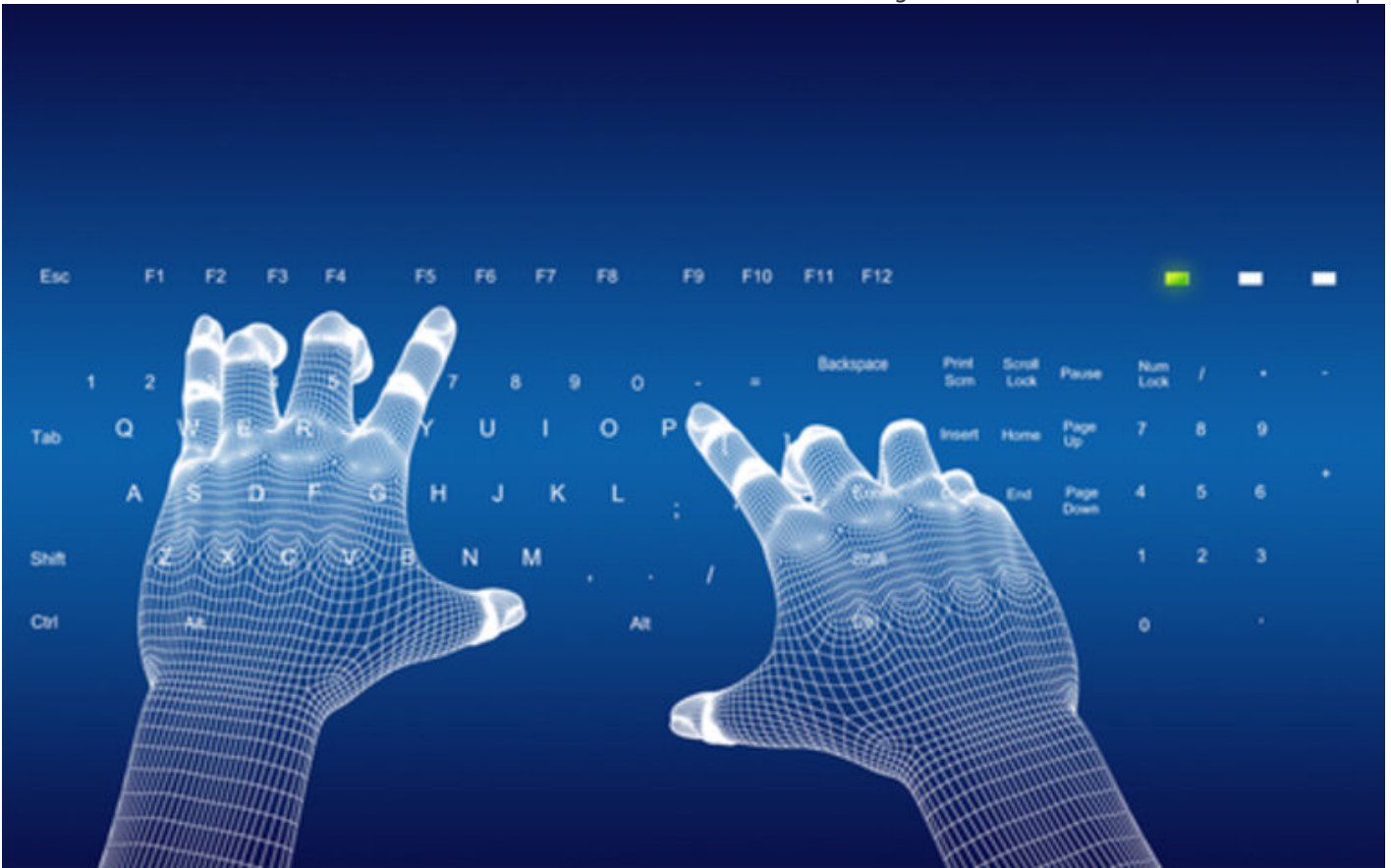




Factorial is defined for a positive integer, n , as the product of all the integers from 1 to n .

Factorial of n is denoted by $n!$.

$$n! = n \times (n - 1) \times (n - 2) \dots \times 1$$

For ex: $5! = 5 \times 4 \times 3 \times 2 \times 1$.

To write a C program that calculates the factorial of a given integer, we will make use of for loops. We will start the loop at $i=n$ (Integer whose factorial is required). Decrement i at every iteration by 1 until we reach $i=1$.

Inside the loop, we will perform the multiplications required for finding the factorial.

The C program to find the factorial of a given number (positive integer) is shown below:

PROGRAM:

```

/*****
*****FACTORIAL*****
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*****/
#include<stdio.h>

/*The following function takes an int and returns it's factorial
NOTE: WE ARE USING DOUBLE AS THE RETURN TYPE TO ACCOMMODATE LARGE FACTORIALS*/
double factorial(int n){
    int i;
    double fact=1;
    for(i=n;i>=1;i--){
        fact=fact*i;
    }
    return fact;
}

main(){
    int n;
    printf("Enter a number whose factorial you want:\n");
    scanf("%d",&n);
    printf("\nThe factorial of %d is %lf.\n\n",n,factorial(n));
}

```

Output:

```

Enter a number whose factorial you want:
5
The factorial of 5 is 120.000000.

```



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I'm a physicist specializing in computational material science with a PhD in Physics from Friedrich-Schiller University Jena, Germany. I write efficient codes for simulating light-matter interactions at atomic scales. I like to develop Physics, DFT, and Machine Learning related apps and software from time to time. Can code in most of the popular languages. I like to share my knowledge in Physics and applications using this Blog and a YouTube channel.

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