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C/C++

exec family of  
functions in C

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C Program to count the Number of

## exec family of functions in C

The exec family of functions replaces the current running process with a new process. It can be used to run a C program by using another C program. It comes under the header file **unistd.h**. There are many members in the exec family which are shown below with examples.

**execvp** : Using this command, the created child process does not have to run the same program as the parent process does. The **exec** type system calls allow a process to run any program files, which include a binary executable or a shell script . **Syntax:**

```
int execvp (const char *file, char *const argv[]);
```

**file:** points to the file name associated with the file being executed.

**argv:** is a null terminated array of character pointers.

Let us see a small example to show how to use execvp() function in C. We will have two .C files , **EXEC.c** and **execDemo.c** and we will replace the execDemo.c with EXEC.c by calling execvp() function in execDemo.c .

```
//EXEC.c

#include<stdio.h>
#include<unistd.h>

int main()
{
    int i;

    printf("I am EXEC.c called by execvp() ");
    printf("\n");

    return 0;
}
```

Now,create an executable file of EXEC.c using command

```
gcc EXEC.c -o EXEC
```

```
//execDemo.c
```

```
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
```

Characters in  
a File



Now, create an executable file of execDemo.c using command

time.h header  
file in C with  
Examples

```
gcc execDemo.c -o execDemo
```

After running the executable file of execDemo.c by using command

scanf("%[^\n]s",  
str) Vs

gets(str) in C  
with Examples

```
I AM EXEC.c called by execvp()
```

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Programming

When the file execDemo.c is compiled, as soon as the statement  
execvp(args[0],args) is executed, this very program is replaced by the program  
EXEC.c. "Ending--" is not printed because as soon as the execvp()  
function is called, this program is replaced by the program EXEC.c.

**execv** : This is very similar to execvp() function in terms of syntax as well. The  
syntax of **execv()** is as shown below:**Syntax:**

Constants vs  
Variables in C  
language

```
int execv(const char *path, char *const argv[]);
```

**path**: should point to the path of the file being executed.

**argv[]**: is a null terminated array of character pointers.

Analyzing  
BufferOverflow  
with GDB

Let us see a small example to show how to use execv() function in C. This  
example is similar to the example shown above for execvp() . We will have two  
.C files , **EXEC.c** and **execDemo.c** and we will replace the execDemo.c with  
EXEC.c by calling execv() function in execDemo.c .

C program to  
Insert an  
element in an  
Array

```
//EXEC.c
```

Types of  
Literals in  
C/C++ with  
Examples

```
#include<stdio.h>  
#include<unistd.h>
```

```
int main()  
{  
    int i;
```

Conditional or  
Ternary  
Operator (?:)  
in C/C++

```
printf("I am EXEC.c called by execv() ");  
printf("\n");  
return 0;  
}
```

Difference  
between C  
and C#

Now,create an executable file of EXEC.c using command

```
gcc EXEC.c -o EXEC
```

time.h  
localtime()  
function in C  
with Examples



asctime() and  
asctime\_s()  
functions in C  
with Examples



return  
statement in  
C/C++ with  
Examples

Now, create an executable file of execDemo.c using command

```
gcc execDemo.c -o execDemo
```

After running the executable file of execDemo.c by using command  
./excDemo, we get the following output:

```
I AM EXEC.c called by execv()
```

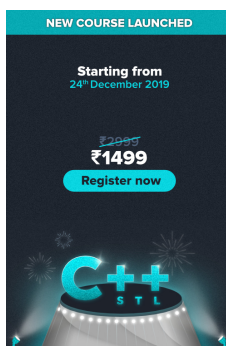
size of char  
datatype and  
char array in C

**execlp and execl** : These two also serve the same purpose but the syntax of them are a bit different which is as shown below:**Syntax:**

```
int execlp(const char *file, const char *arg,.../* (char *) NULL  
int execl(const char *path, const char *arg,.../* (char *) NULL *
```

**file**: file name associated with the file being executed

**const char \*arg and ellipses** : describe a list of one or more pointers to null-terminated strings that represent the argument list available to the executed program.



The same C programs shown above can be executed with execlp() or execl() functions and they will perform the same task i.e. replacing the current process the with a new process.

- **execvp and execle** : These two also serve the same purpose but the syntax of them are a bit different from all the above members of exec family. The syntaxes of both of them are shown below :

**Syntax:**

```
int execvp(const char *file, char *const argv[],char *const envp[]);
```

**Syntax:**

```
int execl(const char *path, const char *arg, .../*, (char *) NULL,  
char * const envp[] */);
```

The syntaxes above shown has one different argument from all the above exec members, i.e.

**char \* const envp[]**: allow the caller to specify the environment of the executed program via the argument envp.

**envp**: This argument is an array of pointers to null-terminated strings and must be terminated by a null pointer. The other functions take the environment for the new process image from the external variable environ in the calling process.

**Reference:** [exec\(3\) man page](#)

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