



# *Introduction to C#*

The New Language for Microsoft .NET

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## References:

- B.Albahari, P.Drayton, B.Merrill: **C# Essentials**. O'Reilly, 2001
- S.Robinson et al: **Professional C#**, Wrox Press, 2001
- Online documentation on the .NET SDK CD



# *Features of C#*

## Very similar to Java

70% Java, 10% C++, 5% Visual Basic, 15% new

### As in Java

- Object-orientation (single inheritance)
- Interfaces
- Exceptions
- Threads
- Namespaces (like Packages)
- Strong typing
- Garbage Collection
- Reflection
- Dynamic loading of code
- ...

### As in C++

- (Operator) Overloading
- Pointer arithmetic in unsafe code
- Some syntactic details



# *New Features in C#*

## **Really new** (compared to Java)

- Reference and output parameters
- Objects on the stack (structs)
- Rectangular arrays
- Enumerations
- Unified type system
- goto
- Versioning

## **"Syntactic Sugar"**

- Component-based programming
  - Properties
  - Events
- Delegates
- Indexers
- Operator overloading
- foreach statements
- Boxing/unboxing
- Attributes
- ...

# Hello World



## File Hello.cs

```
using System;

class Hello {

    static void Main() {
        Console.WriteLine("Hello World");
    }

}
```

- uses the namespace *System*
- entry point must be called *Main*
- output goes to the console
- file name and class name need *not* be identical

## Compilation (in the Console window)

```
csc Hello.cs
```

## Execution

```
Hello
```

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