

Creating Database Using MongoDB and Mongosh:

- Database Setup and Collection Creation:

```
mongosh mongodb://127.0.0.1:27021
test> show dbs
CompassGlobally 48.00 KiB
Empower 500.00 KiB
IIS 184.00 KiB
admin 48.00 KiB
aggregation 144.00 KiB
config 72.00 KiB
crud-node 180.00 KiB
crud-node-express 108.00 KiB
demoProject 80.00 KiB
demoProject_2 72.00 KiB
imageCompress 80.00 KiB
khan 152.00 KiB
local 72.00 KiB
pract 72.00 KiB
samprath 68.00 KiB
shrinivas 180.00 KiB
test 8.00 KiB
user 108.00 KiB

test> use svitdb
switched to db svitdb
svitdb> show db
svitdb
svitdb> db.student.insertMany([
...   { "name": "John", "age": 20, "grade": "A" },
...   { "name": "Alice", "age": 21, "grade": "B" },
...   { "name": "Bob", "age": 19, "grade": "C" },
...   { "name": "Sarah", "age": 22, "grade": "A" },
...   { "name": "Mike", "age": 20, "grade": "B" },
...   { "name": "Emily", "age": 21, "grade": "A" },
...   { "name": "David", "age": 19, "grade": "C" },
...   { "name": "Tom", "age": 22, "grade": "B" },
...   { "name": "Ryan", "age": 20, "grade": "A" },
...   { "name": "Sophia", "age": 21, "grade": "B" }
... ]);
```

- Document Insertion:

```
svitdb> db.student.insertMany([
...   { "name": "John", "age": 20, "grade": "A" },
...   { "name": "Alice", "age": 21, "grade": "B" },
...   { "name": "Bob", "age": 19, "grade": "C" },
...   { "name": "Sarah", "age": 22, "grade": "A" },
...   { "name": "Mike", "age": 20, "grade": "B" },
...   { "name": "Emily", "age": 21, "grade": "A" },
...   { "name": "David", "age": 19, "grade": "C" },
...   { "name": "Tom", "age": 22, "grade": "B" },
...   { "name": "Ryan", "age": 20, "grade": "A" },
...   { "name": "Sophia", "age": 21, "grade": "B" }
... ]);
acknowledged: true,
insertedIds: [
  ObjectId('65faacc9b53ba990fda5082'),
  ObjectId('65faacc9b53ba990fda5083'),
  ObjectId('65faacc9b53ba990fda5084'),
  ObjectId('65faacc9b53ba990fda5085'),
  ObjectId('65faacc9b53ba990fda5086'),
  ObjectId('65faacc9b53ba990fda5087'),
  ObjectId('65faacc9b53ba990fda5088'),
  ObjectId('65faacc9b53ba990fda5089'),
  ObjectId('65faacc9b53ba990fda508a'),
  ObjectId('65faacc9b53ba990fda508b')
]
svitdb>
```

- Update Operation :

```
svitdb> db.student.updateOne(
...   { "name": "John" },
...   { $set: { "grade": "A+" } }
... );
acknowledged: true,
insertedId: null,
matchedCount: 1,
modifiedCount: 1,
upsertedCount: 0

svitdb> db.student.updateMany(
...   { "age": 20 },
...   { $set: { "grade": "A+" } }
... );
acknowledged: true,
insertedId: null,
matchedCount: 2,
modifiedCount: 2,
upsertedCount: 0

svitdb>
```

- Deletion Operation:

```
mongo: mongoDB //72.8.2
svitdb> db
svitdb
svitdb> show collections
student
svitdb> db.student.find()
{
  _id: ObjectId('65fab3deb538ed940fda5896'),
  name: 'John',
  age: 20,
  grade: 'A',
},
{
  _id: ObjectId('65fab3deb538ed940fda5897'),
  name: 'Alice',
  age: 21,
  grade: 'B',
},
{
  _id: ObjectId('65fab3deb538ed940fda5898'),
  name: 'Bob',
  age: 19,
  grade: 'C',
}
svitdb> db.student.deleteMany({ grade: 'C' });
{ acknowledged: true, deletedCount: 1 }
svitdb> db.student.deleteMany({ age: { $gt: 20 } });
{ acknowledged: true, deletedCount: 1 }
svitdb> db.student.find()
{
  _id: ObjectId('65fab3deb538ed940fda5896'),
  name: 'John',
  age: 20,
  grade: 'A',
}
svitdb> s
```

- Index creation:

```
mongo: mongoDB //72.8.2
svitdb> db
svitdb
svitdb> show collections
student
svitdb> db.student.insertMany([
...   { name: 'John', age: 20, 'grade': 'A' },
...   { name: 'Alice', age: 21, 'grade': 'B' },
...   { name: 'Bob', age: 19, 'grade': 'C' }
... ]);
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('65fab3deb538ed940fda5896'),
    '1': ObjectId('65fab3deb538ed940fda5897'),
    '2': ObjectId('65fab3deb538ed940fda5898')
  }
}
svitdb> db.student.ensureIndex({ name: 1 });
{ name: 1 }
svitdb> db.student.ensureIndex({ age: 1 });
{ age: 1 }
svitdb> db.student.find()
{
  _id: ObjectId('65fab3deb538ed940fda5896'),
  name: 'John',
  age: 20,
  grade: 'A',
},
{
  _id: ObjectId('65fab3deb538ed940fda5897'),
  name: 'Alice',
  age: 21,
  grade: 'B',
},
{
  _id: ObjectId('65fab3deb538ed940fda5898'),
  name: 'Bob',
  age: 19,
  grade: 'C',
}
```