

Lab Assignment 2

Ramya Mercy Rajan

AA.SC.P2MCA2107434

MCA (Artificial Intelligence)

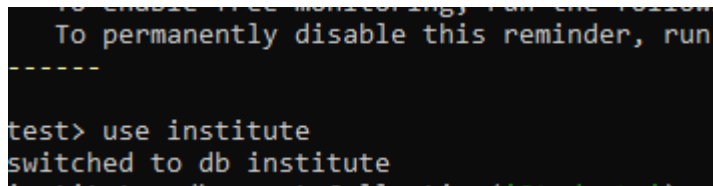
Topic- MongoDB

Perform following operations.

1. Create database Institute.
2. Create collection Students.
3. Insert 10 documents with above mentioned structure.
4. Display all students' information.
5. Display Student information whose age is greater than 15.
6. Display Student information sorted on name field
7. Update student branch Computer of RollNo 3.
8. Remove document with RollNo 1

9. Display Student information whose name starts with A
10. Display the total numbers of documents available in collection.
11. Display only first 5 documents.
12. Display all documents instead of first 3.
13. Display the name of Students who live in Pune City.
14. Display the list of different cities from where students are coming.
15. Display the list of different cities with number of students from belonging to that city.
16. Display only Name of all students.
17. Display the hobbies of each student.
18. Drop Collection

1. Create database Institute.



```
To enable free monitoring, run the following command:  
To permanently disable this reminder, run the following command:  
-----  
test> use institute  
switched to db institute
```

2. Create collection Students.

```
institute> db.createCollection('Students')
{ ok: 1 }
institute>
```

3. Insert 10 documents with above mentioned structure.

```
{ ok: 1 }
institute> db.students.insertMany([
  { RollNo:1, Student_Name:"Amrita", Age:29, Branch:"AI", Address:{City:"Alappuzha", State:"Kerala"}, Hobbies:["Dancing", "Painting"]},
  ... {RollNo:2, Student_Name:"Parvathy", Age:26, Branch:"Cyber", Address:{City:"Ernakulam", State:"Kerala"}, Hobbies:["music", "stone crafting"]},
  ... {RollNo:3, Student_Name:"Greeshma", Age:24, Branch:"IT", Address:{City:"Palakkad", State:"Kerala"}, Hobbies:["story writing", "music composing"]},
  ... {RollNo:5, Student_Name:"Revathy", Age:28, Branch:"AI", Address:{City:"Chennai", State:"Tamilnadu"}, Hobbies:["singing", "musing composing"]},
  ... {RollNo:4, Student_Name:"Saigayathri", Age:23, Branch:"IT", Address:{City:"Palakkad", State:"Kerala"}, Hobbies:["Poem writing", "Painting"]},
  ... {RollNo:6, Student_Name:"Krishna", Age:28, Branch:"Cyber", Address:{City:"Ernakulam", State:"Kerala"}, Hobbies:["Dancing", "Painting"]},
  ... {RollNo:7, Student_Name:"Gowtham", Age:28, Branch:"AI", Address:{City:"Banglore", State:"Karnataka"}, Hobbies:["Cricket", "chess"]},
  ... {RollNo:8, Student_Name:"Gowri", Age:22, Branch:"IT", Address:{City:"Banglore", State:"Karnataka"}, Hobbies:["journal", "writing poem"]},
  ... {RollNo:9, Student_Name:"Meera", Age:22, Branch:"AI", Address:{City:"Chennai", State:"Tamilnadu"}, Hobbies:["cooking", "dancing"]},
  ... {RollNo:10, Student_Name:"Govinda", Age:21, Branch:"AI", Address:{City:"Kottayam", State:"Kerala"}, Hobbies:["dancing", "playing flute"]}]
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("640750ddecc5beef4ab19e24"),
    '1': ObjectId("640750ddecc5beef4ab19e25"),
    '2': ObjectId("640750ddecc5beef4ab19e26"),
    '3': ObjectId("640750ddecc5beef4ab19e27"),
    '4': ObjectId("640750ddecc5beef4ab19e28"),
    '5': ObjectId("640750ddecc5beef4ab19e29"),
    '6': ObjectId("640750ddecc5beef4ab19e2a"),
    '7': ObjectId("640750ddecc5beef4ab19e2b"),
    '8': ObjectId("640750ddecc5beef4ab19e2c"),
    '9': ObjectId("640750ddecc5beef4ab19e2d")
  }
}
institute>
```

4. Display all students' information.

```

}
}
institute> db.students.find().pretty()
[
  {
    _id: ObjectId("640750ddecc5beef4ab19e24"),
    RollNo: 1,
    Student_Name: 'Amrita',
    Age: 29,
    Branch: 'AI',
    Address: { City: 'Alappuzha', State: 'Kerala' },
    Hobbies: [ 'Dancing', 'Painting' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e25"),
    RollNo: 2,
    Student_Name: 'Parvathy',
    Age: 26,
    Branch: 'Cyber',
    Address: { City: 'Ernakulam', State: 'Kerala' },
    Hobbies: [ 'music', 'stone crafting' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e26"),
    RollNo: 3,
    Student_Name: 'Greeshma',
    Age: 24,
    Branch: 'IT',
    Address: { City: 'Palakkad', State: 'Kerala' },
    Hobbies: [ 'story writing', 'music composing' ]
  },
  {
    id: ObjectId("640750ddecc5beef4ab19e27"),

```

```
{
  _id: ObjectId("640750ddecc5beef4ab19e27"),
  RollNo: 5,
  Student_Name: 'Revathy',
  Age: 28,
  Branch: 'AI',
  Address: { City: 'Chennai', State: 'Tamilnadu' },
  Hobbies: [ 'singing', 'musing composing' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e28"),
  RollNo: 4,
  Student_Name: 'Saigayathri',
  Age: 23,
  Branch: 'IT',
  Address: { City: 'Palakkad', State: 'Kerala' },
  Hobbies: [ 'Poem writing', 'Painting' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e29"),
  RollNo: 6,
  Student_Name: 'Krishna',
  Age: 28,
  Branch: 'Cyber',
  Address: { City: 'Ernakulam', State: 'Kerala' },
  Hobbies: [ 'Dancing', 'Painting' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e2a"),
  RollNo: 7,
  Student_Name: 'Gowtham',
  Age: 28,
  Branch: 'AI',
  Address: { City: 'Bangalore', State: 'Karnataka' },
  Hobbies: [ 'Cricket', 'chess' ]
},
}
```

```

{
  _id: ObjectId("640750ddecc5beef4ab19e2b"),
  RollNo: 8,
  Student_Name: 'Gowri',
  Age: 22,
  Branch: 'IT',
  Address: { City: 'Bangalore', State: 'Karnataka' },
  Hobbies: [ 'journal', 'writing poem' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e2c"),
  RollNo: 9,
  Student_Name: 'Meera',
  Age: 22,
  Branch: 'AI',
  Address: { City: 'Chennai', State: 'Tamilnadu' },
  Hobbies: [ 'cooking', 'dancing' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e2d"),
  RollNo: 10,
  Student_Name: 'Govinda',
  Age: 21,
  Branch: 'AI',
  Address: { City: 'Kottayam', State: 'Kerala' },
  Hobbies: [ 'dancing', 'playing flute' ]
}
]
institute>

```

5. Display Student information whose age is greater than 15.

```

    }
  ]
institute> db.students.find({Age:{$gt:15}})
[
  {
    _id: ObjectId("640750ddecc5beef4ab19e24"),
    RollNo: 1,
    Student_Name: 'Amrita',
    Age: 29,
    Branch: 'AI',
    Address: { City: 'Alappuzha', State: 'Kerala' },
    Hobbies: [ 'Dancing', 'Painting' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e25"),
    RollNo: 2,
    Student_Name: 'Parvathy',
    Age: 26,
    Branch: 'Cyber',
    Address: { City: 'Ernakulam', State: 'Kerala' },
    Hobbies: [ 'music', 'stone crafting' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e26"),
    RollNo: 3,
    Student_Name: 'Greeshma',
    Age: 24,
    Branch: 'IT',
    Address: { City: 'Palakkad', State: 'Kerala' },
    Hobbies: [ 'story writing', 'music composing' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e27"),
    RollNo: 5,
    Student_Name: 'Revathy',

```

```
{
  _id: ObjectId("640750ddecc5beef4ab19e27"),
  RollNo: 5,
  Student_Name: 'Revathy',
  Age: 28,
  Branch: 'AI',
  Address: { City: 'Chennai', State: 'Tamilnadu' },
  Hobbies: [ 'singing', 'musing composing' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e28"),
  RollNo: 4,
  Student_Name: 'Saigayathri',
  Age: 23,
  Branch: 'IT',
  Address: { City: 'Palakkad', State: 'Kerala' },
  Hobbies: [ 'Poem writing', 'Painting' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e29"),
  RollNo: 6,
  Student_Name: 'Krishna',
  Age: 28,
  Branch: 'Cyber',
  Address: { City: 'Ernakulam', State: 'Kerala' },
  Hobbies: [ 'Dancing', 'Painting' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e2a"),
  RollNo: 7,
  Student_Name: 'Gowtham',
  Age: 28,
  Branch: 'AI',
  Address: { City: 'Banglore', State: 'Karnataka' },
  Hobbies: [ 'Cricket', 'chess' ]
},
}
```



```

    },
    {
      _id: ObjectId("640750ddecc5beef4ab19e2b"),
      RollNo: 8,
      Student_Name: 'Gowri',
      Age: 22,
      Branch: 'IT',
      Address: { City: 'Bangalore', State: 'Karnataka' },
      Hobbies: [ 'journal', 'writing poem' ]
    },
    {
      _id: ObjectId("640750ddecc5beef4ab19e2c"),
      RollNo: 9,
      Student_Name: 'Meera',
      Age: 22,
      Branch: 'AI',
      Address: { City: 'Chennai', State: 'Tamilnadu' },
      Hobbies: [ 'cooking', 'dancing' ]
    },
    {
      _id: ObjectId("640750ddecc5beef4ab19e2d"),
      RollNo: 10,
      Student_Name: 'Govinda',
      Age: 21,
      Branch: 'AI',
      Address: { City: 'Kottayam', State: 'Kerala' },
      Hobbies: [ 'dancing', 'playing flute' ]
    }
  ]
}

nstitute>

```

6. Display Student information sorted on name field

```

]
institute> db.students.find().sort({Student_Name:1})
[
  {
    _id: ObjectId("640750ddecc5beef4ab19e24"),
    RollNo: 1,
    Student_Name: 'Amrita',
    Age: 29,
    Branch: 'AI',
    Address: { City: 'Alappuzha', State: 'Kerala' },
    Hobbies: [ 'Dancing', 'Painting' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e2d"),
    RollNo: 10,
    Student_Name: 'Govinda',
    Age: 21,
    Branch: 'AI',
    Address: { City: 'Kottayam', State: 'Kerala' },
    Hobbies: [ 'dancing', 'playing flute' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e2b"),
    RollNo: 8,
    Student_Name: 'Gowri',
    Age: 22,
    Branch: 'IT',
    Address: { City: 'Bangalore', State: 'Karnataka' },
    Hobbies: [ 'journal', 'writing poem' ]
  },
]

```

```

{
  _id: ObjectId("640750ddecc5beef4ab19e2a"),
  RollNo: 7,
  Student_Name: 'Gowtham',
  Age: 28,
  Branch: 'AI',
  Address: { City: 'Bangalore', State: 'Karnataka' },
  Hobbies: [ 'Cricket', 'chess' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e26"),
  RollNo: 3,
  Student_Name: 'Greeshma',
  Age: 24,
  Branch: 'IT',
  Address: { City: 'Palakkad', State: 'Kerala' },
  Hobbies: [ 'story writing', 'music composing' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e29"),
  RollNo: 6,
  Student_Name: 'Krishna',
  Age: 28,
  Branch: 'Cyber',
  Address: { City: 'Ernakulam', State: 'Kerala' },
  Hobbies: [ 'Dancing', 'Painting' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e2c"),
  RollNo: 9,
  Student_Name: 'Meera',
  Age: 22,
  Branch: 'AI',
  Address: { City: 'Chennai', State: 'Tamilnadu' },
  Hobbies: [ 'cooking', 'dancing' ]
},
{
  _id: ObjectId("640750ddecc5beef4ab19e25"),
  RollNo: 2,
  Student_Name: 'Parvathy',
  Age: 26,
  Branch: 'Cyber',
  Address: { City: 'Ernakulam', State: 'Kerala' },
  Hobbies: [ 'music', 'stone crafting' ]
}

```

```

    },
    {
      _id: ObjectId("640750ddecc5beef4ab19e27"),
      RollNo: 5,
      Student_Name: 'Revathy',
      Age: 28,
      Branch: 'AI',
      Address: { City: 'Chennai', State: 'Tamilnadu' },
      Hobbies: [ 'singing', 'musing composing' ]
    },
    {
      _id: ObjectId("640750ddecc5beef4ab19e28"),
      RollNo: 4,
      Student_Name: 'Saigayathri',
      Age: 23,
      Branch: 'IT',
      Address: { City: 'Palakkad', State: 'Kerala' },
      Hobbies: [ 'Poem writing', 'Painting' ]
    }
  ]
institute>

```

7. Update student branch Computer of RollNo 3.

```

]
institute> db.students.updateOne({RollNo:3},{ $set:{Branch:"Computer"}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
institute>

```

8. Remove document with RollNo 1

```
}  
institute> db.students.deleteOne({RollNo:1},1)  
{ acknowledged: true, deletedCount: 1 }  
institute>
```

9. Display Student information whose name starts with A

Note: I have no names starting with "A" so, I tried "G"

```
institute> db.students.find({Student_Name:/^A/})

institute> db.students.find({Student_Name:/^G/})
[
  {
    _id: ObjectId("640750ddecc5beef4ab19e26"),
    RollNo: 3,
    Student_Name: 'Greeshma',
    Age: 24,
    Branch: 'Computer',
    Address: { City: 'Palakkad', State: 'Kerala' },
    Hobbies: [ 'story writing', 'music composing' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e2a"),
    RollNo: 7,
    Student_Name: 'Gowtham',
    Age: 28,
    Branch: 'AI',
    Address: { City: 'Bangalore', State: 'Karnataka' },
    Hobbies: [ 'Cricket', 'chess' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e2b"),
    RollNo: 8,
    Student_Name: 'Gowri',
    Age: 22,
    Branch: 'IT',
    Address: { City: 'Bangalore', State: 'Karnataka' },
    Hobbies: [ 'journal', 'writing poem' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e2d"),
    RollNo: 10,
    Student_Name: 'Govinda',
    Age: 21,
    Branch: 'AI',
    Address: { City: 'Kottayam', State: 'Kerala' },
    Hobbies: [ 'dancing', 'playing flute' ]
  }
]
institute>
```

10. Display the total numbers of documents available in collection.

```
]
institute> db.students.find().count()
9
institute>
```

11. Display only first 5 documents.

```
institute> db.students.find().limit(5)
[
  {
    _id: ObjectId("640750ddecc5beef4ab19e25"),
    RollNo: 2,
    Student_Name: 'Parvathy',
    Age: 26,
    Branch: 'Cyber',
    Address: { City: 'Ernakulam', State: 'Kerala' },
    Hobbies: [ 'music', 'stone crafting' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e26"),
    RollNo: 3,
    Student_Name: 'Greeshma',
    Age: 24,
    Branch: 'Computer',
    Address: { City: 'Palakkad', State: 'Kerala' },
    Hobbies: [ 'story writing', 'music composing' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e27"),
    RollNo: 5,
    Student_Name: 'Revathy',
    Age: 28,
    Branch: 'AI',
    Address: { City: 'Chennai', State: 'Tamilnadu' },
    Hobbies: [ 'singing', 'musing composing' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e28"),
    RollNo: 4,
    Student_Name: 'Saigayathri',
    Age: 23,
    Branch: 'IT',
    Address: { City: 'Palakkad', State: 'Kerala' },
    Hobbies: [ 'Poem writing', 'Painting' ]
  },
]
```

```
},  
{  
  _id: ObjectId("640750ddecc5beef4ab19e29"),  
  RollNo: 6,  
  Student_Name: 'Krishna',  
  Age: 28,  
  Branch: 'Cyber',  
  Address: { City: 'Ernakulam', State: 'Kerala' },  
  Hobbies: [ 'Dancing', 'Painting' ]  
}  
nstitute>
```

12. Display all documents instead of first 3.


```
institute> db.students.find().skip(3)
[
  {
    _id: ObjectId("640750ddecc5beef4ab19e28"),
    RollNo: 4,
    Student_Name: 'Saigayathri',
    Age: 23,
    Branch: 'IT',
    Address: { City: 'Palakkad', State: 'Kerala' },
    Hobbies: [ 'Poem writing', 'Painting' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e29"),
    RollNo: 6,
    Student_Name: 'Krishna',
    Age: 28,
    Branch: 'Cyber',
    Address: { City: 'Ernakulam', State: 'Kerala' },
    Hobbies: [ 'Dancing', 'Painting' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e2a"),
    RollNo: 7,
    Student_Name: 'Gowtham',
    Age: 28,
    Branch: 'AI',
    Address: { City: 'Bangalore', State: 'Karnataka' },
    Hobbies: [ 'Cricket', 'chess' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e2b"),
    RollNo: 8,
    Student_Name: 'Gowri',
    Age: 22,
    Branch: 'IT',
    Address: { City: 'Bangalore', State: 'Karnataka' },
    Hobbies: [ 'journal', 'writing poem' ]
  },
  {

```

```
{
  {
    _id: ObjectId("640750ddecc5beef4ab19e2c"),
    RollNo: 9,
    Student_Name: 'Meera',
    Age: 22,
    Branch: 'AI',
    Address: { City: 'Chennai', State: 'Tamilnadu' },
    Hobbies: [ 'cooking', 'dancing' ]
  },
  {
    _id: ObjectId("640750ddecc5beef4ab19e2d"),
    RollNo: 10,
    Student_Name: 'Govinda',
    Age: 21,
    Branch: 'AI',
    Address: { City: 'Kottayam', State: 'Kerala' },
    Hobbies: [ 'dancing', 'playing flute' ]
  }
]
Institute>
```

13. Display the name of Students who live in Ernakulam City.

```

institute> db.students.find({"Address.City":"Ernakulam"})
[
  {
    _id: ObjectId("640750
    RollNo: 2,
    Student_Name: 'Parvathy',
    Age: 26,
    Branch: 'Cyber',
    Address: { City: 'Ernakulam', State: 'Kerala' },
    Hobbies: [ 'music', 'stone crafting' ]
  },
  {
    _id: ObjectId("640750
    RollNo: 6,
    Student_Name: 'Krishn
    Age: 28,
    Branch: 'Cyber',
    Address: { City: 'Ernakulam', State: 'Kerala' },
    Hobbies: [ 'Dancing', 'Painting' ]
  }
]
institute>

```

14. Display the list of different cities from where students are coming.

```

institute> db.students.distinct("Address.City")
[ 'Banglore', 'Chennai', 'Ernakulam', 'Kottayam', 'Palakkad' ]
institute> db.students.find({}, {"Address.City":1, "_id":0}).toArray()
[
  { Address: { City: 'Ernakulam' } },
  { Address: { City: 'Palakkad' } },
  { Address: { City: 'Chennai' } },
  { Address: { City: 'Palakkad' } },
  { Address: { City: 'Ernakulam' } },
  { Address: { City: 'Banglore' } },
  { Address: { City: 'Banglore' } },
  { Address: { City: 'Chennai' } },
  { Address: { City: 'Kottayam' } }
]
institute>

```

15. Display the list of different cities with number of students from belonging to that city.

```
institute> db.students.aggregate([{$sortByCount: "$Address.City"}])
[
  { _id: 'Chennai', count: 2 },
  { _id: 'Palakkad', count: 2 },
  { _id: 'Ernakulam', count: 2 },
  { _id: 'Banglore', count: 2 },
  { _id: 'Kottayam', count: 1 }
]
institute>
```

16. Display only Name of all students.

```
institute> db.students.find({}, {"Student_Name":1, "_id":0})
[
  { Student_Name: 'Parvathy' },
  { Student_Name: 'Greeshma' },
  { Student_Name: 'Revathy' },
  { Student_Name: 'Saigayathri' },
  { Student_Name: 'Krishna' },
  { Student_Name: 'Gowtham' },
  { Student_Name: 'Gowri' },
  { Student_Name: 'Meera' },
  { Student_Name: 'Govinda' }
]
institute>
```

17. Display the hobbies of each student.

```
institute> db.students.find({}, {"Hobbies":1, "_id":0})
[  Student_Name: 'Krishna',
  { Hobbies: [ 'music', 'stone crafting' ] },
  { Hobbies: [ 'story writing', 'music composing' ] },
  { Hobbies: [ 'singing', 'musing composing' ] }, },
  { Hobbies: [ 'Poem writing', 'Painting' ] },
  { Hobbies: [ 'Dancing', 'Painting' ] },
  { Hobbies: [ 'Cricket', 'chess' ] },
  { Hobbies: [ 'journal', 'writing poem' ] },
  { Hobbies: [ 'cooking', 'dancing' ] },
  { Hobbies: [ 'dancing', 'playing flute' ] }
]
institute>
```

18. Drop Collection

```
]
institute> db.students.drop()
true
institute>
```