OS and Network Lab Assignment-7

Objective: Demonstration of fork system call

(Note: Write only the objective on the index page of the lab file.)

Q.1) Write a C program that:

- Creates one child process using fork().
- Prints messages from both the parent and child.
- Displays their respective process IDs (PID) and parent PIDs (PPID).

Q.2) Write a program that calls fork() thrice and count how many processes are created in total.

Q.3) Modify the above program to print the PID and PPID after each fork() to visualise the process hierarchy.

Q.4) Write a C program that:

- Creates a child process.
- The child prints numbers from 1 to 5.
- The parent waits for the child to finish using wait(), then prints its own message.

Q.5) Create a program where:

- The child executes a new program using execlp() (for example, run the ls command).
- The parent prints a message saying "Child executed ls command".

Q.6) Write a program where:

- The parent terminates before the child.
- The child sleeps for a few seconds, then prints its PPID (which should now be 1, the init process).

Q.7) Write a program where:

- The child terminates immediately.
- The parent sleeps for a few seconds before calling wait().
- Observe the zombie state using ps -l during sleep.

Q.8) Write a program to create a child process. The parent process passes two integer numbers as arguments to the child process. The child process add the numbers and prints the result.