Lab 2

**MongoDB**

1) Using MongoDB

i) Create a database for Students and Create a Student Collection (_id,Name, USN,Semester, Dept_Name, CGPA, Hobbies(Set)).

```
> use Students
switched to db Students
```

ii) Insert required documents to the collection.

```
 >
db.Student.insert({Studname:"Nithin",USN:"1BM19CS106",Semester:
"VII",Dept_name:"Computer
Science",CGPA:9.6,Hobbies:["Sleep","eat"]});
WriteResult({ "nInserted" : 1 })
>
db.Student.insert({Studname:"Rahul",USN:"1BM19CS105",Semester:
"VI",Dept_name:"Computer
Science",CGPA:8.6,Hobbies:["Sleep","eat"]});
WriteResult({ "nInserted" : 1 })
>
db.Student.insert({Studname:"Hailey",USN:"1BM19CS015",Semester
:"VIII",Dept_name:"Computer
Science",CGPA:7.4,Hobbies:["Sleep","eat","repeat"]});
WriteResult({ "nInserted" : 1 })
```

iii) First Filter on “Dept_Name:CSE” and then group it on “Semester” and compute the Average CPGA for that semester and filter those documents where the “Avg_CPGA” is greater than 7.5.

```
> db.Student.aggregate({$match:{Dept_name:"Computer Science"}},{$group:{_id:"$Semester",AvgCGPA:{$avg:"$CGPA"}}},{$match:{AvgCGPA:{$gt:7.5}}});
{ "_id" : "VIII", "AvgCGPA" : 8.6 }
{ "_id" : "VII", "AvgCGPA" : 8.533333333333333 }
{ "_id" : "VI", "AvgCGPA" : 8.266666666666667 }
```

iv) Command used to export MongoDB JSON documents from "Student" Collection into the "Students" database into a CSV file "Output.txt".

2)Create a mongodb collection Bank. Demonstrate the following by choosing fields of your choice.

```
> db.createCollection("Bank");
{ "ok" : 1 }
```

1. Insert three documents

```
db.Bank.insert({_id:1,name:"Ramesh",state:"Gujarat",country:"India",language:["gujarati","marathi","english"]})

db.Bank.insert({_id:2,name:"Mahesh",state:"Gujarat",country:"India",language:["gujarati","marwadi","english"]})

db.Bank.insert({_id:3,name:"Ghela bhai",state:"Maharashta",country:"India",language:["marathi","marwadi","english"]})
```

2. Use Arrays(Use Pull and Pop operation)

```
db.Bank.update({_id: 1}, {$push: {language: "hindi"}})

db.Bank.update({_id: 2}, {$pull: {language: "english"}})
```

3. Use Index
4. Use Cursors
5. Updation

3) Consider a table “Students ” with the following columns:
1. StudRollNo / _id
2. StudName
3. Grade
4. Hobbies
5. DOJ

Write MongoDB queries for the following:

1. To display only the students name from all the documents of the Students collection.

```
> db.Students.find({},{Studname:1,_id:0});
{ "Studname" : "raj" }
{ "Studname" : "varun" }
{ "Studname" : "Lodi" }
{ "Studname" : "Modi" }
{ "Studname" : "Nithin" }
```

2. To display only the student name, grade as well as the identifier from the document of the Student collection where the _id column is 1.

```
> db.Students.find({_id:{$eq:ObjectId("625fd1171e24dbace73bd604")}},{Studname:1,Grade:1,_id:1});
{ "_id" : ObjectId("625fd1171e24dbace73bd604"), "Studname" : "raj", "Grade" : "VII" }
```

3. To find those documents where the grade is not set to VIII.

```
> db.Students.find({Grade:{$ne:"VII"}});
{ "_id" : ObjectId("625fd11d1e24dbace73bd605"), "Studname" :
"varun", "Grade" : "VIII", "Hobbies" : [ "cricket" ], "DOJ" : "12/8/2021" }
{ "_id" : ObjectId("625fd1241e24dbace73bd606"), "Studname" :
"Lodi", "Grade" : "VIII", "Hobbies" : [ "Sleep" ], "DOJ" : "12/8/2021" }
{ "_id" : ObjectId("625fd12d1e24dbace73bd607"), "Studname" :
"Modi", "Grade" : "VI", "Hobbies" : [ "Sleep", "eat" ], "DOJ" : "12/7/2001"
}
```

4. To find those documents from the Students collection where the hobbies is set to ’cricket’ and the student name is set to ‘varun’.

```
> db.Student.find({Hobbies :{
$in:['cricket']},Studname:{$eq:"varun"}}).pretty ();
{
        "_id" : ObjectId("625fd0771e24dbace73bd602"),
        "Studname" : "varun",
        "Grade" : "VIII",
        "Hobbies" : [
                "cricket"
        ],
        "DOJ" : "12/8/2021"
}
```

5.To find documents from the Students collection where the student name ends in ‘j’

```
> db.Student.find({Studname:/j$/}).pretty();
{
        "_id" : ObjectId("625fd09b1e24dbace73bd603"),
        "Studname" : "raj",
        "Grade" : "VII",
        "Hobbies" : [
                "cricket"
        ],
        "DOJ" : "12/8/2021"
}
```

4) Using MongoDB,
i) Create a database for Faculty and Create a Faculty Collection(Faculty_id, Name, Designation ,Department, Age, Salary, Specialization(Set)).

```
> use faculty
switched to db faculty
> db.createCollection("Faculty");
{ "ok" : 1 }
```

ii) Insert required documents to the collection.

```
>
db.Faculty.insert({Name:"Modi",Designation:"Teacher",Department:"
CSE",Age:90,Salary:40000,Specialization:["Eating","Talking","Web
dev"]});
WriteResult({ "nInserted" : 1 })
>
db.Faculty.insert({Name:"NIRANJAN",Designation:"Teacher",Depart
ment:"MECH",Age:90,Salary:120000,Specialization:["Eating","Talking"
,"Web dev"]});
```

```
WriteResult({ "nInserted" : 1 })
>
db.Faculty.insert({Name:"ugrasen",Designation:"Assisstant",Departm
ent:"MECH",Age:20,Salary:1000,Specialization:["Eating","Talking","We
b dev"]});
WriteResult({ "nInserted" : 1 })
>
db.Faculty.insert({Name:"rahul",Designation:"Assisstant",Departmen
t:"MECH",Age:20,Salary:111000,Specialization:["Eating","Talking","We
b dev"]});
WriteResult({ "nInserted" : 1 })
```

iii) First Filter on “Dept_Name:MECH” and then group it on “Designation” and
compute the Average Salary for that Designation and filter those documents where the “Avg_Sal” is greater than 6500.

```
>
db.Faculty.aggregate({$match:{Department:"MECH"}},{$group:{_id:"$
Designation",AvgSAL:{$avg:"$Salary"}}},{$match:{AvgSAL:{$gt:6500}
}});
{ "_id" : "Assisstant", "AvgSAL" : 56000 }
{ "_id" : "Teacher", "AvgSAL" : 120000 }
```

iv) Demonstrate usage of import and export commands