



Backend

1 . Programming

1.1 Language

1.2 Framework

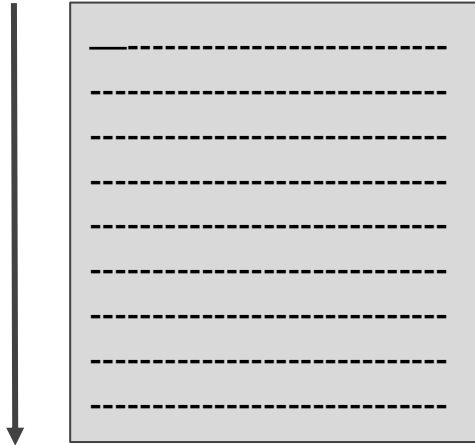
2 . Database

SQL Server (Microsoft)

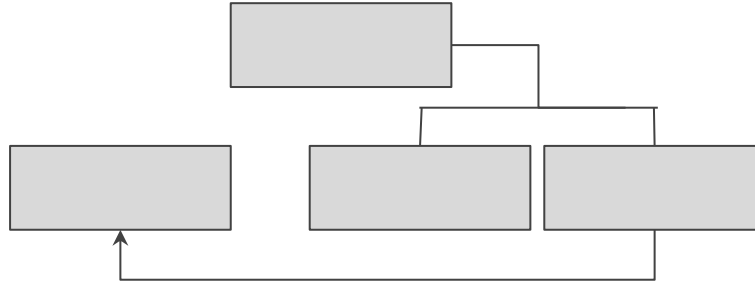


Programming Paradigms :

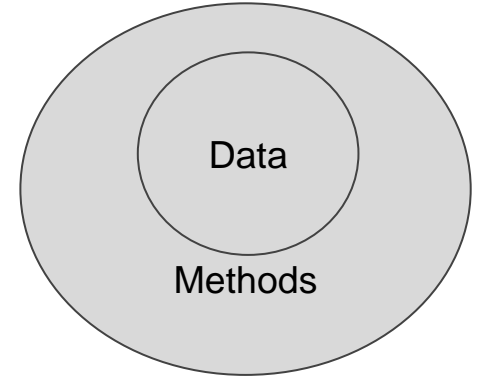
1 . Linear/Sequential



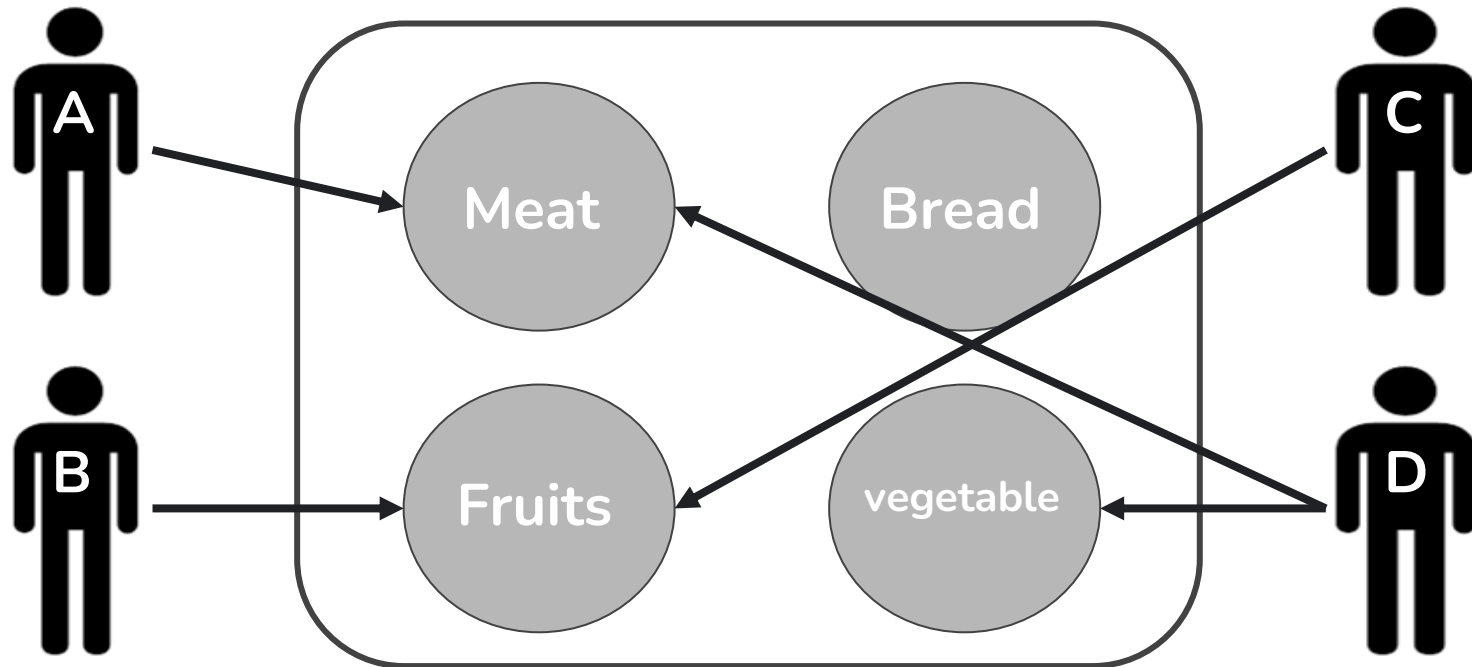
2 . Structure



3 . OOP



Structure Paradigm: C

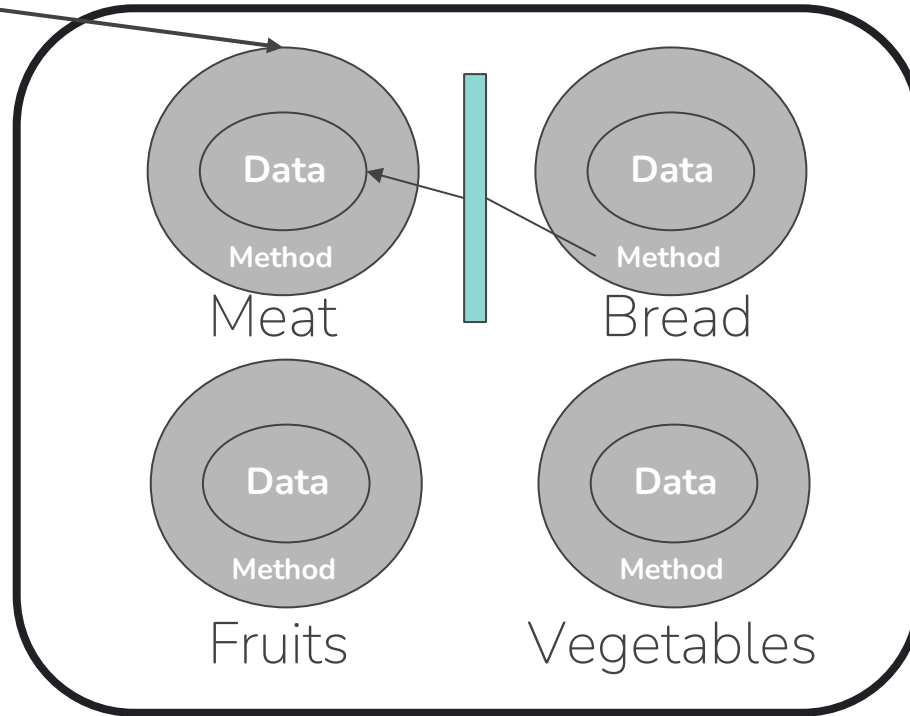




OOP Paradigm: C++

SmallTalk

Class





C Structure / Functional Programming

C++ Not Pure OOP

Java Pure OOP

COOL C like Object Oriented Language [Pure OOP]



C++ ++



C++

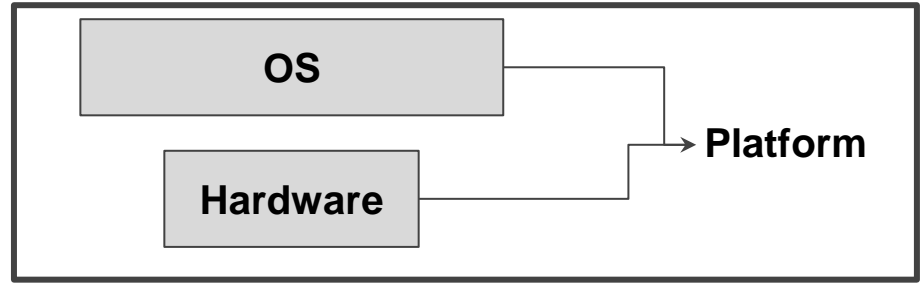
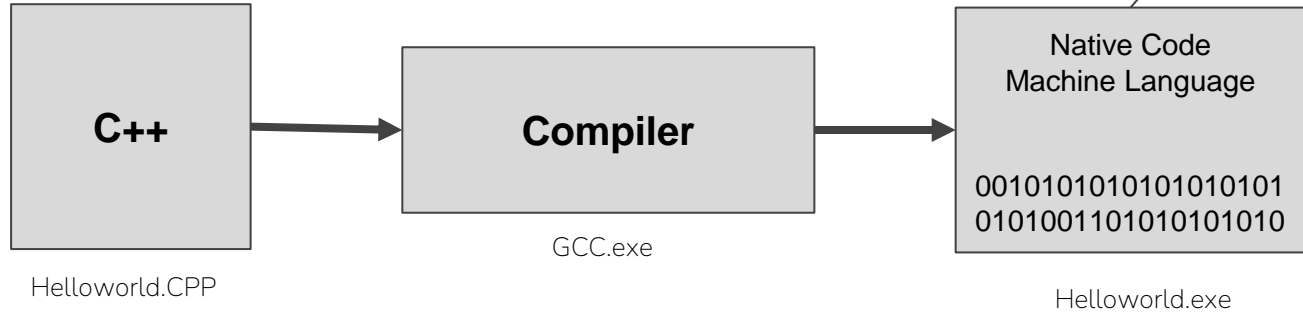


C#



Pre Dot Net

1. Visual C++
2. Visual Basic
3. Delphi





With Dot Net 2002 :

Dot Net Framework: Is a big container for software technologies like Web (ASP) , Mobile (Xamarin) , Desktop (WPF).

Consisting of 2 Components :

1. Base Class Library(BCL) of Technology

2. Common Language Runtime (CLR)

Dot Net Programming
Languages

Language
Compilers

RunTime
Components

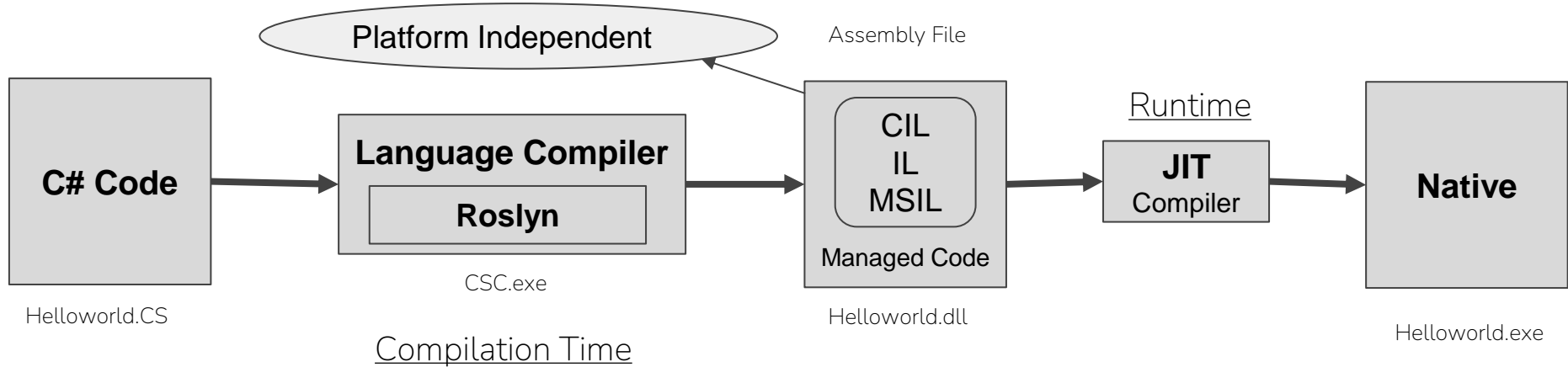
1. Visual Basic
2. Visual C++
3. C#
4. J# (Discontinued)
5. F#

Roslyn

.Net Code Compilation Steps

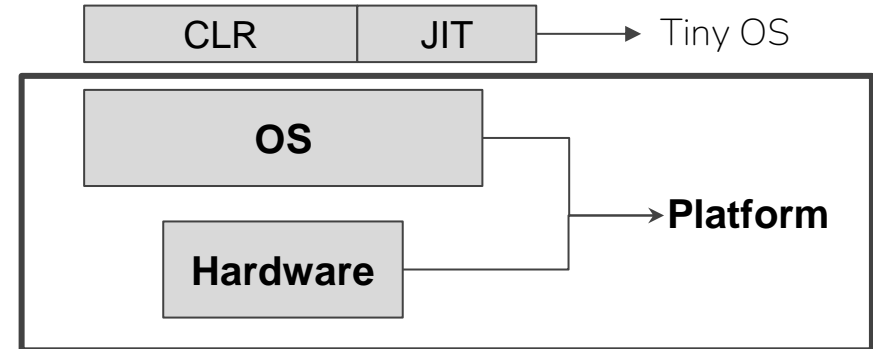
.Net Cross Languages :

1. VB
2. **C#**
3. F#



Overhead at Runtime : Jitting

1. Jit Compiler (64 Bit) so it is very fast
2. Jitting Happen per Function call
3. Jitting For first call only as long as program is not terminated





Beginning of .Net Core

Mono Project - Mono Framework :

Parallel implementation for .net Framework [Mac , Linux]

.Net Core (Announced 2014 - Released 2016):

1. [Cross Platform](#)
2. [Open Source](#)
3. Component Based (Nuget.Org Package Manager [npm])



Dot Net And C# Versions:

.Net Framework

Started :

.Net Framework 1.0 [2002] C# 1.0

Ended :

.Net Framework 4.8 [2019] C# 7.3

.Net Core

.Net Core 1.0 [2016] C# 6.0

.Net Core 3.1 [2019] C# 8.0

.Net Core 4.0 [2020] [XXX](#)

.Net 5 [Nov 2020] C# 9.0

.Net 6 [Nov 2021] C# 10.0

.Net 7 [Nov 2022] C# 11.0

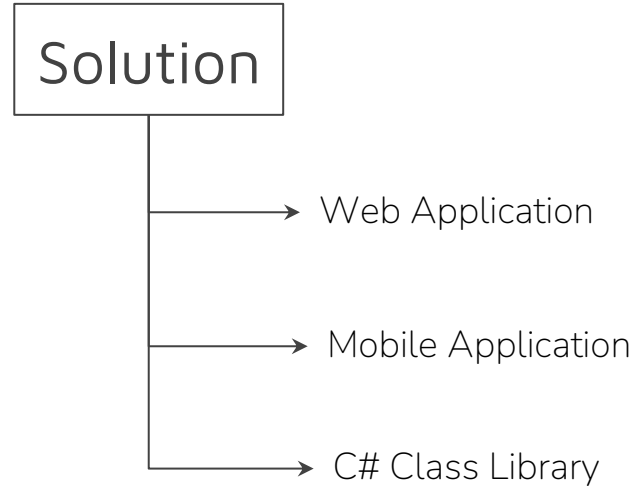
.Net 8 [Nov 2023] C# 12.0



Solution : Container of Projects

Project

1. Web Application
2. Mobile Application
3. Desktop Application
4. C# Class Library




Namespace

System.Windows.forms.button

System.Web.forms.button

Visual Studio



Visual Studio | 

The most comprehensive IDE for .NET and C++ developers on Windows. Fully packed with a sweet array of tools and features to elevate and enhance every stage of software development.

Class Program

{

static void

Main()

{

//Any Code

}

}



Comments

// single line of text

/* multiline
of text */