Q1

Q1

13/12/21

ADBMS

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Q2

ANS

Data replication is the process of storing data in more than one site or node. It is useful in improving the availability of data. It is simply copying data from a database from one server to another server so that all the users can share the same data without inconsistency. The result is a distributed database in which users can access data relevent to their tasks without interfering with the work of others.

Types of data replication:
- Transactional replication
- Snapshot replication
- Merge replication.

Types of replication schemas:
- Full replication
- NO replication
- Partial replication

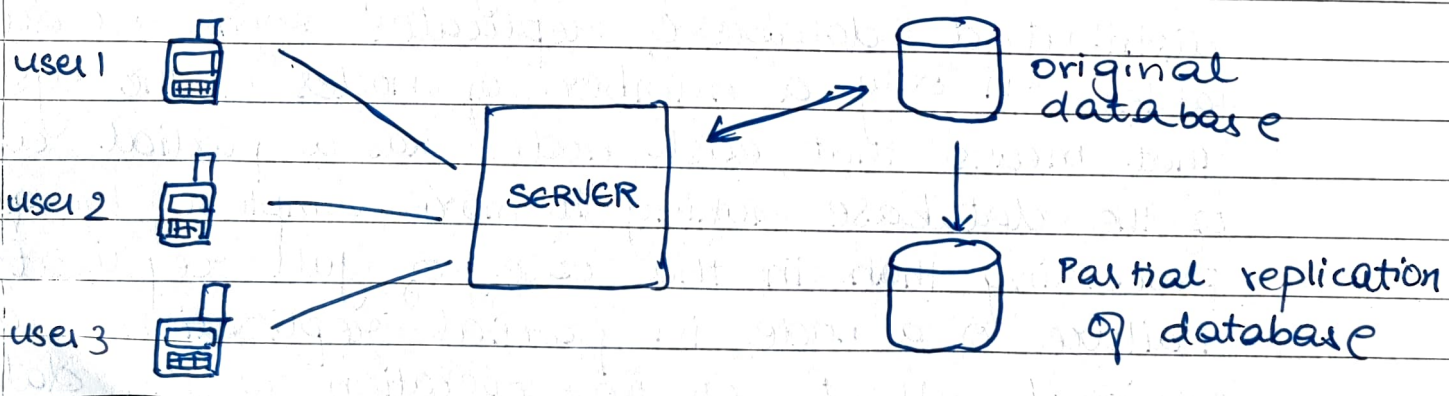
PARTIAL REPLICATION: A partially replicated ~~database~~ distributed database replicates some or all the tables on only a number of nodes of the system. That means that each node has a partial copy of the database making it more complex for query processing than in the case of full replication. Failure of a node in partial replication has minimal effect on the operation of the database

if every table has atleast two replicas except for users that wish to use the failed node. Furthermore, partial replication requires more storage than a system with no replication. The disadvantage of a partially replicated database is that updates are expensive and so is transaction management and concurrency although it is better than fully replicated database

ADVANTAGE : The number of replicas created for fragments depend upon the importance of data in that fragment

DISADVANTAGE : Concurrency control mechanism will be complex and need to be carried out properly.

EXAMPLE : In an insurance company, the sales team, financial planners and claims adjusters carry partially replicated databases with them on laptops and mobile phones and sync them periodically with the server database.



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Q3

	A_1	A_2
Q1	1	1
Q2	1	1
Q3	1	1
Q4	1	1

Attribute affinity matrix

	Site 1	Site 2	Site 3	Site 4
Q1	1	2	1	7
Q2	1	3	1	5
Q3	1	5	1	2
Q4	1	2	1	3

$Q_1 = 11$; $Q_2 = 10$; $Q_3 = 9$; $Q_4 = 12$

Q1 : A1 A2 , 11
Q2 : A1 A2 , 10
Q3 : A1 A2 , 9
Q4 : A1 A2 , 12

Affinity (A_1, A_1) = 11 + 10 + 9 + 12
= 42

Affinity (A_1, A_2) = 11 + 10 + 9 + 12
= 42

Affinity (A_2, A_2) = 42

∴ Affinity matrix :

	A1	A2
A1	42	42
A2	42	42