Name of Student			
Lab Experiment No.	3.1	**Roll No.**	
Date Of Perf.:		**Date Of Sub.:**	
Expt. Title	To study process management in OS (System calls and Unix commands)		
CO Mapping	LO1,LO2,LO5		

Aim: To study process management in OS using system calls.

Objectives of the Experiment:

To study system calls fork, getpid, getppid, wait, sleep...

Theory:

1. **System Call : int fork()**

System call **fork()** is used to create processes. It takes no arguments and returns a process ID. The purpose of **fork()** is to create a ***new*** process, which becomes the *child* process of the caller. After a new child process is created, ***both*** processes will execute the next instruction following the ***fork()*** system call.

- If **fork()** returns a negative value, the creation of a child process was unsuccessful.
- **fork()** returns a zero to the newly created child process.
- **fork()** returns a positive value, the ***process ID*** of the child process, to the parent. The returned process ID is of type **pid_t** defined in **sys/types.h**. Normally, the process ID is an integer. Moreover, a process can use function **getpid()** to retrieve the process ID assigned to this process.

2. **System Call: int getpid(), int getppid()**

getpid() and getppid() return a process's id and parent process's id numbers, respectively.

3. **System Call: int exit(int status)**

exit() closes all of a process's file descriptors, deallocates its code, data, and stack, and then terminates the process.

4. **System Call: int wait(int* status)**

wait() causes a process to suspend until one of its children terminates. A successful call to wait() returns the pid of the child that terminated and places a status code into status

Terminology:

1. **Orphan Processes**

If a parent dies before its child, the child is automatically adopted by the original "init" process, PID 1.

2. Zombie processes

When a child process terminates, it sends its parent a SIGCHLD signal and waits for its termination code status to be accepted. A process that is waiting for its parent to accept its return code is called a zombie process.

1. Command to check status of current processes with examples and output
2. A parent process will create a child process.
3. The parent process should wait for child to complete executing and then exit the program.
4. Create orphan process
5. Create Zombie process

Post Lab Assignment:

Explore following commands with examples

- fg ,bg, stop, jobs, at
- batch, nohup,nice, kill

Evaluation:

Timeline (2)	Understanding(2)	Performance (4)	Postlab (2)	Total(10)

Date & Signature of teacher: **Students Signature:**