namespace

contains datatypes and namespaces

System namespace

Operation:

3 + 4

operand: 3, 4

operator: +

Mathematical operator:

+, -, *, /, %

ex: x = 1325 % 4 = 1

```
1325 | 4
12   |----
---  | 331
012
 12
---
005
  4
---
  1
```

Relational operator:

>, <, >=, <=, ==, !=

Logical operator:

&&, ||, !

!(operation) ==> !(x>y)

&&

operand1	operand2	result
true	true	true
true	false	false
false	true	false
false	false	false

||

operand1	operand2	result
true	true	true
true	false	true
false	true	true
false	false	false

Increment / Decrement operator:

++, --

Pre-Inrement

```
class Test
{
    public static void Main()
    {
        int x = 10, y;
        y = ++x; //assign          y = x;   2
                 //increment       x=x+1;   1
        Console.WriteLine($"X = {x}");
        Console.WriteLine($"Y = {y}");
    }
}
```

x = 11 y = 11

Post-Increment

```
class Test
{
    public static void Main()
    {
        int x = 10, y;
        y = x++; //assign          y = x;       1
                 //increment       x = x + 1;   2
        Console.WriteLine($"X = {x}");
        Console.WriteLine($"Y = {y}");
    }
}
```

x = 11 y = 10

assignment operator:

=, +=, -=, *=, /=, %=

shorthand

x += 5; ==> x = x + 5;

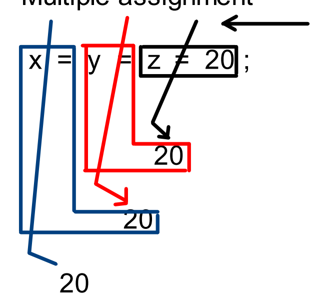
y%= 3; ==> y = y %3;

x = 3 + 4;

7

temporary area

Multiple assignment



Control statement:

Conditional (Branching) statement:

if statement:

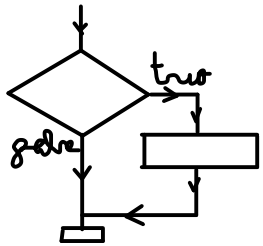
if(boolean_expression)
{
    statement to be executed when condition is true
}

Example:

Write a program that read a number, if the number is odd, multiply it by 2 then print it, otherwise print it

```
class Test
{
    public static void Main()
    {
        int num;
        int rem;
        Console.WriteLine("Enter a number");
        num = int.Parse(Console.ReadLine());
        rem = num % 2;
        if(rem != 0) //odd number
        {
            num = num * 2; //num *= 2;
        }
        Console.WriteLine($"Value ={num}");
    }
}
```

```
// line comment
/*.....
..Multi line comment
.....*/
```

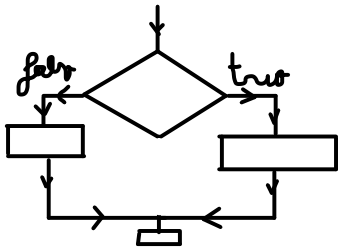



```
class Test
{
    public static void Main()
    {
        int num;

        Console.WriteLine("Enter a number");
        num = int.Parse(Console.ReadLine());

        if((num % 2) != 0) //odd number
        {
            num = num * 2; //num *= 2;
        }
        Console.WriteLine($"Value ={num}");
    }
}
```

if..else statement:

false

```
if(boolean_expression)
{        true
        statement to be executed when condition is true
}
else
{
        statement to be executed when condition is false
}
```



Example:
Write a program that read a grade and print Pass if the value is greater or equal 60 and print Fail otherwise

```
class Test
{
        public static void Main()
        {
                int Grade;
                Console.WriteLine("Enter Grade");
                Grade = int.Parse(Console.ReadLine());
                if(Grade >= 60)
                {
                        Console.WriteLine("Pass");
                }
                else
                {
                        Console.WriteLine("Fail");
                }
        }
}
```

Example:
Write a program that read a grade and print 'A' if the value is greater or equal 90, print 'B' if the value is greater or equal 80, print 'C' if the value is greater or equal 60 and print 'F' otherwise

```
class Test
{
	public static void Main()
	{
		int Grade;
		Console.WriteLine("Enter Grade");
		Grade = int.Parse(Console.ReadLine());
		if(Grade >= 90)
		{
			Console.WriteLine("A");
		}
		if((Grade >= 80) && (Grade < 90))		//4
		{
			Console.WriteLine("B");
		}
		if((Grade >= 60) && (Grade < 80))		//4
		{
			Console.WriteLine("C");
		}
		if(Grade < 60)					//2
		{
			Console.WriteLine("Fail");
		}
	}
}
```

Test		
Grade = 50	O/P: Fail	O/P: Fail
Grade = 65	O/P: C	O/P: C
Grade = 85	O/P: B C ???	O/P: B Fail ???
Grade = 95	O/P: A B C??	O/P: A Fail ???

nested if

```
class Test
{
	public static void Main()
	{
		int Grade;
		Console.WriteLine("Enter Grade");
		Grade = int.Parse(Console.ReadLine());
		if(Grade >= 90)

			Console.WriteLine("A");

		else if(Grade >= 80)
			{
				Console.WriteLine("B");
			}
			else
			{
				if(Grade >= 60)
				{
					Console.WriteLine("C");
				}
				else
				{
					Console.WriteLine("Fail");
				}
			}

	}
}
```

```
char	ch;
int	x;
```