Optimistic lock vs. pessimistic lock

Optimistic locking is a technique for SQL database applications that does not hold row locks between selecting and updating or deleting a row. The application is written to optimistically assume that unlocked rows are unlikely to change before the update or delete operation. If the row does change, the update or delete will fail and the application logic handles such failures by retrying the select. It improves concurrency as the other applications can read and write that row.

Multiple users can try to update the same record at the same time, and the record changes are validated only when the record is committed. If one user successfully updates the record, the other users attempting to commit their concurrent updates are informed that a conflict exists.

Pessimistic lock prevents simultaneous updates to record. As soon as user starts to update a record, a lock is placed on it. The other users cannot update this record and have to wait until the first user finished committing.

Optimistic locking: a record is locked only when changes are committed to the database, so multiple users can attempt to update the same record at the same time without noticing.

Pessimistic locking: a record is locked while it is edited, so the other users cannot attempt to update the same record.

For both models, the lock is released after the changes are committed to the database.