

3.4 Recursion

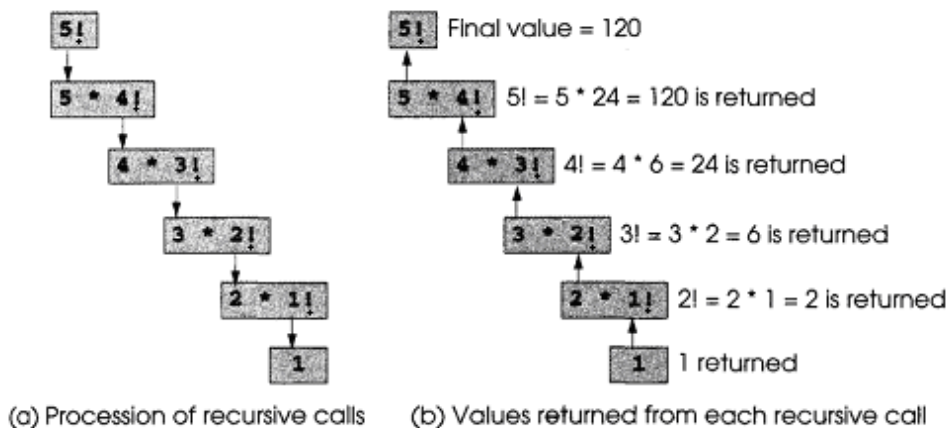
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- The programs we have discussed generally are structured as methods that call one another in a hierarchical manner. For some problems, it is useful to have a method actually call it self.
- A recursive method is a method that calls itself either directly or indirectly through another method.
- The factorial of a nonnegative integer n , written $n!$ (and pronounced “ n factorial”), is the product $n (n - 1) (n - 2) \dots (2) (1)$

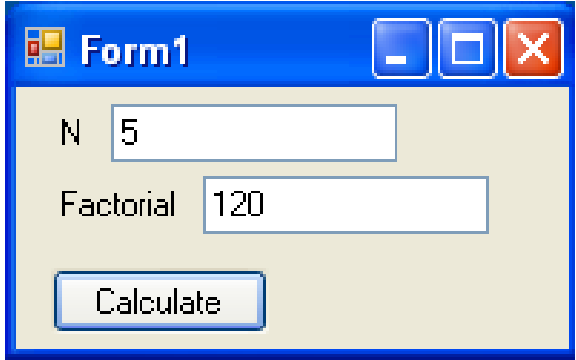
The factorial of an integer number greater than or equal to 0 can be calculated recursively as follows:

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```
class MyClass
{
    public static int factorial(int n)
    {
        if (n == 1)
            return 1;
        else
            return n * factorial(n - 1);
    }
}

private void ButCalculate_Click(object sender, EventArgs e)
{
    int N, F;
    N = Int32.Parse(TxtN.Text);
    F = MyClass.factorial(N);
    TxtFactorina.Text = F.ToString();
}
```

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