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Business Intelligence and Big Data Analytics

Mini Project

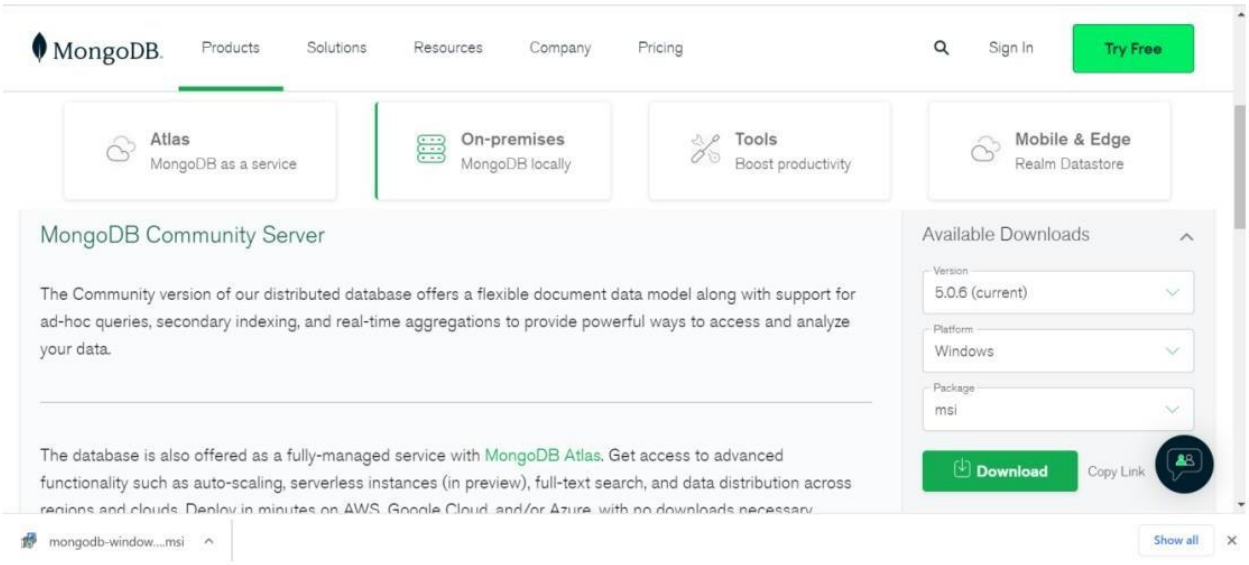
Aim: Executing CRUD operations in MongoDB shell.

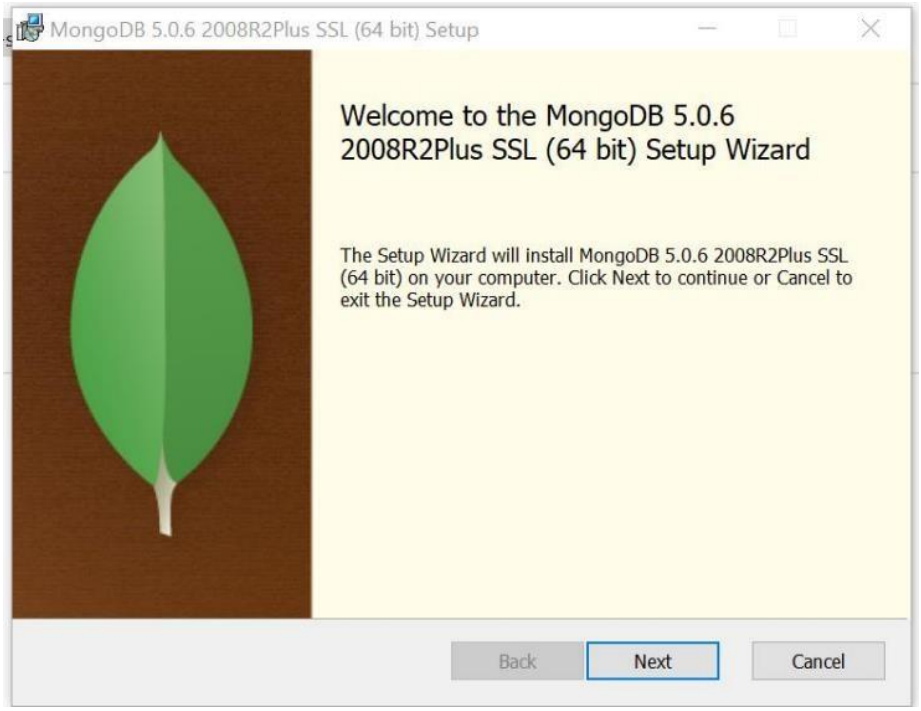
Steps:

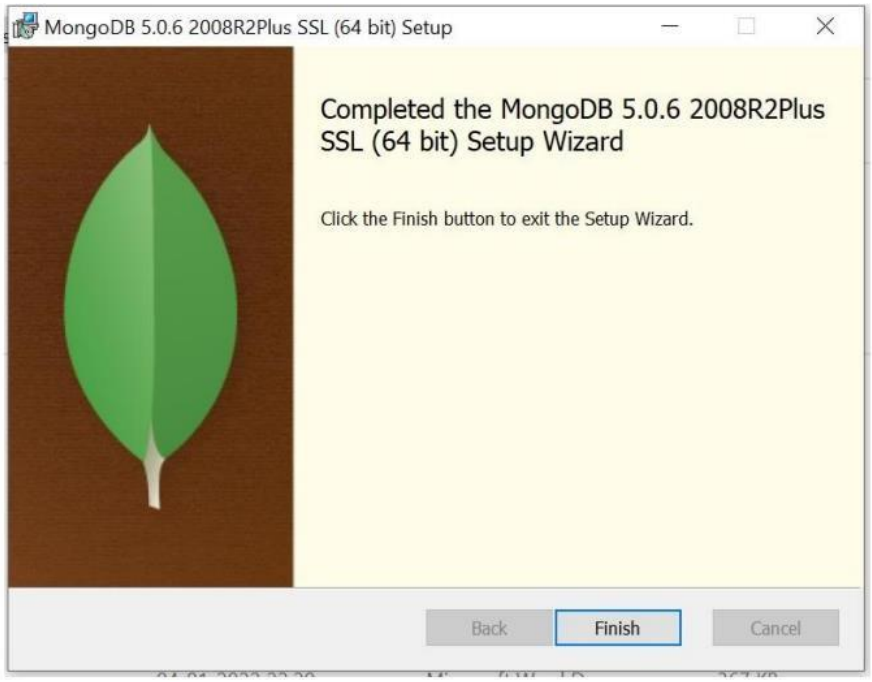
Steps to install MONGODB :

Step1: We need to download mongodb from https://www.mongodb.com/ website.

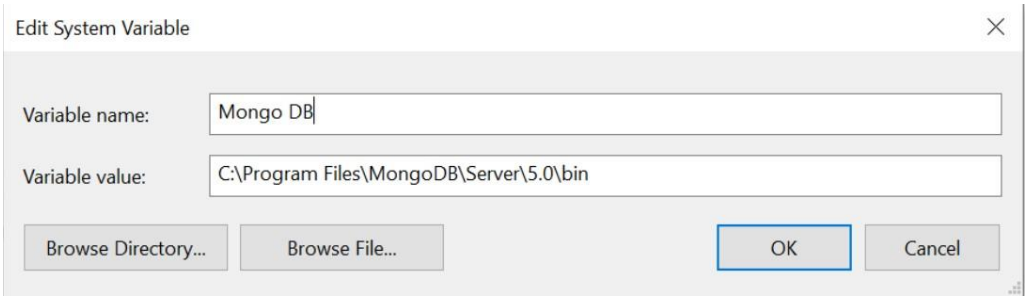
Step2: After successfully downloading mongodb we need to install it in our system.







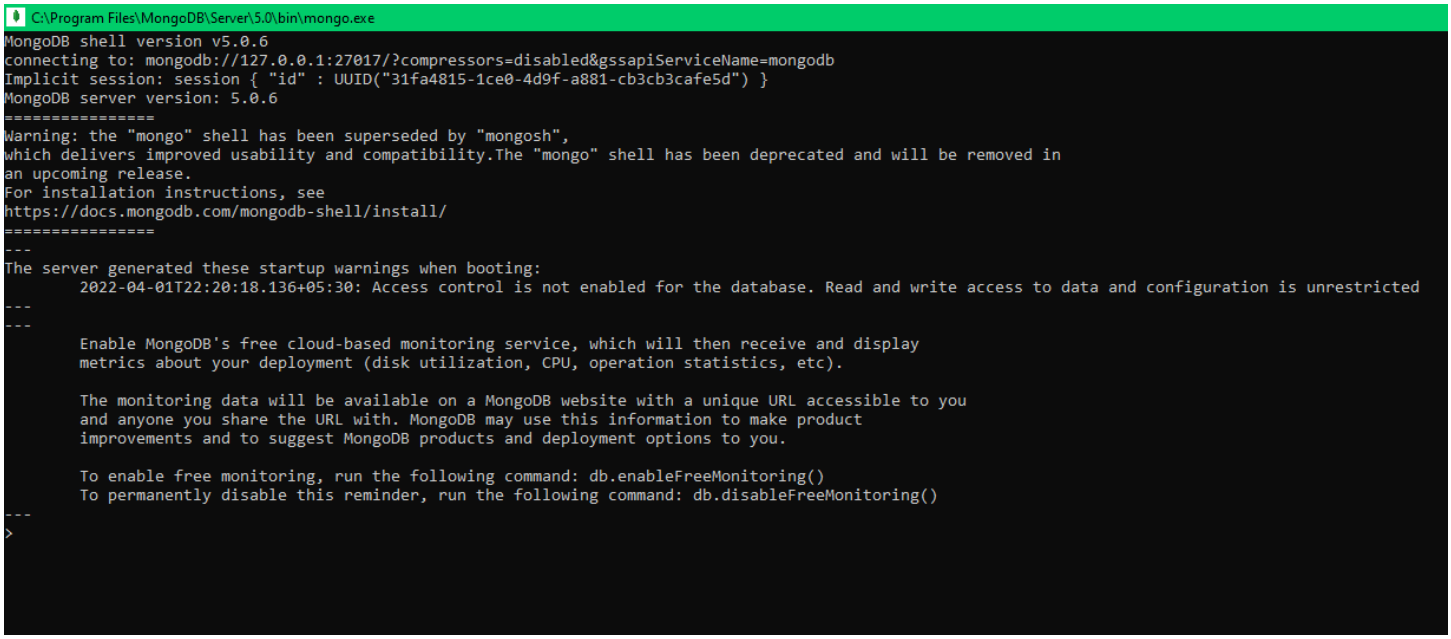
Step3: After successfully installation of the mongodb we need to set path variable of the bin file of mongodb in environment in system .eg “C:\Program Files\MongoDB\Server\5.0\bin”



Step4: After setting path variable we can easily use mongo command in cmd and run mongodb shell.

Steps to execute commands:

1. Start The MongoDB shell.



2. Check for any existing databases.

3. So, we do not have our own existing database, hence we'll create a new one.

4. We've created a database named bibdb here, but it is not displayed because it's empty, so

we need to create a collection first inside this database. To insert a document into the collection json format is followed.

```
> db.student.insert({"studname":"ram", "address":"bandra", "class":"msc cs"})
WriteResult({ "nInserted" : 1 })
>
```

5. Here, we've created a collection in the bibd database named student and added a document of one employee. So now if we check the databases on the system we can see the database.

```
> show dbs
admin   0.000GB
bibdb   0.000GB
config  0.000GB
local   0.000GB
```

6. Now, to check if the document is added in the collection we run:

```
> db.student.find()
{ "_id" : ObjectId("624486a3662a9f8946b9ecdc"), "studname" : "ram", "address" : "bandra", "class" : "msc cs" }
>
```

7. So, the document we inserted earlier is shown here. If we want it in a more readable format we can use the pretty() function.

```
> db.student.find().pretty()
{
        "_id" : ObjectId("624486a3662a9f8946b9ecdc"),
        "studname" : "ram",
        "address" : "bandra",
        "class" : "msc cs"
}
>
```

8. We know how to create a database. Now let's see how to delete/drop a database. Here, I've already created another sample database "demodb" with a document in it.

```
> use demodb
switched to db demodb
> db.test.insertOne({Name: 'abc'})
{
        "acknowledged" : true,
        "insertedId" : ObjectId("6249671305ccee021b594e6a")
}
>
```

```
> show dbs
admin   0.000GB
bibdb   0.000GB
config  0.000GB
demodb  0.000GB
local   0.000GB
>
```

```
> use demodb
switched to db demodb
> db.dropDatabase()
{ "ok" : 1 }
> show dbs
admin   0.000GB
bibdb   0.000GB
config  0.000GB
local   0.000GB
>
```

9. To drop a single collection, you can do as follows:

```
> db.test.drop()
true
>
```

If already deleted then it will show 'false' when we execute the same command:

```
> db.test.drop()
false
```

10. The basic CRUD operations include Create, Read, Update & Delete.

11. The Create commands are of two types "insertOne(data, options)" & "insertMany([data], options)".

12. The Read commands are of two types "find(filter, options)" & "findOne(filter, options)".

13. The Update command are of three types "updateOne(filter, data, options)" ; "updateMany(filter, data, options)" & "replaceOne(filter, data, options)".

14. The Delete command are of two types "deleteOne(filter, options)" & "deleteMany(filter, options)".

15. Executing the insertOne and insertMany commands:

```
> use bibd
switched to db bibd
> db.student.insertOne({studname: 'Rahul', address: 'borivali', class: 'msc cs'})
{
        "acknowledged" : true,
        "insertedId" : ObjectId("6249690b05ccee021b594e6b")
}
```

```
> db.student.insertMany([{studname: 'Kapil', address: 'chembur', class: 'msc it'},{studname: 'Roshni', address: 'kalyan'
, class: 'msc cs'}])
{
        "acknowledged" : true,
        "insertedIds" : [
                ObjectId("624969c905ccee021b594e6c"),
                ObjectId("624969c905ccee021b594e6d")
        ]
}
>
```

16. Let us now check the database.

```
> show dbs
admin   0.000GB
bibd    0.000GB
bibdb   0.000GB
config  0.000GB
local   0.000GB
> show collections
student
>
```

17. Here check the records/document we have updated in the collection employee

```
> db.student.find().pretty()
{
        "_id" : ObjectId("6249690b05ccee021b594e6b"),
        "studname" : "Rahul",
        "address" : "borivali",
        "class" : "msc cs"
}
{
        "_id" : ObjectId("624969c905ccee021b594e6c"),
        "studname" : "Kapil",
        "address" : "chembur",
        "class" : "msc it"
}
{
        "_id" : ObjectId("624969c905ccee021b594e6d"),
        "studname" : "Roshni",
        "address" : "kalyan",
        "class" : "msc cs"
}
>
```

18. Here, we've successfully executed the insertOne and insertMany commands and also Read the data in the Document.

19. Now let’s try updating the class of Kapil to MSC CS in the document.

```
> db.student.updateOne({studname:'Kapil'},{$set:{class: "msc cs"}})
{ "acknowledged" : true, "matchedCount" : 1, "modifiedCount" : 1 }
```

20. Check if the value is updated:

```
> db.student.find().pretty()
{
        "_id" : ObjectId("6249690b05ccee021b594e6b"),
        "studname" : "Rahul",
        "address" : "borivali",
        "class" : "msc cs"
}
{
        "_id" : ObjectId("624969c905ccee021b594e6c"),
        "studname" : "Kapil",
        "address" : "chembur",
        "class" : "msc cs"
}
{
        "_id" : ObjectId("624969c905ccee021b594e6d"),
        "studname" : "Roshni",
        "address" : "kalyan",
        "class" : "msc cs"
}
>
```

21. Now lets try updateMany command

```
> db.student.updateMany({}, {$set:{mobileNo: "unknown"}})
{ "acknowledged" : true, "matchedCount" : 3, "modifiedCount" : 3 }
>
```

22. Keeping the first parameter blank means updating all the entries.

```
> db.student.find().pretty()
{
        "_id" : ObjectId("6249690b05ccee021b594e6b"),
        "studname" : "Rahul",
        "address" : "borivali",
        "class" : "msc cs",
        "mobileNo" : "unknown"
}
{
        "_id" : ObjectId("624969c905ccee021b594e6c"),
        "studname" : "Kapil",
        "address" : "chembur",
        "class" : "msc cs",
        "mobileNo" : "unknown"
}
{
        "_id" : ObjectId("624969c905ccee021b594e6d"),
        "studname" : "Roshni",
        "address" : "kalyan",
        "class" : "msc cs",
        "mobileNo" : "unknown"
}
>
```

23. Now let's change the status of one employee.

```
> db.student.updateOne({studname:'Rahul'},{$set:{mobileNo: 9876556790}})
{ "acknowledged" : true, "matchedCount" : 1, "modifiedCount" : 1 }
> db.student.find().pretty()
{
        "_id" : ObjectId("6249690b05ccee021b594e6b"),
        "studname" : "Rahul",
        "address" : "borivali",
        "class" : "msc cs",
        "mobileNo" : 9876556790
}
{
        "_id" : ObjectId("624969c905ccee021b594e6c"),
        "studname" : "Kapil",
        "address" : "chembur",
        "class" : "msc cs",
        "mobileNo" : "unknown"
}
{
        "_id" : ObjectId("624969c905ccee021b594e6d"),
        "studname" : "Roshni",
        "address" : "kalyan",
        "class" : "msc cs",
        "mobileNo" : "unknown"
}
>
```

24. Now using the Find command to find an entry with a particular tag.

```
> db.student.find({studname: 'Rahul'}).pretty()
{
        "_id" : ObjectId("6249690b05ccee021b594e6b"),
        "studname" : "Rahul",
        "address" : "borivali",
        "class" : "msc cs",
        "mobileNo" : 9876556790
}
>
```

25. Now we can work on some delete operations.

26. So now let's delete an entry from an employee using deleteOne() where mobile number is provided.

```
> db.student.deleteOne({studname:'Rahul'})
{ "acknowledged" : true, "deletedCount" : 1 }
> db.student.find().pretty()
{
        "_id" : ObjectId("624969c905ccee021b594e6c"),
        "studname" : "Kapil",
        "address" : "chembur",
        "class" : "msc cs",
        "mobileNo" : "unknown"
}
{
        "_id" : ObjectId("624969c905ccee021b594e6d"),
        "studname" : "Roshni",
        "address" : "kalyan",
        "class" : "msc cs",
        "mobileNo" : "unknown"
}
>
```

27. Now deleting users with deleteMany() operations where mobile number is unknown.

```
> db.student.deleteMany({mobileNo:'unknown'})
{ "acknowledged" : true, "deletedCount" : 2 }
> db.student.find().pretty()
>
```

28. All records are deleted and hence we now have an empty collection.

29. This is all with the CRUD operations in MongoDB.