

Top 21 C# Coding Questions for .NET Developer Interviews

1. Write a program to reverse a string without using in-built functions.

```
string input = "hello";
string reversed = "";
for (int i = input.Length - 1; i >= 0; i--)
{
    reversed += input[i];
}
Console.WriteLine(reversed);
```

2. Check if a number is Prime.

```
int num = 29, isPrime = 1;
for (int i = 2; i <= Math.Sqrt(num); i++)
{
    if (num % i == 0)
    {
        isPrime = 0;
        break;
    }
}
Console.WriteLine(isPrime == 1 ? "Prime" : "Not Prime");
```

3. Find the factorial of a number using recursion.

```
int Factorial(int n)
{
    return n <= 1 ? 1 : n * Factorial(n - 1);
}
Console.WriteLine(Factorial(5));
```

4. Count the number of vowels and consonants in a string.

```
string str = "hello world";
int vowels = 0, consonants = 0;
foreach (char c in str.ToLower())
{
    if ("aeiou".Contains(c)) vowels++;
    else if (Char.IsLetter(c)) consonants++;
}
Console.WriteLine($"Vowels: {vowels}, Consonants: {consonants}");
```

5. Find the second largest element in an array.

```
int[] arr = {5, 7, 2, 9, 1};
int first = int.MinValue, second = int.MinValue;
```

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```
foreach (int n in arr)
{
    if (n > first)
    {
        second = first;
        first = n;
    }
    else if (n > second && n != first)
    {
        second = n;
    }
}
Console.WriteLine($"Second Largest: {second}");
```

6. Check if a number or string is Palindrome.

```
string input = "madam";
bool isPalindrome = true;
for (int i = 0; i < input.Length / 2; i++)
{
    if (input[i] != input[input.Length - i - 1])
    {
        isPalindrome = false;
        break;
    }
}
Console.WriteLine(isPalindrome ? "Palindrome" : "Not Palindrome");
```

7. Print Fibonacci series up to N terms (recursive and iterative).

```
// Iterative
int n = 10, a = 0, b = 1;
Console.Write($"{a} {b} ");
for (int i = 2; i < n; i++)
{
    int c = a + b;
    Console.Write($"{c} ");
    a = b;
    b = c;
}

// Recursive
void Fib(int x, int y, int count)
```

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```
{
    if (count == 0) return;
    int z = x + y;
    Console.Write($"{z} ");
    Fib(y, z, count - 1);
}
Fib(0, 1, 8);
```

8. Sort an array using Bubble Sort.

```
int[] arr = {5, 3, 8, 4, 2};
for (int i = 0; i < arr.Length - 1; i++)
{
    for (int j = 0; j < arr.Length - i - 1; j++)
    {
        if (arr[j] > arr[j + 1])
        {
            int temp = arr[j];
            arr[j] = arr[j + 1];
            arr[j + 1] = temp;
        }
    }
}
Console.WriteLine(string.Join(", ", arr));
```

9. Find duplicate elements in an array.

```
int[] arr = {1, 2, 3, 2, 4, 5, 1};
HashSet<int> seen = new HashSet<int>();
HashSet<int> duplicates = new HashSet<int>();
foreach (int num in arr)
{
    if (!seen.Add(num)) duplicates.Add(num);
}
Console.WriteLine(string.Join(", ", duplicates));
```

10. Write a program to find the GCD of two numbers.

```
int a = 60, b = 48;
while (b != 0)
{
    int temp = b;
    b = a % b;
    a = temp;
}
```

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```
}  
Console.WriteLine($"GCD: {a}");
```

11. Swap two numbers without using a temporary variable.

```
int x = 10, y = 5;  
x = x + y;  
y = x - y;  
x = x - y;  
Console.WriteLine($"x = {x}, y = {y}");
```

12. Check if two strings are anagrams.

```
string s1 = "listen", s2 = "silent";  
char[] a1 = s1.ToCharArray();  
char[] a2 = s2.ToCharArray();  
Array.Sort(a1);  
Array.Sort(a2);  
Console.WriteLine(a1.SequenceEqual(a2) ? "Anagrams" : "Not Anagrams");
```

13. Find the missing number in an array of 1 to N.

```
int[] arr = {1, 2, 4, 5};  
int n = 5;  
int total = n * (n + 1) / 2;  
int sum = arr.Sum();  
Console.WriteLine($"Missing Number: {total - sum}");
```

14. Find the frequency of characters in a string.

```
string str = "programming";  
Dictionary<char, int> freq = new Dictionary<char, int>();  
foreach (char c in str)  
{  
    if (freq.ContainsKey(c)) freq[c]++;  
    else freq[c] = 1;  
}  
foreach (var kv in freq)  
    Console.WriteLine($"{kv.Key}: {kv.Value}");
```

15. Check if a number is Armstrong.

```
int num = 153, sum = 0, temp = num;  
while (temp > 0)  
{  
    int digit = temp % 10;
```

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```
sum += digit * digit * digit;
temp /= 10;
}
Console.WriteLine(sum == num ? "Armstrong" : "Not Armstrong");
```

16. Merge two sorted arrays.

```
int[] a = {1, 3, 5}, b = {2, 4, 6};
int[] result = new int[a.Length + b.Length];
int i = 0, j = 0, k = 0;
while (i < a.Length && j < b.Length)
{
    result[k++] = a[i] < b[j] ? a[i++] : b[j++];
}
while (i < a.Length) result[k++] = a[i++];
while (j < b.Length) result[k++] = b[j++];
Console.WriteLine(string.Join(", ", result));
```

17. Left rotate an array by D positions.

```
int[] arr = {1, 2, 3, 4, 5};
int d = 2;
d = d % arr.Length;
int[] rotated = arr.Skip(d).Concat(arr.Take(d)).ToArray();
Console.WriteLine(string.Join(", ", rotated));
```

18. Find the first non-repeating character in a string.

```
string str = "swiss";
Dictionary<char, int> freq = new Dictionary<char, int>();
foreach (char c in str)
{
    if (freq.ContainsKey(c)) freq[c]++;
    else freq[c] = 1;
}
char result = freq.FirstOrDefault(x => x.Value == 1).Key;
Console.WriteLine($"First non-repeating: {result}");
```

19. Write a program to implement Linear Search and Binary Search.

```
// Linear Search
int[] arr = {1, 3, 5, 7};
int key = 5;
bool found = arr.Contains(key);
Console.WriteLine(found ? "Found" : "Not Found");
```

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```
// Binary Search
Array.Sort(arr);
int index = Array.BinarySearch(arr, key);
Console.WriteLine(index >= 0 ? $"Found at {index}" : "Not Found");
```

20. Convert binary number to decimal and vice versa.

```
int binary = 1011;
int decimalNum = Convert.ToInt32(binary.ToString(), 2);
Console.WriteLine($"Decimal: {decimalNum}");
int number = 11;
string binaryStr = Convert.ToString(number, 2);
Console.WriteLine($"Binary: {binaryStr}");
```

21. Move all 0's to the end of array while maintaining order.

```
int[] arr = {0, 1, 0, 3, 12};
int index = 0;
foreach (int num in arr)
{
    if (num != 0) arr[index++] = num;
}
while (index < arr.Length)
{
    arr[index++] = 0;
}
Console.WriteLine(string.Join(", ", arr));
```