C# and Microsoft .NET
Windows Forms

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Last time…

- Attributes
- Serialization
  - Binary
  - **Data Contract Serialization (XML and JSON)**
  - **Newtonsoft JSON / JSON.NET (JSON)**
- Tidy up GitHub
  - There was a typo in the repository name (e.g. charp, but not csharp)
- Any questions and/or feedback?

Graphical User Interface

*"The **graphical user interface** (**GUI** /ˈguːi/) is a form of user interface that allows users to interact with electronic devices through graphical icons and visual indicators such as secondary notation, instead of text-based user interfaces, typed command labels or text navigation."*

[Wikipedia](#)

Windows Forms

"…a form is ultimately a blank slate that you, as a developer, enhance with controls to create a user interface and with code to manipulate data. To that end, Visual Studio provides you with an integrated development environment (IDE) to aid in writing code, as well as a rich control set written with the .NET Framework. By complementing the functionality of these controls with your code, you can easily and quickly develop the solutions you need."

Microsoft Documentation

Some History…

- Microsoft Foundation Class (MFC) Apps
  - Primarily C++
  - Low level, complex and cumbersome
- **Windows Forms**
  - **C#, VB or C++**
  - **Easy, popular, but not recommended anymore for new project (unless they require fairly simple UI)**
- Windows Presentation Foundation (WPF)
  - XAML and C#, VB or C++
  - Might be complex at times, but once its principles are well understood it pays off

- Universal Windows Platform (UWP)
  - XAML UI and C#, VB, or C++
  - DirectX UI and C++
  - JavaScript and HTML
  - Microsoft says it's multiplatform…
  - … not actually multiplatform ☺
- Electron
  - Java Script and HTML
  - Truly multiplatform (Windows, Linux, MacOS)
  - … Visual Studio Code, Skype, etc.

Project Templates

- Up until now
  - Console Application (.NET Framework and .NET Core)
  - Class Library (.NET Framework, .NET Core and .NET Standard)
- Windows Forms App (.NET Framework)
- Windows Forms Control Library (.NET Framework)
  - A form of Class Library (e.g. DLL)
  - Developers can create their own controls, share and reuse them
  - … not part of this course
- Where is the entry point in Windows forms
- The Application class
  - The Run(Form form) method
  - The Exit() method

Forms

- ## What is a Form?
  - ### Creating a form
  - ### Adding controls to a form
- ## The Designer.cs file
- ## What is a Partial Class?

Message Box

- The Show method
- The many overloads
- Making MessageBox beautiful
- Getting DialogResult
- Dialogs vs. Forms

Controls and Events

- Common Controls
  - The Label
  - The Button
  - The Textbox
  - The RadioButton
  - The Checkbox
- Common properties
  - Name
- Events
  - Subscribing to Events
  - Common events

Menus and Toolbars

- **The MenuStrip control**
  - How to name the elements
  - How to display English texts
  - When to use "…"
  - When to use "&"
- **The ToolStrip**
- **The ContextMenu**

List Controls

- Controls displaying Lists of data
  - The ListBox
  - The ComboBox
- Managing the content
  - The Items array
    - Adding items using designer
    - Adding items using code
    - DataSource property
    - DisplayMember/ValueMember properties
- Managing the selection
  - SelectedIndex
  - SelectedItem
  - SelectedItems
  - SelectedValue

Containers

- The GroupBox
- The Panel
- The SplitPanel
- The TabControl