Operating Systems
Assignment 2

SUBMITTED BY : **ANANYA KANSAL**
ROLL NO : **2019458**

Q1. Difference between fork() and pthread_create() programs:

- While using fork() we observe that the child process, decreases the value of the global variable "a" linearly to **-90 from 10** and that the parent process increases the value of the global variable to 100 but the variable is initialised with the value **10 only and not -90** which implies that both the parent and child processes were accessing their own copies of the variable without data sharing.
- While on the other hand, in the second program where we used threads the parent thread increments the value of the variable linearly **from -90 to 90** because the value of the global variable is updated to -90 from 10 by the thread created in the program. This implies that the parent thread and the child thread were accessing the same global variable "a".
- In fork(), when a child process is created it has its own address space and memory.
- The child process has a separate process id and executes independently from its parent.
- Hence the variable had its own copy for the child process and the two operations on the variable were separate resulting in 2 different outputs.
- On the other hand, threads do not initialize a new system virtual memory space and environment for the process.
- All threads within a process share the same address space. Hence the variable being operated on is the same for the parent thread as well as the child thread.
- Threads in a process share the process instructions, most data, user and group id.