MongoDB Cheat Sheet :-

1. Introduction to MongoDB :-

- Definition :- MongoDB is a NOSQL, document-oriented database that stores data in JSON- like BSON (Binary JSON) format.
- Key Features :- Flexible schema design, scalibility, hig performance and rich query capabilities.

2. Data Modeling :-

- Document and collections:
  - Document :- A record in MongoDB, akin to a row in a relational database.
  - Collection :- A group of documents, akin to a table in a relational database

```
{ "_id":
  Object id ("507f1f77bc");
  "name" : "John Doe";
  "age" : 30,
  "address": {
  "street" : "123 Main St",
  "city" : "Nepal";
  "state" : "Kathmandu",;
  "zipcode": "10001".
 }
}
```

Schema Design:

- Embedding vs. Referencing

- Embedding: Stories related data in a single documat
- Referencing: Stories related data in separate document and referencing them.

```
{
 "name": "Kanchan",
"contacts": [
  {
   "type": "email"
   "value": "Kanchan@example.com"
  }
 ]
}
```

3 Indexing:-

- Purpose Improve query performance by creating indexes on fields.
- Types of Indexes:
  - Single Field Index: Index on a single field
  - Compound Index: Index on multiple fields.
  - Multikey Index: Index on arrays
  - Text Index: Index for text search
  - Geospatial Index: Index for spatial data

- Creating Indexes:

```
db.collection.createIndex({"field": 1});
// 1 for ascending, -1 for descending

db.collection.createIndex({"field1": 1,
 "field2": -1});
```

4. CRUD Operations:-

- Create

```
db.collection.insertone({"name": "Alice", "age":
        28});
db.collection.insertMany([{"name": "Karan",
    "age": 25}, {"name": "Vivek", "age": 30}]);
```

- Read:

```
db.collection.find({"age": {$gt: 25} });
db.collection.findOne({"name": "Parth"});
```

- Update:

```
db.collection.updateOne({"name": "Arjun"},
{$set: {"age": 29}});
db.collection.updateMany({"age": {$lt: 30}},
{$inc: {"age": 1}});
```

- Delete:

```
db.collection.deleteOne({"name": "Vimdhayakji
});
db.collection.deleteMany({"age": {$lt: 30}});
```

5 Aggregation:

Performs complex data processing and transformation

```
db.collection.aggregate([
{$match: {Status: "A"}},
{$group: {_id: "$cust_id", total: {
$sum: "$amount"}}}])
```