Chapter 7.9 Concurrency Control by Validation

*Definition:*

* *Validation Method is another Optimistic Concurrency Control*, among which, we enable Transactions do not need to lock Database Element, but when in the appropriate time, we need to check *whether Transactions can be ran in Serializable Way.*

*Difference:*

* *For Validation, Schedule needs to maintain all records which are used to check what all Active Transactions are doing.*
* *For Time Stamp, Schedule needs to save Write Time and Read Time of all Database Elements.*

*Process:*

When Transaction is trying to write value for Database Element, it needs to go through ‘*Validation Period*’, at this time, it *compares all Read and Written Database Element Collection with Write Collection of other Active Transactions. If there do exist Non - Realizable Behavior Risk, then the Transaction should be roll back.*

Chapter 7.9.1 Confirm Structure based on Validation

When the Validation is used on the Concurrency Control Mechanism, then for each Transaction, Schedule needs to be informed the Database Element Collection which needs to be written and read in the Transaction, and they are Read Collection RS(T) and Write Collection WS(T). The Transaction can be divided into three phases to execute:

1. Read - In first phase, Transaction reads all Database Element Collection which are waiting to be read. The Transaction needs to calculate all values which is waiting to be written to its Local Address Space.
2. Validation - In second phase, Schedule needs to compare Read and Write Database Element Collection of the current Transaction with all other Transactions.
3. Write - In third phase, Transaction starts to write the Database Element

Chapter 7.9.2 Validation Rule

Chapter 7.9.3 Comparative among three kinds of Concurrency Control