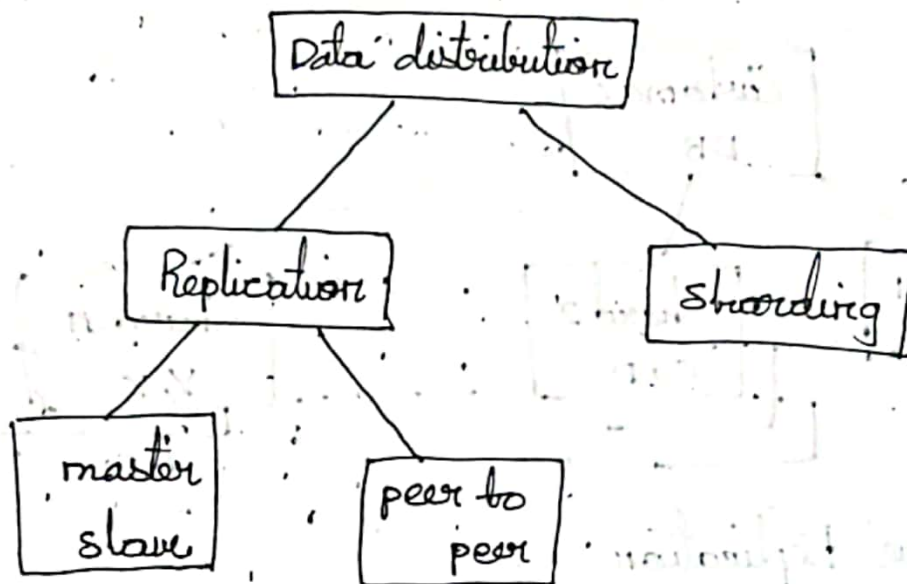


Q) Explain various distributed models in NoSQL?



⇒ Distribution model: Single Server (NoSQL)

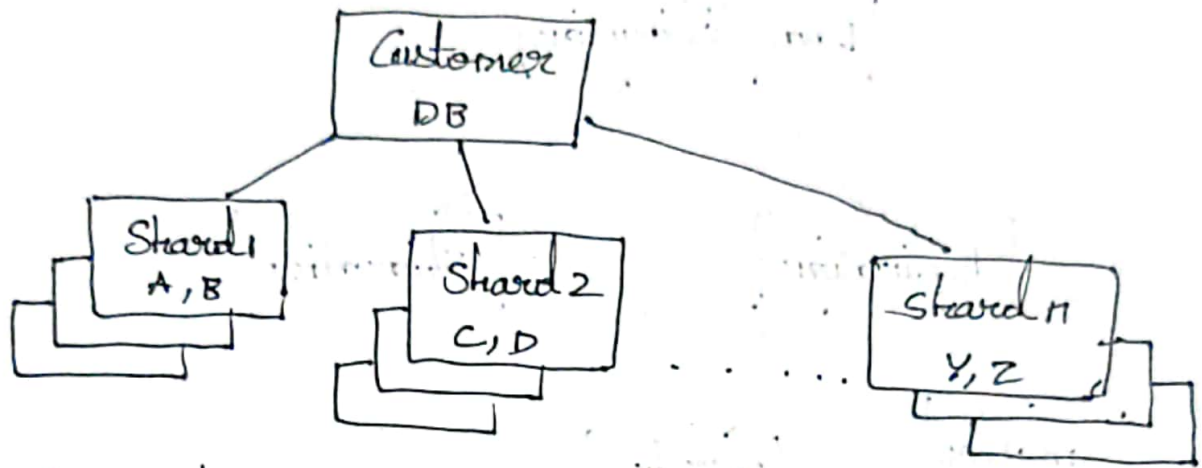
- It is the first and simplest distribution option
- Also if NoSQL database are designed to run on a cluster they can be used in a single server application

⇒ Sharding

- In this approach data is being distributed among multiple data nodes so that multiple people can access in different places of the database on different locations
- this approach helps in horizontal scaling of data among different servers

Eg: A-Z are surnames of users, it splits A-D to one and E-G to another etc.

- Horizontal Scaling can be achieved by using aggregation



⇒ Master - Slave Replication

- In this setting one node is designated as the master and the other is slaves
- the master is the authoritative source of the data is designed to process updates and send them to slaves
- the slaves are used for read operations

⇒ peer-to-peer replication

- master - slave replication helps with read scalability but has problems on scalability of writes
 - Moreover, it provides resilience on read but not on writes
 - the master is still a single point of failure
 - All the replicas are equal.
- with a peer-to-peer we can have node failures without lose write capability and losing data.

Q) With suitable diagram explain various aggregate datamodels in NoSQL?

Ans: → Various aggregate datamodels in NoSQL are.

1) Key Value Data Model

- Simplest NoSQL Database
- Data is stored in Key/Value pairs
- the main idea is the use of a hash table
- Access data by strings, called keys
- Data has no required format
- Data Model: (Key Value) pairs

2) Document Based Data Model

- It is based on the concept of documents
- pair each key with complex data structure known as document
- Document can contain many different key value pairs.
- Stores documents in the value part of the key value database.

3) Graph data Model

- Based on graph theory
- Scale vertically, No clustering
- You can use graph algorithms easily
- Based on transactions
- ACID properties

4) Column Data model

- Database stores data in column families as rows
- These rows contain multiple columns associated with a row key
- Column families are groups of related data that is accessed together.
- the column is smallest instance of data
- It is a tuple that contains a name, a value and a time stamp.

Diagram:

