

## Top .NET Interview Questions

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The rise in the number of job openings leads to a lot of vacancies and stiff competition to hire the most proficient .NET developers. With these questions, you will gain in-depth knowledge and insight into how to answer the most asked questions in a .NET interview. This guide has been carefully curated, considering many factors and including expert advice from multiple professionals and .NET experts.

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#### Did You Know?

- According to the reports from Enlyft, there are more than 2,46,780 companies that use Microsoft.NET
- Microsoft.NET has a market share of 1.4% in the software framework category.
- As per the data published by Enlyft, 67% of all the customers who are using .NET are small (<\$50M), 9% are large (>\$1000M), and 17% are medium-sized companies.





Let us begin this with basic .net interview questions and answers!

### **Basic .NET Interview Questions for Freshers with Answers**

#### 1. What is the .NET framework?

.NET is one of the platforms provided by Microsoft, which is used to build a variety of applications using Windows.

The ability to develop classes, libraries, and APIs and run, debug, and deploy code into web services and applications form are the key uses of this framework. It supports a lot of languages, and you can work with everything from C# to VB all the way to Perl, and more.

The object-oriented model is championed here in the .NET framework

### 2. What are some of the common components of .NET?

There are a lot of components that make up the .NET framework, and some of them are as follows:

- .NET Class Library
- .NET Framework
- Language Runtime
- Application Domain
- Profiling



#### 3. What does JIT stand for in .NET?

JIT is the abbreviation of Just in Time. It is a compiler that is used to convert intermediate code into native code easily.

In .NET, during execution, the code is converted into the native language, also called the byte code. This is processed by the CPU, and the framework helps with the conversion.

#### 4. What is the meaning of MSIL?

MSIL is the abbreviation for Microsoft Intermediate Language. It is used to provide the instructions required for operations such as memory handling, exception handling, and more. It can also provide instructions to initialize and store values and methods easily.

The next .NET interview question involves an important concept.

#### 5. What is CTS?

The acronym CTS stands for Common Type System, which encompasses a predefined set of systematic regulations dictating the proper definition of data types in relation to the values provided by a user. Its primary purpose is to characterize and encompass all the various data types utilized within a user's application.

Nevertheless, it is also permissible for users to construct custom calls using the guidelines established by the CTS. This feature is primarily provided to accommodate the diverse range of programming languages that can be employed when working within the .NET framework.



#### 6. What is CLS?

CLS stands for Common Language Specification in .NET. It is put into place to ensure that the application developer is capable of inter-language operations if required. It is a reusable aspect among all of the .NET compatible languages.

Learn about everything there is to know in the .NET Framework. Join our .NET Programming course now!

#### 7. What does CLR stand for in .NET?

CLR stands for Common Language Runtime. It forms to be the most vital component of .NET as it provides the foundation for many applications to run on.

If a user writes an application in C#, it gets compiled and converted to intermediate code. After this, CLR takes up the code and works on it with respect to the following aspects:

- Memory management
- Security protocols
- Libraries for loading
- Thread management

Next up on this top .NET basic interview questions and answers, we need to understand a very important difference. Check it out.

### 8. What is the difference between managed code and unmanaged code in .NET?

Managed Code	Unmanaged Code
Managed by CLR	Not managed by any entity



Garbage collection is used to manage memory	Runtime environment takes care of the management
The .NET framework is necessary for the execution	N ot dependant on the .NET framework to run

### 9. How does managed code execute in the .NET framework?

There are four main steps that include in the execution of the managed code. They are as follows:

- 1. Choosing a compiler that can execute the code written by a user
- 2. Conversion of the code into Intermediate Language (IL) using a compiler
- 3. IL gets pushed to CLR, which converts it into native code using JIT
- 4. Native code is now executed using the .NET runtime

### 10. What is the meaning of state management in .NET?

State management, as the name suggests, is used to constantly monitor and maintain the state of objects in the runtime. A web page or a controller is considered to be an object.

There are two types of state management in ASP.NET:

- Client-side: It is used to store information on the client's machine and is formed mostly of reusable and simple objects.
- Server-side: It stores the information on the server and makes it easier to manage and preserve the information on the server.



Next up on this top .net interview questions for freshers and experienced, let us understand the difference between an object and a class.

### 11. What is the difference between an object and a class in .NET?

Object	Class
An instance of a class	The template for creating an object
A class becomes an object after instantiation	The basic scaffolding of an object
Used to access properties from a class	The description of methods and properties

### 12. What is the difference between system.stringbuilder and system.string in .NET?

system.stringbuilder	system.string
Mutable	Immutable
Supports using append	Cannot use the append keyword

### 13. What is the meaning of LINQ?



LINQ is the abbreviated form of Language Integrated Query. It was first brought out in 2008, and it provides users with a lot of extra features when working with the .NET framework. One highlight is that it allows the users to manipulate data without any dependency on its source.

#### 14. What is an assembly in .NET?

An assembly is the simple collection of all of the logical units present. Logical units are entities that are required to build an application and later deploy the same using the .NET framework. It can be considered as a collection of executables and DLL files.

### 15. What are some of the components of an assembly in .NET?

There are four main components of an assembly. They are as follows:

- 1. Resource: A collection of related files
- 2. MSIL: The Intermediate Language code
- 3. Metadata: The binary data of a program
- 4. Manifest: A collection of information about the assembly

### 16. What is the meaning of caching?

Caching is a term used when the data has to be temporarily stored in the memory so that an application can access it quickly rather than looking for it in a hard drive. This speeds up the execution to an exponential pace and helps massively in terms of performance.

There are three types of caching:

- Data caching
- Page caching
- Fragment caching



The next .NET interview question we will check involves an important concept.

### 17. What is the difference between a function and a stored procedure in .NET?

Function	Stored Procedure
Can only return one value	Can return any number of values
No support for exception handling using try-catch blocks	Supports the usage of try-catch blocks for exception handling
The argument consists of only one input parameter	Both input and output parameters are present
A function can be called from a stored procedure	The stored procedure cannot be called from a function

### 18. What are the constructor types present in C# .NET?

There are five main types of constructor classes in C# as listed below:

- Copy constructor
- Default constructor
- Parameterized constructor
- Private constructor
- Static constructor

### 19. What are some of the advantages of using a session?



There are numerous advantages of making use of a session are as mentioned below:

- It is used to store user data across the span of an application.
- It is very easy to implement and store any sort of object in the program.
- Individual entities of user data can be stored separately if required.
- The session is secure, and objects get stored on the runtime server.

### 20. Is it possible to manually set a timeout for a session in .NET?

Yes, it is possible to manually set a session's out time. It can easily be done by manipulating the web.config file.

Next up in this set of top .NET interview questions for freshers and experienced developers, we can take a look at the questions categorized as intermediate!

### .NET Interview Questions for Experienced (2 to 5 Years)

### 21. What is the meaning of boxing and unboxing in .NET?

Boxing is the process that is used when a user wishes to convert a value type into a reference type directly.

Unboxing is the opposite of boxing, where the reference type is converted back into a value type.



#### 22. What is the use of manifest in the .NET framework?

Manifest is mainly used to store the metadata of the assembly. It contains a variety of metadata which is required for many things as given below:

- Assembly version information
- Security identification
- Scope checking of the assembly
- Reference validation of classes

#### 23. What are memory-mapped files used for in .NET?

Memory-mapped files in .NET are used to instantiate the contents of a logical file into the address of the application. This helps a user run processes simultaneously on a single machine and have the data shared between processes.

The MemoryMappedFile.CreateFromFiles() function is used to obtain a memory-mapped file object easily.

#### 24. What is the meaning of CAS in .NET?

CAS stands for Code Access Security. It is vital in the prevention of unauthorized access to programs and resources in the runtime. It can provide limited access to the code to perform only certain operations rather than providing all at a given point in time. CAS forms to be a part of the native .NET security architecture.





#### 25. What is the meaning of garbage collection?

Garbage collection is a process that is used to maintain various aspects of memory to prevent memory leaks during program execution.

An entity called the garbage collector is used to allocate and deallocate memory as and when required by an application. This is done by performing checks on the references of variables and objects used by the application. If an object is no longer required by the application, the memory is de-allocated and freed up.

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#### 26. What is the use of GAC in .NET?

GAC is the abbreviation of Global Assembly Cache. GAC is a part of CLR, which is used to store the assemblies that are shared across all of the applications. A user can make use of the Gacutil application to add any file into GAC easily.

### 27. What are the three generations of garbage collection in .NET?

The three generations of garbage collection are as follows:

- Gen 0: Stores short-lived objects
- Gen 1: Objects moved from Gen 0 live here
- Gen 2: Stores long-lived objects and Gen 1 objects

Next on this top dot net interview questions blog, we will be checking a frequently asked question, i.e. MVC.



#### 28. What is MVC?

MVC stands for Model-View-Controller. It is an architectural model that is used to build applications in .NET. It serves as the foundation for the creation of applications.

MVC consists of three entities as the name suggests:

- Model: Used to store and pull back data from a database
- View: Used to display the contents of an application
- Controllers: Entities that handle user interaction

### 29. What are the types of memories supported in the .NET framework?

There are two types of memories present in .NET as listed below:

- Stack: Used for static memory allocation
- Heap: Used for dynamic memory allocation

### 30. What is the use of delegation in .NET?

A delegate works similar to that of a function pointer of other programming languages. It provides a way to encapsulate the reference of a method in an object.

A delegate object can be easily passed to a program after this, and then a method, which was referenced earlier, can be called. Custom events can also be created in the class using a delegate.

Next up on this top Dot NET developer interview questions and answers, we need to understand a very important difference. Check it out.

### 31. What is the difference between an abstract class and an interface in .NET?



Abstract Class	Interface
Provides the partial implementation of functionalities that are done by inheriting classes	Used to declare the behavior of an implementing class
Used to declare properties, methods, events, and fields as well	Feilds cannot be declared using interfaces

### 32. What is the meaning of AutoPostBack in .NET?

AutoPostBack is a property in the .NET framework, which provides automatic postback whenever an event starts its execution cycle. To use AutoPostBack, you have to set the property to True.

### 33. What are the parameters that control connection pooling behaviors in .NET?

There are four main parameters that control connection pooling behaviors in .NET as given below:

- Connect Timeout
- Min Pool Size
- Max Pool Size
- Pooling

### 34. What are the requirements needed for connection pooling?



Three main requirements to be fulfilled for connection pooling are as explained below:

- The presence of an identical connection string for both entities
- The existence of multiple processes with the same connection parameters
- The presence of similar security protocols and settings

Next up on this set of top .NET interview questions and answers, let's take a look at the questions categorized as advanced!

### **Advanced .NET Interview Questions for 10 Years Experience**

#### 35. How many elements can a tuple hold in .NET?

A tuple in .NET can hold anywhere up to eight elements. If there are more than eight elements at a time, each of those extra elements gets defined into a separate tuple.

The advantage of tuples in .NET is that they can be used as parameters or return type specifiers.

### 36. Differentiate between the user control and the custom control in the .NET framework.

User Control	Custom Control
Static Layout	Dynamic Layout



No support for the toolbox	Supports the usage of the toolbox
Tightly coupled control access	Loosely coupled control access
Branches from UserControl	Branches from the control group

Next up on this .NET framework interview questions and answers, let us check out an important question that is asked quite often.

### 37. What is the meaning of role-based security in .NET?

Role-based security, as the name suggests, is a measure implemented in .NET to provide security access based on the roles assigned to users. Examples include the provision of access to users, administrators, and guests.

### 38. Can themes be applied to ASP.NET applications?

Yes, themes can be applied to ASP.NET applications easily by modifying the following code in the web.config file:

- 1 <configuration&gt;
- 2 <system.web&gt;
- 3 <pages theme="windows"/&gt;
- 4 </system.web&gt;
- 5 </configuration&gt;



### 39. What are some of the templates that are present in Repeater control?

Many templates are widely used in Repeater control, and some of them are as follows:

- AlternatingItemTemplate
- ItemTemplate
- HeaderTemplate
- FooterTemplate
- SeparatorTemplate

#### 40. How is the status of a DataReader checked in .NET?

The status of a DataReader can be checked easily by using a property called 'IsClosed.' It will tell you if the DataReader is closed or opened.

If it is closed, a true value is returned, and if the reader is open, it returns a false value.

#### 41. What do you mean by cross-page posting?

Consider the situation where you press the submit button on a webpage. Here, the data is stored on the same page. However, if the data has to be stored on a different page and linked to the current one, it would be called a cross-page post.

There is a property called PostBackUrl, which helps you achieve cross-page posting.

#### 42. What is the use of MIME in .NET?

MIME is the short form of Multipurpose Internet Mail Extensions. It is an add-on to the existing email protocols that lets you exchange files over emails easily.



During a web transmission, servers have the ability to add in a MIME header to the beginning to denote that it is a MIME transaction.

### 43. What are the types of cookies available in ASP.NET?

There are two types of cookies available in ASP.NET as shown below:

- Session cookies: Present on the client machine and valid only for single sessions
- Persistent cookies: Present on the user machine and has a specific period denoting its expiry

Next up on this top Dot NET developer interview questions and answers, we need to check out certain aspects of security controls in .NET.

### 44. What are some of the security controls present in ASP.NET?

There are five security controls present in ASP.NET as shown below:

- <asp: PasswordRecovery>: Used to send an email to a user upon performing a password reset operation
- <asp: Login>: Gives the provisions of login controls with ID and password fields for users to login via credentials
- <asp: LoginName>: Used to display the name of the user who has logged into the system
- <asp: LoginStatus>: Used to denote the authentication flag of the user who has logged in
- <asp: LoginView>: Used to provide a variety of views based on themes upon user login

### 45. What is the order of the events that take place in a page life cycle?



There are eight events as shown below that take place in an order to successfully render a page:

- 1. Page\_PreInit
- 2. Page\_Init
- 3. Page\_InitComplete
- 4. Page\_PreLoad
- 5. Page\_Load
- 6. Page\_LoadComplete
- 7. Page\_PreRender
- 8. Render



### 46. Why are you applying for the .NET Developer role in our company?

With this question, the interviewer wants to understand your interests, goals, and career prospects in the field of .NET. Make sure to state the reasons why you feel that .NET is the right career for you and how you plan to use it to add value to the firm you just gave the .NET interview for.

### 47. Can you rate yourself on a scale of 1–10 depending on your proficiency in .NET?

Here, the interviewer wants to know your understanding of the subject and the proficiency with which you can handle tasks and solve problems. Make sure to retrospect and give out an honest answer.



### 48. Has your college degree helped you with .NET development in any way?

The interviewer asks this to assess if you have had any experience learning .NET development in your degree course. Do explain about it if you have come across or used the subject, and it would add a lot of value if you talk about how you plan to use that learning in the coming days after being recruited.

### 49. What skills should a successful .NET Developer possess?

This question is primarily asked to gauge your understanding of the depths of the role. The following are some of the important domains and skills you should have:

- NET MVC architecture
- Database handling
- Client-side web development
- .NET core

We can wind up this top Dot NET interview questions and answers with this very important question.

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### 50. Have you earned any sort of certification to boost your opportunities as a .NET Developer?

This is a very commonly asked question in .NET interviews today. The interviewer tries to assess how serious you are with your application and career direction toward the .NET field.



It adds immense value to possess a certification from a reputable organization to prove to the interviewer that you have learned the concepts thoroughly and have applied the same using industry-level projects, which have provided you with ample experience about using .NET in the real world!

### .NET Coding Interview Questions

## 51. Given a positive integer num, Write a C# function to determine if it is a perfect square without using any built-in library functions.

The code has a method named IsPerfectSquare that checks if a given number is a perfect square. If the number is less than 1, it's not a perfect square, and the method returns false. The code then uses a method to estimate the square root of the number. If the square of this estimate equals the original number, the method returns true, signaling that the number is a perfect square.

```
public class Solution

public bool IsPerfectSquare(int num)

full (if (num < 1))

full (num < 1)</pre>
```



```
7
                 return false;
 8
 9
10
            long x = num;
11
12
            while (x * x > num)
13
14
                 x = (x + num /
15
16
17
18
19 }
```

52. Given an unsorted array of integers. Write a C# function to find the length of the longest consecutive element sequence.



The code identifies the longest consecutive sequence in an array. It uses a set to swiftly check for the presence of a number's predecessor. It iterates through each number, verifying and updating the length of consecutive sequences, and ultimately returns the longest length.

```
public class Solution
2 {
  public int Trap(int[] height)
4 {
  int left = 0, right = height.Length - 1;
  int leftMax = 0, rightMax = 0;
   int waterTrapped = 0;
8
  while (left < right)
10
   {
    if (height[left] < height&#91;right&#93;)
12 {
13 if (height[left] >= leftMax)
14 {
15 leftMax = height[left];
16 }
17 else
18 {
```



```
19 waterTrapped += leftMax - height[left];
20 }
21 left++;
22 }
23 else
24 {
25 if (height[right] >= rightMax)
26 {
27 rightMax = height[right];
28 }
29 else
30 {
31 waterTrapped += rightMax - height[right];
32 }
33 right--;
34 }
35 }
36
37 return waterTrapped;
38 }
39 }
```



## 53. Given a string that contains only the digits 0-9 and a target value. Write a C# function to return all possible expressions that evaluate the target value.

This program tries to create various ways of adding, subtracting, and multiplying digits in a given number to reach a specific result. It uses a method called recursive backtracking to explore different options. The Backtrack function remembers important details like the current position, previous value, current value, and the expression being formed. The objective is to find combinations that give the desired result while making sure not to have leading zeros. The outcomes are collected in a list and given as the final result.

```
using System;
using System.Collections.Generic;

public class Solution

function in the string of the string
```



```
14 Backtrack(num, target, 0, 0, 0, "", result);
15 return result;
16 }
17
    private void Backtrack(string num, int target, int index, long prevValue, long
currentValue, string expr, IList<string> result)
19 {
20 if (index == num.Length)
21 {
22 if (currentValue == target)
23 {
24 result.Add(expr);
25 }
26 return;
27 }
28
29 for (int i = index; i < num.Length; i++)
30 {
31 if (i > index && num[index] == '0')
32 {
    break; // Avoid leading zeroes in numbers
```



```
34 }
35
    long currentNumber = long.Parse(num.Substring(index, i - index + 1));
36
37
38 if (index == 0)
39 {
40 Backtrack(num, target, i + 1, currentNumber, currentNumber,
currentNumber.ToString(), result);
41 }
42 else
43 {
44 Backtrack(num, target, i + 1, currentNumber, currentValue + currentNumber,
expr + "+" + currentNumber, result);
45 Backtrack(num, target, i + 1, -currentNumber, currentValue - currentNumber,
expr + "-" + currentNumber, result);
46 Backtrack(num, target, i + 1, prevValue * currentNumber, currentValue -
prevValue + (prevValue * currentNumber), expr + "*" + currentNumber, result);
47 }
48 }
49 }
50 }
```



# 54. Given n non-negative integers representing an elevation map where the width of each bar is 1, write a C# function to compute how much water it can trap after rain.

This C# code aims to solve the problem of trapping rainwater. It uses a method where two pointers, left and right, start at the edges of the array and gradually move towards each other.

The idea is to find the maximum height encountered from the left (leftMax) and the maximum height from the right (rightMax). While moving the pointers, it calculates the trapped water based on the smaller of the two maximum heights. If the current height is less than the maximum height, it adds the difference to the total trapped water.

This process continues until the pointers meet in the middle, accumulating the overall trapped water. The code employs a simple and efficient strategy to address the rainwater trapping challenge.

Here is the code:



```
1 public class Solution
2 {
       public int Trap(int[] height)
 3
       {
           int left = 0, right = height.Length - 1;
 5
           int leftMax = 0, rightMax = 0;
 6
           int waterTrapped = 0;
 7
 8
 9
           while (left < right)</pre>
10
11
                if (height[left] < height&#91;right&#93;)</pre>
12
13
                    if (height[left] >= leftMax)
14
                    {
15
                        leftMax = height[left];
```



```
16
                     }
17
                     else
18
                     {
                         waterTrapped += leftMax - height[left];
19
                     }
20
21
                     left++;
22
                 }
23
                else
24
                     if (height[right] >= rightMax)
25
26
                         rightMax = height[right];
27
28
29
                     else
30
                     {
                         waterTrapped += rightMax - height[right];
31
```



### .NET Core Interview Questions for Experienced

#### 55. Differentiate .NET Core and .NET Frameworks.

.NET Core is a framework created by Microsoft that works on different operating systems, and it's free for anyone to use. On the other hand, .NET Framework is older and only works on Windows. .NET Core is lighter and more modern, making it great for new applications, while .NET Framework has a lot of libraries and features, mainly for Windows programs.

#### 56. What is CoreRT?



CoreRT is like a special version of .NET Core that makes your applications start faster and use less memory by converting your code into machine language ahead of time.

#### 57. What is Transfer-Encoding?

Transfer-Encoding is a special instruction in HTTP (the language websites use to talk to browsers) that tells how the information in a message should be sent. It helps make data transmission over the internet more efficient. Imagine it like a code that says whether the information should be sent in chunks or compressed to save space. It's like a set of rules for sending and receiving messages on the internet so that it's done smartly and effectively.

#### 58. Explain what .NET Core Middleware is.

Middleware acts as a crucial layer in software, functioning as a dynamic bridge for handling requests and responses. This versatile middleware consists of multiple delegates arranged in an application pipeline. Each delegate in the middleware pipeline plays a pivotal role in determining whether to pass a request to the next component and execute specific actions before or after passing it, ensuring a seamless and optimized flow of data. Explore the power of middleware for enhanced software performance and communication efficiency.

### .NET Salary Trends

A .NET Developer in the US gets a salary in the range of \$79,380 to \$198,806 with an average of \$125,623 per year. The salary in India falls in the range of ₹3,00,000–₹8,00,000 per year, with an average of ₹5,34,883 per year.

Job Role	Experience	Salary Range
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Web Developer	2 – 4 Years	₹3L – ₹7L /yr
Senior Web Developer	2 – 4 Years	₹5L – ₹10L /yr

### .NET Job Trends

- 1. Global Demand: As per the job postings on LinkedIn, there are more than 1,000 jobs available in the United States.
- 2. Projected Growth: According to a report published by Statista recently, for building a dynamic website, 17.03% of developers used .NET.
- 3. Regional Trends: There are more than 7,000 .NET Developer jobs in India, as per the jobs posted by recruiters on LinkedIn. Companies are mostly hiring for .NET Senior Software Engineer, .NET Developer, .NET Azure Developer, ASP.NET Developer, etc.

### **Job Opportunities in .NET**

There are multiple job opportunities in .NET. We have listed a few job roles below with their descriptions.

Job Role	Description
.Net Developer	Using the language and technologies of the .NET framework, a .NET developer builds software applications. Apart from providing technical support and maintaining it, they are also responsible for the coding, testing, and deployment of the applications.



.Net Consultant	The main focus of .NET consultants is to work on challenging, large-scale, and cross-functional projects and provide the skills or expertise required to create applications that are reliable, secure, and scalable.
Software Engineer (ASP.NET)	An ASP.NET developer builds applications or devices that can understand the human language.

### .NET Roles & Responsibilities

As a .NET developer, you will be responsible for creating code using .NET framework languages like C#. You will be providing technical support for web applications, desktop, and mobile applications. As a .NET developer, you should be able to build a reliable, scalable application.

According to a .NET job description posted by Conduents on Google:

Job Role: .Net Developer

- 1. Responsibilities:
- As a .NET developer, you will be building a .NET application.
- As a .NET developer, a company expects you to know OOPS and SOLID principles.
- You should have a good understanding of microservice architecture.
- As a .NET developer, you will be developing, managing, and testing APIs.
- 2. Skills Required:
- Good experience in cloud-native development
- Experienced in the waterfall and Agile software development lifecycle
- Should be proficient in C# and SQL



### **Conclusion**

We hope this set of .NET framework interview questions will help you prepare for your interviews. We wish you luck in your endeavors!

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