**Processing Environment**

**Subject - Unix Operating System**

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**Assignment No – 1a**

**Title-** Write the application program to open applications of Linux by creating new process using fork system call. Comment on hoe various application’s/command’s process get created in Linux.

**Objectives-**

1. To learn about Processing Environment.
2. To know the difference between fork/vfork and various execs variations.
3. Use of system call to write effective programs.

**Theory:**

A new process is created because an existing process makes an exact copy of itself. This child process has the same environment as its parent, only the process ID number is different. This procedure is called forking**.**

After the forking process, the address space of the child process is overwritten with the new process data. This is done through an exec call to the system.

The fork-and-exec mechanism thus switches an old command with a new, while the environment in which the new program is executed remains the same, including configuration of input and output devices, environment variables and priority. This mechanism is used to create all UNIX processes, so it also applies to the Linux operating system.

**Program:**

#include<stdio.h>

#include<unistd.h>

int main(){

printf("Beginning\n");

int counter = 0;

int pid = fork();

if(pid==0)

{

for(int i=0;i<5;i++)

{

printf("Child process = %d\n",++counter);

}

printf("Child Ended\n");

}

else if(pid>0)

{

for(int i=0;i<5;i++)

{

printf("Parent process = %d\n",++counter);

}

printf("Parent Ended\n");

}

else

{

printf("fork() failed\n");

return 1;

}

return 0;

}

**Output:**

rachit@rachit:~/Desktop/UOS$ gedit fork.c

rachit@rachit:~/Desktop /UOS$ gcc fork.c

rachit@rachit:~/Desktop /UOS$ ./a.out

Beginning

Parent process = 1

Parent process = 2

Parent process = 3

Parent process = 4

Parent process = 5

Parent Ended

Child process = 1

Child process = 2

Child process = 3

Child process = 4

Child process = 5

Child Ended

**Conclusion:**

* Fork system call can be used to create processes from a running process.
* These processes can be made to execute different application programs using various

exec statements.