

## DBMS Assg-4

EN19C8301122

Jigy Neema

Q.1 What are transaction? What are the properties of transaction.

Ans: A transaction can be defined as a group of tasks. A single task is the minimum processing unit which cannot be divided further.

A transaction in a database system must maintain "ACID" properties.

Here is the list of "ACID" properties :-

Atomicity : This property states that a transaction must be treated as an atomic unit, that is either all of its operations are executed or none.

Consistency: The database must remain in a consistent state after any transaction. No transaction should have any adverse effect on the data residing in the database.

Durability: The database should be durable enough to hold all its latest updates even if the system fails or restarts.

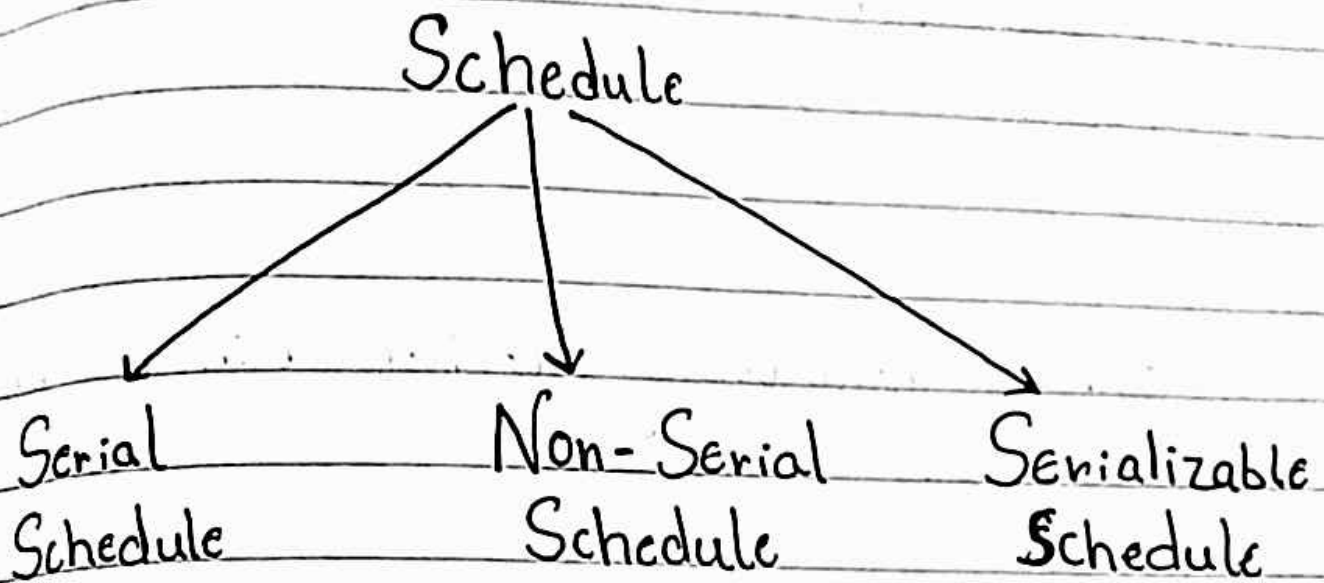
Isolation: In a database system where more than one transaction are being executed simultaneously ~~and~~.

Q:2 Explain schedule and serializability.

Ans A series of operations from one transactions to another transactions is known as schedule.

It is used to preserve the order of the operation in each of the

individual transaction.



Now, we will understand what is "Serializable Schedule".

- The serializability of schedules is used to find non-serial schedules that allow the transaction to execute concurrently without interfering with one another.

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It identifies which schedules are correct ~~where~~ ~~or~~ when executions of the transactions have interleaving of their operations.

- A non-serial schedule will be serializable if its result is equal to the result of its transactions executed serially.

3 Explain concurrency control with locking protocol.

5 Concurrency control in DBMS is a procedure of managing simultaneous operations without conflicting with each other.

### Concurrency Control protocols :-

Different concurrency control protocols offer different benefits between the amount of concurrency they allow and the amount of overhead that they impose.

Following are the Concurrency control techniques in DBMS :-

- Lock - Based protocols
- Two phase locking protocol
- Timestamp - Based protocol
- Validation - Based protocol

Lock - based protocol :-

It is a mechanism in which a transaction cannot Read or Write the data until it acquires an appropriate lock. Lock based protocols help to eliminate the concurrency problem in DBMS for simultaneous transactions by locking or isolating a particular transaction to a single user.