

# 1 Process API

## Vocabulary

### 1. Process Identifier (PID)

- Is an unique identifier for an active process

### 2. CPU Scheduler

- Is a policy which determines which process to run at a given point in time

### 3. Concurrency

- Is the ability of a program to run out of order without affecting the final outcome

### 4. Deterministic Execution

- Means path of execution is fully determined by the specification of computation
- Is guaranteed to produce the same outcome, given the same input

### 5. Non-determinism

- Means path of execution isn't fully determined by the specification of computation
- Same input can produce different outcomes

### 6. Multi-threaded Programs

### 7. Signal

- 

## 1.1 fork() System Call

- Creates a new process
- Is an almost exact copy of the calling process
- **Parent** is the creator
  - Runs from `main()` (beginning of program)
- **Child** is the newly created process
  - Runs from `fork()` (where `fork()` occurs)

## 1.2 wait() System Call

- Forces parent to wait for a child process to finish its process

### 1.3 `exec()` System Call

- Does not create a new process
- Transforms currently running program into a different running program
- Current running program is overwritten
- Code segment, heap, and stack are re-initialized

#### Example

```
(pid: 123) p3.c — exec() —> (pid: 123) ls -al
```