**7. What is the difference between exec and fork ?**

fork() is used to create a new process (child process) that is an exact copy of the calling process (parent process). After a successful fork(), two processes are created: the parent process and the child process. These processes have different process IDs (PIDs) but share the same memory space. The child process inherits copies of the parent process's memory, file descriptors, and other resources.

exec() is used to replace the current process's memory space with a new program. It loads a new program into the current process's address space and starts its execution from the program's entry point. Unlike fork(), which creates a new process, exec() does not create a new process. Instead, it replaces the current process's memory and state with that of the new program.