

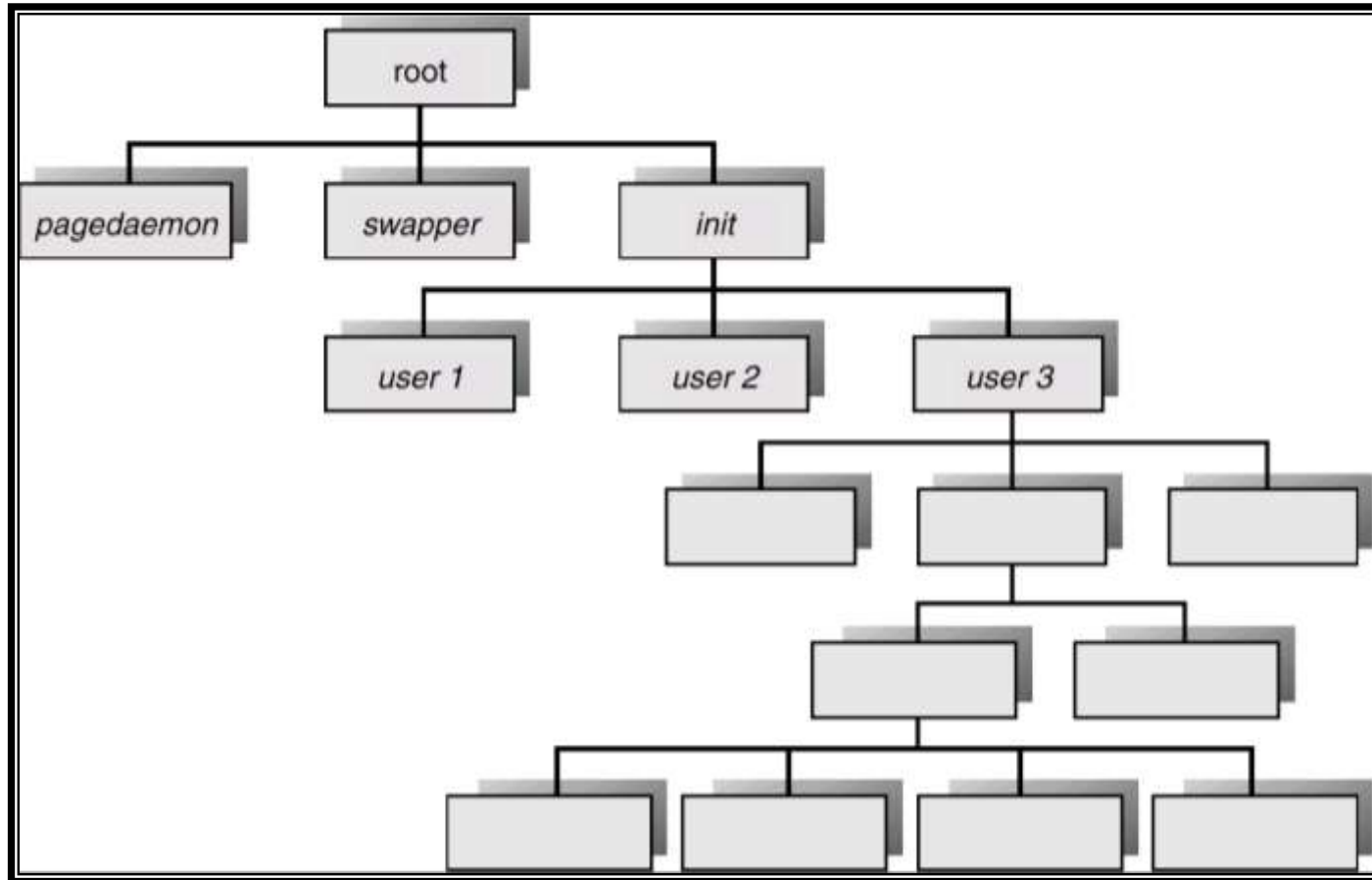
Process Creation

- Parent process create children processes, which, in turn create other processes, forming a tree of processes.
- Resource sharing
 - Parent and children share all resources.
 - Children share subset of parent's resources.
- Execution
 - Parent and children execute concurrently.
 - Parent waits until children terminate.

Process Creation (Cont.)

- Address space
 - Child duplicate of parent.
 - Child has a program loaded into it.
- UNIX examples
 - **fork** system call creates new process
 - **exec** system call used after a **fork** to replace the process' memory space with a new program.

Processes Tree on a UNIX System



Process Termination

- Process executes last statement and asks the operating system to decide it (**exit**).
 - Output data from child to parent (via **wait**).
 - Process' resources are deallocated by operating system.
- Parent may terminate execution of children processes (**abort**).
 - Child has exceeded allocated resources.
 - Task assigned to child is no longer required.
 - Parent is exiting.
 - Operating system does not allow child to continue if its parent terminates.
 - Cascading termination.