Process Concepts

1. Model
   - Process: a program in execution
     - Independent, executing entity
     - State: program counter, registers, memory, files, devices
   - Process state diagram
     - Ready, Running, Blocked
     - State transitions (events)

2. Representation
   - PCB (Process Control Block)
     - Process identification
     - State information
     - Control information

3. Implementation
   - Process table: PCBs
   - Process image: text, data, stack

4. Management (Operations)
   - Creation
     - `fork()` creates copy of parent process in separate memory space
   - Execution
     - `exec()` overlays text/data area with new program and executes it
   - Blocking
     - `wait()` waits for child process to terminate
   - Termination
     - `exit()` deallocates resources and returns to `wait()` in parent