Intro to Dot Net

Monday, January 27, 2025 9:40 AM

Agenda:

1. .Net Framework
2. Tools / Softwares
3. Simple program on C#
4. Data Types
5. How to take an input from the user

Applications : Console , windows , MVC , ASP.Net , Web API

C#.net --- it contains all the features of C++ , VB.Net , Java as well as some additional features.

Simple
Secure
Robust
Portable
Platform independent
Multithreaded ,
OOPS

Strong Type

Before dot net framework

COM Framework : Component Object Model, VB language

Drawback was :
1. It will not support all the features of OOPs
2. Platform dependent --- can run on only windows OS

NET stands for Network Enabled Technology . --- .Net --- The oo programming through which we can impl

Cross-platform , free , opensource (C# , VB.Net)

Editors : VS , VS code editor , OmniSharp , JetBrains Rider etc..

Framework : is a collection of many small technologies integrated together to develop applications that ca

What .Net Framework provides :

1. BCL (Base Class Libraries) -- designed by Microsoft
2. CLR (Common Language Runtime) - responsible for converting the MSIL (Microsoft Intermediate Lang

SC --- > IL ----> (JIT) CLR ----> ML

C# VB (Source Code) == > Language Compiler ---- > MSIL/IL/Managed Code --- > CLR (JIT) -----> Native C

What is JIT ?

It is the component of CLR that is responsible for converting MSIL code into NATIVE Code . Native code is c
Understandable by the OS

.Net Framework : available in three different flavours :

1. .Net Framework --- Windows
2. .Net --- > .Net Core -- Linux, macOS
3. Xamarin/Mono - Mobile OS

Installations :

First we need to install SDK -

1. Create a dir and get inside that folder or dir
2. Dotnet new console (it will create a project with the same name of your folder name)
3. Dotnet build --- > To create a dll file (IL)
4. Dotnet run --- To execute your dotnet project

Or

1. Dotnet new console -o <projectname>
2. Cd <projectname>
3. Dotnet build
4. Dotnet run

IDE's

1. Visual Studio 2022 (Community Version)
2. Visual Studio Code
   Extensions to add

   C#
   .Net install tool
   C#Dev Kit

Data Types in C#

Data Types	Memory Size	Range
char	1 byte	-128 to 127
signed char	1 byte	-128 to 127
unsigned char	1 byte	0 to 255
short	2 byte	-32,768 to 32,767
signed Short	2 byte	-32,768 to 32,767
unsigned Short	2 byte	0 to 65,535
int	4 byte	-2,147,483,648 to 2,147,483,647
signed int	4 byte	-2,147,483,648 to 2,147,483,647
unsigned int	4 byte	0 to 4,294,967,295

long	8 byte	-9,223,372,036,854,775,808 to 9,223,372,036,854,775,807
signed long	8 byte	-9,223,372,036,854,775,808 to 9,223,372,036,854,775,807
unsigned long	8 byte	0 to 18,446,744,073709,551,615
float	4 byte	$1.5 * 10^{-45}$ to $3.4 * 10^{38}$ (7 Digit)
double	8 byte	$5 * 10^{-324}$ to $1.7 * 10^{308}$
decimal	16 byte	$-7.9 * 10^{28}$ to $7.9 * 10^{28}$

Library :

Is a set of predefined classes -- > some methods

- Use PascalCase for class names and method names.
- Use camelCase for method parameters and local variables.
- Use PascalCase for constant names, both fields and local constants.

From <https://learn.microsoft.com/en-us/dotnet/csharp/fundamentals/coding-style/identifier-names>

Write a program to calculate an area of a rectangle.

For a nullable integer ;

int? age = null;
Nullable<int> age = null;

The variable stored in stack memory

Value type -- int, short ,long, byte , double,float etc…

Reference type like string , object stored in heap String

Implicit --- Autoconversion

For eg: int a ; // 4 bytes
Byte b; // 1 byte

b=(byte)a

```
Class Program
{
Int a = 10;

Psvm()
{
Program p = new Program();


}
}
```

```
var ab = 10;
var name = "Niti";

Var? data =34.00;

Int? a = null;
```