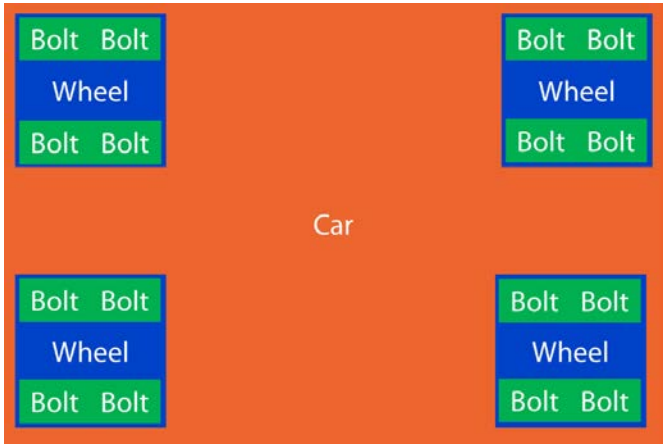


Object Graphs



Classes

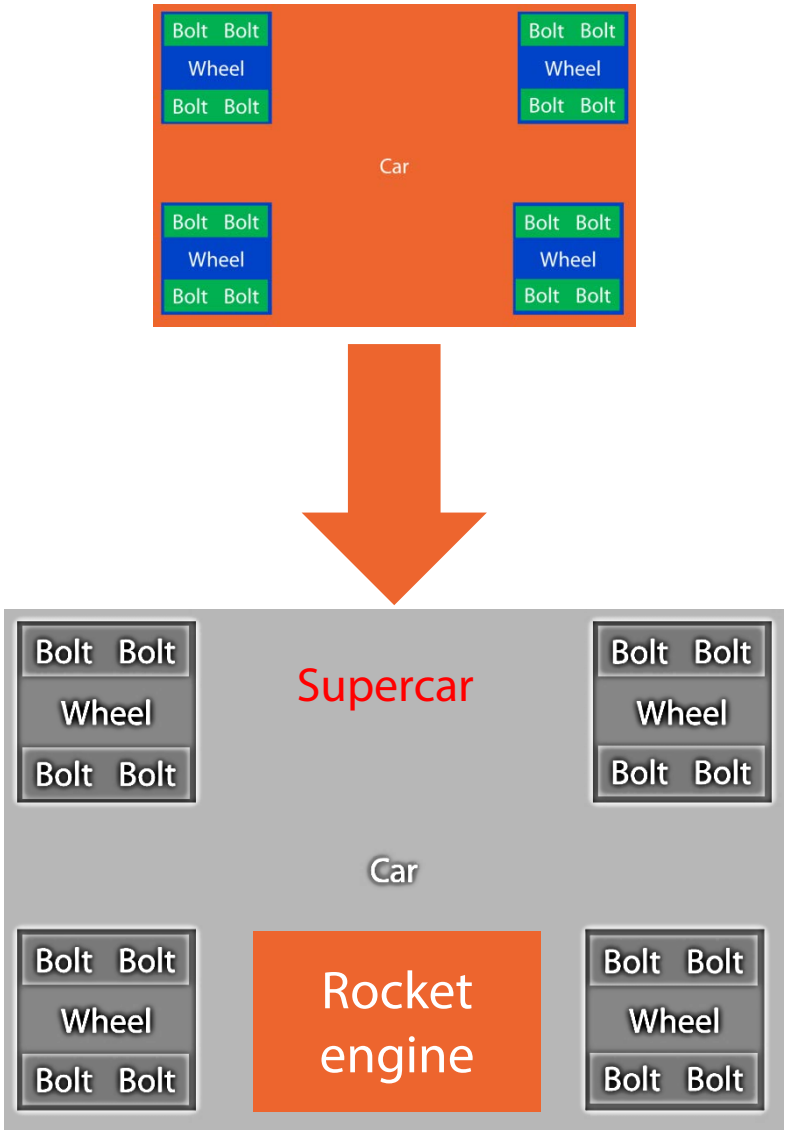
- Properties
- Methods
- Constructor



Interfaces

- Description
- Cannot create instances directly from interfaces

Inheritance

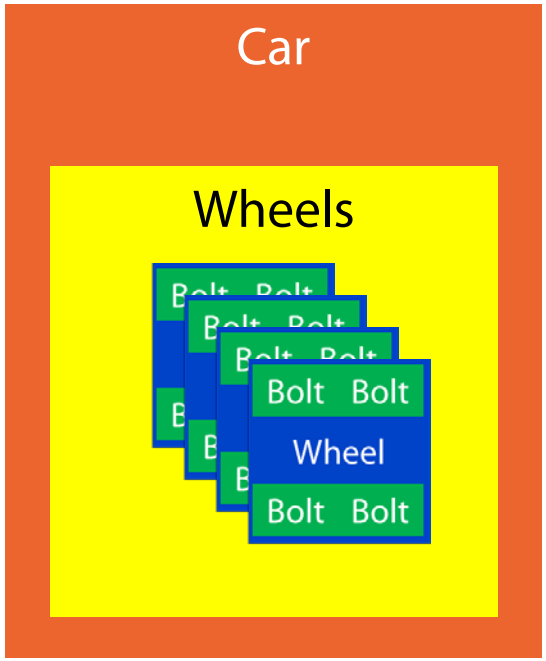


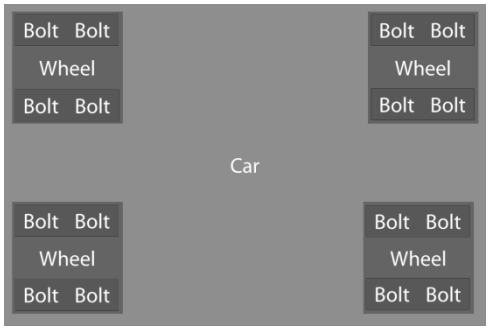
Inheritance

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

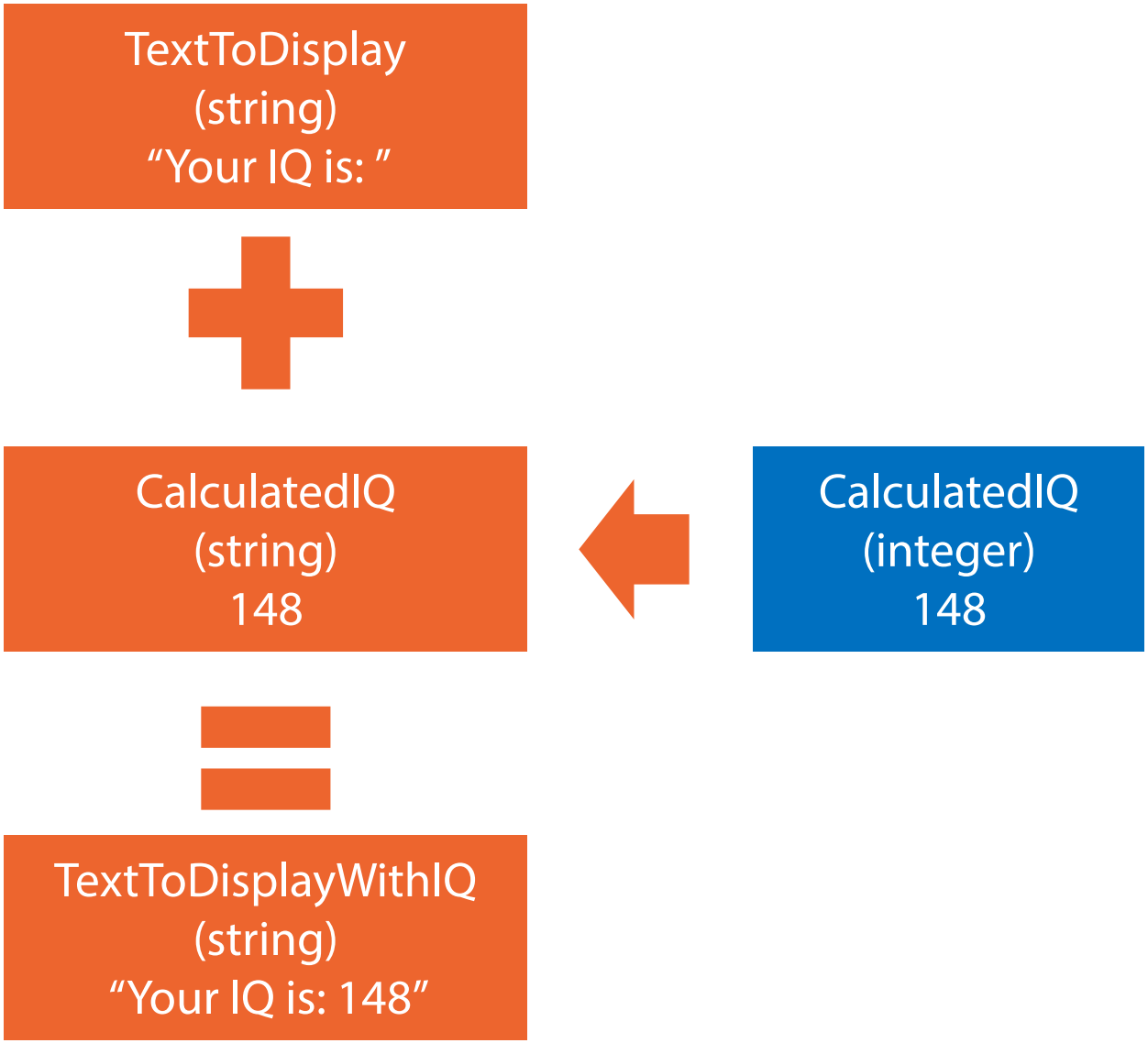
Collections

- Container
- Lists
- Arrays

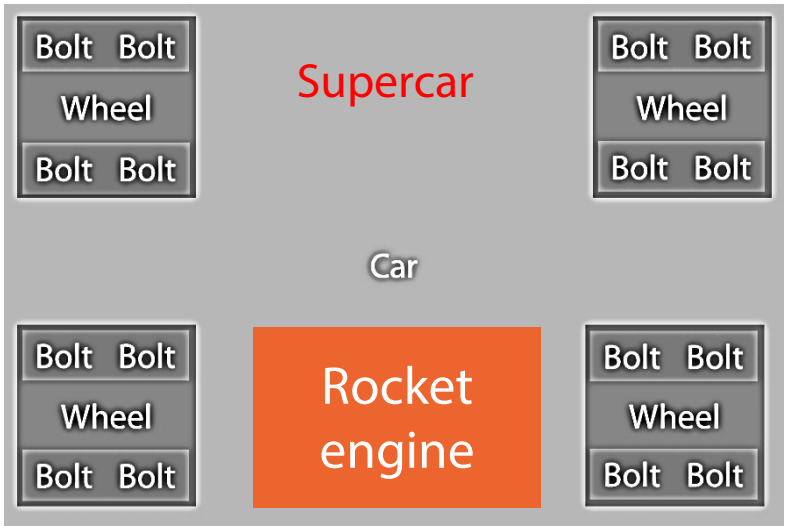


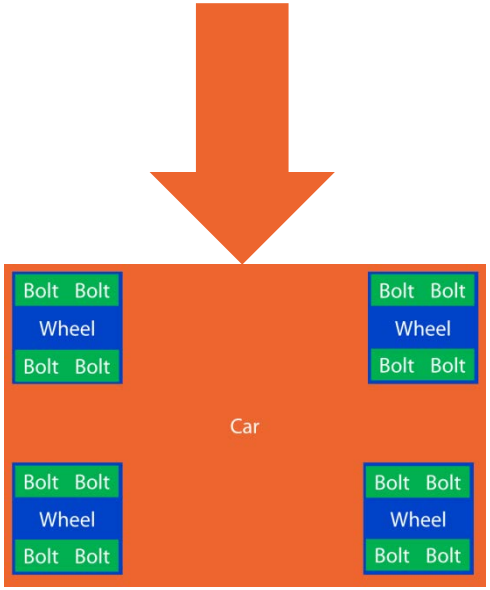


Converting Objects



Converting Complex Objects





Example

- High level
- Focus on concept

The Wheel Class

```
class Wheel

{

   Steer(bool direction)

   {

     if direction = false

     then

        steerLeft()

     else

        steerRight()

   }

}
```

The Car Class

```
class Car

{

list<wheel> wheels

}
```

The Supercar Class

```
class SuperCar inherits Car

{

RocketEngine engine

}
```

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)

   }

}
```

Summary

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