Chapter 7.8 Concurrent Control by using Time Stamp

In next step, consider some other methods to guarantee Serializable Transactions besides Lock Schedule and used in some Systems.

1. *Time Stamp* - *Assign ‘Time Stamp’ for every Transaction. The Time Stamp is used to record the last time to read and write each Database Element.* Compare the ‘Time Stamp’ of each Database Element with the ‘Time Stamp’ of the current Transaction, ensure the equality of Serializable Transaction and Actual Transaction Schedule.
2. *Validation* - *When committing one Transaction, check the Time Stamp of the current Transaction and the Database Element: This process is called ‘Validation’ of Transaction.* We need to ensure the equality of Serializable Transaction and Actual Transaction Schedule.

*Two methods are optimistic methods, when there do has some problems, and optimistic methods would choose to abort and re-start the Transaction while conversely, Lock Schedule would delay Transaction, but not abort them.* Normally, some Read Transactions are better than Lock Schedule, since these Transactions themselves would never cause Non - Serializable Behavior.

Chapter 7.8.1 Time Stamp

Chapter 7.8.2 The Behavior that can not realized in Reality

Chapter 7.8.3 The Problem of Dirty Data

Chapter 7.8.4 Rule to Schedule that based on Time Stamp

Chapter 7.8.5 Multi - Version Time Stamp

Chapter 7.8.6 Time Stamp and Lock