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## BDA- Lab 3

### 1) Using MongoDB

- Create a database for Students and Create a Student Collection (\_id, Name, USN, Semester, Dept\_Name, CGPA, Hobbies(Set)).
- Insert required documents to the collection.
- First Filter on "Dept\_Name:CSE" and then group it on "Semester" and compute the Average CGPA for that semester and filter those documents where the "Avg\_CGPA" is greater than 7.5.
- Command used to export MongoDB JSON documents from "Student" Collection into the "Students" database into a CSV file "Output.txt".

```
bmsce@bmsce-Precision-T1700:~$ mongo
MongoDB shell version v3.6.8
connecting to: mongodb://127.0.0.1:27017
implicit session: session { "id" : UUID("4419b91e-5b22-4f43-a52c-ac40a0bf73a6") }
MongoDB server version: 3.6.8
Server has startup warnings:
2022-04-20T19:31:53.425+0530 I STORAGE [initandlisten]
2022-04-20T19:31:53.426+0530 I STORAGE [initandlisten] ** WARNING: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine
2022-04-20T19:31:53.426+0530 I STORAGE [initandlisten] ** See http://dochub.mongodb.org/core/prodnotes-filesystem
2022-04-20T19:31:58.891+0530 I CONTROL [initandlisten]
2022-04-20T19:31:58.891+0530 I CONTROL [initandlisten] ** WARNING: Access control is not enabled for the database.
2022-04-20T19:31:58.891+0530 I CONTROL [initandlisten] ** Read and write access to data and configuration is unrestricted.
2022-04-20T19:31:58.891+0530 I CONTROL [initandlisten]
> use Niharika_db
switched to db Niharika_db
```

```
> db.Student.insert({_id:1,Name:"Aravind",USN:"1BM19CS001",Sem:6,Dept_name:"CSE",CGPA:"9.6",Hobbies:"Badminton"});
WriteResult({ "nInserted" : 1 })
> db.Student.insert({_id:2,Name:"Aman",USN:"1BM19EC002",Sem:7,Dept_name:"ECE",CGPA:"9.1",Hobbies:"Swimming"});
WriteResult({ "nInserted" : 1 })
> db.Student.insert({_id:3,Name:"Latha",USN:"1BM19CS003",Sem:6,Dept_name:"CSE",CGPA:"8.1",Hobbies:"Reading"});
WriteResult({ "nInserted" : 1 })
> db.Student.insert({_id:4,Name:"Sam",USN:"1BM19CS004",Sem:6,Dept_name:"CSE",CGPA:"6.5",Hobbies:"Cycling"});
WriteResult({ "nInserted" : 1 })
> db.Student.insert({_id:5,Name:"Suman",USN:"1BM19CS005",Sem:5,Dept_name:"CSE",CGPA:"7.6",Hobbies:"Cycling"});
WriteResult({ "nInserted" : 1 })
```

```
> db.Student.update({_id:1},{set:{CGPA:9.0}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.Student.update({_id:2},{set:{CGPA:9.1}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.Student.update({_id:3},{set:{CGPA:8.1}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.Student.update({_id:4},{set:{CGPA:6.5}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.Student.update({_id:5},{set:{CGPA:8.6}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.Student.aggregate({$match:{Dept_name:"CSE"}},{ $group:{_id:$Sem,AvgCGPA:{ $avg:"$CGPA"} }},{ $match:{AvgCGPA:{ $gt:7.5 }}});
{ "_id" : 5, "AvgCGPA" : 8.6 }
{ "_id" : 6, "AvgCGPA" : 7.866666666666667 }
```

```
bmsce@bmsce-Precision-T1700:~$ mongoexport --host localhost --db Niharika_db --collection Student --csv --out /home/bmsce/Desktop/output.txt --fields "_id","Name","USN","Sem","Dept-name","CGPA","Hobbies";
2022-04-20T15:04:30.836+0530 csv flag is deprecated; please use --type=csv instead
2022-04-20T15:04:30.836+0530 connected to: localhost
2022-04-20T15:04:30.836+0530 exported 5 records
```

```
Open  output.txt
~/Desktop
_id,Name,USN,Sem,Dept-name,CGPA,Hobbies
1,Aravind,1BM19CS001,6,,9,Badminton
2,Aman,1BM19EC002,7,,9.1,Swimming
3,Latha,1BM19CS003,6,,8.1,Reading
4,Sam,1BM19CS004,6,,6.5,Cycling
5,Suman,1BM19CS005,5,,8.6,Cycling
```

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

1. Insert three documents
2. Use Arrays (Use Pull and Pop operation)
3. Use Index
4. Use Cursors
5. Updation

```
> db.createCollection("Bank");
{ "ok" : 1 }
> db.insert({CustID:1, Name:"Trivikram Hegde", Type:"Savings", Contact:["9945678231", "080-22364587"]});
uncaught exception: TypeError: db.insert is not a function :
@(:shell):1:1
> db.Bank.insert({CustID:1, Name:"Trivikram Hegde", Type:"Savings", Contact:["9945678231", "080-22364587"]});
WriteResult({ "nInserted" : 1 })
> db.Bank.insert({CustID:2, Name:"Vishvesh Bhat", Type:"Savings", Contact:["6325985615", "080-23651452"]});
WriteResult({ "nInserted" : 1 })
> db.Bank.insert({CustID:3, Name:"Vaishak Bhat", Type:"Savings", Contact:["8971456321", "080-33529458"]});
WriteResult({ "nInserted" : 1 })
> db.Bank.insert({CustID:4, Name:"Pranod P Parande", Type:"Current", Contact:["9745236589", "080-56324587"]});
WriteResult({ "nInserted" : 1 })
> db.Bank.insert({CustID:4, Name:"Shreyas R S", Type:"Current", Contact:["9445678321", "044-65611729", "080-25639856"]});
WriteResult({ "nInserted" : 1 })
> db.Bank.find({});
{ "_id" : ObjectId("625d77809329139694f188a2"), "CustID" : 1, "Name" : "Trivikram Hegde", "Type" : "Savings", "Contact" : [ "9945678231", "080-22364587" ] }
{ "_id" : ObjectId("625d77bd9329139694f188a3"), "CustID" : 2, "Name" : "Vishvesh Bhat", "Type" : "Savings", "Contact" : [ "6325985615", "080-23651452" ] }
{ "_id" : ObjectId("625d77e69329139694f188a4"), "CustID" : 3, "Name" : "Vaishak Bhat", "Type" : "Savings", "Contact" : [ "8971456321", "080-33529458" ] }
{ "_id" : ObjectId("625d78229329139694f188a5"), "CustID" : 4, "Name" : "Pranod P Parande", "Type" : "Current", "Contact" : [ "9745236589", "080-56324587" ] }
{ "_id" : ObjectId("625d78659329139694f188a6"), "CustID" : 4, "Name" : "Shreyas R S", "Type" : "Current", "Contact" : [ "9445678321", "044-65611729", "080-25639856" ] }
> db.Bank.updateMany({CustID:1},{ $pop:{Contact:1} });
{ "acknowledged" : true, "matchedCount" : 1, "modifiedCount" : 1 }
> db.Bank.find({});
{ "_id" : ObjectId("625d77809329139694f188a2"), "CustID" : 1, "Name" : "Trivikram Hegde", "Type" : "Savings", "Contact" : [ "9945678231" ] }
{ "_id" : ObjectId("625d77bd9329139694f188a3"), "CustID" : 2, "Name" : "Vishvesh Bhat", "Type" : "Savings", "Contact" : [ "6325985615", "080-23651452" ] }
{ "_id" : ObjectId("625d77e69329139694f188a4"), "CustID" : 3, "Name" : "Vaishak Bhat", "Type" : "Savings", "Contact" : [ "8971456321", "080-33529458" ] }
{ "_id" : ObjectId("625d78229329139694f188a5"), "CustID" : 4, "Name" : "Pranod P Parande", "Type" : "Current", "Contact" : [ "9745236589", "080-56324587" ] }
{ "_id" : ObjectId("625d78659329139694f188a6"), "CustID" : 4, "Name" : "Shreyas R S", "Type" : "Current", "Contact" : [ "9445678321", "044-65611729", "080-25639856" ] }
```

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