**1.Write program to demonstrate the working of c# SDK**

using System;

class Program

{

static void Main()

{

Console.WriteLine("Hello, World!");

}

}

Explanation:

using System;: This includes the System namespace, which contains fundamental classes like Console.

class Program: Defines the class named Program.

static void Main(): The Main method is the entry point of any C# console application. It is where the program starts execution.

Console.WriteLine("Hello, World!");: This line outputs the text "Hello, World!" to the console.

Output:

Hello, World!

**2. Write program to show the use of various data types availabe in c#**

**source code**

using System;

class Program

{

static void Main()

{

int age = 25;

float weight = 70.5f;

double height = 5.9;

decimal price = 199.99m;

bool isActive = true;

char grade = 'A';

string name = "Vishal";

object obj = "Hello";

Console.WriteLine("Integer : " + age);

Console.WriteLine("Float : " + weight);

Console.WriteLine("Double : " + height);

Console.WriteLine("Decimal : " + price);

Console.WriteLine("Boolean : " + isActive);

Console.WriteLine("Character : " + grade);

Console.WriteLine("String : " + name);

Console.WriteLine("Object: " + obj);

}

}

**output**

Integer : 25

Float : 70.5

Double : 5.9

Decimal : 199.99

Boolean : True

Character : A

String : Vishal

Object: Hello

**3. Write a program to understand the use of control. statement c#**

using System;

class Program

{

static void Main()

{

int number = 10;

if (number > 0)

{

Console.WriteLine("The number is positive.");

}

else if (number < 0)

{

Console.WriteLine("The number is negative.");

}

else

{

Console.WriteLine("The number is zero.");

}

Console.WriteLine("\nEnter a day number (1 to 7):");

int day = int.Parse(Console.ReadLine());

switch (day)

{

case 1:

Console.WriteLine("Monday");

break;

case 2:

Console.WriteLine("Tuesday");

break;

case 3:

Console.WriteLine("Wednesday");

break;

case 4:

Console.WriteLine("Thursday");

break;

case 5:

Console.WriteLine("Friday");

break;

case 6:

Console.WriteLine("Saturday");

break;

case 7:

Console.WriteLine("Sunday");

break;

default:

Console.WriteLine("Invalid day number");

break;

}

Console.WriteLine("\nFor Loop Example:");

for (int i = 1; i <= 5; i++)

{

Console.WriteLine("Iteration: " + i);

}

Console.WriteLine("\nWhile Loop Example:");

int count = 1;

while (count <= 3)

{

Console.WriteLine("Count is: " + count);

count++;

}

Console.WriteLine("\nDo-While Loop Example:");

int num = 1;

do

{

Console.WriteLine("Num is: " + num);

num++;

} while (num <= 2);

}

}

output

The number is positive.

Enter a day number (1 to 7):

3

Wednesday

For Loop Example:

Iteration: 1

Iteration: 2

Iteration: 3

Iteration: 4

Iteration: 5

While Loop Example:

Count is: 1

Count is: 2

Count is: 3

Do-While Loop Example:

Num is: 1

Num is: 2

**4. Write a program to understand the use of library function**

using System;

class Program

{

static void Main()

{

double number1 = 9;

double number2 = 16;

double sqrt1 = Math.Sqrt(number1);

double sqrt2 = Math.Sqrt(number2);

double powerResult = Math.Pow(number1, 2);

Console.WriteLine($"Square root of {number1} is: {sqrt1}");

Console.WriteLine($"Square root of {number2} is: {sqrt2}");

Console.WriteLine($"{number1} raised to the power of 2 is: {powerResult}");

DateTime currentDateTime = DateTime.Now;

DateTime specificDate = new DateTime(2025, 12, 25);

TimeSpan difference = specificDate - currentDateTime;

Console.WriteLine("\nCurrent Date and Time: " + currentDateTime);

Console.WriteLine("Specific Date (2025-12-25): " + specificDate);

Console.WriteLine("Difference between the specific date and now: " + difference.Days + " days");

string text = "Hello, C# World!";

string upperText = text.ToUpper();

string lowerText = text.ToLower();

bool containsWord = text.Contains("C#");

Console.WriteLine("\nOriginal Text: " + text);

Console.WriteLine("Text in Uppercase: " + upperText);

Console.WriteLine("Text in Lowercase: " + lowerText);

Console.WriteLine("Does the text contain 'C#'? " + containsWord);

string numberStr = "1234";

int convertedNumber = Convert.ToInt32(numberStr);

Console.WriteLine("\nConverted string '1234' to integer: " + convertedNumber);

// Random Library Function

Random rand = new Random();

int randomNumber = rand.Next(1, 101); // Generates a random number between 1 and 100

Console.WriteLine("\nRandom number between 1 and 100: " + randomNumber);

}

}

output

Square root of 9 is: 3

Square root of 16 is: 4

9 raised to the power of 2 is: 81

Current Date and Time: 02/03/2025 03:50:19

Specific Date (2025-12-25): 12/25/2025 00:00:00

Difference between the specific date and now: 324 days

Original Text: Hello, C# World!

Text in Uppercase: HELLO, C# WORLD!

Text in Lowercase: hello, c# world!

Does the text contain 'C#'? True

Converted string '1234' to integer: 1234

Random number between 1 and 100: 15

**5. Write a program to demonstrate the use of various arithmetic, unary, logical, bit-wise, assignment and conditional operators.**

using System;

class Program

{

static void Main()

{

int a = 10, b = 5;

Console.WriteLine("Arithmetic Operators:");

Console.WriteLine($"a = {a}, b = {b}");

Console.WriteLine($"a + b = {a + b}");

Console.WriteLine($"a - b = {a - b}");

Console.WriteLine($"a \* b = {a \* b}");

Console.WriteLine($"a / b = {a / b}");

Console.WriteLine($"a % b = {a % b}");

Console.WriteLine("\nUnary Operators:");

int x = 10;

Console.WriteLine($"++x = {++x}");

Console.WriteLine($"x++ = {x++}");

Console.WriteLine($"--x = {--x}");

Console.WriteLine($"x-- = {x--}");

Console.WriteLine($"!true = {!true}");

bool p = true, q = false;

Console.WriteLine("\nLogical Operators:");

Console.WriteLine($"p && q = {p && q}");

Console.WriteLine($"p || q = {p || q}");

Console.WriteLine($"!p = {!p}");

Console.WriteLine("\nBitwise Operators:");

int i = 5, j = 3;

Console.WriteLine($"i & j = {i & j}");

Console.WriteLine($"i | j = {i | j}");

Console.WriteLine($"i ^ j = {i ^ j}");

Console.WriteLine($"~i = {~i}");

Console.WriteLine($"i << 1 = {i << 1}");

Console.WriteLine($"i >> 1 = {i >> 1}");

int result = 0;

Console.WriteLine("\nAssignment Operators:");

result = a + b;

Console.WriteLine($"result = a + b = {result}");

result += 10;

Console.WriteLine($"result += 10 = {result}");

result -= 5;

Console.WriteLine($"result -= 5 = {result}");

result \*= 2;

Console.WriteLine($"result \*= 2 = {result}");

result /= 3;

Console.WriteLine($"result /= 3 = {result}");

result %= 4;

Console.WriteLine($"result %= 4 = {result}");

Console.WriteLine("\nConditional Operator:");

int max = (a > b) ? a : b;

Console.WriteLine($"The maximum of a and b is {max}");

string str = null;

string resultStr = str ?? "Default value";

Console.WriteLine($"\nNull-coalescing Operator: {resultStr}");

Console.WriteLine("\nCompound Assignment Operator:");

int z = 20;

z \*= 2;

Console.WriteLine($"z \*= 2 results in z = {z}");

Console.WriteLine("\nEnd of Demonstration!");

}

}

**OUTPUT:**

Arithmetic Operators:

a = 10, b = 5

a + b = 15

a - b = 5

a \* b = 50

a / b = 2

a % b = 0

Unary Operators:

++x = 11

x++ = 11

--x = 11

x-- = 11

!true = False

Logical Operators:

p && q = False

p || q = True

!p = False

Bitwise Operators:

i & j = 1

i | j = 7

i ^ j = 6

~i = -6

i << 1 = 10

i >> 1 = 2

Assignment Operators:

result = a + b = 15

result += 10 = 25

result -= 5 = 20

result \*= 2 = 40

result /= 3 = 13

result %= 4 = 1

Conditional Operator:

The maximum of a and b is 10

Null-coalescing Operator: Default value

Compound Assignment Operator:

z \*= 2 results in z = 40

End of Demonstration!

**6. Write a program to store 10 elements in an array and display the array elements in increasing order.**

using System;

class Program

{

static void Main()

{

int[] arr = new int[10];

Console.WriteLine("Enter 10 numbers:");

for (int i = 0; i < arr.Length; i++)

{

Console.Write($"Enter element {i + 1}: ");

arr[i] = int.Parse(Console.ReadLine());

}

Array.Sort(arr);

Console.WriteLine("\nArray elements in increasing order:");

foreach (int num in arr)

{

Console.Write(num + " ");

}

Console.WriteLine();

}

}

**OUTPUT:**

Enter 10 numbers:

Enter element 1: 9

Enter element 2: 8

Enter element 3: 7

Enter element 4: 6

Enter element 5: 5

Enter element 6: 4

Enter element 7: 3

Enter element 8: 2

Enter element 9: 1

Enter element 10: 8

Array elements in increasing order:

1 2 3 4 5 6 7 8 8 9