

Functions in C

1. BASIC PROGRAM OF C.
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3. POINTS ABOUT FUNCTIONS.
4. TYPES OF FUNCTION (ACCORDING TO METHOD OF DECLARATION).
5. CALL BY VALUE AND CALL BY REFERENCE.
6. EXAMPLE ABOUT HOW A FUNCTION MAKES A PROGRAM EASY.

Basic Program of C :

```
#include<stdio.h>
int main()
{
    printf("Hello World");
    return 0;
}
```

Output :

Hello World

Basic example of address of a variable :

```
#include<stdio.h>
int main()
{
    int a,*p;
    a=5;
    printf("Value of a = %d\n",a);
    printf("Address of a = %u\n",&a);
    p=&a;
    printf("Value of *p = %d\n",*p);
    printf("Address of *p = %u\n",&>(*p));
    return 0;
}
```

Output :

Value of a = 5

Address of a = 6487580

Value of *p = 5

Address of *p = 6487580

Functions in C programming :

▶ What is function?

It is the part of a program which can be specified to do tasks.

▶ Predefined functions/Library functions :

The type of functions which are already included inside the header file and can already be understood by the compiler to give favourable result.

Like printf (Used to print or show specified terms or text on the screen)

scanf (Used to scan or obtain input from the user), etc.

▶ User defined functions :

The functions which are made by a programmer to make the program more easily understandable and easy to code.

Basic example of function :

```
#include<stdio.h>
void sum();
int main()
{
    sum();
    return 0;
}
void sum()
{
    int a,b;
    a=2;
    b=3;
    printf("Sum = %d",a+b);
}
```

Output :

Sum = 5

Different types/aspects of functions :

1. Without Argument/Return value
2. With Argument Without Return Value
3. Without Argument with Return Value
4. With Argument and Return Value

```
#include<stdio.h>
int sum(int,int);
int main()
{
    printf("Sum=%d",sum(2,6));
    return 0;
}
int sum(int a,int b)
{
    return a+b;
}
```

Call by value :

```
#include<stdio.h>
void swap(int,int);
int main()
{
    int a=10,b=20;
    printf("Before : a = %d,b = %d\n",a,b);
    swap(a,b);
    return 0;
}
void swap(int a,int b)
{
    int temp;
    temp=a;
    a=b;
    b=temp;
    printf("After : a = %d,b = %d",a,b);
}
```

Output :

Before : a = 10,b = 20

After : a = 20,b = 10

Call by Reference :

```
#include<stdio.h>
void swap(int *,int *);
int main()
{
    int a=10,b=20;
    printf("Before : a = %d,b = %d\n",a,b);
    swap(&a,&b);
    return 0;
}
void swap(int *a,int *b)
{
    int temp;
    temp=*a;
    *a=*b;
    *b=temp;
    printf("After : a = %d,b = %d",*a,*b);
}
```

Output :

Before : a = 10,b = 20

After : a = 20,b = 10

Example of function :

```
#include<stdio.h>
void factorial(int n)
{
    int fact=1;
    for(int i=1;i<=n;i++)
    {
        fact=fact*i;
    }
    printf("The factorial of %d is %d.\n",n,fact);
}
int main()
{
    int a=4,b=5,c=7;
    factorial(a);
    factorial(b);
    factorial(c);
    return 0;
}
```

Output :

The factorial of 4 is 24.

The factorial of 5 is 120.

The factorial of 7 is 5040.



Thank You