**MongoDB**

1. **Theory**
2. SQL(relational) v s
3. NoSQL ()
4. What is MongoDB?
5. Run on JS Engine
6. How does mongoDB work?
7. Non-relational Document based
8. Advantage and Disadvantages
9. BSON
10. MongoDB Structure
11. MongoDB architecture
12. JSON vs BSON
13. MongoDB shell
14. CRUD Operations
15. Cursor, Iterate a Cursor
16. Time to Leave
17. Maximum Document Size : 16Mb
18. **Storage engines**
    1. **types**
       1. WiredTiger
       2. ger engine
       3. In-memory engine
       4. MMAPv1
    2. GridFS
    3. Journal
19. **Data types in MongoDB (BSON)**
    1. ObjectId
       1. timestamp
       2. random value
       3. incrementing counter
    2. String
    3. Int, longInt, Double
    4. Array, Object
    5. Boolean
    6. Date
    7. Decimal128
    8. Regex
    9. Javascript
       1. with scope
       2. without scope
    10. MinKey, MaxKey
    11. Binary data
20. Cursor
    1. cursor methods
    2. - toArray
    3. - forEach
    4. cursor.allowPartialResults()
21. **Collection**
    1. db
    2. db.createCollection(collectionName)
    3. show collections
    4. renaming Collection
22. **Documents**
    1. adding new Documents
    2. Nested Documents
       1. advantage
23. **Inserting Document**
24. Insert One and Many
25. what are the additional methods used for inserting
26. **Finding / Querying**
    1. find()+
       1. iterate (it)
       2. pretty()
    2. findOne({ *filter* })
    3. finding In nested Array
       1. “*field*.*field*”
       2. match
       3. exact match
       4. multiple match
    4. Array
       1. finding in specific order
       2. without regard to order
       3. query by array index
       4. query by array length
    5. **Projection**
       1. explicitly include fields
    6. Null, $type: 10, $exists
27. **Filtering**
    1. find( *filter* )
    2. find( *{filter}, {fieldsToGet}* )
28. **Method Chaining**
    1. count()
    2. limit()
    3. sort( 1 or -1 )
    4. skip()
29. **Operators** (denoted by $)
    1. {$gt: number} $gte
    2. $lt, $lte
    3. $eq, $ne
    4. $or $and $not
    5. $in: [1,2,3], $nin: [1,2]
    6. $all
    7. $set, $unset
    8. $addToSet
    9. **$elemMatch**
    10. $slice
    11. $size
    12. $inc: 1, $inc: -1
    13. $pull, $push
    14. $each [ 1, 2 ]
    15. $eq, $ne
    16. $currentDate
    17. $exists
    18. **$expr**
    19. **$cond**
    20. $rename
    21. $min, $max
    22. $mul
    23. $ifNull
    24. $let
    25. **Array Operator**
        1. $push
        2. $each
        3. $pull
        4. $pullAll
        5. $pop
        6. $elemMatch
30. **Deleting**
    1. deleteOne({ *field:value* })
    2. deleteMany()
    3. remove()
    4. delete vs remove
31. **Updating**
    1. updateOne( {*whichObject*} , {$set: {*field: value, field: value*} } )
    2. **Operators**
       1. $set
       2. $unset
       3. $rename
    3. updateMany()
    4. replaceOne()
    5. incrementing & decrementing
    6. adding and remove from array
    7. upsert
    8. update() vs updateOne()
    9. updateOne vs replaceOne
32. **bulkWrite()**
    1. ordered: false
    2. ordered vs unordered
    3. advantages and disadvantages
33. **Commands**
    1. mongosh
    2. db
    3. show dbs
    4. db.stats
34. **Aggregation**
    1. How does it work
    2. advantages
    3. types of aggregation
    4. distinct
    5. **Aggregate stages**
       1. $addFields
       2. $match
       3. $group
          1. grouping by
          2. -nested field
          3. -multiple field
       4. $sort
       5. $set
       6. $count
       7. - other ways to count
       8. - client and server side counting
       9. $limit, $skip
       10. $merge
       11. $out
       12. $project
       13. $lookup
       14. $unwind
       15. $facet
       16. $fill
       17. $bucket
           1. $bucketAuto
       18. $densify
       19. $redact
       20. $search
       21. allowDiskUse: true
    6. “$name” vs ”name”
    7. **Accumulator Operators**
       1. $sum, $avg, $max, $min
    8. **Unary Operators**
       1. $type, $lt $gt $or $and $multiply
    9. **Aggregation Pipeline**
       1. How does aggregation pipeline work?
       2. memory limit : 100mb
          1. spill to disk
    10. Batch sizing
    11. Iterator Size
    12. Query routing
    13. **Map Reduce**
        1. for what is it used?
        2. find sum, avg
35. **Indexes**
    1. pros and cons of Indexes
    2. createIndex({ *filed: value* })
    3. options when creating Index
       1. background: true
       2. unique: true
       3. name: “<*indexName*>”
    4. getIndex()
    5. dropIndex(), dropIndexes
    6. reIndex()
    7. rename Index
    8. hiding index
    9. covered query
    10. **Types of Indexes**
        1. Single Field Index
        2. Compound Index
        3. Multikey Index
        4. Text Index
        5. Geospatial, Hashed, Clustered Index
        6. Covered query
36. **Schema**
    1. pros and cons of using schema
    2. optional schema
    3. validation action
37. **Relationships**
    1. embedding
    2. referencing
    3. one-to-one
    4. one-to-many
    5. one-to-squillions
    6. many-to-many
38. **Replication**
    1. replica set
    2. advantage and disadvantages of replication
    3. **Replication Architecture**
       1. primary and secondary nodes
       2. arbiter
       3. process of election
       4. heartbeat
    4. Process of Election
    5. Replication lag
    6. operation log (oplog)
    7. **Types of replication**
       1. Asynchronous Replication
       2. Synchronous Replication
       3. Majority Commit
       4. etc…

1. **Sharding**
   1. advantages and disadvantages
   2. **Sharding Architecture**
      1. What is Mongos/Router
      2. Config Server
   3. **Types of sharding**
      1. Hashed sharding
      2. Ranged sharding
      3. Zone Sharding
   4. **Shard key**
      1. shard hotspots
      2. normal shard key
      3. hashed shard key
   5. Vertical and horizontal scaling
   6. Zones
   7. mongos
   8. auto balancer
   9. scatter-gather
2. **Cluster**
   1. types of cluster
   2. config servers
3. **Data Modeling**
   1. embedded data model
   2. reference data model
   3. linking vs embedding
4. **Transactions**
   1. How to do transaction
      1. **Session**
      2. startTransaction
      3. abortTransaction
      4. commitTransaction
   2. ACID Transaction
   3. A- Atomicity
   4. C- Consistency
   5. I - Isolation
   6. D - Durability
5. Create view in Mongodb
6. CAP Theorem
   1. theorem
   2. C- Consistency
   3. A - Availability
   4. P - Particle tolerance
7. **Isolation levels**
   1. Read Concerns
   2. - local
   3. - maojiry
   4. - available
   5. Write Concerns
   6. - w:1 (Acknowledged)
   7. - w:0 (Unacknowledged)
   8. - majority
   9. - all
   10. - journaled
8. **VS**
   1. $or vs $in
   2. $all vs $in
   3. $elemMatch vs $in
   4. drop() vs remove()
   5. findAndModify() vs findOneAndUpdate()
   6. Primary key vs secondary key
   7. join vs lookup
   8. dot notation vs nested form
   9. $currentDate vs $$NOW
   10. delete() vs remove()
   11. bulkWrite vs InsertMany
   12. replace vs update
   13. shard vs node vs cluster
   14. Aggregation Pipeline vs Map Reduce
   15. vertical scalability vs horizontal scalability
   16. load balancer vs sharding
   17. odm vs driver
   18. stage operator vs accumulator operator
   19. normal shard key vs hashed shard key
   20. aggregate([$count:”tota”]) vs find({}).count()
   21. replication vs replica set
   22. transaction vs query
   23. scaling up vs scaling down vs scaling out?
   24. config servers vs mongos
   25. load balancer vs auto balancer
   26. countdocument vs count
9. What is a MongoDB driver?
10. Capped collection and it’s advantages
11. Profiler
12. Explain
13. Soft deleting
14. **Interview Question**
15. What to do when your quireing becomes slow?
16. What to do when your files are getting very big?
17. How to condense large volumes of data?
18. How to search for text in MongoDB?
19. How  does MongoDB schema change?
20. How can we Backup and Restore in MongoDB?
21. What are the pros and cons of Normalising Data in MongoDB
22. **Good to Know**
23. Atomicity
24. Type Bracketing
25. Dot Notation
26. Cursor behaviour
27. Aggregation Pipeline
28. Retryable Writes and Reads
29. MongoDB CRUD Concepts
30. B-Tree
31. ACID compliance
32. Mongoose
33. Network Components
    1. load balancer
    2. firewall
34. **CAP Theorem**
    1. consistency
    2. availability
    3. partition tolerance
35. Firewall
36. **Mongo Utilities**
    1. mongoexport
    2. mongoimport
    3. mongodump
    4. mongorestore
    5. mongostat
    6. mongotop
    7. mongooplog
37. Clustered collections
38. WAL