

**factorial.c**

```
1 #include <stdio.h>
2
3 // write a function to calculate factorial of a number using for loop
4
5 int main(){
6
7     int num;
8     printf("Enter a number: ");
9     scanf("%d", &num);
10
11    // Factorial calculation
12    int fact = 1;
13    for(int i = 1; i <= num; i++){
14        fact = fact * i;
15    }
16    printf("Factorial of %d is %d\n", num, fact);
17    return 0;
18}
19
20
21 /**
22 * What happens in the loop?
23
24 Loop runs from i = 1 to i = num
25
26 Each time, multiply the current value of fact by i
27
28 This builds the factorial step-by-step
29
30 Example for num = 5:
31
32 i    fact
33 -----
34 1    1 × 1 = 1
35 2    1 × 2 = 2
36 3    2 × 3 = 6
37 4    6 × 4 = 24
38 5    24 × 5 = 120
39
40 Final value = 120
41 */
42
43
```