

# Introduction to C#, Visual Studio and Windows Presentation Foundation

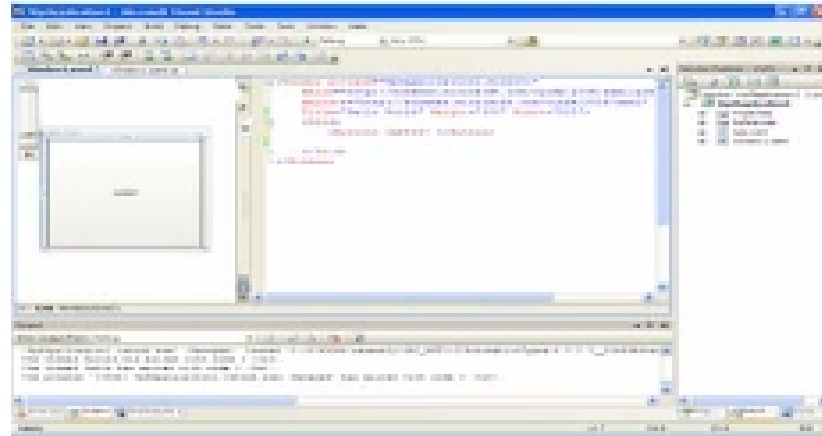
Lecture #3: C#, Visual Studio, and WPF  
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Fall 2007

## C#

- **Combination of C++ and Java**
  - no pointer manipulation
  - built in data structures – Lists, Hash tables
  - some higher level constructs
    - foreach
  - C# not difficult
  - .NET high learning curve
  - Intellisense makes things much easier
- **Quick C# Reference**

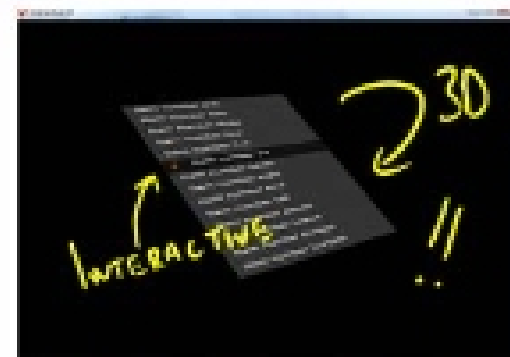
## Visual Studio 2008 Beta 2

- Good IDE
  - debugging
  - intellisense
- Handles WPF well
- Visual UI designer
  - Integrates with XAML

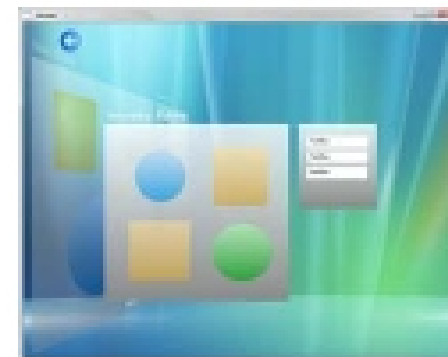


## Windows Presentation Foundation (WPF)

- Latest UI development platform from MSFT
- Integration of
  - INK!!!!
  - 2D graphics
  - 3D graphics
  - video/audio/animation
- Declarative/Procedural programming model
  - XAML
  - C#/Visual Basic/etc...
- Uses retained mode
  - implies scenegraph



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[blogs.msdn.com/mgrayson/](http://blogs.msdn.com/mgrayson/)

## WPF Features and Machinery

- Control library
  - buttons, sliders, menus, toolbars
  - tool tips, popups, scroll bars, etc...
  - user defined as well
- Layout panels
  - canvas, stack, wrap, doc panels
  - grid – most flexible
- Actions
  - events
  - commands
  - triggers
- Styles, skins, themes, templates

## Logical and Visual Trees in WPF

- UIs are constructed from a tree of objects (logical tree)
- Visual tree expands logical tree
  - nodes broken down into visual components
  - not all logical tree nodes appear in visual tree
    - System.Windows.Media.Visual
    - System.Windows.Media.Visual3D

