Present by Group 4

Week 10

FUNCTION

The team

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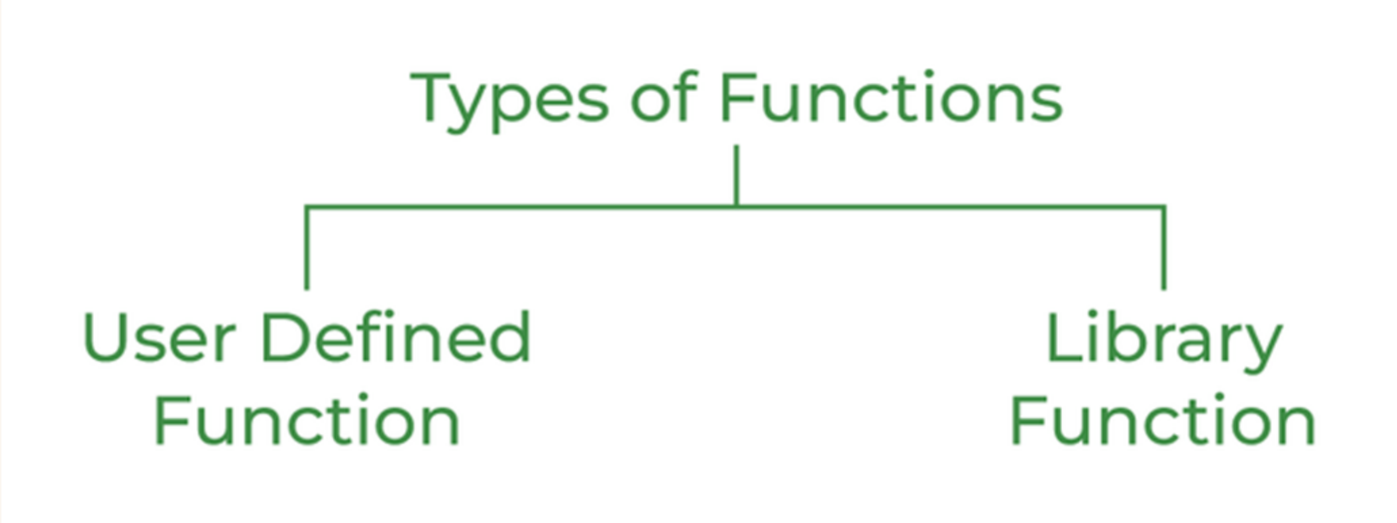
Content

Introduction

A Function is a self-contained block of program statements that performs particular tasks.



Note: This lesson, We only focus on user-defined function

Function Declaration

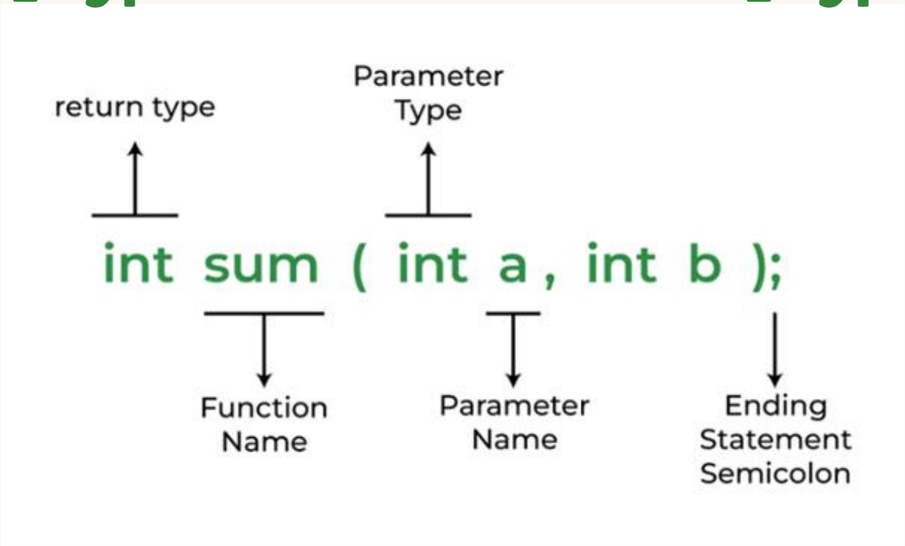
Syntax:

return_data_type function_name (data_type variable1, ...); or
return_data_type function_name (data_type_list);

**Note: If the function does not return a value, the return type is specified by the keyword void.

Syntax:

void function_name (data_type variable1, data_type variable2, ……);



Function Definition

Syntax:

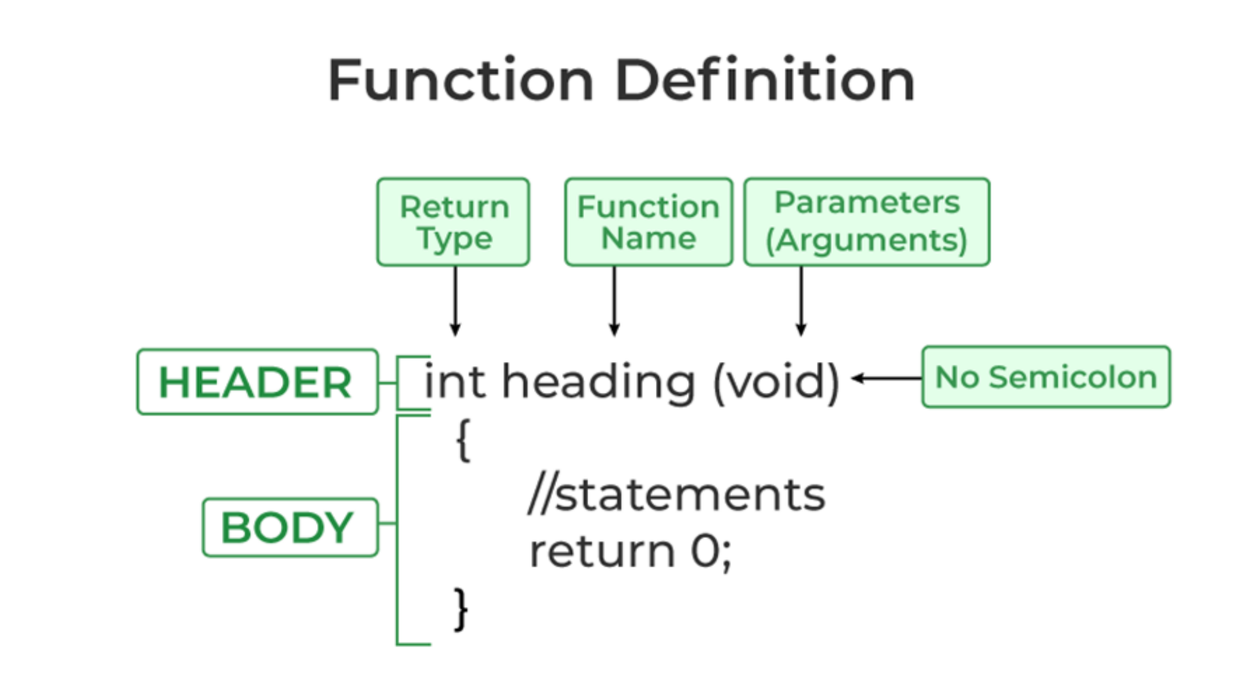
```
return_data_type function_name (data_type variable1, data_type variable2, ……) {
        /* Function Body */
        /* Return Statement */
 }
```

Syntax return statement:

```
return expression;  or
return (expression);
```

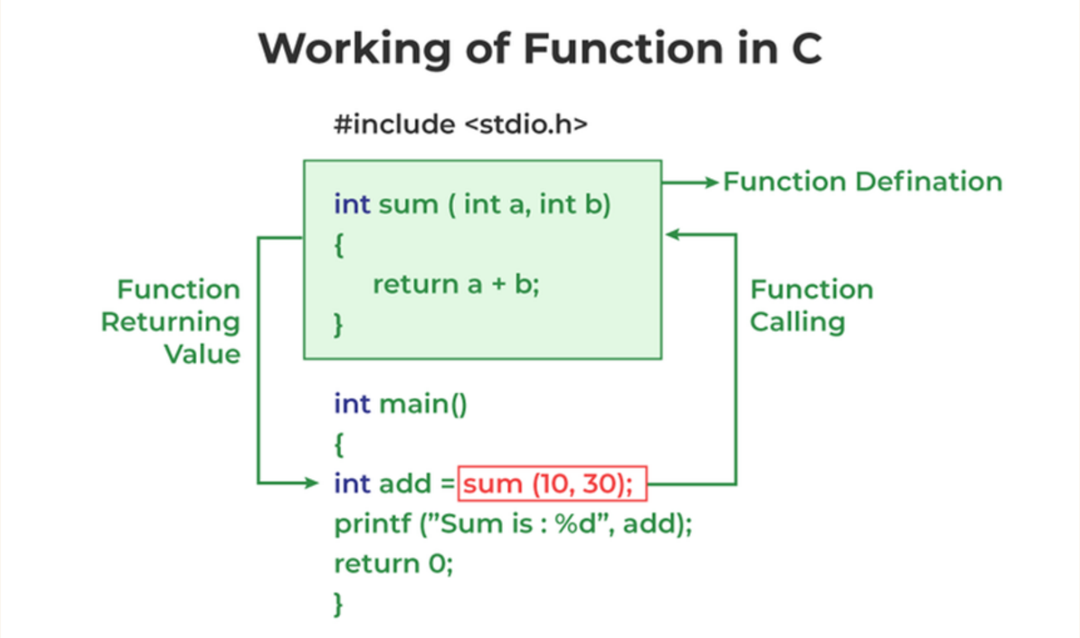
-Example

```
return x;
return (x + y);
```



Function Calling

Syntax:
function_name(variable1, variable2,...); or
variable_name = function_name(variable1, variable2,...);
**Note: If there are no arguments(variable) to be passed in the function, syntax will be :
function_name ( ); or
variable_name = function_name ( );



Type of user-defined Function

1. No arguments and no return values

Syntax:

```
void function_name () {
    /* Function Body */
}
```

```c
// C program to use function with
// no argument and no return values
#include <stdio.h>

void sum()
{
    int x, y;
    printf("Enter x and y\n");
    scanf("%d %d", &x, &y);
    printf("Sum of %d and %d is: %d", x, y, x + y);
}

// Driver code
int main()
{
    // function call
    sum();

    return 0;
}
```

Type of user-defined Function

2. No arguments and return values

Syntax:

```
return_data_typefunction_name () {
    /* Function Body */
    /* Return Statement */
}
```

```c
// C program to use function with
// no argument and with return values
#include <stdio.h>

int sum()
{
    int x, y, s = 0;
    printf("Enter x and y\n");

    scanf("%d %d", &x, &y);
    s = x + y;
    return s;
}

// Driver code
int main()
{
    // function call
    printf("Sum of x and y is %d", sum());
    return 0;
}
```

Type of user-defined Function

3. Arguments and no return values

Syntax:

```
void function_name (data_type variable1,
data_type variable2, ……) {
      /* Function Body */
 }
```

```c
// C program to use function with
// argument and no return values
#include <stdio.h>

void sum(int x, int y)
{
    printf("Sum of %d and %d is: %d", x, y, x + y);
}

// Driver code
int main()
{
    int x, y;
    printf("Enter x and y\n");

    scanf("%d %d", &x, &y);

    // function call
    sum(x, y);

    return 0;
}
```

Type of user-defined Function

4. Arguments and return values

Syntax:

```
Return_data_typefunction_name (data_type variable1,
data_type variable2, ……) {
 /* Function Body */
 /* Return Statement */
 }
```

```c
// C program to use function with
// argument and with return values
#include <stdio.h>

int sum(int x, int y) { return x + y; }

// Driver code
int main()
{
    int x, y;
    printf("Enter x and y\n");
    scanf("%d %d", &x, &y);

    // function call
    printf("Sum of %d and %d is: %d", x, y, sum(x, y));

    return 0;
}
```

Avantages

Advantage of user-defined function

1. The program will be easy to understand, maintain and debug.
2. Reusable codes that can be used in other programs.
3. A large program can be divided into small modules. Hence, a large project can be divided among many programmers.

References

- Dey,P., & Ghosh, M. (2013). Computer fundamentals and programming in C.
- Greek of Geeks
- Programiz

THANK YOU!