Unit -5

CONCURRENCY CONTROL USING LOCK

- **Concurrency Control and Locking**
- Concurrency control and locking is the mechanism used by DBMSs for the sharing of data. Atomicity, consistency, and isolation and durability are achieved through concurrency control and locking. See ACID Properties.

CONCURRENCY CONTROL AND LOCKING

- In multi-user system , many users may update the same information at the same time.
- Locking allows only one user to update a particular data block while another person cannot modify the same data.

DADA CONCURRENCY

- The basic idea of locking is that when a user modifies data, that modified data is locked by that transaction until the transaction or committed or rolled back. The lock is held until the transaction is complete this knows as ***data concurrency.***

READ CONSISTENCY.

- The second purpose of locking is to ensure that all processes can always access(read)the original data as they were at the time the query begin (uncommitted modification),this is know as *read consistency.*

- **Pessimistic locking:** The developer must declare their intent to update the row set. This is done with the SELECT … FOR UPDATE clause.

  Optimistic locking: You re-read data and only update it if it did not change since the initial fetch.

- Deadlocks
  - A deadlock occurs when two or more threads of control are blocked, each waiting on a resource held by the other thread.
  - When this happens, there is no possibility of the threads ever making forward progress unless some outside agent takes action to break the deadlock.