

Introduction to C#

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C# – The Big Ideas

- The first component oriented language in the C/C++ family
- Everything really is an object
- Next generation robust and durable software
- Preservation of investment

C# – The Big Ideas

A component oriented language

- C# is the first “component oriented” language in the C/C++ family
- Component concepts are first class:
 - Properties, methods, events
 - Design-time and run-time attributes
 - Integrated documentation using XML
- Enables one-stop programming
 - No header files, IDL, etc.
 - Can be embedded in web pages

C# – The Big Ideas

Everything really is an object

- Traditional views

- C++, Java: Primitive types are “magic” and do not interoperate with objects
- Smalltalk, Lisp: Primitive types are objects, but at great performance cost

- C# unifies with no performance cost

- Deep simplicity throughout system

- Improved extensibility and reusability

- New primitive types: Decimal, SQL...
- Collections, etc., work for **all** types

C# – The Big Ideas

Robust and durable software

- **Garbage collection**
 - No memory leaks and stray pointers
- **Exceptions**
 - Error handling is not an afterthought
- **Type-safety**
 - No uninitialized variables, unsafe casts
- **Versioning**
 - Pervasive versioning considerations in all aspects of language design

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