2.5 Lecture Summary

2.5 Read-Write Isolation

Lecture Summary: In this lecture we discussed *Read-Write Isolation*, which is a refinement of object-based isolation, and is a higher-level abstraction of the *read-write locks* studied earlier as part of Unstructured Locks. The main idea behind read-write isolation is to separate read accesses to shared objects from write accesses. This approach enables two threads that only read shared objects to freely execute in parallel since they are not modifying any shared objects. The need for mutual exclusion only arises when one or more threads attempt to enter an isolated section with write access to a shared object.

This approach exposes more concurrency than object-based isolation since it allows read accesses to be executed in parallel. In the doubly-linked list example from our lecture, when deleting an object *cur* from the list by calling *delete(cur)*, we can replace object-based isolation on *cur* with read-only isolation, since deleting an object does not modify the object being deleted; only the previous and next objects in the list need to be modified.

Optional Reading:

1. Wikipedia article on Readers-writer lock

Mark as completed