

```

1  #include<bits/stdc++.h>
2  using namespace std;
3  /*
4      Factorial of a given number n :
5
6      1 * 2 * 3 * 4 .....* (n-1) * n
7
8      fact(n) = fact(n-1) * n;
9  */
10
11 int fact(int n)
12 {
13     if(n == 0)
14     {
15         return 1;
16     }
17     else{
18         return fact(n-1) * n;
19         // n add in returning time;
20     }
21 }
22
23 int main()
24 {
25     int x = 5;
26
27     cout << fact(x) << endl; // 120
28 }
29
30 /*
31     fact(5)  -> 120
32     |
33     fact(4) * 5; => 24 * 5
34     |
35     fact(3) * 4; => 6 * 4
36     |
37     fact(2) * 3; => 2 * 3
38     |
39     fact(1) * 2; => 1 * 2
40     |
41     fact(0) * 1; => 1 * 1;
42     |
43     x return 1
44
45
46 */

```