

6.033 Logging

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I Using wal-sys

1. The Database does not show StudentB's information because it has not been committed yet.
2. Only StudentA and StudentC's information will be available because only those were committed to the database at the time. StudentA's balance is 900 and StudentC's balance shows that it is 3100.
3. Although studentA and StudentC's information were committed, the transaction was not ended so it was not fully recorded in the database. If the system crashes, the transaction technically ends so it would then update the database upon recovery.

II Recovering the database

4. As stated in the question above, I believe that the state of the database will be in the state where transaction 1 and 3 have finished. This means StudentA has 900 and StudentC has 3100 in their balances. This is because the recovery makes sure the database has everything that was committed before. Since these two transactions were committed, they would be the updated versions in the database after the crash.
5. Yes, the data is what I expected with 900 and 3100. It saved all the committed transactions but discarded the ones that were not committed.
6. Losers are the transactions that were still ongoing during the crash and were not committed. The Done category is for the transactions that were committed before the crash. The Winner category is for the transactions that logged an outcome status before the crash. Both the Winner and Loser are an all or nothing action.

III Checkpoints

7. Transaction 2 has not yet been committed so the checkpoint really has not use on it.
8. There were 6 lines rolled back. Instead of the 12 lines, the recovery stops at the checkpoint. Thus, this makes the recovery alot faster than usual by using checkpoints.
9. The second run does recover the state to the same as the first run. This is called idempotence.
10. When the first run is done, the recovery will end all actions that are running to be completed actions. What this does is that it makes look like it did not crash so when the next recovery comes around, it just looks as if the actions were finished. This process in general makes the recovery process idempotent at all times.
11. This hands on took me about 1 and a half hours.