

Difference Between getc and getchar

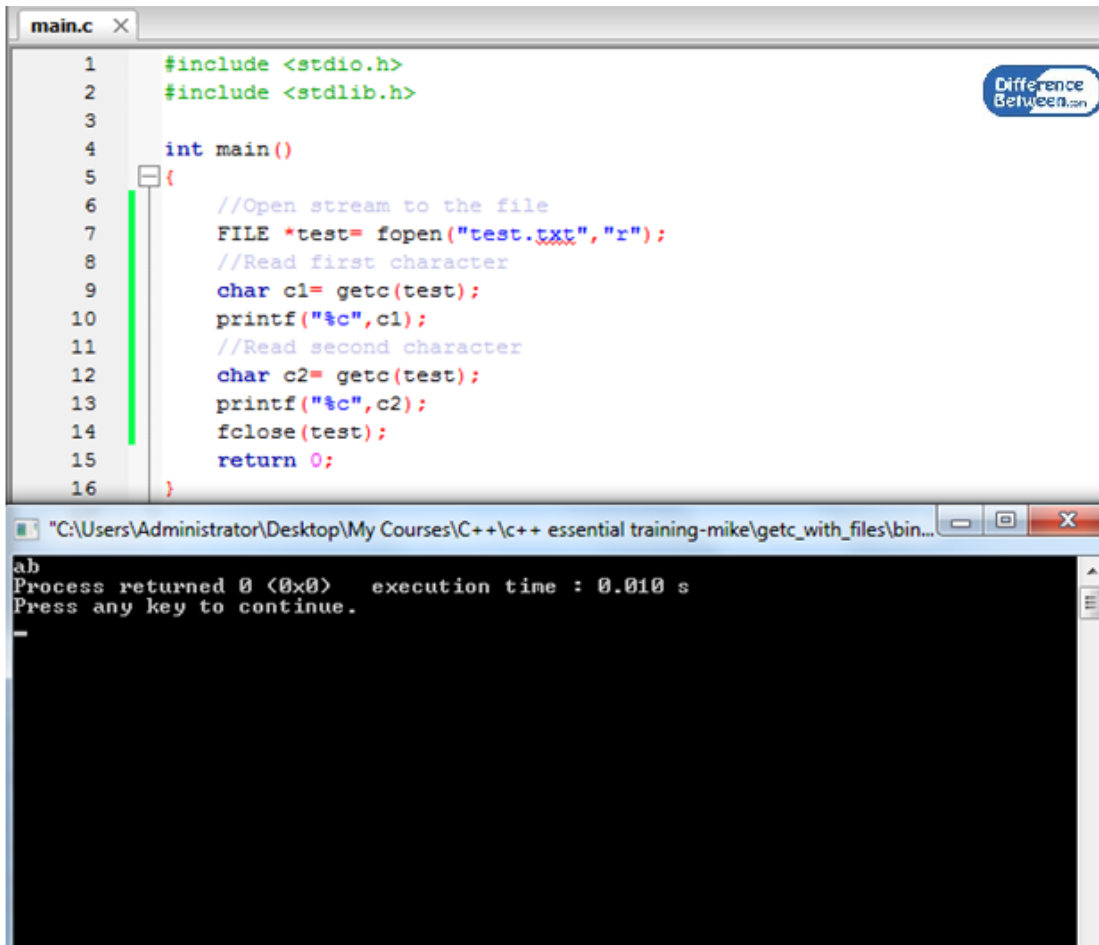
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Key Difference - getc vs getchar

A function is a set of statements to perform a specific task. In programming, the user can define his functions or use the functions provided by the [programming language](#). [C language](#) has number of functions, so the programmer can use them directly in coding without implementing them from the beginning. There are few functions which associate with character reading. Two of them are getc and getchar. The **key difference** between getc and getchar that, **getc is used to read a character from an input stream such as a [file](#) or standard input while getchar is to read a character from standard input**. This article discusses the difference between these two functions.

What is getc?

It is a function, used to read a character from an input stream such as a file or a [keyboard](#). It returns the corresponding integer value on success. The syntax of getc is, `int getc(File *stream)`. Refer below example. Assume that test.txt is a plain text file in the project directory. This file has two characters which are 'a' and 'b'.



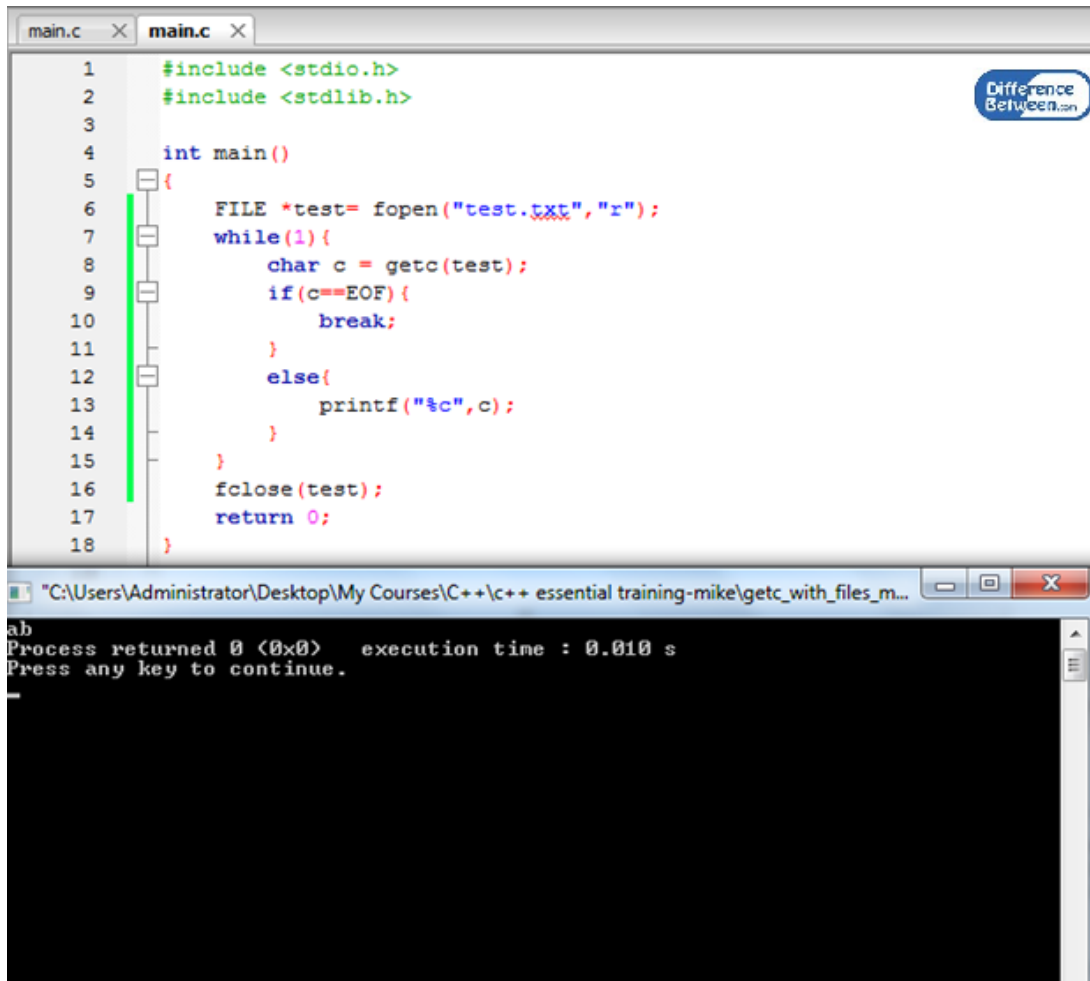
```
main.c X
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main()
5  {
6      //Open stream to the file
7      FILE *test= fopen("test.txt", "r");
8      //Read first character
9      char c1= getc(test);
10     printf("%c", c1);
11     //Read second character
12     char c2= getc(test);
13     printf("%c", c2);
14     fclose(test);
15     return 0;
16 }
```

"C:\Users\Administrator\Desktop\My Courses\C++\c++ essential training-mike\getc_with_files\bin..."

ab
Process returned 0 (0x0) execution time : 0.010 s
Press any key to continue.

Figure 01: Reading Characters of a File using getc

According to the above program, the test file is opened in the read mode. Then the first character is read using getc function and stores into variable c1. The printf statement output c1. The second character is read and stored in variable c2. The printf statement output c2. Therefore, getc function is used to read a character from a stream such as a file.



```
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main()
5  {
6      FILE *test= fopen("test.txt","r");
7      while(1){
8          char c = getc(test);
9          if(c==EOF){
10             break;
11         }
12         else{
13             printf("%c",c);
14         }
15     }
16     fclose(test);
17     return 0;
18 }
```

ab
Process returned 0 (0x0) execution time : 0.010 s
Press any key to continue.

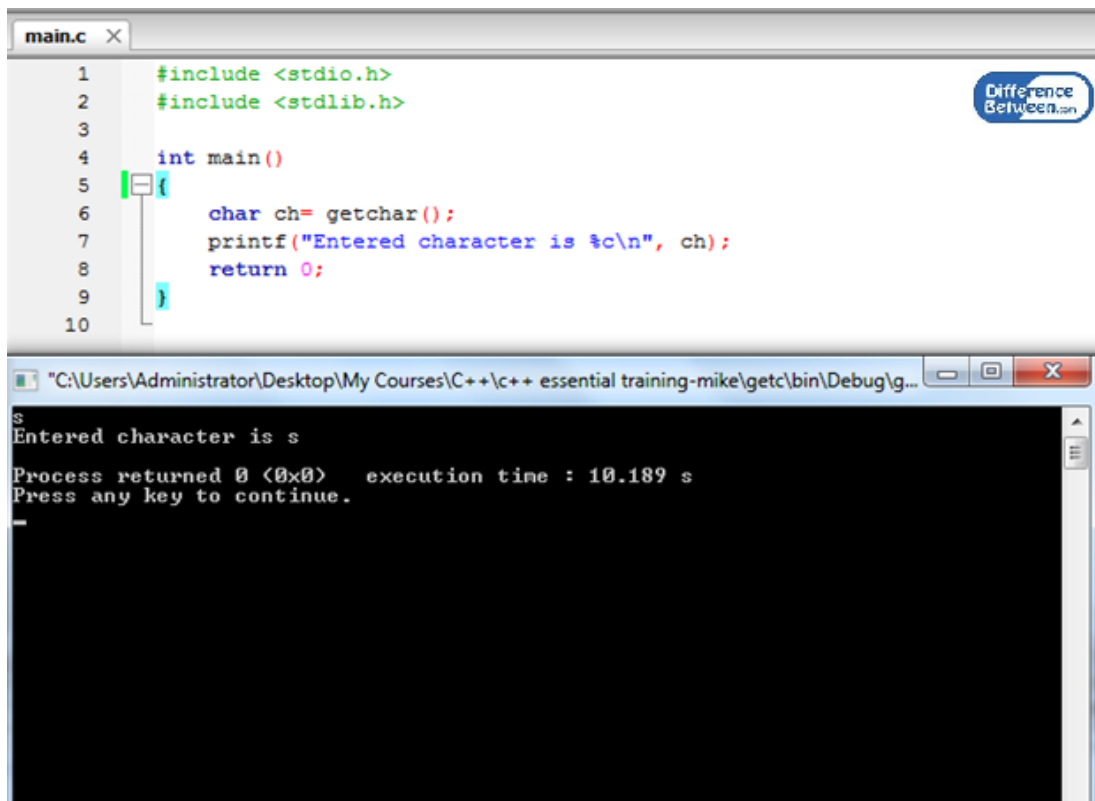
Figure 02: Reading Characters in a File Using getc and loop.

It can be used with a loop to read all characters, one at a time till it reaches the End of File (EOF) as above. The two characters in the test.txt file are displayed on the screen.

What is getchar()?

getchar() is used to read a character only from the standard input. It waits till the enter key is pressed and the reading can be seen on the screen. Its syntax is similar to `int getchar(void);`

The getchar function does not require an argument like getc. By default, getchar works for standard input. Therefore, it is not necessary to pass any argument to getchar function. Refer the below example.



The image shows a code editor window titled 'main.c' with the following C code:

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main()
5 {
6     char ch= getchar();
7     printf("Entered character is %c\n", ch);
8     return 0;
9 }
10
```

Below the code editor is a terminal window showing the execution output:

```
s
Entered character is s
Process returned 0 (0x0)   execution time : 10.189 s
Press any key to continue.
```

Figure 03: getchar

When the user gives the input character, it is displayed on the screen and waits till the enter key is pressed. After enter key, the output is printed on the screen because of the printf function.

The same getchar functionality can be achieved using getc function as follows.

The image shows a code editor window with two tabs labeled 'main.c'. The code is as follows:

```
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main()
5  {
6      char ch = getc(stdin);
7      printf("Entered character is %c\n",ch);
8      return 0;
9  }
10
```

Below the code editor is a console window titled "C:\Users\Administrator\Desktop\My Courses\C++\c++ essential training-mike\getc\bin\Debug\g...". The console output is:

```
a
Entered character is a
Process returned 0 (0x0)   execution time : 9.156 s
Press any key to continue.
```

Figure 04: getchar Functionality Using getc

According to the above program, the `getc` function is used to read a character. It is stored into “`ch`” variable. The `getc` function argues `stdin` to indicate that the input is taken from the standard input which is the keyboard. The user can give a character and press enter key. Then that character prints to the screen using `printf` function.

What are the Similarities Between `getc` and `getchar`?

- Both are functions provided by C programming language.
- Both functions return an End of File (EOF) when the stream ends.

What is the Difference Between `getc` and `getchar`?

getc vs getchar	
getc is a C function to read a character from an input stream such as a file stream or standard input.	getchar is a C function to read a character only from the standard input stream(<code>stdin</code>) which is the keyboard.

Syntax

getc syntax is similar to `int getc(File *stream)`.

getchar syntax is similar to `int getchar(void)`;

Summary - getc vs getchar

The C programming language provides many functions. Programmers can use these functions without implementing them from the beginning. Two of such functions are `getc` and `getchar`. The difference between `getc` and `getchar` is that `getc` is used to read a character from an input stream such as a file or standard input and `getchar` is to read a character from standard input. Both of them are using to read a character, but their functionalities are different.

Reference:

- 1.Ecworks, 'Difference between `gets()`,`getch()`,`getche()`,`getchar()`-c program tutorial',Youtube, 15 Nov. 2016. [Available here](#)
- 2.VTGAMES,'C Programming, File operation, Character Input (`fopen`, `fclose`, `getc`)',YouTube, 19 Mar. 2016. [Available here](#)
- 3.tutorialspoint.com. "C library function - `getc()`." [The Point](#), [Available here](#)

How to Cite this Article?

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