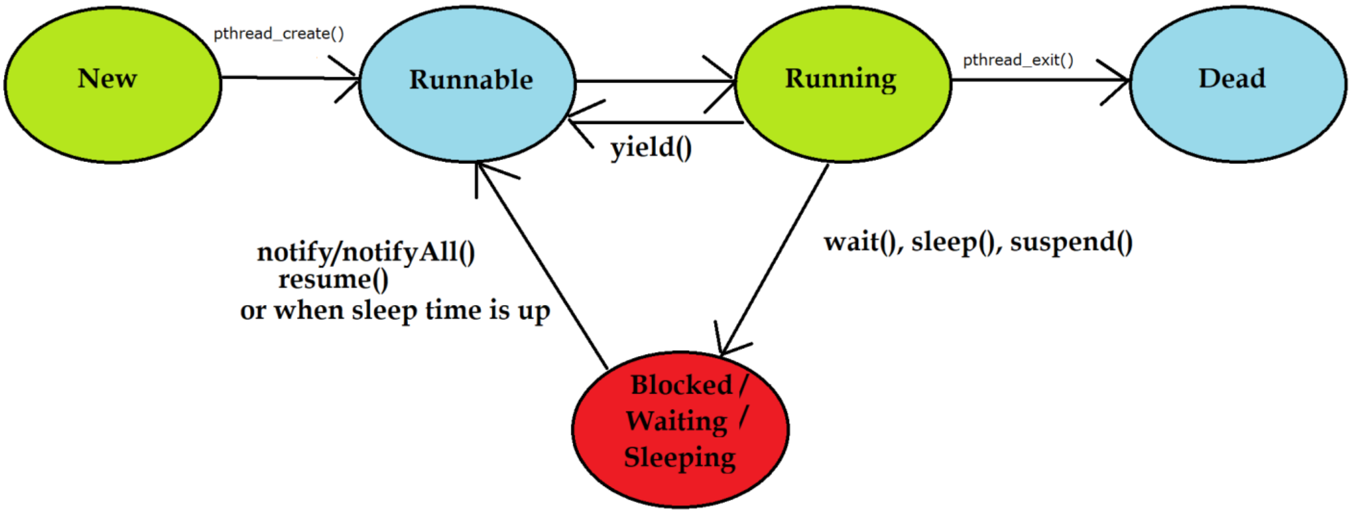
4. INTER PROCEESS COMMUNICATION

1.1. Process Life Cycle in Linux:

1.2. Thread Life Cycle in Linux:

The thread life cycle in Linux describes the sequence of states a thread passes through from creation to termination.Threads are created using the clone() system call, usually via pthread_create().

1. **Thread Creation:** A new thread is created using pthread_create().
2. **Thread Execution:** The thread starts executing and runs until it completes or is interrupted.
3. **Thread Sleep:** The thread can sleep or wait for a resource using pthread_cond_wait() or sleep().
4. **Thread Wake-up:** The thread is woken up by a signal or when the resource becomes available.
5. **Thread Termination:** The thread completes execution or is terminated using pthread_exit().



1. New State

- ✓ A thread is in the **New** state when it is **created but not yet scheduled** for execution.
- ✓ Memory and thread control structures are allocated.
- ✓ The thread **has not started executing** its run function.

Transition

- pthread_create()

  → Moves the thread from **New** → **Runnable**

2. Runnable (Ready) State