

Mongo DB B5

(31384)

Title: - Implement any 5 Mongo DB
Query Considering Array as an
embedded document.

Title - Implement 5 Basic query using MongoDB

Problem Definition:-

Design & Implement any 5 query using MongoDB.

Objective:-

- i] Understand the concept of MongoDB
- ii] Understand the concept of MongoDB 2-tier
- iii] Understand the basic command in MongoDB

slw package :- MongoDB.

Basic pre-requisites:-

Basic of NoSQL & SQL

Learning outcome:-

Student will able to:-

Implement command on two-

Theory:-

MongoDB is cross-platform, document oriented database that provide, high performance, high availability & easy scalability.

MongoDB works on concept of collection & document. A single MongoDB server typically has multiple database.

Collection:-

Collection is group of MongoDB documents. It is the equivalent of an RDBMS table. A collection exists within single database. Collection do not enforce the schema. Documents within a collection can have different fields.

Document:-

A document is set of key-value pairs. Document have dynamic schema. Dynamic schema means that document in same collection do not need to have the same set of fields.

Sample document

Below given example shows the document structure of a blog site which is simply comma separated. Key-value pairs.

```
{
  id: ObjectId('7df78ad8902c')
  title: 'MongoDB Overview',
  description: 'No-sql database',
  by: 'tutorial point',
  url: 'https://www.tp.com',
  likes: 100,
  tags: ['MongoDB', 'NoSQL', 'Database'],
  comments: [
    {
      user: 'user1'
      message: 'My first comment'
      dateCreated: new Date(2011, 1, 20, 2, 15),
      like: 0
    },
    {
      user: 'user2'
      message: 'My second comment',
      dateCreated: new Date(2011, 1, 25, 7, 45),
      like: 5
    }
  ]
}
```

id is 12 byte hexadecimal number which assures the uniqueness of every doc.

Advantage of MongoDB over RDBMS

- Schemaless: MongoDB is doc database in which one collection holds different doc.
- structure of single object is clear
- No complex joins
- Deep-query ability
- Turing.
- ease of scale out: easy to scale.
- Conversion / mapping of application objects to database objects not needed.
- Use internal memory for storing the working set.

Basic Commands:

MongoDB use database-name to create database. if it doesn't exists it will return new database.

use Database-name

To check currently used database use
> db command

Conclusion - we successfully implemented 5 mongo-db queries with Array & embed document.

Code: -

// create collection Inventory

```
> db.createCollection("inventory")
```

```
{ "ok" : 1 }
```

//Insert 5 records in collection considering Array Document

```
> db.inventory.insertMany([ {item: "journal", instock : [{warehouse:"A",qty:5,amt:5000},{warehouse:"C",qty:15,amt:2000}] },
```

```
  {item:"notebook",instock:[{warehouse:"C",qty:5,amt:2500}]},
```

```
  {item:"paper",instock :[{warehouse:"A",qty:60,amt:2300},{warehouse:"B",qty:15,amt:4000}]},
```

```
  {item:"planner",instock:[{warehouse:"A",qty:40,amt:10000},{warehouse:"B",qty:5,amt:2400}]},
```

```
  {item:"postcard",instock:[{warehouse:"B",qty:15,amt:7000},{warehouse:"C",qty:35,amt:9000}]} ]]);
```

```
{
```

```
  "acknowledged" : true,
```

```
  "insertedIds" : [
```

```
    ObjectId("5fb935fa3869e877b10ceb6c"),
```

```
    ObjectId("5fb935fa3869e877b10ceb6d"),
```

```
    ObjectId("5fb935fa3869e877b10ceb6e"),
```

```
    ObjectId("5fb935fa3869e877b10ceb6f"),
```

```
      ObjectId("5fb935fa3869e877b10ceb70")
    ]
  }
}
```

// Display the warehouse at index 0 of array whose quantity is less than or equal to 20

```
> db.inventory.find({'instock.0.qty':{$lte:20}}).pretty()
```

```
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb6c"),
  "item" : "journal",
  "instock" : [
    {
      "warehouse" : "A",
      "qty" : 5,
      "amt" : 5000
    },
    {
      "warehouse" : "C",
      "qty" : 15,
      "amt" : 2000
    }
  ]
}
```

```
]
}
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb6d"),
  "item" : "notebook",
  "instock" : [
    {
      "warehouse" : "C",
      "qty" : 5,
      "amt" : 2500
    }
  ]
}
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb70"),
  "item" : "postcard",
  "instock" : [
    {
      "warehouse" : "B",
      "qty" : 15,
```



```
      "amt" : 7000
    },
    {
      "warehouse" : "C",
      "qty" : 35,
      "amt" : 9000
    }
  ]
}
```

//Display all instock product details whose amt is greater than 5000

```
> db.inventory.find({'instock.amt':{'$gt:5000}}).pretty()
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb6f"),
  "item" : "planner",
  "instock" : [
    {
      "warehouse" : "A",
      "qty" : 40,
```

```
        "amt" : 10000
      },
      {
        "warehouse" : "B",
        "qty" : 5,
        "amt" : 2400
      }
    ]
  }
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb70"),
  "item" : "postcard",
  "instock" : [
    {
      "warehouse" : "B",
      "qty" : 15,
      "amt" : 7000
    },
    {
      "warehouse" : "C",
```



```
        "qty" : 35,  
        "amt" : 9000  
    }  
]  
}
```

// Display All records

```
> db.inventory.find({'instock.amt':{$gt:0}}).pretty()  
{  
  "_id" : ObjectId("5fb935fa3869e877b10ceb6c"),  
  "item" : "journal",  
  "instock" : [  
    {  
      "warehouse" : "A",  
      "qty" : 5,  
      "amt" : 5000  
    },  
    {  
      "warehouse" : "C",
```

```
      "qty" : 15,
      "amt" : 2000
    }
  ]
}
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb6d"),
  "item" : "notebook",
  "instock" : [
    {
      "warehouse" : "C",
      "qty" : 5,
      "amt" : 2500
    }
  ]
}
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb6e"),
  "item" : "paper",
  "instock" : [
```

```
{
  {
    "warehouse" : "A",
    "qty" : 60,
    "amt" : 2300
  },
  {
    "warehouse" : "B",
    "qty" : 15,
    "amt" : 4000
  }
]
}
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb6f"),
  "item" : "planner",
  "instock" : [
    {
      "warehouse" : "A",
      "qty" : 40,
      "amt" : 10000
    }
  ]
}
```

```
    },  
    {  
      "warehouse" : "B",  
      "qty" : 5,  
      "amt" : 2400  
    }  
  ]  
}  
  
{  
  "_id" : ObjectId("5fb935fa3869e877b10ceb70"),  
  "item" : "postcard",  
  "instock" : [  
    {  
      "warehouse" : "B",  
      "qty" : 15,  
      "amt" : 7000  
    },  
    {  
      "warehouse" : "C",  
      "qty" : 35,
```

```
      "amt" : 9000
    }
  ]
}
```

//Display the details whose warehosue is A and Qty is 5

```
> db.inventory.find({'instock.qty':5,'instock.warehouse':"A"}).pretty()
```

```
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb6c"),
  "item" : "journal",
  "instock" : [
    {
      "warehouse" : "A",
      "qty" : 5,
      "amt" : 5000
    },
    {
      "warehouse" : "C",
      "qty" : 15,
```

```
        "amt" : 2000
      }
    ]
  }
  {
    "_id" : ObjectId("5fb935fa3869e877b10ceb6f"),
    "item" : "planner",
    "instock" : [
      {
        "warehouse" : "A",
        "qty" : 40,
        "amt" : 10000
      },
      {
        "warehouse" : "B",
        "qty" : 5,
        "amt" : 2400
      }
    ]
  }
}
```

>

Output:-

```
db.inventory.insertMany([ {item: "journal", instock : [{warehouse:"A",qty:5,amt:5000},{warehouse:"C",qty:15,amt:2000}] }, {item:"notebook",instock:[{warehouse:"C",qty:5,amt:2500}],{item:"paper",instock :[{warehouse:"A",qty:60,amt:2300},{warehouse:"B",qty:15,amt:4000}]},{item:"planner",instock:[{warehouse:"A",qty:40,amt:10000},{warehouse:"B",qty:5,amt:2400}],{item:"postcard",instock:[{warehouse:"B",qty:15,amt:7000},{warehouse:"C",qty:35,amt:9000}]} ]);
```

```
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("5fb935fa3869e877b10ceb6c"),
    ObjectId("5fb935fa3869e877b10ceb6d"),
    ObjectId("5fb935fa3869e877b10ceb6e"),
    ObjectId("5fb935fa3869e877b10ceb6f"),
    ObjectId("5fb935fa3869e877b10ceb70")
  ]
}
```



```
db.inventory.find({'instock.qty':{'$lte:20}}).pretty()
```

```
  "_id" : ObjectId("5fb935fa3869e877b10ceb6c"),
  "item" : "journal",
  "instock" : [
    {
      "warehouse" : "A",
      "qty" : 5,
      "amt" : 5000
    },
    {
      "warehouse" : "C",
      "qty" : 15,
      "amt" : 2000
    }
  ]
```

```
  "_id" : ObjectId("5fb935fa3869e877b10ceb6d"),
  "item" : "notebook",
  "instock" : [
    {
      "warehouse" : "C",
      "qty" : 5,
      "amt" : 2500
    }
  ]
```

```
  "_id" : ObjectId("5fb935fa3869e877b10ceb70"),
  "item" : "postcard",
  "instock" : [
    {
      "warehouse" : "B",
      "qty" : 15,
      "amt" : 7000
    },
    {
      "warehouse" : "C",
      "qty" : 35,
      "amt" : 9000
    }
  ]
```

```
db.inventory.find({'instock.amt':{'$gt:0}}).pretty()
```

```
  "_id" : ObjectId("5fb935fa3869e877b10ceb6c"),
  "item" : "journal",
  "instock" : [
    {
      "warehouse" : "A",
      "qty" : 5,
      "amt" : 5000
    },
    {
      "warehouse" : "C",
      "qty" : 15,
      "amt" : 2000
    }
  ]
}
```

```
  "_id" : ObjectId("5fb935fa3869e877b10ceb6d"),
  "item" : "notebook",
  "instock" : [
    {
      "warehouse" : "C",
      "qty" : 5,
      "amt" : 2500
    }
  ]
}
```

```
  "_id" : ObjectId("5fb935fa3869e877b10ceb6e"),
  "item" : "paper",
  "instock" : [
    {
      "warehouse" : "A",
      "qty" : 60,
      "amt" : 2300
    },
    {
      "warehouse" : "B",
      "qty" : 15,
      "amt" : 4000
    }
  ]
}
```

```
"item" : "paper",
"instock" : [
  {
    "warehouse" : "A",
    "qty" : 60,
    "amt" : 2300
  },
  {
    "warehouse" : "B",
    "qty" : 15,
    "amt" : 4000
  }
]

"_id" : ObjectId("5fb935fa3869e877b10ceb6f"),
"item" : "planner",
"instock" : [
  {
    "warehouse" : "A",
    "qty" : 40,
    "amt" : 10000
  },
  {
    "warehouse" : "B",
    "qty" : 5,
    "amt" : 2400
  }
]

"_id" : ObjectId("5fb935fa3869e877b10ceb70"),
"item" : "postcard",
"instock" : [
  {
    "warehouse" : "B",
    "qty" : 15,
    "amt" : 7000
  },
  {
    "warehouse" : "C",
    "qty" : 35,
    "amt" : 9000
  }
]
```

```

}
> db.inventory.find({'instock.amt':{'$gt':5000}}).pretty()
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb6f"),
  "item" : "planner",
  "instock" : [
    {
      "warehouse" : "A",
      "qty" : 40,
      "amt" : 10000
    },
    {
      "warehouse" : "B",
      "qty" : 5,
      "amt" : 2400
    }
  ]
}
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb70"),
  "item" : "postcard",
  "instock" : [
    {
      "warehouse" : "B",
      "qty" : 15,
      "amt" : 7000
    },
    {
      "warehouse" : "C",
      "qty" : 35,
      "amt" : 9000
    }
  ]
}

```

```
> db.inventory.find({'instock.qty':5,'instock.warehouse':"A"}).pretty()
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb6c"),
  "item" : "journal",
  "instock" : [
    {
      "warehouse" : "A",
      "qty" : 5,
      "amt" : 5000
    },
    {
      "warehouse" : "C",
      "qty" : 15,
      "amt" : 2000
    }
  ]
}
{
  "_id" : ObjectId("5fb935fa3869e877b10ceb6f"),
  "item" : "planner",
  "instock" : [
    {
      "warehouse" : "A",
      "qty" : 40,
      "amt" : 10000
    },
    {
      "warehouse" : "B",
      "qty" : 5,
      "amt" : 2400
    }
  ]
}
>
```