

Functions in C

A function is a block of code that performs a specific task. C allows programmer to define functions according to their need. These functions are known as user-defined functions. The following simple example of function.

Syntax:

```
return_data_type function_name(data_type parameter, .....);
```

Function Example

```
#include
int add(int a, int b);
int main()
{
    int n1,n2,sum;
    printf("Enters two numbers: ");
    scanf("%d %d",&n1,&n2);
    sum = add(n1,n2);
    printf("sum = %d",sum);
    return 0;
}
int add(int a,int b)
{
    int r;
    r = a+b;
    return r;
}
```

There are four type of UDF

01 Function with no arguments and no return value

02 Function with no arguments and a return value

03 Function with arguments and no return value

04 Function with arguments and a return value

Example of all Types of UDF

Function with no arguments and no return value

```
#include
void area();
void main()
{
    area();
}
void area()
{
    float area_circle;
    float rad;
    printf("\nEnter the radius : ");
    scanf("%f",&rad);
    area_circle = 3.14 * rad * rad ;
}
```

```
    printf("Area of Circle = %f",area_circle);  
}
```

Function with no arguments and a return value

```
#include  
#include  
void main()  
{  
float sum;  
float total();  
clrscr();  
sum = total();  
printf(" Sum = %f\n" , sum);  
}  
float total()  
{  
float a, b;  
a = 5.0 ;  
b = 15.0 ;  
return(a+b);  
}
```

Function with arguments and no return value

```
#include  
#include  
void printline (char c);  
voidvalue (float, float, int);  
main( )  
{  
    float principal, inrate;  
    int period;  
  
    printf("Enter principal amount, interest");  
    printf(" rate, and period \n");  
    scanf("%f %f %d",&principal, &inrate, &period);  
    printline('Z');  
    value(principal,inrate,period);  
    printline('C');  
}  
  
void printline(char ch)  
{  
    int i ;  
    for(i=1; i <= 52; i++)  
        printf("%c",ch);  
    printf("\n");  
}  
voidvalue(float p, float r, int n)  
{  
    int year ;  
    float sum ;  
    sum = p ;  
    year = 1;  
    while(year <= n)  
    {  
        sum = sum * (1+r);  
        year = year +1;  
    }  
    printf("%f\t%f\t%d\t%f\n",p,r,n,sum);  
}
```

Function with arguments and a return value

```
#include
float calculate_area(int);
int main()
{
    int radius;
    float area;
    printf("\nEnter the radius of the circle : ");
    scanf("%d",&radius);
    area = calculate_area(radius);
    printf("\nArea of Circle : %f ",area);
    return(0);
}
float calculate_area(int radius)
{
    float areaOfCircle;
    areaOfCircle = 3.14 * radius * radius;
    return(areaOfCircle);
}
```