**Assignment No: 01**

**Roll No: 3006**

**Title: Create a database with suitable example using MongoDB and implement CURD operations, Query Operations and Cursor operations on it.**

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**1. CURD Operations:**

1. **Display list of existing databases**

> show dbs

admin 0.000GB

assign1 0.000GB

config 0.000GB

local 0.000GB

1. **Switch database**

> use assign1

switched to db assign1

1. **Create Collection**

> db.createCollection("Book");

{ "ok" : 1 }

1. **Display list of existing collections**

> show collections

Book

book

1. **Insert documents into collection**

> db.Book.insert({id:"3586824624",title:"Database Management System",author:"S.Sudharshan",dept:"IT",subject:"ADBMS",price:756.76})

WriteResult({ "nInserted" : 1 })

> db.Book.insert({id:"8753698428",title:"Designing The User Interface",author:"Alan Dix",dept:"IT",subject:"HCI",price:876.75})

WriteResult({ "nInserted" : 1 })

1. **Retrieve and Display Documents**

> db.Book.find().pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 756.76

}

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

**7) Bulk insert**

> db.Book.insert([{id:"2376574365",title:"Machine Design",author:"Saul Fenster",dept:"ME",subject:"Machine Design",price:975},{id:"4868362945",title:"Digital Electronics",dept:"EE",price:832.765},{id:298374574,title:"Engineering Thermodyanamics",author:"P.K.Nag",dept:"ME",price:732.98}])

BulkWriteResult({

"writeErrors" : [ ],

"writeConcernErrors" : [ ],

"nInserted" : 3,

"nUpserted" : 0,

"nMatched" : 0,

"nModified" : 0,

"nRemoved" : 0,

"upserted" : [ ]

})

> db.Book.find().pretty()

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "2376574365",

"title" : "Machine Design",

"author" : "Saul Fenster",

"dept" : "ME",

"subject" : "Machine Design",

"price" : 975

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd15"),

"id" : 298374574,

"title" : "Engineering Thermodyanamics",

"author" : "P.K.Nag",

"dept" : "ME",

"price" : 732.98

}

**8) Delete particular document**

> db.Book.remove({title:"Engineering Thermodyanamics"})

WriteResult({ "nRemoved" : 1 })

> db.Book.find().pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 756.76

}

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "2376574365",

"title" : "Machine Design",

"author" : "Saul Fenster",

"dept" : "ME",

"subject" : "Machine Design",

"price" : 975

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765

}

**9) Update particular document**

> db.Book.update({title:"Machine Design"},{id:"23567897656",title:"Machine Design",author:"Alexander Fleming",subject:"Machine Design",price:823.098})

WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })

> db.Book.find(author:"Alexander Fleming").pretty()

uncaught exception: SyntaxError: missing ) after argument list :

@(shell):1:19

> db.Book.find().pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 756.76

}

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765

}

> db.Book.update({title:"Digital Electronics"},{$set:{subject:"DSP"}})

WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })

> db.Book.find().pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 756.76

}

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765,

"subject" : "DSP"

}

**2. Query Operations:**

**1) Display documents with value of an attribute between given range**

> db.Book.find({price:{$gte:700,$lte:800}}).pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 756.76

}

**2) Display documents with attribute value greater than given value**

> db.Book.find({price:{$gte:800}}).pretty()

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765,

"subject" : "DSP"

}

**3) Count operation with condition**

> db.Book.find({price:{$gte:800}}).count()

3

**4) Display value of only specific attribute**

> db.Book.find({},{\_id:0,title:1})

{ "title" : "Database Management System" }

{ "title" : "Designing The User Interface" }

{ "title" : "Machine Design" }

{ "title" : "Digital Electronics" }

**5) Display all documents without \_id**

> db.Book.find({},{\_id:false}).pretty()

{

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 756.76

}

{

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

{

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765,

"subject" : "DSP"

}

1. **Display documents with name starting/ending with given letter**

> db.Book.find({author:/^A/}).pretty()

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

> db.Book.find({author:/x$/}).pretty()

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

1. **Display distinct values on any attribute**

> db.Book.distinct("dept")

[ "EE", "IT" ]

1. **Display only first document having given value of an attribute**

> db.Book.findOne({dept:"IT"})

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 756.76

}

1. **Decrement value of an attribute by given value (also include condition)**

> db.Book.update({id:"3586824624"},{$inc:{price:50}})

WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })

> db.Book.find().pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 806.76

}

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765,

"subject" : "DSP"

}

1. **AND operation**

> db.Book.find({$and:[{author:"Alan Dix"},{dept:"IT"}]}).pretty()

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

1. **OR operation**

> db.Book.find({$or:[{author:"Alan Dix"},{dept:"IT"}]}).pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 806.76

}

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

1. **NOT operation**

> db.Book.find({author:{$ne:"Alan Dix"}}).pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 806.76

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765,

"subject" : "DSP"

}

**3. Cursor Operations:**

1. **Limit**

> db.Book.find().pretty().limit(2)

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 806.76

}

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

1. **Skip**

> db.Book.find().pretty().skip(2)

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765,

"subject" : "DSP"

}

1. **Sort**

> db.Book.find().sort({price:-1}).pretty()

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765,

"subject" : "DSP"

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 806.76

}

> db.Book.find().sort({price:1}).pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 806.76

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765,

"subject" : "DSP"

}

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 876.75

}

1. **Update (upsert & multitrue)**

> db.Book.update({"dept":"IT"},{$set:{"price":750}},{multi:true})

WriteResult({ "nMatched" : 2, "nUpserted" : 0, "nModified" : 2 })

> db.Book.find().pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "IT",

"subject" : "ADBMS",

"price" : 750

}

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 750

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "EE",

"price" : 832.765,

"subject" : "DSP"

}

**>**

> db.Book.update({"price":832.765},{$set:{"dept":"E&TC"}},{upsert:true})

WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })

> db.Book.find().pretty()

{

"\_id" : ObjectId("64ecdfb6848ae0682d696f51"),

"id" : "3586824624",

"title" : "Database Management System",

"author" : "S.Sudharshan",

"dept" : "CS",

"subject" : "ADBMS",

"price" : 750

}

{

"\_id" : ObjectId("64ece032848ae0682d696f52"),

"id" : "8753698428",

"title" : "Designing The User Interface",

"author" : "Alan Dix",

"dept" : "IT",

"subject" : "HCI",

"price" : 750

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd13"),

"id" : "23567897656",

"title" : "Machine Design",

"author" : "Alexander Fleming",

"subject" : "Machine Design",

"price" : 823.098

}

{

"\_id" : ObjectId("64eceb95caf728f8ddcefd14"),

"id" : "4868362945",

"title" : "Digital Electronics",

"dept" : "E&TC",

"price" : 832.765,

"subject" : "DSP"

}

**5) Save**