

MCAE21 NoSQL Databases

MongoDB Exercises

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Exercise 1:

1. Create a database Product

2. Create a collection Inventory and insert the following documents:

```
{ item: "canvas", qty: 100, size: { h: 28, w: 35.5, uom: "cm" }, status: "A" },
{ item: "journal", qty: 25, size: { h: 14, w: 21, uom: "cm" }, status: "A" },
{ item: "mat", qty: 85, size: { h: 27.9, w: 35.5, uom: "cm" }, status: "A" },
{ item: "mousepad", qty: 25, size: { h: 19, w: 22.85, uom: "cm" }, status: "P" },
{ item: "notebook", qty: 50, size: { h: 8.5, w: 11, uom: "in" }, status: "P" },
{ item: "paper", qty: 100, size: { h: 8.5, w: 11, uom: "in" }, status: "D" },
{ item: "planner", qty: 75, size: { h: 22.85, w: 30, uom: "cm" }, status: "D" },
{ item: "postcard", qty: 45, size: { h: 10, w: 15.25, uom: "cm" }, status: "A" },
{ item: "sketchbook", qty: 80, size: { h: 14, w: 21, uom: "cm" }, status: "A" },
{ item: "sketch pad", qty: 95, size: { h: 22.85, w: 30.5, uom: "cm" }, status: "A" }
```

Command:

```
> use product
```

```
switched to db product
```

```
> db.inventory.insertMany([ { item: "canvas", qty: 100, size: { h: 28, w: 35.5, uom: "cm" }, status: "A" },
... { item: "journal", qty: 25, size: { h: 14, w: 21, uom: "cm" }, status: "A" },
... { item: "mat", qty: 85, size: { h: 27.9, w: 35.5, uom: "cm" }, status: "A" },
... { item: "mousepad", qty: 25, size: { h: 19, w: 22.85, uom: "cm" }, status: "P" },
... { item: "notebook", qty: 50, size: { h: 8.5, w: 11, uom: "in" }, status: "P" },
... { item: "paper", qty: 100, size: { h: 8.5, w: 11, uom: "in" }, status: "D" },
... { item: "planner", qty: 75, size: { h: 22.85, w: 30, uom: "cm" }, status: "D" },
... { item: "postcard", qty: 45, size: { h: 10, w: 15.25, uom: "cm" }, status: "A" },
... { item: "sketchbook", qty: 80, size: { h: 14, w: 21, uom: "cm" }, status: "A" },
... { item: "sketch pad", qty: 95, size: { h: 22.85, w: 30.5, uom: "cm" }, status: "A" }
... ])
```

Queries:

1. Write a MongoDB query to display all the documents in the collection Inventory.

```
> show collections
```

```
inventory
```

2. Write a MongoDB query to display all the fields except id of all the documents.

```
> db.inventory.find({}, {_id:0});
```

```
{ "item" : "canvas", "qty" : 100, "size" : { "h" : 28, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "item" : "journal", "qty" : 25, "size" : { "h" : 14, "w" : 21, "uom" : "cm" }, "status" : "A" }
```

```
{ "item" : "mat", "qty" : 85, "size" : { "h" : 27.9, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "item" : "mousepad", "qty" : 25, "size" : { "h" : 19, "w" : 22.85, "uom" : "cm" }, "status" : "P" }
{ "item" : "notebook", "qty" : 50, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "P" }
{ "item" : "paper", "qty" : 100, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "D" }
{ "item" : "planner", "qty" : 75, "size" : { "h" : 22.85, "w" : 30, "uom" : "cm" }, "status" : "D" }
{ "item" : "postcard", "qty" : 45, "size" : { "h" : 10, "w" : 15.25, "uom" : "cm" }, "status" : "A" }
{ "item" : "sketchbook", "qty" : 80, "size" : { "h" : 14, "w" : 21, "uom" : "cm" }, "status" : "A" }
{ "item" : "sketch pad", "qty" : 95, "size" : { "h" : 22.85, "w" : 30.5, "uom" : "cm" }, "status" : "A" }
}
```

3. Write a MongoDB query to display the fields item, quantity and status for all the documents in the collection.

> **db.inventory.find({}, {size:0});**

```
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1e"), "item" : "canvas", "qty" : 100, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1f"), "item" : "journal", "qty" : 25, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab20"), "item" : "mat", "qty" : 85, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab21"), "item" : "mousepad", "qty" : 25, "status" : "P" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab22"), "item" : "notebook", "qty" : 50, "status" : "P" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab23"), "item" : "paper", "qty" : 100, "status" : "D" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab24"), "item" : "planner", "qty" : 75, "status" : "D" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab25"), "item" : "postcard", "qty" : 45, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab26"), "item" : "sketchbook", "qty" : 80, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab27"), "item" : "sketch pad", "qty" : 95, "status" : "A" }
```

4. Write a MongoDB query to display the fields item, quantity and status except id for all the documents in the collection.

> **db.inventory.find({}, {size:0, _id:0});**

```
{ "item" : "canvas", "qty" : 100, "status" : "A" }
{ "item" : "journal", "qty" : 25, "status" : "A" }
{ "item" : "mat", "qty" : 85, "status" : "A" }
{ "item" : "mousepad", "qty" : 25, "status" : "P" }
{ "item" : "notebook", "qty" : 50, "status" : "P" }
{ "item" : "paper", "qty" : 100, "status" : "D" }
{ "item" : "planner", "qty" : 75, "status" : "D" }
{ "item" : "postcard", "qty" : 45, "status" : "A" }
{ "item" : "sketchbook", "qty" : 80, "status" : "A" }
{ "item" : "sketch pad", "qty" : 95, "status" : "A" }
```

5. Write a MongoDB query to display the fields item, height and unit of measurement for all the documents.

db.Inventory.find({}, {qty:0, status:0, "size.w":0});

```
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1e"), "item" : "canvas", "size" : { "h" : 28, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1f"), "item" : "journal", "size" : { "h" : 14, "uom" : "cm" } }
```

```

{ "_id" : ObjectId("5f806cec370fe22b8bc2ab20"), "item" : "mat", "size" : { "h" : 27.9, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab21"), "item" : "mousepad", "size" : { "h" : 19, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab22"), "item" : "notebook", "size" : { "h" : 8.5, "uom" : "in" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab23"), "item" : "paper", "size" : { "h" : 8.5, "uom" : "in" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab24"), "item" : "planner", "size" : { "h" : 22.85, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab25"), "item" : "postcard", "size" : { "h" : 10, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab26"), "item" : "sketchbook", "size" : { "h" : 14, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab27"), "item" : "sketch pad", "size" : { "h" : 22.85, "uom" : "cm" } }

```

- 6. Write a MongoDB query to display the fields item, height and unit of measurement, but exclude the field _id for all the documents.**

```

> db.inventory.find({}, {qty:0, status:0, "size.w":0, _id:0});
{ "item" : "canvas", "size" : { "h" : 28, "uom" : "cm" } }
{ "item" : "journal", "size" : { "h" : 14, "uom" : "cm" } }
{ "item" : "mat", "size" : { "h" : 27.9, "uom" : "cm" } }
{ "item" : "mousepad", "size" : { "h" : 19, "uom" : "cm" } }
{ "item" : "notebook", "size" : { "h" : 8.5, "uom" : "in" } }
{ "item" : "paper", "size" : { "h" : 8.5, "uom" : "in" } }
{ "item" : "planner", "size" : { "h" : 22.85, "uom" : "cm" } }
{ "item" : "postcard", "size" : { "h" : 10, "uom" : "cm" } }
{ "item" : "sketchbook", "size" : { "h" : 14, "uom" : "cm" } }
{ "item" : "sketch pad", "size" : { "h" : 22.85, "uom" : "cm" } }

```

- 7. Write a MongoDB query to display all the inventory with quantity 25.**

```

> db.inventory.find({qty:{ $eq:25}});
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1f"), "item" : "journal", "qty" : 25, "size" : { "h" : 14, "w" : 21, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab21"), "item" : "mousepad", "qty" : 25, "size" : { "h" : 19, "w" : 22.85, "uom" : "cm" }, "status" : "P" }

```

- 8. Write a MongoDB query to display all the inventory with status "A".**

```

> db.inventory.find({"status":{" $eq:"A"}});
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1e"), "item" : "canvas", "qty" : 100, "size" : { "h" : 28, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1f"), "item" : "journal", "qty" : 25, "size" : { "h" : 14, "w" : 21, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab20"), "item" : "mat", "qty" : 85, "size" : { "h" : 27.9, "w" : 35.5, "uom" : "cm" }, "status" : "A" }

```

```
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab25"), "item" : "postcard", "qty" : 45, "size" : { "h" : 10, "w" : 15.25, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab26"), "item" : "sketchbook", "qty" : 80, "size" : { "h" : 14, "w" : 21, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab27"), "item" : "sketch pad", "qty" : 95, "size" : { "h" : 22.85, "w" : 30.5, "uom" : "cm" }, "status" : "A" }
```

9. Write a MongoDB query to display all the inventory with quantity less than or equal to 75.

```
> db.inventory.find({qty:{$lte:75}});
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1f"), "item" : "journal", "qty" : 25, "size" : { "h" : 14, "w" : 21, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab21"), "item" : "mousepad", "qty" : 25, "size" : { "h" : 19, "w" : 22.85, "uom" : "cm" }, "status" : "P" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab22"), "item" : "notebook", "qty" : 50, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "P" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab24"), "item" : "planner", "qty" : 75, "size" : { "h" : 22.85, "w" : 30, "uom" : "cm" }, "status" : "D" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab25"), "item" : "postcard", "qty" : 45, "size" : { "h" : 10, "w" : 15.25, "uom" : "cm" }, "status" : "A" }
```

10. Write a MongoDB query to display all the inventory with quantity greater than or equal to 75 and less than 100.

```
> db.inventory.find({$or:[{qty:{$gte:75,$eq:100}}]});
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1e"), "item" : "canvas", "qty" : 100, "size" : { "h" : 28, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab23"), "item" : "paper", "qty" : 100, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "D" }
```

11. Write a MongoDB query to display all the inventory which does not have status "P".

```
> db.inventory.find({status:{$ne:"P"}});
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1e"), "item" : "canvas", "qty" : 100, "size" : { "h" : 28, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1f"), "item" : "journal", "qty" : 25, "size" : { "h" : 14, "w" : 21, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab20"), "item" : "mat", "qty" : 85, "size" : { "h" : 27.9, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab23"), "item" : "paper", "qty" : 100, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "D" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab24"), "item" : "planner", "qty" : 75, "size" : { "h" : 22.85, "w" : 30, "uom" : "cm" }, "status" : "D" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab25"), "item" : "postcard", "qty" : 45, "size" : { "h" : 10, "w" : 15.25, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab26"), "item" : "sketchbook", "qty" : 80, "size" : { "h" : 14, "w" : 21, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab27"), "item" : "sketch pad", "qty" : 95, "size" : { "h" : 22.85, "w" : 30.5, "uom" : "cm" }, "status" : "A" }
```

12. Write a MongoDB query to display all the inventory with quantity not equal to 100.

```
> db.inventory.find({qty:{$eq:100}});
```

```
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1e"), "item" : "canvas", "qty" : 100, "size" : { "h" : 28, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab23"), "item" : "paper", "qty" : 100, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "D" }
```

13. Write a MongoDB query to display the fields item, weight and unit of measurement for all the documents.

```
> db.inventory.find({}, {qty:0, status:0, "size.h":0});
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1e"), "item" : "canvas", "size" : { "w" : 35.5, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1f"), "item" : "journal", "size" : { "w" : 21, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab20"), "item" : "mat", "size" : { "w" : 35.5, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab21"), "item" : "mousepad", "size" : { "w" : 22.85, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab22"), "item" : "notebook", "size" : { "w" : 11, "uom" : "in" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab23"), "item" : "paper", "size" : { "w" : 11, "uom" : "in" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab24"), "item" : "planner", "size" : { "w" : 30, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab25"), "item" : "postcard", "size" : { "w" : 15.25, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab26"), "item" : "sketchbook", "size" : { "w" : 21, "uom" : "cm" } }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab27"), "item" : "sketch pad", "size" : { "w" : 30.5, "uom" : "cm" } }
```

14. Write a MongoDB query to display all the inventory with weight equal to 11.

```
> db.inventory.find({"size.w":{$eq:11}});
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab22"), "item" : "notebook", "qty" : 50, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "P" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab23"), "item" : "paper", "qty" : 100, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "D" }
```

15. Write a MongoDB query to display all the inventory with weight not equal to 21.

```
> db.inventory.find({"size.w":{$ne:21}});
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1e"), "item" : "canvas", "qty" : 100, "size" : { "h" : 28, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab20"), "item" : "mat", "qty" : 85, "size" : { "h" : 27.9, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab21"), "item" : "mousepad", "qty" : 25, "size" : { "h" : 19, "w" : 22.85, "uom" : "cm" }, "status" : "P" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab22"), "item" : "notebook", "qty" : 50, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "P" }
```

```
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab23"), "item" : "paper", "qty" : 100, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "D" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab24"), "item" : "planner", "qty" : 75, "size" : { "h" : 22.85, "w" : 30, "uom" : "cm" }, "status" : "D" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab25"), "item" : "postcard", "qty" : 45, "size" : { "h" : 10, "w" : 15.25, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab27"), "item" : "sketch pad", "qty" : 95, "size" : { "h" : 22.85, "w" : 30.5, "uom" : "cm" }, "status" : "A" }
```

16. Write a MongoDB query to display the fields item, quantity for all the inventory with quantity 25.

```
> db.inventory.find({qty:{$eq:25}},{status:0,size:0});
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1f"), "item" : "journal", "qty" : 25 }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab21"), "item" : "mousepad", "qty" : 25 }
```

17. Write a MongoDB query to display the fields item, status all the inventory with status "A".

```
> db.inventory.find({status:{$eq:"A"}},{qty:0,size:0});
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1e"), "item" : "canvas", "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab1f"), "item" : "journal", "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab20"), "item" : "mat", "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab25"), "item" : "postcard", "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab26"), "item" : "sketchbook", "status" : "A" }
{ "_id" : ObjectId("5f806cec370fe22b8bc2ab27"), "item" : "sketch pad", "status" : "A" }
```

18. Write a MongoDB query to display the fields item, quantity without _id for all the inventory with quantity less than or equal to 75.

```
> db.inventory.find({qty:{$lte:75}},{size:0,_id:0,status:0});
{ "item" : "journal", "qty" : 25 }
{ "item" : "mousepad", "qty" : 25 }
{ "item" : "notebook", "qty" : 50 }
{ "item" : "planner", "qty" : 75 }
{ "item" : "postcard", "qty" : 45 }
```