

LAB06

SPOT EXERCISE

P.PRIYADHARSHINI

2019103562

22-03-2021

1.CLOINED AND FORKED PROCESS-DIFFERENCE:

OUTPUT:

```
[s2019103562@centos8-linux Mon Mar 22 12:05 PM lab06]$ vim clone3.c
[s2019103562@centos8-linux Mon Mar 22 12:06 PM lab06]$ gcc clone3.c -o clone3
[s2019103562@centos8-linux Mon Mar 22 12:06 PM lab06]$ ./clone3 5
Using clone()
Child Process:2666673
This part of code is running under child process
5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50
INFO:Child process has been terminated
Using fork()
Parent process:2666673
Child process:2666675
[s2019103562@centos8-linux Mon Mar 22 12:06 PM lab06]$ cat clone3.c
```

CODE:

```
#define _GNU_SOURCE
#include<sched.h>
#include<stdio.h>
#include<unistd.h>
#include<stdlib.h>
#include<signal.h>
#include<sys/wait.h>
int fn(void* arg){
    int i;
    printf("This part of code is running under child process\n");
    int n=atoi(arg);
    for(i=1;i<=10;i++){
        printf("%d * %d = %d\n",n,i,(n*i));
    }
    return 0;
}

int main(int argc,char* argv[]){
    void* child_stack=malloc(1024 * 1024);
    if(child_stack == NULL){
        printf("Unable to allocate memory. Malloc failed\n");
        exit(0);
    }

    printf("Using clone()\n");
    int pid=clone(fn,child_stack+(1024*1024),SIGCHLD,argv[1]);
    if(pid<0){
        printf("Error in clone process\n");
        exit(0);
    }
    printf("Child Process:%d\n",getpid());
    wait(NULL);
    free(child_stack);
    printf("INFO:Child process has been terminated\n");
    printf("Using fork()\n");
    if(fork()==0)
        printf("Child process:%d\n",getpid());
    else
        printf("Parent process:%d\n",getpid());
    return 0;
}
```

2.a. PARENT-DISPLAYS DATE, CHILD- DISPLAYS THE PROGRAMS IN CURRENT WORKING DIRECTORY:

OUTPUT:

```
[s2019103562@centos8-linux Mon Mar 22 12:25 PM lab06]$ vim execvp2.c
[s2019103562@centos8-linux Mon Mar 22 12:27 PM lab06]$ gcc execvp2.c -o execvp2
[s2019103562@centos8-linux Mon Mar 22 12:27 PM lab06]$ ./execvp2
Parent process PID:2710571
Today's date is 22-3-2021
Child Pid:2710572
[s2019103562@centos8-linux Mon Mar 22 12:27 PM lab06]$ total 348K
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 09:34 clone
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 12:06 clone3
-rw-r--r-- 1 s2019103562 rusa1s 908 Mar 22 12:06 clone3.c
-rw-r--r-- 1 s2019103562 rusa1s 478 Mar 22 09:34 clone.c
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 10:18 execl
-rw-r--r-- 1 s2019103562 rusa1s 162 Mar 22 10:37 execl.c
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 10:37 execl_e
-rw-r--r-- 1 s2019103562 rusa1s 352 Mar 22 10:37 execl_e.c
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 10:16 execlp
-rw-r--r-- 1 s2019103562 rusa1s 158 Mar 22 10:16 execlp.c
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 10:13 execv
-rw-r--r-- 1 s2019103562 rusa1s 205 Mar 22 10:13 execv.c
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 10:34 execve
-rw-r--r-- 1 s2019103562 rusa1s 282 Mar 22 10:34 execve.c
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 10:11 execvp
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 12:27 execvp2
-rw-r--r-- 1 s2019103562 rusa1s 537 Mar 22 12:27 execvp2.c
-rw-r--r-- 1 s2019103562 rusa1s 135 Mar 22 10:11 execvp.c
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 09:52 exit
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 09:56 exit2
-rw-r--r-- 1 s2019103562 rusa1s 313 Mar 22 09:56 exit2.c
-rw-r--r-- 1 s2019103562 rusa1s 162 Mar 22 09:52 exit.c
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 09:12 fork
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 09:18 fork2
-rw-r--r-- 1 s2019103562 rusa1s 214 Mar 22 09:18 fork2.c
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 09:25 fork3
-rw-r--r-- 1 s2019103562 rusa1s 473 Mar 22 09:24 fork3.c
-rw-r--r-- 1 s2019103562 rusa1s 270 Mar 22 09:12 fork.c
-rw-r--r-- 1 s2019103562 rusa1s 6 Mar 22 11:23 sample.txt
drwxr-xr-x 2 s2019103562 rusa1s 52 Mar 22 10:51 subd
-rw-r--r-- 1 s2019103562 rusa1s 4 Mar 22 11:23 text.txt
```

```

-rw-r--r-- 1 s2019103562 rusa1s 4 Mar 22 11:23 text.txt
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 09:59 wait
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 10:03 wait2
-rw-r--r-- 1 s2019103562 rusa1s 326 Mar 22 10:03 wait2.c
-rwxr-xr-x 1 s2019103562 rusa1s 13K Mar 22 10:07 wait3
-rw-r--r-- 1 s2019103562 rusa1s 390 Mar 22 10:07 wait3.c
-rw-r--r-- 1 s2019103562 rusa1s 235 Mar 22 09:59 wait.c
cat execvp2.c
#include<unistd.h>
#include<stdlib.h>
#include<stdio.h>
#include<time.h>
int child(){
    char* program="ls";
    char* args[]={program,"-lh","./",NULL};
    execvp(program,args);
    return 0;
}
int parent(){
    time_t t=time(NULL);
    struct tm tm=*localtime(&t);
    printf("Today's date is %d-%d-%d\n",tm.tm_mday,tm.tm_mon+1,tm.tm_year+1900);
    return 0;
}
int main(){
    // pid_t pid=fork();
    if(fork()==0){
        printf("Child Pid:%d\n",getpid());
        child();
        exit(0);
    }
    else{
        printf("Parent process PID:%d\n",getpid());
        parent();
    }
    return 0;
}

```

[s2019103562@centos8-linux Mon Mar 22 12:28 PM lab06]\$