

Experiment

Aim: NoSQL Queries

Class: SE Comp

Year: 2020-21

Performed by: Danyl Fernandes, 72

Performance Date: 16-05-2021

Query:

use dandb

```
Command Prompt - mongo
C:\Users\thearchhero>mongo
MongoDB shell version v4.4.6
connecting to: mongodb://127.0.0.1:27017/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("4de77821-34a2-4856-923e-9e40bf60b32c") }
MongoDB server version: 4.4.6
---
The server generated these startup warnings when booting:
  2021-05-16T00:58:12.174-07:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
---
  Enable MongoDB's free cloud-based monitoring service, which will then receive and display
  metrics about your deployment (disk utilization, CPU, operation statistics, etc).

  The monitoring data will be available on a MongoDB website with a unique URL accessible to you
  and anyone you share the URL with. MongoDB may use this information to make product
  improvements and to suggest MongoDB products and deployment options to you.

  To enable free monitoring, run the following command: db.enableFreeMonitoring()
  To permanently disable this reminder, run the following command: db.disableFreeMonitoring()
---
> use dandb
switched to db dandb
>
```

Query:

show collections

```
> use dandb
switched to db dandb
> show collections
>
```

Query:

mongoimport -d dandb -c Books --type=csv --headerline

C:\Users\thearchhero\Desktop\books.csv

```
C:\Users\thearchhero>mongoimport -d dandb -c Books --type=csv --headerline C:\Users\thearchhero\Desktop\books.csv
2021-05-16T01:23:39.517-0700    connected to: mongodb://localhost/
2021-05-16T01:23:39.534-0700    13 document(s) imported successfully. 0 document(s) failed to import.
```

Query:

```
db.Books.find({}, { name:1, _id:0, author:1})
```

```
Command Prompt - mongo
> db.Books.find({}, {name:1, _id:0, author:1})
{ "name" : "Pointers in C", "author" : "Yashwant Kanetkar" }
{ "name" : "Exploring C", "author" : "Yashwant Kanetkar" }
{ "name" : "C++ Complete Reference", "author" : "Herbert Schildt" }
{ "name" : "C++ Primer", "author" : "Stanley Lippman" }
{ "name" : "C++ Programming Language", "author" : "Bjarne Stroustrup" }
{ "name" : "ANSI C Programming", "author" : "Dennis Ritchie" }
{ "name" : "Java Complete Reference", "author" : "Herbert Schildt" }
{ "name" : "ANSI C Programming", "author" : "E Balaguruswami" }
{ "name" : "Core Java Volume I", "author" : "Cay Horstmann" }
{ "name" : "Java Programming Language", "author" : "James Gosling" }
{ "name" : "Operating System Concepts", "author" : "Peter Galvin" }
{ "name" : "Design of UNIX Operating System", "author" : "Mauris J Bach" }
{ "name" : "UNIX Internals", "author" : "Uresh Vahalia" }
>
```

Query:

```
db.Books.find({}, {author:0})
```

```
Command Prompt - mongo
> db.Books.find({}, {author:0})
{ "_id" : 1002, "name" : "Pointers in C", "subject" : "C Programming", "price" : 371.019 }
{ "_id" : 1001, "name" : "Exploring C", "subject" : "C Programming", "price" : 123.456 }
{ "_id" : 2001, "name" : "C++ Complete Reference", "subject" : "C++ Programming", "price" : 417.764 }
{ "_id" : 2002, "name" : "C++ Primer", "subject" : "C++ Programming", "price" : 620.665 }
{ "_id" : 2003, "name" : "C++ Programming Language", "subject" : "C++ Programming", "price" : 987.213 }
{ "_id" : 1004, "name" : "ANSI C Programming", "subject" : "C Programming", "price" : 140.121 }
{ "_id" : 3001, "name" : "Java Complete Reference", "subject" : "Java Programming", "price" : 525.121 }
{ "_id" : 1003, "name" : "ANSI C Programming", "subject" : "C Programming", "price" : 334.215 }
{ "_id" : 3002, "name" : "Core Java Volume I", "subject" : "Java Programming", "price" : 575.651 }
{ "_id" : 3003, "name" : "Java Programming Language", "subject" : "Java Programming", "price" : 458.238 }
{ "_id" : 4001, "name" : "Operating System Concepts", "subject" : "Operating Systems", "price" : 567.391 }
{ "_id" : 4002, "name" : "Design of UNIX Operating System", "subject" : "Operating Systems", "price" : 421.938 }
{ "_id" : 4003, "name" : "UNIX Internals", "subject" : "Operating Systems", "price" : 352.822 }
>
```

Query:

```
db.Books.find().limit(4)
```

```
Command Prompt - mongo
> db.Books.find().limit(4)
{ "_id" : 1002, "name" : "Pointers in C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 371.019 }
{ "_id" : 1001, "name" : "Exploring C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 123.456 }
{ "_id" : 2001, "name" : "C++ Complete Reference", "author" : "Herbert Schildt", "subject" : "C++ Programming", "price" : 417.764 }
{ "_id" : 2002, "name" : "C++ Primer", "author" : "Stanley Lippman", "subject" : "C++ Programming", "price" : 620.665 }
>
```

Query:

```
db.Books.find().skip(2).limit(2)
```

```
Command Prompt - mongo
> db.Books.find().skip(2).limit(2)
{ "_id" : 2001, "name" : "C++ Complete Reference", "author" : "Herbert Schildt", "subject" : "C++ Programming", "price" : 417.764 }
{ "_id" : 2002, "name" : "C++ Primer", "author" : "Stanley Lippman", "subject" : "C++ Programming", "price" : 620.665 }
>
```

Query:

```
db.Books.find().sort({'price':1})
```

```
Command Prompt - mongo
> db.Books.find().sort({'price':1})
{ "_id" : 1001, "name" : "Exploring C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 123.456 }
{ "_id" : 1004, "name" : "ANSI C Programming", "author" : "Dennis Ritchie", "subject" : "C Programming", "price" : 140.121 }
{ "_id" : 1003, "name" : "ANSI C Programming", "author" : "E Balaguruswami", "subject" : "C Programming", "price" : 334.215 }
{ "_id" : 4003, "name" : "UNIX Internals", "author" : "Uresh Vahalia", "subject" : "Operating Systems", "price" : 352.822 }
{ "_id" : 1002, "name" : "Pointers in C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 371.019 }
{ "_id" : 2001, "name" : "C++ Complete Reference", "author" : "Herbert Schildt", "subject" : "C++ Programming", "price" : 417.764 }
{ "_id" : 4002, "name" : "Design of UNIX Operating System", "author" : "Mauris J Bach", "subject" : "Operating Systems", "price" : 421.938 }
{ "_id" : 3003, "name" : "Java Programming Language", "author" : "James Gosling", "subject" : "Java Programming", "price" : 458.238 }
{ "_id" : 3001, "name" : "Java Complete Reference", "author" : "Herbert Schildt", "subject" : "Java Programming", "price" : 525.121 }
{ "_id" : 4001, "name" : "Operating System Concepts", "author" : "Peter Galvin", "subject" : "Operating Systems", "price" : 567.391 }
{ "_id" : 3002, "name" : "Core Java Volume I", "author" : "Cay Horstmann", "subject" : "Java Programming", "price" : 575.651 }
{ "_id" : 2002, "name" : "C++ Primer", "author" : "Stanley Lippman", "subject" : "C++ Programming", "price" : 620.665 }
{ "_id" : 2003, "name" : "C++ Programming Language", "author" : "Bjarne Stroustrup", "subject" : "C++ Programming", "price" : 987.213 }
>
```

Query:

```
db.Books.find().sort({subject:1,price:-1})
```

```
Command Prompt - mongo
> db.Books.find().sort({subject:1,price:-1})
{ "_id" : 1002, "name" : "Pointers in C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 371.019 }
{ "_id" : 1003, "name" : "ANSI C Programming", "author" : "E Balaguruswami", "subject" : "C Programming", "price" : 334.215 }
{ "_id" : 1004, "name" : "ANSI C Programming", "author" : "Dennis Ritchie", "subject" : "C Programming", "price" : 140.121 }
{ "_id" : 1001, "name" : "Exploring C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 123.456 }
{ "_id" : 2003, "name" : "C++ Programming Language", "author" : "Bjarne Stroustrup", "subject" : "C++ Programming", "price" : 987.213 }
{ "_id" : 2002, "name" : "C++ Primer", "author" : "Stanley Lippman", "subject" : "C++ Programming", "price" : 620.665 }
{ "_id" : 2001, "name" : "C++ Complete Reference", "author" : "Herbert Schildt", "subject" : "C++ Programming", "price" : 417.764 }
{ "_id" : 3002, "name" : "Core Java Volume I", "author" : "Cay Horstmann", "subject" : "Java Programming", "price" : 575.651 }
{ "_id" : 3001, "name" : "Java Complete Reference", "author" : "Herbert Schildt", "subject" : "Java Programming", "price" : 525.121 }
{ "_id" : 3003, "name" : "Java Programming Language", "author" : "James Gosling", "subject" : "Java Programming", "price" : 458.238 }
{ "_id" : 4001, "name" : "Operating System Concepts", "author" : "Peter Galvin", "subject" : "Operating Systems", "price" : 567.391 }
{ "_id" : 4002, "name" : "Design of UNIX Operating System", "author" : "Mauris J Bach", "subject" : "Operating Systems", "price" : 421.938 }
{ "_id" : 4003, "name" : "UNIX Internals", "author" : "Uresh Vahalia", "subject" : "Operating Systems", "price" : 352.822 }
>
```

Query:

```
db.Books.find().sort({price:-1}).skip(2).limit(1)
```

```
Command Prompt - mongo
> db.Books.find().sort({price:-1}).skip(2).limit(1)
{ "_id" : 3002, "name" : "Core Java Volume I", "author" : "Cay Horstmann", "subject" : "Java Programming", "price" : 575.651 }
>
```

Query:

```
db.Books.find().count()
```

```
C:\> Command Prompt - mongo
> db.Books.find().count()
13
>
```

Query:

```
db.Books.find({'subject':'C Programming'},{})
```

```
C:\> Command Prompt - mongo
> db.Books.find({'subject':'C Programming'},{})
{ "_id" : 1002, "name" : "Pointers in C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 371.019 }
{ "_id" : 1001, "name" : "Exploring C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 123.456 }
{ "_id" : 1004, "name" : "ANSI C Programming", "author" : "Dennis Ritchie", "subject" : "C Programming", "price" : 140.121 }
{ "_id" : 1003, "name" : "ANSI C Programming", "author" : "E Balaguruswami", "subject" : "C Programming", "price" : 334.215 }
>
```

Query:

```
db.Books.find({'price': {$gt:500}})
```

```
C:\> Command Prompt - mongo
> db.Books.find({'price': {$gt:500}})
{ "_id" : 2002, "name" : "C++ Primer", "author" : "Stanley Lippman", "subject" : "C++ Programming", "price" : 620.665 }
{ "_id" : 2003, "name" : "C++ Programming Language", "author" : "Bjarne Stroustrup", "subject" : "C++ Programming", "price" : 987.213 }
{ "_id" : 3001, "name" : "Java Complete Reference", "author" : "Herbert Schildt", "subject" : "Java Programming", "price" : 525.121 }
{ "_id" : 3002, "name" : "Core Java Volume I", "author" : "Cay Horstmann", "subject" : "Java Programming", "price" : 575.651 }
{ "_id" : 4001, "name" : "Operating System Concepts", "author" : "Peter Galvin", "subject" : "Operating Systems", "price" : 567.391 }
>
```

Query:

```
db.Books.find({$and:[{'subject':'C Programming'}, {price:{$gt:150}}]})
```

```
C:\> Command Prompt - mongo
> db.Books.find({$and:[{'subject':'C Programming'}, {price:{$gt:150}}]})
{ "_id" : 1002, "name" : "Pointers in C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 371.019 }
{ "_id" : 1003, "name" : "ANSI C Programming", "author" : "E Balaguruswami", "subject" : "C Programming", "price" : 334.215 }
>
```

Query:

```
db.Books.find({$or:[{subject:'Java Programming'},{subject:'Operating Systems'}]})
```

```
ca Select Command Prompt - mongo
> db.Books.find({$or:[{subject:'Java Programming'},{subject:'Operating Systems'}]})
{ "_id" : 3001, "name" : "Java Complete Reference", "author" : "Herbert Schildt", "subject" : "Java Programming", "price" : 525.121 }
{ "_id" : 3002, "name" : "Core Java Volume I", "author" : "Cay Horstmann", "subject" : "Java Programming", "price" : 575.651 }
{ "_id" : 3003, "name" : "Java Programming Language", "author" : "James Gosling", "subject" : "Java Programming", "price" : 458.238 }
{ "_id" : 4001, "name" : "Operating System Concepts", "author" : "Peter Galvin", "subject" : "Operating Systems", "price" : 567.391 }
{ "_id" : 4002, "name" : "Design of UNIX Operating System", "author" : "Mauris J Bach", "subject" : "Operating Systems", "price" : 421.938 }
{ "_id" : 4003, "name" : "UNIX Internals", "author" : "Uresh Vahalia", "subject" : "Operating Systems", "price" : 352.822 }
>
```

Query:

```
db.Books.find({'_id':{$in:[1001,2001,3001]}})
```

```
ca Command Prompt - mongo
> db.Books.find({'_id':{$in:[1001,2001,3001]}})
{ "_id" : 1001, "name" : "Exploring C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 123.456 }
{ "_id" : 2001, "name" : "C++ Complete Reference", "author" : "Herbert Schildt", "subject" : "C++ Programming", "price" : 417.764 }
{ "_id" : 3001, "name" : "Java Complete Reference", "author" : "Herbert Schildt", "subject" : "Java Programming", "price" : 525.121 }
>
```

Query:

```
db.Books.find({'_id':{$nin:[1001,2001,3001]}})
```

```
ca Command Prompt - mongo
> db.Books.find({'_id':{$nin:[1001,2001,3001]}})
{ "_id" : 1002, "name" : "Pointers in C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 371.019 }
{ "_id" : 1003, "name" : "ANSI C Programming", "author" : "E Balaguruswami", "subject" : "C Programming", "price" : 334.215 }
{ "_id" : 1004, "name" : "ANSI C Programming", "author" : "Dennis Ritchie", "subject" : "C Programming", "price" : 140.121 }
{ "_id" : 2002, "name" : "C++ Primer", "author" : "Stanley Lippman", "subject" : "C++ Programming", "price" : 620.665 }
{ "_id" : 2003, "name" : "C++ Programming Language", "author" : "Bjarne Stroustrup", "subject" : "C++ Programming", "price" : 987.213 }
{ "_id" : 3002, "name" : "Core Java Volume I", "author" : "Cay Horstmann", "subject" : "Java Programming", "price" : 575.651 }
{ "_id" : 3003, "name" : "Java Programming Language", "author" : "James Gosling", "subject" : "Java Programming", "price" : 458.238 }
{ "_id" : 4001, "name" : "Operating System Concepts", "author" : "Peter Galvin", "subject" : "Operating Systems", "price" : 567.391 }
{ "_id" : 4002, "name" : "Design of UNIX Operating System", "author" : "Mauris J Bach", "subject" : "Operating Systems", "price" : 421.938 }
{ "_id" : 4003, "name" : "UNIX Internals", "author" : "Uresh Vahalia", "subject" : "Operating Systems", "price" : 352.822 }
>
```

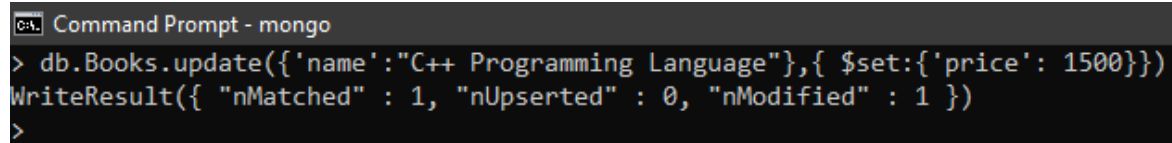
Query:

```
db.Books.find({_id:{$mod:[2,0]}})
```

```
ca Command Prompt - mongo
> db.Books.find({_id:{$mod:[2,0]}})
{ "_id" : 1002, "name" : "Pointers in C", "author" : "Yashwant Kanetkar", "subject" : "C Programming", "price" : 371.019 }
{ "_id" : 1004, "name" : "ANSI C Programming", "author" : "Dennis Ritchie", "subject" : "C Programming", "price" : 140.121 }
{ "_id" : 2002, "name" : "C++ Primer", "author" : "Stanley Lippman", "subject" : "C++ Programming", "price" : 620.665 }
{ "_id" : 3002, "name" : "Core Java Volume I", "author" : "Cay Horstmann", "subject" : "Java Programming", "price" : 575.651 }
{ "_id" : 4002, "name" : "Design of UNIX Operating System", "author" : "Mauris J Bach", "subject" : "Operating Systems", "price" : 421.938 }
>
```

Query:

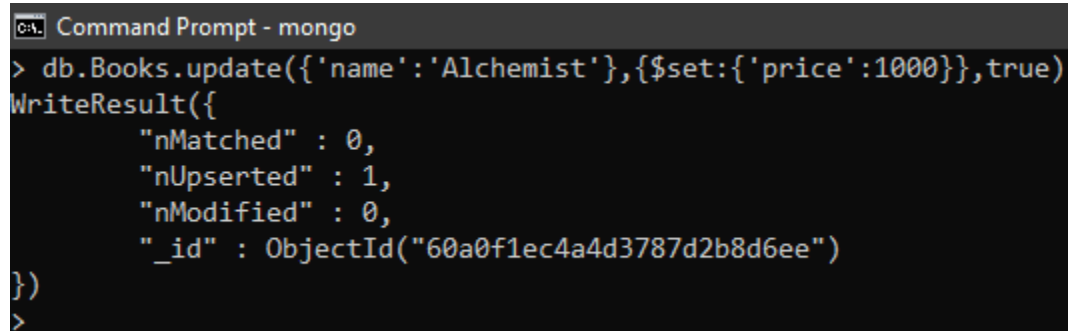
```
db.Books.update({'name':"C++ Programming Language"},{
  $set:{'price': 1500}})
```

A screenshot of a MongoDB Command Prompt window titled "Command Prompt - mongo". It shows the execution of an update command: > db.Books.update({'name':"C++ Programming Language"},{ \$set:{'price': 1500}}). The output is WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 }). The prompt > is visible on the next line.

```
C:\> Command Prompt - mongo
> db.Books.update({'name':"C++ Programming Language"},{ $set:{'price': 1500}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
>
```

Query:

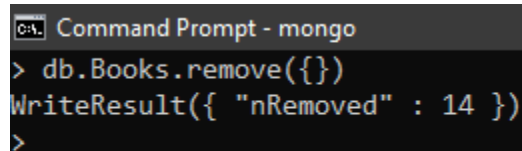
```
db.Books.update({'name':'Alchemist'},{$set:{'price':1000}},true)
```

A screenshot of a MongoDB Command Prompt window titled "Command Prompt - mongo". It shows the execution of an update command with the upsert option: > db.Books.update({'name':'Alchemist'},{\$set:{'price':1000}},true). The output is WriteResult({ "nMatched" : 0, "nUpserted" : 1, "nModified" : 0, "_id" : ObjectId("60a0f1ec4a4d3787d2b8d6ee") }). The prompt > is visible on the next line.

```
C:\> Command Prompt - mongo
> db.Books.update({'name':'Alchemist'},{$set:{'price':1000}},true)
WriteResult({
  "nMatched" : 0,
  "nUpserted" : 1,
  "nModified" : 0,
  "_id" : ObjectId("60a0f1ec4a4d3787d2b8d6ee")
})
>
```

Query:

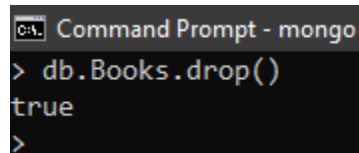
```
db.Books.remove({})
```

A screenshot of a MongoDB Command Prompt window titled "Command Prompt - mongo". It shows the execution of a remove command: > db.Books.remove({}). The output is WriteResult({ "nRemoved" : 14 }). The prompt > is visible on the next line.

```
C:\> Command Prompt - mongo
> db.Books.remove({})
WriteResult({ "nRemoved" : 14 })
>
```

Query:

```
db.Books.drop()
```

A screenshot of a MongoDB Command Prompt window titled "Command Prompt - mongo". It shows the execution of a drop command: > db.Books.drop(). The output is true. The prompt > is visible on the next line.

```
C:\> Command Prompt - mongo
> db.Books.drop()
true
>
```

Students Collection:

```
db.students.insert({
  "_id": 1,
  "name": "Kundan Sahuji",
  "hobbies": ["Programming", "Teaching"],
  "academics": [
    {
      "std": "10th",
      "passing": 1998,
      "marks": 78.66
    },
    {
      "std": "12th",
      "passing": 2000,
      "marks": 77.00
    },
    {
      "std": "B.Sc.",
      "passing": 2004,
      "marks": 60.00
    },
    {
      "std": "M.Sc.",
      "passing": 2008,
      "marks": 59.20
    }
  ]
});
```

```
db.students.insert({
  "_id": 2,
  "name": "Anish",
  "hobbies": ["Programming"],
  "academics": [
    {
      "std": "10th",
      "passing": 1998,
      "marks": 98.00
    },
    {
      "std": "12th",
      "passing": 2000,
      "marks": 94.00
    },
    {
      "std": "B.E.",
      "passing": 2004,
      "marks": 75.00
    }
  ]
});
```



```

db.students.insert({
  "_id": 3,
  "name": "Unknown",
  "hobbies": ["Music", "Sports", "Drawing"],
  "academics": [
    {
      "std": "10th",
      "passing": 2004,
      "marks": 65.00
    },
    {
      "std": "12th",
      "passing": 2006,
      "marks": 64.00
    },
    {
      "std": "B.A.",
      "passing": 2009,
      "marks": 60.00
    }
  ]
});

```

Query:

```

db.students.find({'academics':{$elemMatch:{'std':'B.Sc.'}}})

```

```

Command Prompt - mongo
> db.students.find({'academics':{$elemMatch:{'std':'B.Sc.'}}})
{ "_id" : 1, "name" : "Kundan Sahuji", "hobbies" : [ "Programming", "Teaching" ], "academics" : [ { "std" : "10th", "passing" : 1998, "marks" : 78.66 }, { "std" : "12th", "passing" : 2000, "marks" : 77 }, { "std" : "B.Sc.", "passing" : 2004, "marks" : 60 }, { "std" : "M.Sc.", "passing" : 2008, "marks" : 59.2 } ] }
>

```

Query:

```

db.students.find({'academics':
{$elemMatch:{'std':{$eq:'B.Sc.'}}}})

```

```

Command Prompt - mongo
> db.students.find({'academics': {$elemMatch:{'std':{$eq:'B.Sc.'}}}})
{ "_id" : 1, "name" : "Kundan Sahuji", "hobbies" : [ "Programming", "Teaching" ], "academics" : [ { "std" : "10th", "passing" : 1998, "marks" : 78.66 }, { "std" : "12th", "passing" : 2000, "marks" : 77 }, { "std" : "B.Sc.", "passing" : 2004, "marks" : 60 }, { "std" : "M.Sc.", "passing" : 2008, "marks" : 59.2 } ] }
>

```