Task1. Write a one-page report detailing the evolution of the .NET Framework to .NET 5, emphasizing the key differences and improvements made over time. Include a section on the Common Language Runtime (CLR), explaining its functionality and impact on .NET applications.

The .Net framework is an open-source software development platform that provides a plethora of tools, libraries, and programming languages to build applications for web, mobile devices, desktops, gaming consoles, and the Internet of Things (IoT).The .NET Framework has undergone significant evolution and continues to be a key technology for building cloud-native solutions, as well as desktop and web applications.

Added advanced ADO.Net and ASP.Net capabilities.Provided secure coding guidelines

The framework updated to those types:

.NET Framework1 : .Net 1.0 is the first version of the .Net family. It has all the ingredients necessary to run .Net applications, including CLR, Class Library, and ASP.Net functionalities. Support for DLL Class Libraries and object-oriented web app developme. Released in 2002

.NET Framework2.0 : This version was released with the motto of enhancing developer productivity. New ADO.Net features such as asynchronous database operations, XML data types, and user-defined types (UDT) were added in this version released in2005

.NET Framework3.0 : Net 3.0 provides GUI features and a managed programming model central to Windows Server 2008 and Windows Vista. This version is introduced WPF,WCF,WWF, and Windows CardSpace.

.NET Framework3.5 : This version has some notable additions to WCF, WPF, and WF. ASP.Net got AJAX support and introduced Language-Integrated Query (LINQ) capabilities. Support for LatencyModes during garbage collection.Enhanced support for cryptographic processes provided peer-to-peer networking capabilities and supported web service interoperability

.NET Framework4.0 : This version supports parallel computing observed in distributed and multi-core systems. .Net 4.0 shows backward compatibility with earlier version apps.

.NET Framework4.5 : It allows the creation of Windows applications that use Visual Basic, C#, or F# programming languages.

.NET Core : It allows the creation of Windows applications that use Visual Basic, C#, or F# programming languages.

.NET5 : It support and responding both window forms and WPF

Key Difference:

.NET5 our journey to cross a lot of different platforms.It's the next step after .NET Core and it covers Windows,Linux, and Mac, just like .Net Core 3.1,but it's also laying the foundation for covering Android,iOS, watchOS, tvOS, and webassembly.With all of these platforms coming together andit being the true future of .NET,we decided to drop the word core.So .NET 5 is the next version of .NET Coreand .NET Framework remains an important part of the .NET story.So .Net Framework is a component of the Windows operating system and so it's going to be supported as long as Windows is supported.If you're working with .NET Framework applications,you can be confident they're still supported,

they're not going to change.But if you want new stuff,if you want the things that are changing and the new features that we're adding,then you want to be on .NET 5 and in the future .NET 6 and onward.

Functionality and Applications:

Basic and Virtual machine Component of.NET Framework.

* run-time environment
* runs the code
* Provides Various Sevices that makes program execution easy.

Components:

is Common Language specification (CLS)

üi Common Type System (CTS)

ⅲi Garbage Collection (GC)

in Just-In-time Compiler (JIT)

Benefits:

i)Provides rich interaction blw programs at runtime.

ii)44 Portability

iii)Security

iv) Automatic memory management memory.

v) Scalable and wuletthreadi

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