.NET Interview Questions and Answers

What is .Net Framework?

.Net Framework is a complete environment for developer to develop, run and deploy following application.

- Console Application
- Windows Application
- WPF Application
- Web Application
- Web Services
- Service oriented WCF Application

What are the main features of .NET Framework?

1. .NET Framework Class Library
2. CLR (Common Language Run-Time)
3. Application Domain
4. Runtime Host
5. Common Type System
6. Metadata And Self-Describing Component
7. Cross Language Interoperability
8. .NET Framework Security

What are the benefits of .NET Framework?

1. Consistent Programming Model
2. Language Interoperability
3. Automatic Management of Resources
4. Ease of Deployment

What is CTS?

CTS stands for Common Type System. It is the component of CLR through which .NET Framework provides support for multiple language because it contains a type system that is common across all language.

What is CLR?

CLR stands for Common Language Runtime. .NET CLR is a run-time environment that manages and executes the code written in any .NET programming language. It converts code into native code

What is JIT?

JIT stands for Just in Time. JIT is a compiler that converts Intermediate Language to a Native code.

What is the role of CLR in .NET Framework?

1. Automatic memory management
2. Garbage collection
3. Code access security
4. Code verification
5. JIT compilation of .NET code

What is CLS?

CLS stands for Common Language Specification. The rules mentioned under CLS, developers are made to use the components that are inter-language compatible. They are reusable across all the .Net compliant languages.

What is MSIL?

MSIL stands for Microsoft Intermediate Language. MSIL provides instructions for calling methods, initializing and storing values, operations such as memory handling, exception handling and so on. All .Net codes are first compiled to IL.

What do you meant by Managed and Unmanaged code?

Manage code: manage code is the code that is executed directly by the CLR instead of the operating system.

Unmanaged code: Unmanaged code is the code that is executed directly by the operating system outside the CLR environment.

What is the difference between Finalize () and Dispose () methods?

Dispose () method releases the unmanaged resources that are held by an object of the class. The unmanaged resources are files, data connections, etc.

Finalize () method is used for the same purpose but it doesn't assure the garbage collection of an object.

What is execution process for managed code?

1. Choosing a language compiler.
2. Compiling the code to MSIL (Microsoft Intermediate Language).
3. Compiling MSIL to native code.
4. Executing the code.

Explain State management in ASP .Net.

State Management means maintaining the state of the object. The object here refers to a web page/control.

There are two types of State management, Client Side, and Server side.

Client Side – Storing the information in the Page or Client's System. They are reusable, simple objects.

Server Side – Storing the information on the Server. It is easier to maintain the information on the Server rather than depending on the client for preserving the state.

What is an Assembly? What are the different types of Assemblies?

An assembly is the primary building block of .NET framework applications. In .NET, every application is compiled into an assembly which refer to a portable executable (PE) file. The portable file can be either a dynamic link library (.dll) or an executable (.exe) file.

There are two types of Assemblies, Private and Shared.

Private Assembly, is used by the client of the same application directory structure as the assembly.

A **Shared assembly** is stored in the global assembly cache (GAC) which is repository of assemblies maintain by the runtime.

Explain the different parts of an Assembly.

The different parts of an Assembly are

- **Manifest** – It contains the information about the version of an assembly. It is also called as assembly metadata.
- **Type Metadata** – Binary information of the program.
- **MSIL** – Microsoft Intermediate Language code.
- **Resources** – List of related files.

What is an EXE and a DLL?

Exe is an executable file. This runs the application for which it is designed. An Exe is generated when we build an application. Hence the assemblies are loaded directly when we run an Exe. However, an Exe cannot be shared with the other applications.

DLL stands for Dynamic Link Library. It is a library that consists of code which needs be hidden. The code is encapsulated inside this library. An Application can consist of many DLLs. These can be shared with the other applications as well.

What is Caching?

Caching means storing data temporarily in the memory so that the application can access the data from the cache instead of looking for its original location. This increases the performance of the application and its speed. System.Runtime.Caching namespace is used for Caching information in .Net.

Given below are the 3 different types of Caching:

- Page Caching
- Data Caching
- Fragment Caching

Explain CAS (Code Access Security).

.Net provides a security model that prevents unauthorized access to resources. CAS is a part of that security model. CAS is present in the CLR. It enables the users to set permissions at a granular level for the code.

What is GAC?

GAC stands for Global Assembly Cache**.** Whenever CLR gets installed on the machine, GAC comes as a part of it. GAC specifically stores those assemblies which will be shared by many applications. A Developer tool called Gacutil.exe is used to add any file to GAC.

What is a Garbage Collector?

Garbage collection is a feature of .Net to free the unused code objects in the memory.

The memory heap is divided into three generations. Generation 0, Generation 1 and Generation 2.

Generation 0 – This is used to store short-lived objects. Garbage Collection happens frequently in this Generation.

Generation 1 – This is for medium-lived objects. Usually, the objects that get moved from generation 0 are stored in this.

Generation 2 – This is for long-lived objects.