

# CSCI 251: Concepts of Parallel and Distributed Systems

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## Optimistic Concurrency Control

There are three phases for optimistic concurrency control:

- Working phase
- Validation phase
- Update phase

The time for the working phase is usually greater than the time for the validation and update. At any given time, only one transaction can be in validation and update phase. Several transactions can be in the working phase at any given time.

### Backwards Validation

For transaction  $T_v$ ,  $T_v$  must not read objects written by  $T_i$  such that  $i < v$ . We check if  $RS(T_v) \cap WS(T_i) = \emptyset$  for each  $T_i$  that overlaps with  $T_v$ . If this is true, then  $T_v$  passes the validation test, otherwise it fails the validation and is aborted.

### Forward Validation

If  $T_v$  fails validation:

1. Abort  $T_v$
2. Hold update of  $T_v$  until conflicting transactions finish
3. Abort all conflicting transactions

## Reminders

Project 2 details. Let Professor Kumar know if you are working solo or in a group by Monday, November 20th.

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You can find all my notes at `http://omgimanerd.tech/notes`. If you have any questions, comments, or concerns, please contact me at `alvin@omgimanerd.tech`