

* Reader - Writer Problem and its Solution

Reader = Processes only read.

Writer = Processes that Write.

• Issue

- Multiple readers can safely read the data simultaneously.

- But a writer must have exclusive access (no reader or other writer allowed during that time).

• Goals of Solutions

- ① Mutual Exclusion for Writers,
- ② Allow concurrency (multiple readers can read).
- ③ NO starvation (Everyone should get a turn).

• Solutions

① First Reader - Writers Problem (Reader Priority)

- ⇒ • If a reader is reading, more readers can join immediately.
- Writers may starve if readers keep coming.

② Second Reader - Writers Problem (Writer Priority)

- ⇒ • Once a writer is ready, it will write as soon as possible.
- Readers may starve if writers keep coming.

③ Third Reader - Writers Problem (Fair Solution)

- ⇒ • Prevent starvation by giving fair chance to both readers and writers by using queue.