Process creation

1) parent-child Relationship

* A process creates another process → parent process & child process

* ~~Ivi kattisi process tree ni form-ches~~

* A new process is created by another process
* The original process = Parent process
* The new process = child process
* All processes together form a process tree.

2) process Identifier (PID):-

* Every process has a unique PID.
* The os, uses the PID to manage scheduling, resources and termination.

3) Resource sharing options

Parent and child can share resource in differnt ways.

1) share all resources
2) share only a part of the parent's resources
3) share no resources (completely independent)

ex :- Memory, files, cpu time.

4) Execution options :-

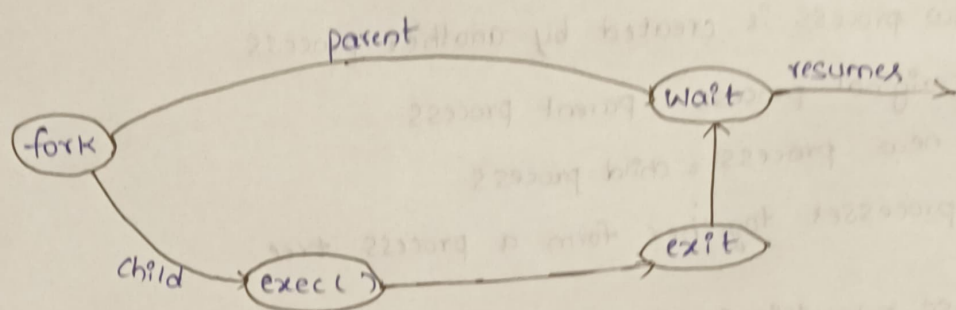* Parent and child run at the same time (concurrently)
* parent waits until the child finishes.

5) Address space handling :-

* child may receive a copy of the parent's address space.

6) Important System calls :-

* **fork( )** → creates a child process

* **exec( )** → child runs a new program

* **wait( )** → parent waits for the child to finish.

process termination :-

* when the child finishes, it returns an exit status to the parent.

* IF a parent ends before its child, the remaining child becomes an orphan process.

* The parent process may wait for termination of a child process by using the wait( ) system call, the call returns status information and the pid of the terminated process.

$$pid = wait(\&status);$$

* IF no parent waiting (did not invoke wait( )) Process is a zombie.

* IF parent terminated without invoking wait, process an orphan.