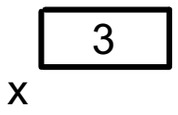
Data Type

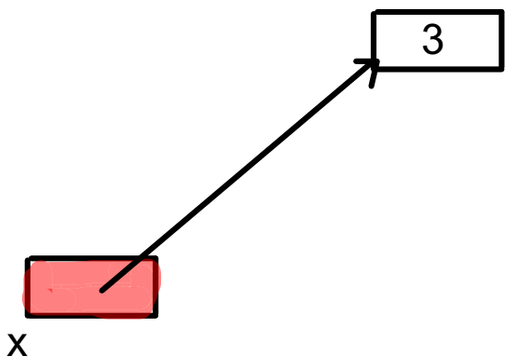
Value Type

The variable itself hold the value

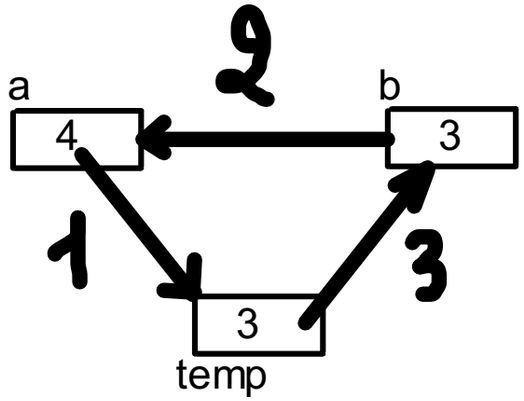



Reference Type

The variable ifself hold a reference for the variable



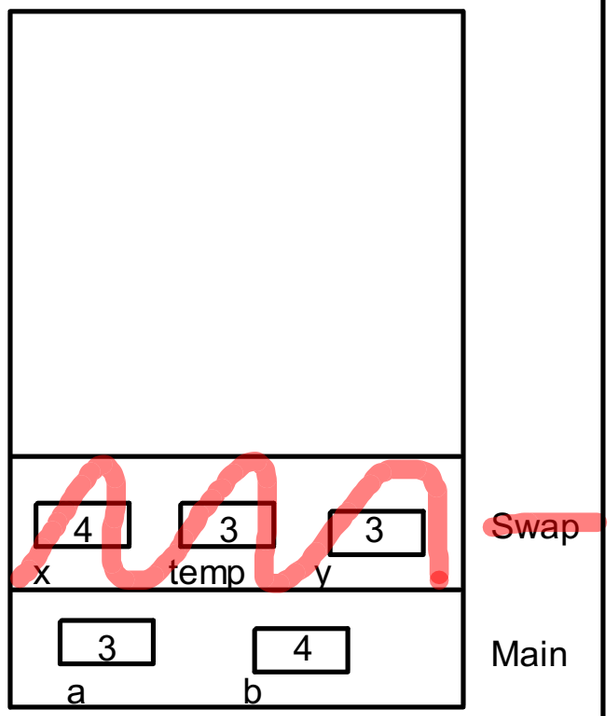

Swapping



Passing Value Type to a method:

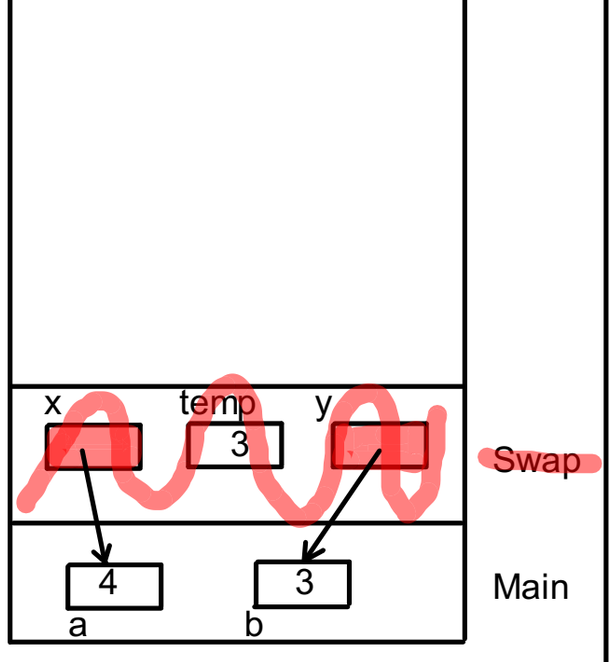
Example: (IN Parameter, 'call by value')

```
class Test
{
    public static void Swap(int x, int y)
    {
        int temp;
        temp = x;
        x = y;
        y =temp;
    }
    public static void Main()
    {
        int a = 3, b = 4;
        Swap(a, b);
        Console.WriteLine($"A = {a}");
        Console.WriteLine($"B = {b}");
    }
}
```



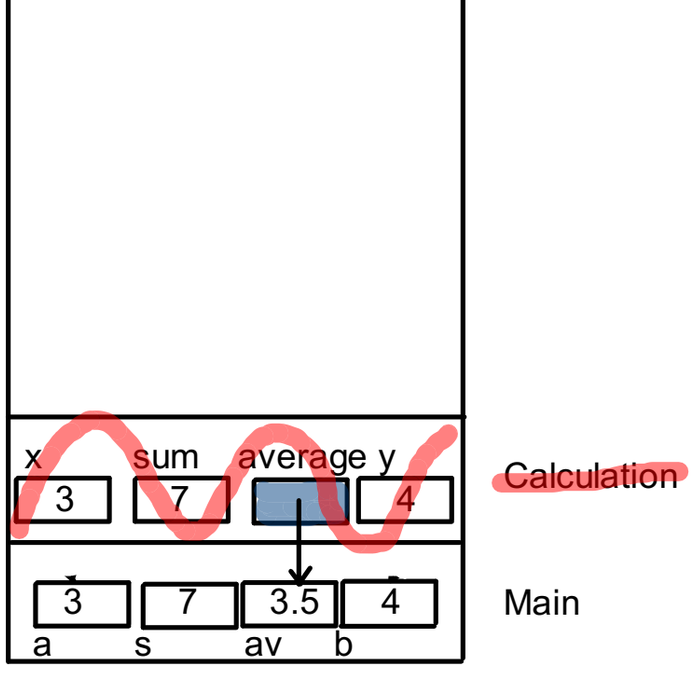

Example: (INOUT Parameter, 'call by reference')

```
class Test
{
    public static void Swap(ref int x, ref int y)
    {
        int temp;
        temp = x;
        x = y;
        y =temp;
    }
    public static void Main()
    {
        int a = 3, b = 4;
        Swap(ref a, ref b);
        Console.WriteLine($"A = {a}");
        Console.WriteLine($"B = {b}");
    }
}
```




Example: (OUT parameter)

```
class Test
{
    public static int Calculation(int x, int y, out float average)
    {
        int sum;
        sum = x + y;
        average = sum / 2.0;
        return sum;
    }
    public static void Main()
    {
        int a = 3, b = 4;
        int s;
        float av;
        s = Calculation(a, b, out av);
    }
}
```



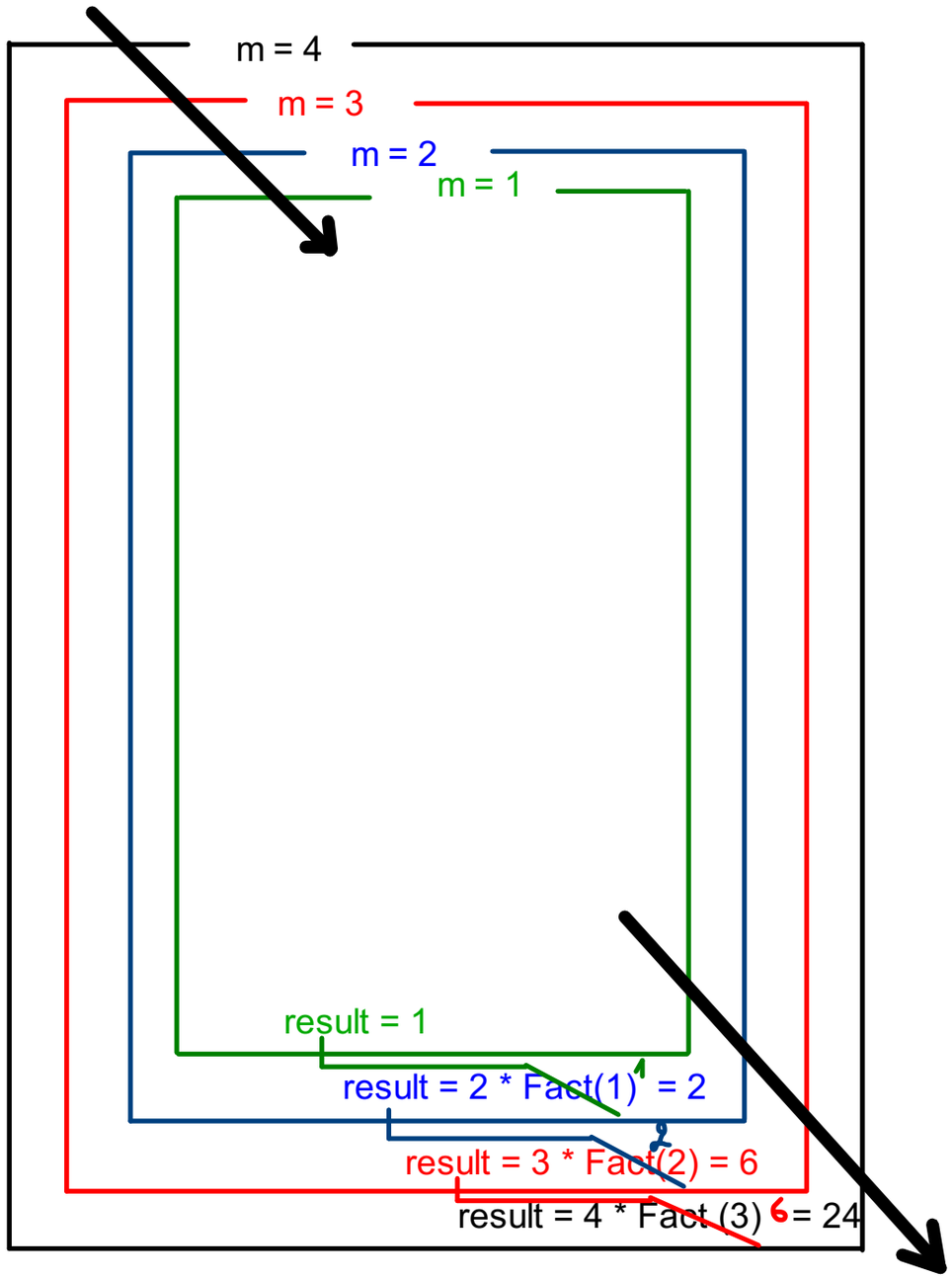
```
class Test
{
    public static void Main()
    {
        long val;
        val   = Fact(4);
    }

    public static long Fact(int m)
    {
        long result = 1;
        if( m > 1)
        {
            result = m * Fact(m - 1);
        }
        return result;
    }
}
```

1
2
3
4

4 * Fact(3) = 24
3 * Fact(2) = 6
2 * Fact(1) = 2

1

Recursion




5! = 5 * 4 * 3 * 2 * 1
= 5 * 4!

num! = num * (num - 1)!

+ve integer
1! = 1
0! = 1