**Write Concerns**

In MongoDB, write concern determines the **level of acknowledgment requested from MongoDB for write operations.** It specifies the number of data-bearing replica set members that must **acknowledge write operations before the operations are considered successful.** Here are the different write concern options:

**w: 1**: This is the default write concern. It requests acknowledgment that the write operation has propagated to the **primary node** of the replica set. This means that **at least one primary node must acknowledge** the write operation for it to be considered successful.

**w: majority**: This write concern **requests acknowledgment** that the write operation has **propagated to the majority of replica set members**, including the primary. This ensures that the write operation is **durable** and has been acknowledged by a majority of the replica set members.

**w: 0** (Unacknowledged): With this write concern, the write operation is unacknowledged. This means that MongoDB does not wait for acknowledgment from any replica set members before returning. This is the **fastest option** but also the **least durable**, as there is no guarantee that the data has been successfully written to any replica set member.

**w: n** (where n is a number): This writes concern requests acknowledgment that the write operation has propagated to a specified number of replica set members, including the primary. For example, w: 3 requires acknowledgment from three replica set members.

**j:** true (Journal Acknowledged): This option requests acknowledgment that the write operation has been written to the journal on the primary node. This ensures that the write operation is durable even if the primary node crashes before replicating the data to other replica set members.

**wtimeout**: <time in milliseconds>: This option specifies a time limit for the write operation to complete. If the write operation does not complete within the specified time, MongoDB returns an error. It is commonly used with write concerns that require **acknowledgment from multiple replica** set members to **prevent the write operation from hanging indefinitely.**

Example of how to specify write concern options in MongoDB:

**db.collection.insertOne(document, { writeConcern: { w: 1, j: true, wtimeout: 5000 } })**

This specifies a write concern that requests acknowledgment from the majority of replica set members, ensures journal acknowledgment, and sets a timeout of 5000 milliseconds for the write operation to complete.