Chapter 6-
Functions

Function

- A function is a block of code that performs a specific task.
- Suppose, a program related to graphics needs to create a circle and color it depending upon the radius and color from the user. You can create two functions to solve this problem:
  - create a circle function
  - color function
- Dividing complex problem into small components makes program easy to understand and use.

Types of function

- Depending on whether a function is defined by the user or already included in C compilers, there are two types of functions in C programming

- There are two types of function in C programming:
  - Standard library functions
  - User defined functions

Standard library functions

- The standard library functions are built-in functions in C programming to handle tasks such as mathematical computations, I/O processing, string handling etc.

- These functions are defined in the header file. When you include the header file, these functions are available for use.

Standard library functions Example

- The printf() is a standard library function to send formatted output to the screen (display output on the screen). This function is defined in "stdio.h" header file.

- There are other numerous library functions defined under "stdio.h", such as scanf(), fprintf(), getchar() etc. Once you include "stdio.h" in your program, all these functions are available for use.

User-defined function

- As mentioned earlier, C allow programmers to define functions. Such functions created by the user are called user-defined functions.

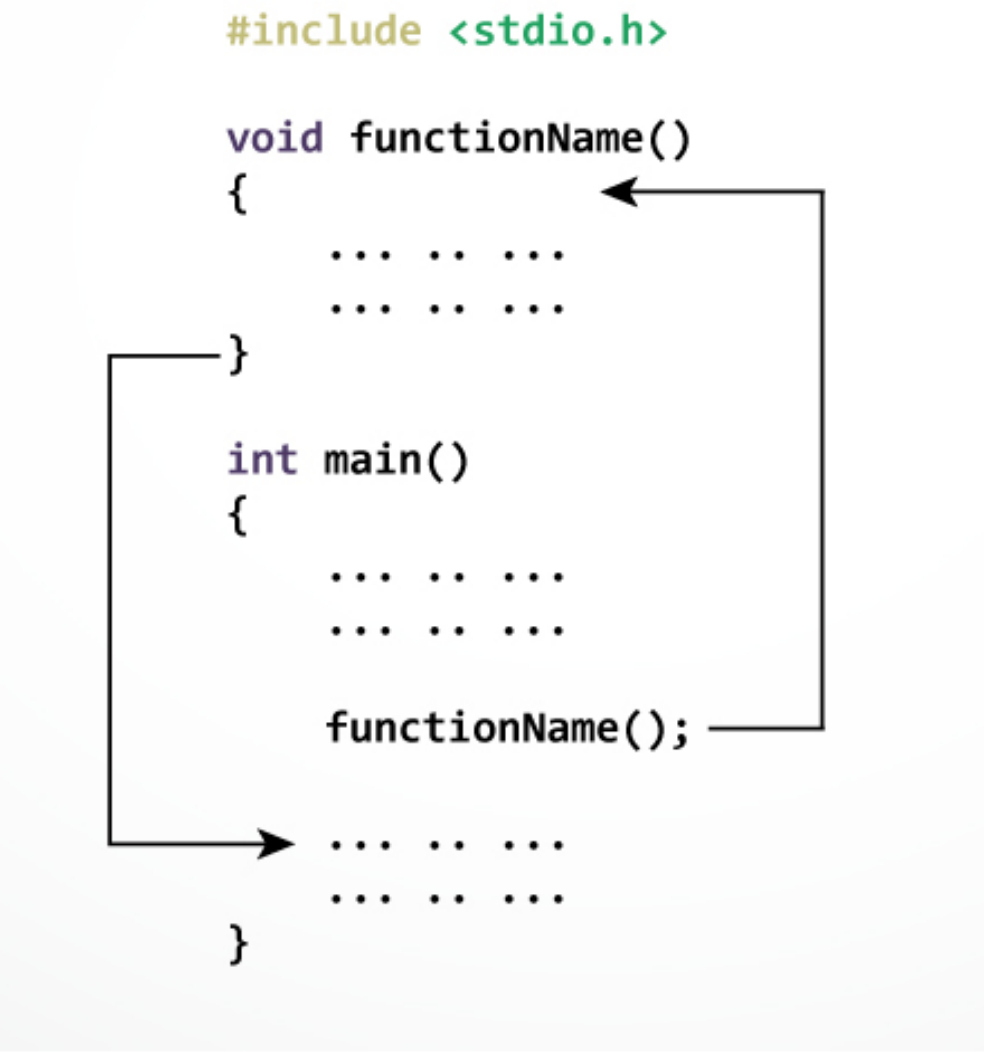
- You can create as many user-defined functions as you want.

user-defined function works

```
#include <stdio.h>
void functionName()
{
      ... .. ...
      ... .. ...
}

int main()
{
      ... .. ...
      ... .. ...

      functionName();

      ... .. ...
      ... .. ...
}
```

- The execution of a C program begins from the main() function.
- When the compiler encounters functionName(); inside the main function, control of the program jumps to
void functionName()
- And, the compiler starts executing the codes inside the user-defined function.
- The control of the program jumps to statement next to functionName(); once all the codes inside the function definition are executed.

user-defined function works



Advantages of user-defined function

- The program will be easier to understand, maintain and debug.
- Reusable codes that can be used in other programs
- A large program can be divided into smaller modules. Hence, a large project can be divided among many programmers.