C# 8 and 9 Updates

Professional C# 2021

C# 8 Features

- **Default interface methods**
- Pattern matching enhancements
    - Switch expressions
    - Property patterns
    - Tuple patterns
    - Positional patterns
- Nullable reference types
- Asynchronous streams
- Indices and ranges

C# 9 Features

- Records
- **Source Generators**
- New features on partial methods
- Module initializers
- Pattern matching enhancements
  - Parenthesized patterns
  - Conjunctive and
  - Disjunctive or
  - Negated not
  - Relational patterns

C# 10 Features

- Global using directive
- File scoped namespace
- record struct
- pattern match Span<char> and ReadonlySpan<char> on a constant string
- list patterns
- parameterless struct constructor
- nullable enabled by default

Default Interface Methods

Changing of interfaces without **Breaking Changes**

Traits – Reuse of methods defined with an interface

Based on Java's **Default Methods**

Source Generators

- Code generated at compile-time, before normal compilation takes place

- Access the source code tree

- Removes the need for reflection during runtime

- Diagnostic analyzer

- Cannot change code

- ISourceGenerator

- Generator Attribute

Module Initializers

- Initialization code practical for libraries
- ModuleInitializer Attribute
- Static method without arguments

Partial Methods

- With return type and output parameters
- Allows access modifiers
- Must have a definition

Summary

- Default Interface Methods
- Source Generators