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STARVE FREE READERS-WRITERS PROBLEM

In all threads some threads will try to read, and some will try to write. But we know that no thread can either read or write while another thread is reading or writing to it. So, to solve this problem, there are three types of solutions: -

1. First Readers-Writers Problem
2. Second Readers-Writers Problem
3. Third Readers-Writers Problem

FIRST READERS-WRITERS PROBLEM: -

It requires that no reader be kept waiting unless a writer has already obtained permission to use the shared object. In this problem first reader will lock the resource for reading. As the resource is locked now the writer cannot access it and hence can't modify while other files are reading it. Once the first reader is in entry it will lock the resource. The reader to finish last the resource must handover it to the writers. Hence it results into starvation of writers.

SECOND READERS-WRITERS PROBLEM: -

It requires no writer, once added to the queue, shall be kept waiting longer than absolutely necessary. This is also called **writers-preference**. This results in readers waiting and ultimately may lead to readers starving. In this problem we force every reader to lock and release the readtry semaphore individually. Only the first writers will lock the readtry and then all subsequent writers can simply use the resource as it gets freed by the previous writer. The very last writer must release the readtry semaphore. This makes readers to try reading. If there no writers as indicated by the status of the readtry semaphore, then readers will not lock the resource. This allows a writer to immediately take control over the resource as soon as the current reader is finished reading. If else the writer would need to wait for the queue of readers to be done before the last one unlock the readtry semaphore. As soon as a writer shows up it will try to set the readtry semaphore and hang up there waiting for the current reader to release the readtry. It will then take control over the resource as

soon as the current reader is done reading and lock all future readers out. This causes the readers to starve.

STARVE-FREE READERS-WRITERS PROBLEM: -

This is explained in the other document and also code to this is also provided in the same other document.