

Experiment No.11

PART A

(PART A: TO BE REFERRED BY STUDENTS)

A.1 Aim: To implement NoSQL database using MongoDB

A.2 Prerequisite:

Basic knowledge of NoSQL

A.3 Outcome:

After successful completion of this experiment students will be able to

8. Use NoSQL using MongoDB.

A.4 Theory:

MongoDB is a free and open-source cross-platform document-oriented database. Classified as a NoSQL database, MongoDB avoids the traditional table-based relational database structure in favor of JSON-like documents with dynamic schemas, making the integration of data in certain types of applications easier and faster.

Below given table shows the relationship of RDBMS terminology with MongoDB

| RDBMS | MongoDB |
|-------------|--|
| Database | Database |
| Table | Collection |
| Tuple/Row | Document |
| column | Field |
| Table Join | Embedded Documents |
| Primary Key | Primary Key (Default key _id provided by mongodb itself) |

MongoDB Create database:

MongoDB use DATABASE_NAME is used to create database. The command will create a new database, if it doesn't exist otherwise it will return the existing database.

Syntax: use DATABASE_NAME

Task:

1. Show databases

show dbs

use college

db.student

2. Show collections

show collections

3. Insert document

show collections

4. display all the documents

5. Insert many documents

6. Display all the students in Btech

7. Display first 2 students

8. Display all the students in ascending order

9. Display the number of students in Btech

10. Display all the distinct degrees

11. Display all the Btech students with age greater than 21, but less than 24

12. Connectivity between Python and MongoDB

PART B: TO BE COMPLETED BY STUDENTS)

(Students must submit the soft copy as per following segments within two hours of the practical. The soft copy must be uploaded on the Portal or emailed to the concerned lab in charge faculties at the end of the practical in case the there is no Portal access available)

| | |
|---|--------------------------------|
| Roll No. I066 | Name: Srihari Thyagarajan |
| Program: B Tech Artificial Intelligence | Division: I |
| Batch: B3 | Date of Experiment: 20/10/2022 |
| Date of Submission: 20/10/2022 | Grade : |

B.1 Commands and Output:

```
use College
```

'switched to db
College'

```
show databases
```

```
College    8.00 KiB  
admin      40.00 KiB  
config     108.00 KiB  
local      40.00 KiB
```

```
show dbs
```

```
College    40.00 KiB  
admin      40.00 KiB  
config     108.00 KiB  
local      40.00 KiB
```

```
use College
```

'already on db
College'

```
show collections
```

```
Student
```

```
db.student.find
```

```
[Function: find] AsyncFunction {  
  returnsPromise: true,  
  apiVersions: [ 1, Infinity ],  
  returnType: 'Cursor',  
  serverVersions: [ '0.0.0', '999.999.999' ],  
  topologies: [ 'ReplSet', 'Sharded', 'LoadBalanced', 'Standalone' ],  
  deprecated: false,  
  platforms: [ 0, 1, 2 ],  
  isDirectShellCommand: false,  
  acceptsRawInput: false,  
  shellCommandCompleter: undefined,  
  help: [Function (anonymous)] Help  
}
```

```
db.student.find()
```

```
db.Student.find()
```

```
{ _id: ObjectId("6351149ec039b21e5b8e6bcd"),  
  Rollno: 1,  
  Name: 'Srihari',  
  Age: 19,  
  Degree: 'B Tech Artificial Intelligence',  
  Semester: 3,  
  Courses: [ 'DBMS', 'DM' ],  
  CGPA: 3.6 }
```

```
db.Student.insertOne({"Rollno" : 2, "Name" : "AJ", "Age" : 20, "Degree" :  
  "MBA Tech", "Semester" : 4, "Courses" : ["RPT", "IS - 1"], "CGPA" : 3.5})
```

```
{ acknowledged: true,  
  insertedId: ObjectId("6351177b82caa2f2c8489e8d") }
```

```
db.Student.find()
```

```
{ _id: ObjectId("6351149ec039b21e5b8e6bcd"),  
  Rollno: 1,  
  Name: 'Srihari',  
  Age: 19,  
  Degree: 'B Tech Artificial Intelligence',  
  Semester: 3,  
  Courses: [ 'DBMS', 'DM' ],  
  CGPA: 3.6 }
```

```
{ _id: ObjectId("6351177b82caa2f2c8489e8d"),  
  Rollno: 2,  
  Name: 'AJ',  
  Age: 20,  
  Degree: 'MBA Tech',  
  Semester: 4,  
  Courses: [ 'RPT', 'IS - 1' ],  
  CGPA: 3.5 }
```

```
db.Student.find({"Degree" : "B Tech Artificial Intelligence"})
```

```
{ _id: ObjectId("6351149ec039b21e5b8e6bcd"),  
  Rollno: 1,  
  Name: 'Srihari',  
  Age: 19,  
  Degree: 'B Tech Artificial Intelligence',  
  Semester: 3,  
  Courses: [ 'DBMS', 'DM' ],  
  CGPA: 3.6 }
```

```
db.Student.find().limit(1)
```

```
{ _id: ObjectId("6351149ec039b21e5b8e6bcd"),  
  Rollno: 1,  
  Name: 'Srihari',  
  Age: 19,  
  Degree: 'B Tech Artificial Intelligence',  
  Semester: 3,  
  Courses: [ 'DBMS', 'DM' ],  
  CGPA: 3.6 }
```

```
db.Student.find().limit(2)
```

```
{ _id: ObjectId("6351149ec039b21e5b8e6bcd"),  
  Rollno: 1,  
  Name: 'Srihari',  
  Age: 19,  
  Degree: 'B Tech Artificial Intelligence',  
  Semester: 3,  
  Courses: [ 'DBMS', 'DM' ],  
  CGPA: 3.6 }
```

```
{ _id: ObjectId("6351177b82caa2f2c8489e8d"),  
  Rollno: 2,  
  Name: 'AJ',  
  Age: 20,  
  Degree: 'MBA Tech',  
  Semester: 4,  
  Courses: [ 'RPT', 'IS - 1' ],  
  CGPA: 3.5 }
```

```
db.Student.find().sort("Name")
```

```
{ _id: ObjectId("6351177b82caa2f2c8489e8d"),  
  Rollno: 2,  
  Name: 'AJ',
```

```
Age: 20,
Degree: 'MBA Tech',
Semester: 4,
Courses: [ 'RPT', 'IS - 1' ],
CGPA 3.5 }
```

```
{ _id: ObjectId("6351149ec039b21e5b8e6bcd"),
  Rollno: 1,
  Name: 'Srihari',
  Age: 19,
  Degree: 'B Tech Artificial Intelligence',
  Semester: 3,
  Courses: [ 'DBMS', 'DM' ],
  CGPA 3.6 }
```

```
db.Student.find().sort({Name : 1})
```

```
{ _id: ObjectId("6351177b82caa2f2c8489e8d"),
  Rollno: 2,
  Name: 'AJ',
  Age: 20,
  Degree: 'MBA Tech',
  Semester: 4,
  Courses: [ 'RPT', 'IS - 1' ],
  CGPA 3.5 }
```

```
{ _id: ObjectId("6351149ec039b21e5b8e6bcd"),
  Rollno: 1,
  Name: 'Srihari',
  Age: 19,
  Degree: 'B Tech Artificial Intelligence',
  Semester: 3,
  Courses: [ 'DBMS', 'DM' ],
  CGPA 3.6 }
```

```
db.Student.find({"Degree" : "B Tech Artificial Intelligence"}).count()
```

1

```
db.Student.find({$or:[{degree : "B Tech Artificial Intelligence"}, {Age :
{$lte : 23}}]})
```

```
{ _id: ObjectId("6351149ec039b21e5b8e6bcd"),
  Rollno: 1,
  Name: 'Srihari',
  Age: 19,
  Degree: 'B Tech Artificial Intelligence',
  Semester: 3,
  Courses: [ 'DBMS', 'DM' ],
  CGPA 3.6 }
```

```
{ _id: ObjectId("6351177b82caa2f2c8489e8d"),
  Rollno: 2,
  Name: 'AJ',
  Age: 20,
  Degree: 'MBA Tech',
  Semester: 4,
  Courses: [ 'RPT', 'IS - 1' ],
  CGPA 3.5 }
```

B.3 Conclusion:

Learnt MongoDB.

