

Interview Questions and Answers on C#

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1. What is C#?

C# (pronounced "C sharp") is a simple, modern, object-oriented, and type-safe programming language used with XML-based Web services on the .NET platform and designed for improving productivity in the development of Web applications.

It will immediately be familiar to C and C++ programmers.

C# combines the high productivity of Rapid Application Development (RAD) languages.

2. What are the types of comment in C#?

There are 3 types of comments in C#.

Single line (//)

Multi (/* */)

Page/XML Comments (///).

3. What are the namespaces used in C#.NET?

Namespace is a logical grouping of class.

Using System;

Using System.Collections.Generic;

Using System.Windows.Forms;

4. What are the characteristics of C#?

Characteristics of C#:-

There are several characteristics of C# are :

Simple

Type safe

Flexible

Object oriented

Compatible

Consistent

Interoperable

Modern

5. What are the different categories of inheritance?

In C# inheritance may be implemented in different combinations as illustrated in figure and they include:

Inheritance in Object Oriented Programming is of four types:

Single inheritance: Contains one base class and one derived class.

Hierarchical inheritance: Contains one base class and multiple derived classes of the same base class.

Multilevel inheritance: Contains a class derived from a derived class.

Multiple inheritances: Contains several base classes and a derived class.

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6. What are the basic concepts of object oriented programming?

It is necessary to understand some of the concepts used extensively in object oriented programming.

These include

Objects

Classes

Data abstraction and encapsulation

Inheritance

Polymorphism

Dynamic Binding

Message passing.

7. Can you inherit multiple interfaces?

Yes. Multiple interfaces may be inherited in C#.

8. What is inheritance?

Inheritance is deriving the new class from the already existing one.

9. Define scope?

Scope refers to the region of code in which a variable may be accessed.

10. What is the difference between public, static and void?

public :The keyword public is an access modifier that tells the C# compiler that the Main method is accessible by anyone.

static :The keyword static declares that the Main method is a global one and can be called without creating an instance of the class. The compiler stores the address of the method as the entry point and uses this information to begin execution before any objects are created.

void : The keyword void is a type modifier that states that the Main method does not return any value.

11. What are the modifiers in C#?

Abstract, Sealed, Virtual, Const, Event, Extern, Override, Readonly, Static, New

12. What are the types of access modifiers in C#?

Access modifiers in C# are : public, protect, private, internal, internal protect

13. What is boxing and unboxing?

Implicit conversion of value type to reference type of a variable is known as BOXING, for example integer to object type conversion.

Conversion of reference type variable back to value type is called as UnBoxing.

14. What is object?

An object is an instance of a class. An object is created by using operator new. A class that creates an object in memory will contain the information about the values and behaviours (or methods) of that specific object.

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15. Where are the types of arrays in C#?

Single-Dimensional

Multidimensional

Jagged arrays.

16. What is the difference between Object and Instance?

An instance of a user-defined type is called an object. We can instantiate many objects from one class.

An object is an instance of a class.

17. Define destructors?

A destructor is called for a class object when that object passes out of scope or is explicitly deleted. A destructor as the name implies is used to destroy the objects that have been created by a constructors. Like a constructor, the destructor is a member function whose name is the same as the class name but is preceded by a tilde.

18. What is the use of enumerated data type?

An enumerated data type is another user defined type which provides a way for attaching names to numbers thereby increasing comprehensibility of the code. The enum keyword automatically enumerates a list of words by assigning them values 0,1,2, and so on.

19. Define Constructors?

A constructor is a member function with the same name as its class. The constructor is invoked whenever an object of its associated class is created. It is called constructor because it constructs the values of data members of the class.

20. What is encapsulation?

The wrapping up of data and functions into a single unit (called class) is known as encapsulation. Encapsulation containing and hiding information about an object, such as internal data structures and code.

21. Does c# support multiple inheritance?

No, it's impossible which accepts multi level inheritance.

22. What is ENUM?

Enums are used to define constants.

23. What is a data set?

A DataSet is an in memory representation of data loaded from any data source.

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24. What is the difference between private and public keyword? Private : The private keyword is the default access level and most restrictive among all other access levels. It gives least permission to a type or type member. A private member is accessible only within the body of the class in which it is declared. Public : The public keyword is most liberal among all access levels, with no restrictions to access what so ever. A public member is accessible not only from within, but also from outside, and gives free access to any member declared within the body or outside the body.

25. Define polymorphism?

Polymorphism means one name, multiple forms. It allows us to have more than one function with the same name in a program. It allows us to have overloading of operators so that an operation can exhibit different behaviours in different instances.

26. What is Jagged Arrays?

A jagged array is an array whose elements are arrays.

The elements of a jagged array can be of different dimensions and sizes.

A jagged array is sometimes called an array-of-arrays.

27. What is an abstract base class?

An abstract class is a class that is designed to be specifically used as a base class. An abstract class contains at least one pure virtual function.

28. How is method overriding different from method overloading?

When overriding a method, you change the behavior of the method for the derived class. Overloading a method simply involves having another method with the same name within the class.

29. What is the difference between ref & out parameters?

An argument passed to a ref parameter must first be initialized. Compare this to an out parameter, whose argument does not have to be explicitly initialized before being passed to an out parameter.

30. What is the use of using statement in C#?

The using statement is used to obtain a resource, execute a statement, and then dispose of that resource.

31. What is serialization?

Serialization is the process of converting an object into a stream of bytes.

De-serialization is the opposite process of creating an object from a stream of bytes.

Serialization / De-serialization is mostly used to transport objects.

32. What are the difference between Structure and Class?

Structures are value type and Classes are reference type

Structures cannot have constructors or destructors.

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Classes can have both constructors and destructors.

Structures do not support Inheritance, while Classes support Inheritance.

33. What is difference between Class And Interface?

Class : is logical representation of object. It is collection of data and related sub procedures with definition.

Interface : is also a class containing methods which is not having any definitions. Class does not support multiple inheritance. But interface can support.

34. What is Delegates?

Delegates are a type-safe, object-oriented implementation of function pointers and are used in many situations where a component needs to call back to the component that is using it.

35. What is Authentication and Authorization?

Authentication is the process of identifying users. Authentication is identifying/validating the user against the credentials (username and password).

Authorization performs after authentication. Authorization is the process of granting access to those users based on identity. Authorization allowing access of specific resource to user.

36. What is a base class?

A class declaration may specify a base class by following the class name with a colon and the name of the base class. omitting a base class specification is the same as deriving from type object.

37. Can "this" be used within a static method?

No 'This' cannot be used in a static method. As only static variables/methods can be used in a static method.

38. What is difference between constants, readonly and, static ?

Constants: The value can't be changed.

Read-only: The value will be initialized only once from the constructor of the class.

Static: Value can be initialized once.

39. What are the different types of statements supported in C#?

C# supports several different kinds of statements are

Block statements, Declaration statements, Expression statements, Selection statements, Iteration statements, Jump statements, Try catch statements, Checked and unchecked Lock statement.

40. What is an interface class?

It is an abstract class with public abstract methods all of which must be implemented in the inherited classes.

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41. What are value types and reference types?

Value types are stored in the Stack.

Examples : bool, byte, char, decimal, double, enum , float, int, long, sbyte, short, struct, uint, ulong, ushort.

Reference types are stored in the Heap.

Examples : class, delegate, interface, object, string.

42. What is the difference between string keyword and System.String class?

String keyword is an alias for System.String class. Therefore, System.String and string keyword are the same, and you can use whichever naming convention you prefer. The String class provides many methods for safely creating, manipulating, and comparing strings.

43. What are the two data types available in C#?

Value type

Reference type

44. What are the different types of Caching?

There are three types of Caching :

Output Caching: stores the responses from an asp.net page.

Fragment Caching: Only caches/stores the portion of page (User Control)

Data Caching: is Programmatic way to Cache objects for performance.

45. What is the difference between Custom Control and User Control?

Custom Controls are compiled code (DLLs), easier to use, difficult to create, and can be placed in toolbox. Drag and Drop controls. Attributes can be set visually at design time. Can be used by Multiple Applications (If Shared DLLs), Even if Private can copy to bin directory of web application add reference and use. Normally designed to provide common functionality independent of consuming Application. User Controls are similar to those of ASP include files, easy to create, can not be placed in the toolbox and dragged - dropped from it. A User Control is shared among the single application files.

46. What is methods?

A method is a member that implements a computation or action that can be performed by an object or class. Static methods are accessed through the class. Instance methods are accessed through instances of the class.

47. What is fields?

A field is a variable that is associated with a class or with an instance of a class.

48. What is events?

An event is a member that enables a class or object to provide notifications. An event is declared like a field except that the declaration includes an event keyword and the type must be a delegate type.

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49. What is literals and their types?

Literals are value constants assigned to variables in a program. C# supports several types of literals are

Integer literals

Real literals

Boolean literals

Single character literals

String literals

Backslash character literals

50. What are the different types of literals in C#?

Boolean literals: True and false are literals of the Boolean type that map to the true and false state, respectively.

Integer literals: Used to write values of types Int, uint, long, and ulong.

Real literals: Used to write values of types float, double, and decimal.

Character literals: Represents a single character and usually consists of a character in quotes, such as 'a'.

String literals: C# supports two types of string literals, regular string literal and verbatim string literals.

A regular string literal consists of zero or more characters enclosed in double quotes, such as "116110".

A verbatim string literal consists of an @ character followed by a double-quote character, such as @"hello".

The Null literal: Represents the null-type.

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