

## Data Replication in DBMS

Most asked Computer Science Subjects Interview Questions in Amazon, Microsoft, Flipkart

Second Normal Form (2NF)

First Normal Form (1NF)

Third Normal Form (3NF)

Boyce-Codd Normal Form (BCNF)

Advanced SQL Interview Questions

Extendible Hashing (Dynamic approach to DBMS)

What is Cursor in SQL ?

Data Mining | Set 2

Cascadeless in DBMS

SELECT INTO statement in SQL

SELECT INTO statement in SQL

Weak Entity Set in ER diagrams

B\*-Trees implementation in C++

What is Sharding?

What is Stored Procedures in SQL ?

What is Temporary Table in SQL?

Difference between RDBMS and MongoDB

Difference between DDL and DML in DBMS

Horizontal and Vertical Scaling In Databases

Concurrency problems in DBMS Transactions

Concurrency Control Techniques

Apache Cassandra (NoSQL database)

What is Database ?

Personnel involved in Database Management System

Neo4j Introduction

MySQL | Database Files

Join algorithms in Database

Introduction to Graph Databases

MySQL | Common MySQL Queries

## Data Replication in DBMS

**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 any inconsistency. The result is a **distributed database** in which users can access data relevant to their tasks without interfering with the work of others.

Data replication encompasses duplication of transactions on an ongoing basis, so that the **replicate is in a consistently updated state** and synchronized with the source. However in data replication data is available at different locations, but a particular relation has to reside at only one location.

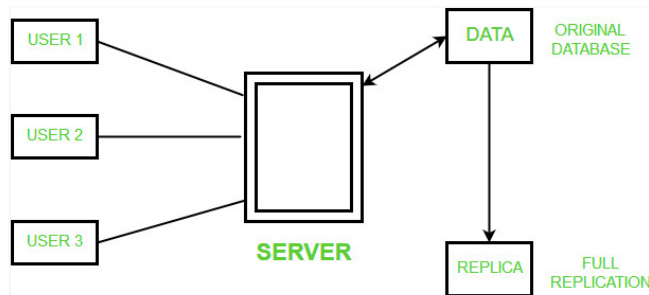
There can be full replication, in which the whole database is stored at every site. There can also be partial replication, in which some frequently used fragment of the database are replicated and others are not replicated.

### Types of Data Replication –

- 1. Transactional Replication** – In Transactional replication users receive full initial copies of the database and then receive updates as data changes. Data is copied in real time from the publisher to the receiving database(subscriber) in the same order as they occur with the publisher therefore in this type of replication, **transactional consistency is guaranteed**. Transactional replication is typically used in server-to-server environments. It does not simply copy the data changes, but rather consistently and accurately replicates each change.
- 2. Snapshot Replication** – Snapshot replication distributes data exactly as it appears at a specific moment in time does not monitor for updates to the data. The entire snapshot is generated and sent to Users. **Snapshot replication is generally used when data changes are infrequent**. It is bit slower than transactional because on each attempt it moves multiple records from one end to the other end. Snapshot replication is a good way to perform initial synchronization between the publisher and the subscriber.
- 3. Merge Replication** – Data from two or more databases is combined into a single database. Merge replication is the most complex type of replication because it allows both publisher and subscriber to independently make changes to the database. Merge replication is typically used in server-to-client environments. It allows changes to be sent from one publisher to multiple subscribers.

### Replication Schemes –

- 1. Full Replication** – The most extreme case is replication of the whole database at every site in the distributed system. This will improve the availability of the system because the system can continue to operate as long as at least one site is up.



### Advantages of full replication –

- High Availability of Data.
- Improves the performance for retrieval of global queries as the result can be obtained locally from any of the local site.
- Faster execution of Queries.

### Disadvantages of full replication –

- Concurrency is difficult to achieve in full replication.
- Slow update process as a single update must be performed at different databases to keep the copies consistent.

- 2. No Replication** – The other case of replication involves having No replication – that is, each fragment is stored at only one site.



Starting from  
6<sup>th</sup> January 2019

Geeks Classes

LIVE Sessions

Weekdays

₹17,999  
₹9,999

Register Now



Get DSA Online Course  
complementary with this course

### Most popular in DBMS

Architecture of Apache Cassandra

Properties of Relational Decomposition

Applications of Commercial Deductive Database Systems

Neo4j Query Cypher Language

Difference between RDBMS and Hive

### More related articles in DBMS

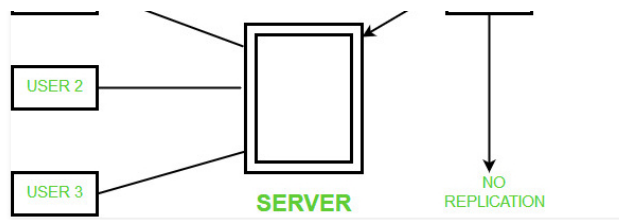
Overview of User Defined Type (UDT) in Cassandra

Difference between Mirroring and Replication

High Availability Mechanism in Cassandra

Concept of indexing in Apache Cassandra

Collection Data Type in Apache Cassandra



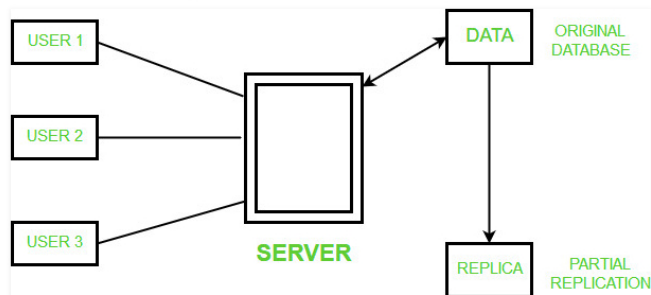
#### Advantages of No replication –

- The data can be easily recovered.
- Concurrency can be achieved in no replication.

#### Disadvantages of No replication –

- Since multiple users are accessing the same server, it may slow down the execution of queries.
- The data is not easily available as there is no replication.

**3. Partial Replication –** In this type of replication some fragments of the database may be replicated whereas others may not. The number of copies of the fragment may range from one to the total number of sites in the distributed system. The description of replication of fragments is sometimes called the replication schema.



#### Advantages of Partial replication –

- The number of copies of the fragment depends upon the importance of data.

**ADVANTAGES OF DATA REPLICATION –** Data Replication is generally performed to:

- To provide a consistent copy of data across all the database nodes.
- To increase the availability of data.
- The reliability of data is increased through data replication.
- Data Replication supports multiple users and gives high performance.
- To remove any data redundancy, the databases are merged and slave databases are updated with outdated or incomplete data.
- Since replicas are created there are chances that the data is found itself where the transaction is executing which reduces the data movement.
- To perform faster execution of queries.

#### DISADVANTAGES OF DATA REPLICATION –

- More storage space is needed as storing the replicas of same data at different sites consumes more space.
- Data Replication becomes expensive when the replicas at all different sites need to be updated.
- Maintaining Data consistency at all different sites involves complex measures.

#### Recommended Posts:

[Data Mining](#)

[Data Warehousing](#)

[Lossless Decomposition in DBMS](#)

[Introduction of Relational Algebra in DBMS](#)

[Need for DBMS](#)

[Commonly asked DBMS interview questions | Set 1](#)

[Normal Forms in DBMS](#)

[View Serializability in DBMS Transactions](#)

[Relational Model in DBMS](#)

[Commonly asked DBMS interview questions | Set 2](#)

[Concurrency Control in DBMS](#)

[Conflict Serializability in DBMS](#)

[Recoverability in DBMS](#)

[Last Minute Notes - DBMS](#)

[ACID Properties in DBMS](#)



**Harshita Pandey**

Check out this Author's [contributed articles](#).

If you like GeeksforGeeks and would like to contribute, you can also write an article using [contribute.geeksforgeeks.org](mailto:contribute@geeksforgeeks.org) or mail your article to [contribute@geeksforgeeks.org](mailto:contribute@geeksforgeeks.org). See your article appearing on the GeeksforGeeks main page and help other Geeks.

Please Improve this article if you find anything incorrect by clicking on the "Improve Article" button below.

Article Tags : DBMS

Practice Tags : DBMS



3.5

☐ To-do ☐ Done

Based on 7 vote(s)

[Feedback/ Suggest Improvement](#)

[Add Notes](#)

[Improve Article](#)

Please write to us at [contribute@geeksforgeeks.org](mailto:contribute@geeksforgeeks.org) to report any issue with the above content.

[Previous](#)  
[I< SQL Injection](#)

[Next](#)  
[MySQL | Regular expressions \(Regexp\) >I](#)

Writing code in comment? Please use [ide.geeksforgeeks.org](https://ide.geeksforgeeks.org), generate link and share the link here.

0 Comments

GeeksforGeeks

[Login](#)

[Recommend](#)

[Tweet](#)

[Share](#)

[Sort by Newest](#)



Start the discussion...

LOG IN WITH

OR SIGN UP WITH DISQUS [?](#)



Name

