

# Web Technology

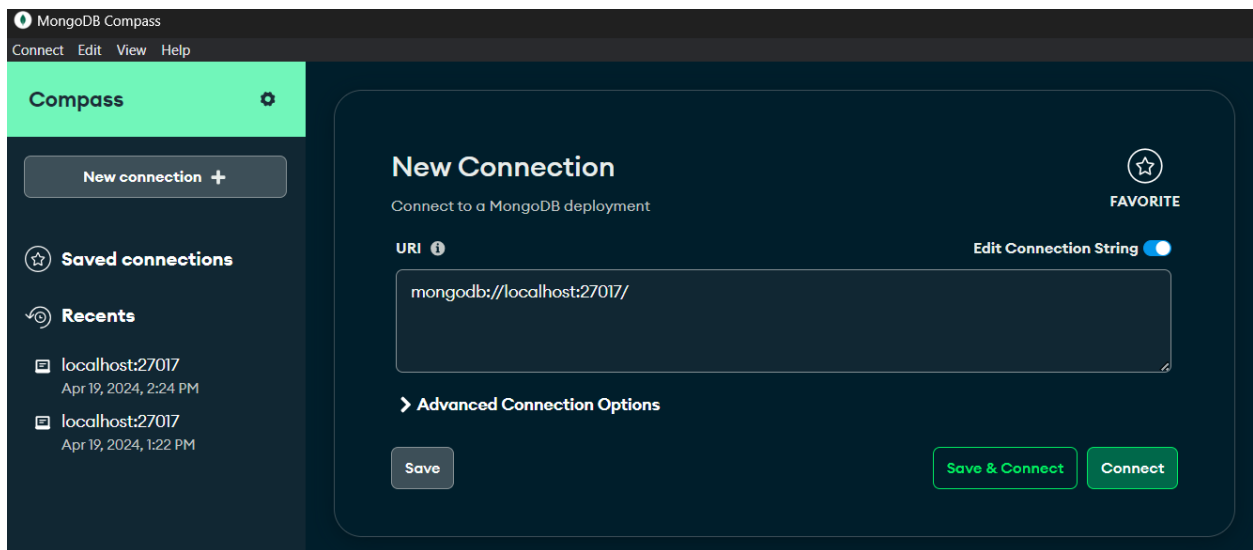
## Lab Assignment 9

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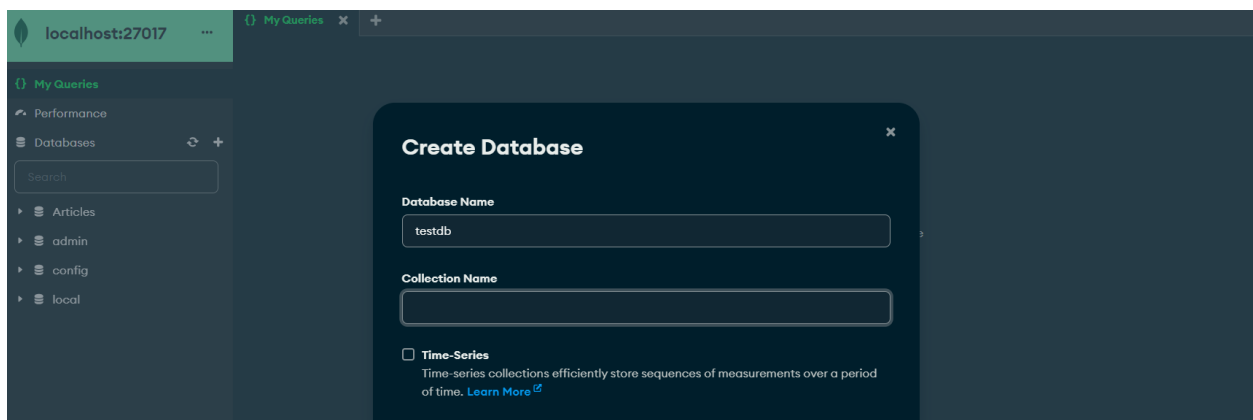
**Q1 Connect to a MongoDB server using MongoDB Compass.**

**Ans**



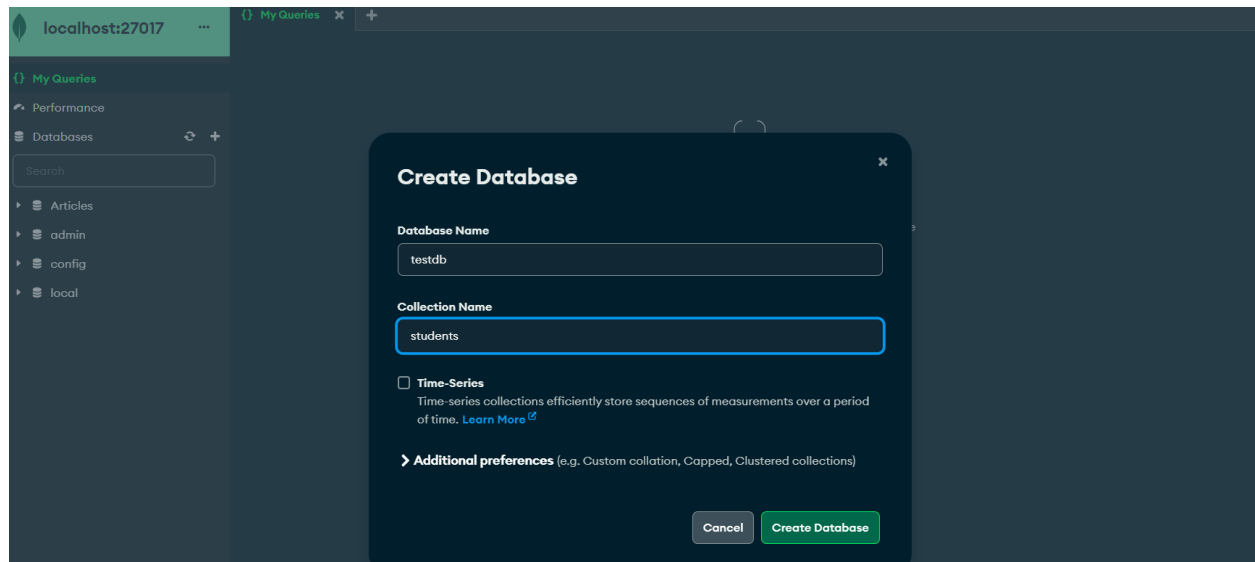
**Q2. Create a new database named "testdb" in MongoDB Compass.**

**Ans**



**Q3. Create a new collection named "students" in the "testdb" database.**

**Ans**



**Q4. Insert ten documents into the "students" collection with the following fields:  
name, age, and email.**

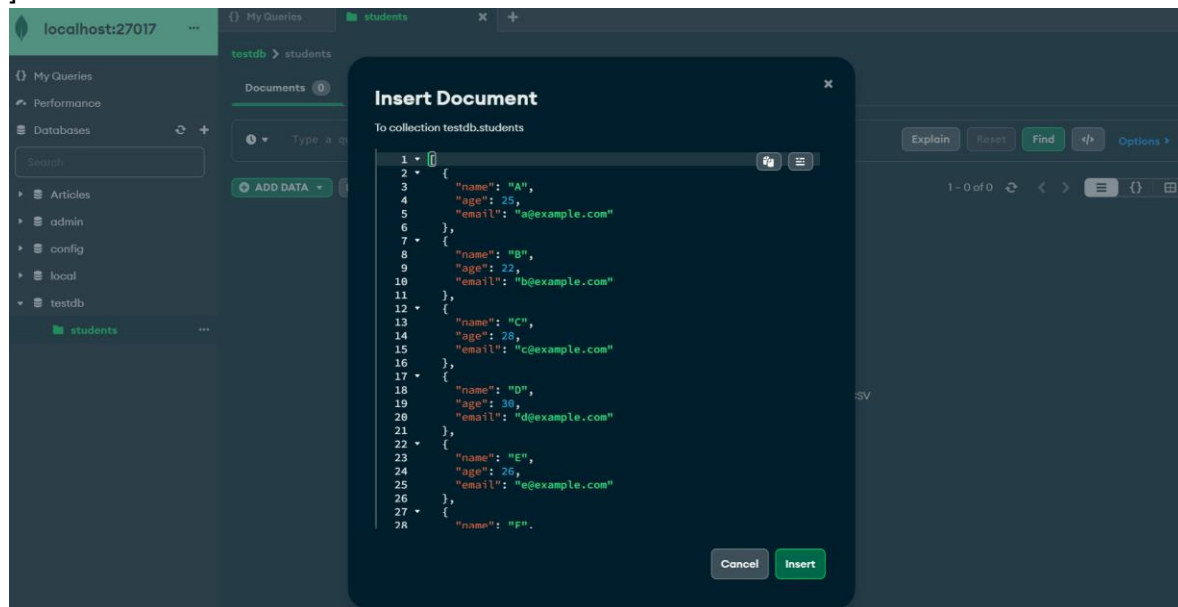
**Ans**

```
[
  {
    "name": "A",
    "age": 25,
    "email": "a@example.com"
  },
  {
    "name": "B",
    "age": 22,
    "email": "b@example.com"
  },
  {
    "name": "C",
    "age": 28,
    "email": "c@example.com"
  },
  {
    "name": "D",
    "age": 30,
    "email": "d@example.com"
  },
  {
```

```

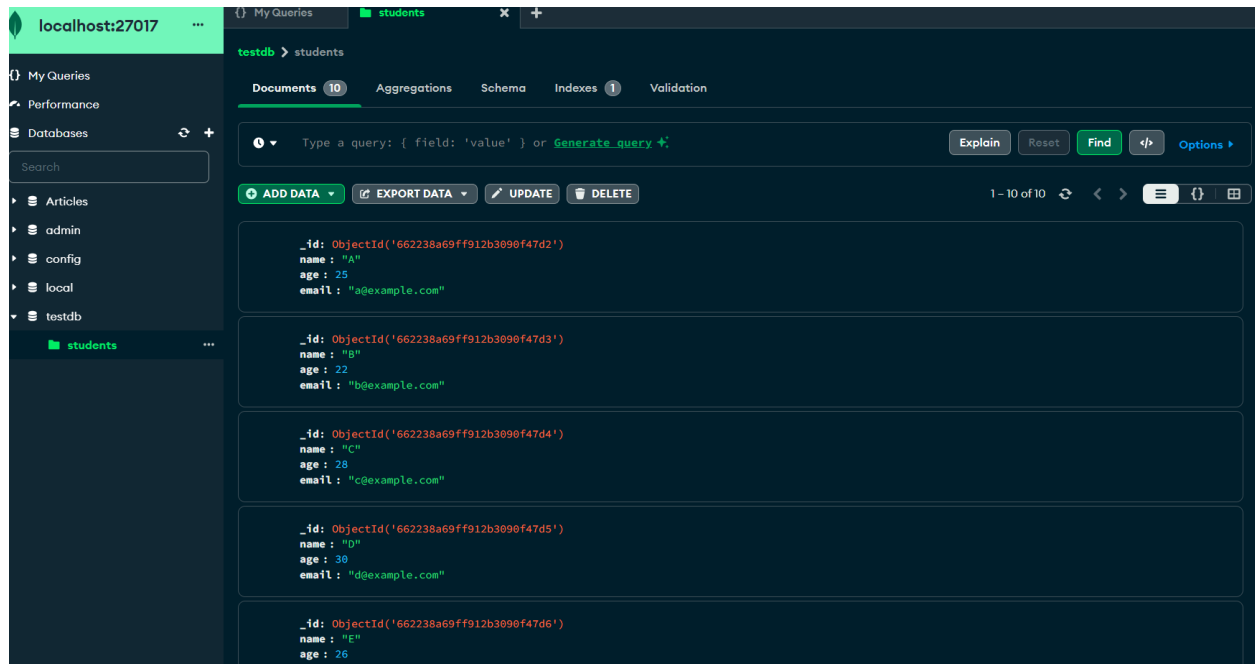
    "name": "E",
    "age": 26,
    "email": "e@example.com"
  },
  {
    "name": "F",
    "age": 24,
    "email": "f@example.com"
  },
  {
    "name": "G",
    "age": 27,
    "email": "g@example.com"
  },
  {
    "name": "H",
    "age": 29,
    "email": "h@example.com"
  },
  {
    "name": "I",
    "age": 23,
    "email": "i@example.com"
  },
  {
    "name": "J",
    "age": 31,
    "email": "j@example.com"
  }
]

```



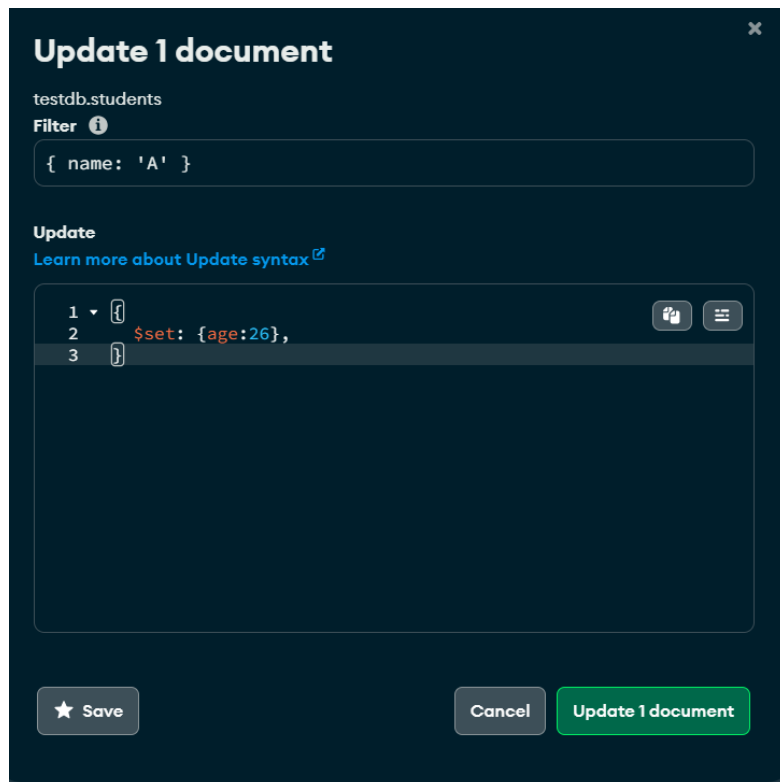
Q5. View the contents of the "students" collection.

Ans




Q6. Update the age of a specific student in the "students" collection.

Ans



**Q7. Delete a document from the "students" collection based on a specific condition.**

**Ans**



## Delete 1 document

testdb.students

Filter ⓘ

{ age: 23 }

</> Export

Preview (sample of 1 document)

```
_id: ObjectId('662238a69ff912b3090f47da')
name: "I"
age: 23
email: "i@example.com"
```

Cancel

Delete 1 document

**Q8. Use the aggregation pipeline to calculate the average age of all students in the "students" collection.**

**Ans**

```
1 [
2   {
3     $group: {
4       _id: null,
5       totalAge: { $sum: "$age" },
6       count: { $sum: 1 }
7     },
8   },
9   {
10    $project: {
11      _id: 0,
12      averageAge: { $divide: [ "$totalAge", "$count" ] }
13    }
14  }
15 ]
16
```

PIPELINE OUTPUT

Sample of 1 document

averageAge : 27

**Q9. Create an index on the "name" field in the "students" collection.**

**Ans**

# Create Index

testdb.students

Index fields

name

text

+

> Options

Cancel

Create Index

Q10. Export the contents of the "students" collection to a JSON file.

Ans

# Export

Collection testdb.students

Export File Type

JSON

CSV

> Advanced JSON Format

Cancel

Export...

Q11. Perform a complex aggregation operation to find the top 5 oldest students in the "students" collection.

Ans

Untitled - modified SAVE + CREATE NEW EXPORT TO LANGUAGE PREVIEW STAGES TEXT WIZARD

```

1 [
2   {
3     $sort: { age: -1 }
4   },
5   {
6     $limit: 5
7   },
8   {
9     $project: {
10      _id: 0,
11      name: 1,
12      age: 1,
13      email: 1
14    }
15  }
16 ]

```

PIPELINE OUTPUT  
Sample of 5 documents

OUTPUT OPTIONS

```

name : "J"
age : 31
email : "j@example.com"

name : "D"
age : 30
email : "d@example.com"

name : "H"
age : 29
email : "h@example.com"

name : "C"
age : 28
email : "c@example.com"

name : "G"
age : 27
email : "g@example.com"

```

**Q12. Create a geospatial index on a field representing the location of students.**

**Ans**

Create Index Refresh VIEWING INDEXES SEARCH INDEXES

Name and Definition	Type	Size	Usage	Properties
> _id_	REGULAR <span>i</span>	36.9 KB	3 (since Fri Apr 19 2024)	UNIQUE <span>i</span>
> name_text	TEXT <span>i</span>	20.5 KB	0 (since Fri Apr 19 2024)	
> students_2dsphere	GEOSPATIAL <span>i</span>	8.2 KB	0 (since Fri Apr 19 2024)	

**Q13. Use MongoDB Compass to visualize the data distribution in the "students" collection.**

**Ans**



**Q14.** Set up a data validation rule to ensure that documents in the "students" collection must have a non-empty name field.

**Ans**

The image shows the MongoDB Compass interface with the Validation tab selected. The Validation Action is set to Error and the Validation Level is set to Strict. The validation rule is defined as follows:

```
1 {
2   "bsonType": "object",
3   "required": ["name"],
4   "properties": {
5     "name": {
6       "bsonType": "string",
7       "minLength": 1
8     }
9   }
10 }
```

Validation modified

Cancel Update