

## Homework\_6\_AparnaBharathi\_Suresh

### Question 1:

Create the data model (with the actual data) in MongoDB by referring to the above schemas. Ensure that you insert data into the denormalized Blog Posts collection that incorporates user information directly into each blog post document as embedded objects. Add a tags array to each document, including relevant tags based on the content.

### Query 1:

Use BlogPosts

```
Db.createCollection("BlogPost")
```

```
db.BlogPost.insertMany([
```

```
{
```

```
  date: new Date("2024-03-01"),
```

```
  user:{
```

```
    username: "Alice",
```

```
    email: "alice@example.com"
```

```
  },
```

```
  title: "Summer Travel",
```

```
  number_of_words: 500,
```

```
  upvotes: 15,
```

```
  tags: ["Travel", "Beach"],
```

```
},
```

```
{
```

```
  date: new Date("2024-03-02"),
```

```
  user:{
```

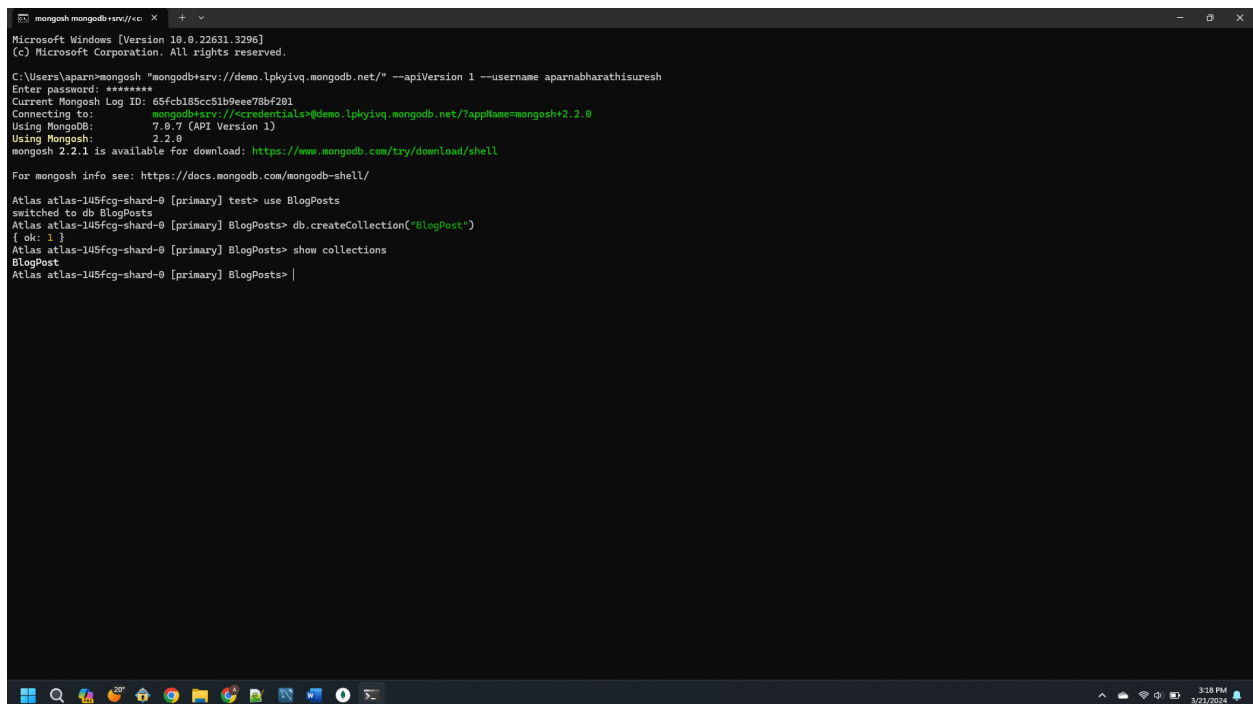
```
    username: "Alice",
```

```
    email: "alice@example.com"
```

```
},
title: "Favourite Foods",
number_of_words: 600,
upvotes: 20,
tags: ["Food", "Cooking"],
},
{
date: new Date("2024-03-05"),
user:{
username: "Bob",
email: "bob@example.com"
},
title: "Tech Gadgets",
number_of_words: 450,
upvotes: 8,
tags: ["Technology", "Gadgets","Reviews"],
},
{
date: new Date("2024-03-12"),
user:{
username: "Charlie",
email: "charlie@example.com"
},
title: "Hiking Trails",
number_of_words: 650,
upvotes: 30,
```

```
tags: ["Hiking", "Outdoors","Travel"],
},
{
date: new Date("2024-03-15"),
user:{
username: "Alice",
email: "alice@example.com"
},
title: "Photography Tips",
number_of_words: 480,
upvotes: 10,
tags: ["Photography", "Travel", "Outdoors"],
},
]);
```

Screenshot:



```
mongosh mongodb+srv://< >
Microsoft Windows [Version 10.0.22631.3296]
(c) Microsoft Corporation. All rights reserved.

C:\Users\aparn>mongosh "mongodb+srv://demo.lpkivq.mongodb.net/" --apiVersion 1 --username aparnabharathisuresh
Enter password: *****
Current Mongosh Log ID: 65fcb185cc51b9eee78bf281
Connecting to:      mongodb+srv://<credentials>@demo.lpkivq.mongodb.net/?appName=mongosh+2.2.0
Using MongoDB:      7.0.7 (API Version 1)
Using Mongosh:       2.2.0
Mongosh 2.2.1 is available for download: https://www.mongodb.com/try/download/shell

For mongosh info see: https://docs.mongodb.com/mongosh-shell/

Atlas atlas-145fcg-shard-0 [primary] test> use BlogPosts
switched to db BlogPosts
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.createCollection("BlogPost")
{ ok: 1 }
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> show collections
BlogPost
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> |
```

```
... ],
... title: "Favourite Foods",
... number_of_words: 698,
... upvotes: 28,
... tags: ["Food", "Cooking"],
... },
... {
... date: new Date("2024-03-05"),
... user: {
... username: "Bob",
... email: "bob@example.com"
... },
... title: "Tech Gadgets",
... number_of_words: 456,
... upvotes: 5,
... tags: ["Technology", "Gadgets", "Reviews"],
... },
... {
... date: new Date("2024-03-12"),
... user: {
... username: "Charlie",
... email: "charlie@example.com"
... },
... title: "Hiking Trails",
... number_of_words: 650,
... upvotes: 30,
... tags: ["Hiking", "Outdoors", "Travel"],
... },
... {
... date: new Date("2024-03-18"),
... user: {
... username: "Alice",
... email: "alice@example.com"
... },
... title: "Photography Tips",
... number_of_words: 489,
... upvotes: 10,
... tags: ["Photography", "Travel", "Outdoors"],
... },
... }];
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('65fcb2d8cc51b9eee78bf282'),
    '1': ObjectId('65fcb2d8cc51b9eee78bf283'),
    '2': ObjectId('65fcb2d8cc51b9eee78bf284'),
    '3': ObjectId('65fcb2d8cc51b9eee78bf285'),
    '4': ObjectId('65fcb2d8cc51b9eee78bf286')
  }
}
Atlas atlas-145fcg-shard-0 [primary] BlogPosts>
```

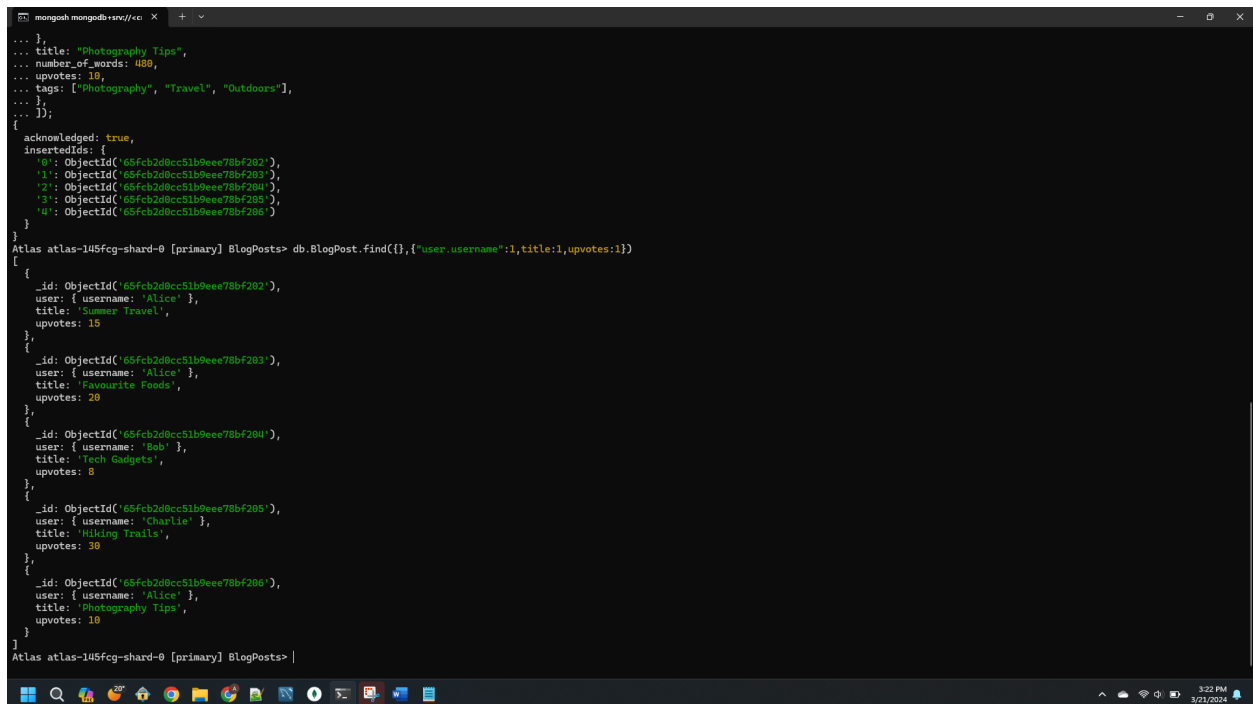
## Question 2:

Write a query to list all blog posts and display only user\_name, title and upvotes fields.

## Query 2:

```
db.BlogPost.find({},{"user.username":1,title:1,upvotes:1})
```

## Screenshot 2:



The screenshot shows a MongoDB terminal window with the following content:

```
... },
... title: "Photography Tips",
... number_of_words: 450,
... upvotes: 10,
... tags: ["Photography", "Travel", "Outdoors"],
... },
... ];
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('65fcb2d0cc51b9eee78bf202'),
    '1': ObjectId('65fcb2d0cc51b9eee78bf203'),
    '2': ObjectId('65fcb2d0cc51b9eee78bf204'),
    '3': ObjectId('65fcb2d0cc51b9eee78bf205'),
    '4': ObjectId('65fcb2d0cc51b9eee78bf206')
  }
}
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.find({},{"user.username":1,title:1,upvotes:1})
[
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf202'),
    user: { username: 'Alice' },
    title: 'Summer Travel',
    upvotes: 15
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf203'),
    user: { username: 'Alice' },
    title: 'Favourite Foods',
    upvotes: 20
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf204'),
    user: { username: 'Bob' },
    title: 'Tech Gadgets',
    upvotes: 8
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf205'),
    user: { username: 'Charlie' },
    title: 'Hiking Trails',
    upvotes: 30
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf206'),
    user: { username: 'Alice' },
    title: 'Photography Tips',
    upvotes: 10
  }
]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> |
```

### Question 3:

Write an aggregation query to calculate the number of blog posts written by each user, grouping by the user's name and display in descending order of number of posts.

### Query 3:

```
db.BlogPost.aggregate(  
  {$group: {_id: "$user.username", num_posts: {$sum: 1}}}, {$sort: {num_posts: -1}})
```

### Screenshot 3:

```
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.aggregate({$group: {_id: "$user.username", num_posts: {$sum: 1}}}, {$sort: {num_posts: -1}})  
[  
  {  
    _id: 'Alice', num_posts: 3 },  
    {  
      _id: 'Bob', num_posts: 1 },  
      {  
        _id: 'Charlie', num_posts: 1 }  
    ]  
Atlas atlas-145fcg-shard-0 [primary] BlogPosts>
```

### Question 4:

Write a query to find all blog posts that include "Travel" in their tags array.

### Query 4:

```
db.BlogPost.find({tags:"Travel"})
```

### Screenshot:

```
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.find({tags:"Travel"})  
[  
  {  
    _id: ObjectId('65fcdab7cc51b9eee78bf207'),  
    date: ISODate('2024-03-01T00:00:00.000Z'),  
    user: { username: 'Alice', email: 'alice@example.com' },  
    title: 'Summer Travel',  
    number_of_words: 500,  
    upvotes: 15,  
    tags: [ 'Travel', 'Beach' ]  
  },  
  {  
    _id: ObjectId('65fcdab7cc51b9eee78bf20a'),  
    date: ISODate('2024-03-12T00:00:00.000Z'),  
    user: { username: 'Charlie', email: 'charlie@example.com' },  
    title: 'Hiking Trails',  
    number_of_words: 650,  
    upvotes: 30,  
    tags: [ 'Hiking', 'Outdoors', 'Travel' ]  
  },  
  {  
    _id: ObjectId('65fcdab7cc51b9eee78bf20b'),  
    date: ISODate('2024-03-15T00:00:00.000Z'),  
    user: { username: 'Alice', email: 'alice@example.com' },  
    title: 'Photography Tips',  
    number_of_words: 400,  
    upvotes: 10,  
    tags: [ 'Photography', 'Travel', 'Outdoors' ]  
  }  
]  
Atlas atlas-145fcg-shard-0 [primary] BlogPosts>
```

### Question 5:

Write a query to find all blog posts that include both "Travel" and "Outdoors" in their tags array.

### Query 5:

```
db.BlogPost.find({tags:"Travel",tags:"Outdoors"})
```

### Screenshot 5:

```
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.find({tags:"Travel",tags:"Outdoors"})
[
  {
    _id: ObjectId('65fcdab7cc51b9eee78bf28a'),
    date: ISODate('2024-03-12T00:00:00.000Z'),
    user: { username: 'Charlie', email: 'charlie@example.com' },
    title: 'Hiking Trails',
    number_of_words: 650,
    upvotes: 30,
    tags: [ 'Hiking', 'Outdoors', 'Travel' ]
  },
  {
    _id: ObjectId('65fcdab7cc51b9eee78bf28b'),
    date: ISODate('2024-03-15T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Photography Tips',
    number_of_words: 480,
    upvotes: 10,
    tags: [ 'Photography', 'Travel', 'Outdoors' ]
  }
]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts>
```

### Question 6:

Write a query to sort all blog posts in descending order based on the number of upvotes they've received.

### Query 6:

```
db.BlogPost.find().sort({"upvotes":-1})
```

### Screenshot 6:

```
mongosh mongodb+srv://cc: x + v
}
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.find().sort({"upvotes":-1})
[
  {
    _id: ObjectId('65fcdab7cc51b9eee78bf20a'),
    date: ISODate('2024-03-12T00:00:00.000Z'),
    user: { username: 'Charlie', email: 'charlie@example.com' },
    title: 'Hiking Trails',
    number_of_words: 650,
    upvotes: 30,
    tags: [ 'Hiking', 'Outdoors', 'Travel' ]
  },
  {
    _id: ObjectId('65fcdab7cc51b9eee78bf208'),
    date: ISODate('2024-03-02T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Vegetarian Foods',
    number_of_words: 600,
    upvotes: 20,
    tags: [ 'Food', 'Cooking' ]
  },
  {
    _id: ObjectId('65fcdab7cc51b9eee78bf207'),
    date: ISODate('2024-03-01T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Summer Travel',
    number_of_words: 500,
    upvotes: 15,
    tags: [ 'Travel', 'Beach' ]
  },
  {
    _id: ObjectId('65fcdab7cc51b9eee78bf20b'),
    date: ISODate('2024-03-15T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Photography Tips',
    number_of_words: 400,
    upvotes: 10,
    tags: [ 'Photography', 'Travel', 'Outdoors' ]
  },
  {
    _id: ObjectId('65fcdab7cc51b9eee78bf209'),
    date: ISODate('2024-03-05T00:00:00.000Z'),
    user: { username: 'Bob', email: 'bob@example.com' },
    title: 'Tech Gadgets',
    number_of_words: 450,
    upvotes: 8,
    tags: [ 'Technology', 'Gadgets', 'Reviews' ]
  }
]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts>
```



### Question 7:

Write a query to display all blog posts that have a word count between 500 and 1000 words, inclusive.

### Query 7:

```
db.BlogPost.find({number_of_words:{$gte:500,$lte:1000}})
```

### Screenshot 7:

```
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.find({number_of_words:{$gte:500,$lte:1000}})
[
  {
    _id: ObjectId('65fcb2d9cc51b9eee78bf202'),
    date: ISODate('2024-03-01T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Summer Travel',
    number_of_words: 500,
    upvotes: 15,
    tags: [ 'Travel', 'Beach' ]
  },
  {
    _id: ObjectId('65fcb2d9cc51b9eee78bf203'),
    date: ISODate('2024-03-02T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Favorite Foods',
    number_of_words: 600,
    upvotes: 20,
    tags: [ 'Food', 'Cooking' ]
  },
  {
    _id: ObjectId('65fcb2d9cc51b9eee78bf205'),
    date: ISODate('2024-03-12T00:00:00.000Z'),
    user: { username: 'Charlie', email: 'charlie@example.com' },
    title: 'Hiking Trails',
    number_of_words: 650,
    upvotes: 30,
    tags: [ 'Hiking', 'Outdoors', 'Travel' ]
  }
]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts>
```

### Question 8:

Write a command to update the tags of a blog post that have more than 18 upvotes, to add a new tag "Popular" to its existing tags array.

### Query 8:

```
db.BlogPost.updateMany({upvotes:{$gt:18}},{$addToSet:{tags:"Popular"}})
```

```
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.updateMany({upvotes:{$gt:18}},{$addToSet:{tags:"Popular"}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 2,
  modifiedCount: 2,
  upsertedCount: 0
}
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.find()
```

```
mongosh mongodb+srv://cc x + v
}
upsertedCount: 0
}
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.find()
[
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf202'),
    date: ISODate('2024-03-01T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Summer Travel',
    number_of_words: 500,
    upvotes: 15,
    tags: [ 'Travel', 'Beach' ]
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf203'),
    date: ISODate('2024-03-02T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Favorite Foods',
    number_of_words: 600,
    upvotes: 20,
    tags: [ 'Food', 'Cooking', 'Popular' ]
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf204'),
    date: ISODate('2024-03-05T00:00:00.000Z'),
    user: { username: 'Bob', email: 'bob@example.com' },
    title: 'Tech Gadgets',
    number_of_words: 450,
    upvotes: 8,
    tags: [ 'Technology', 'Gadgets', 'Reviews' ]
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf205'),
    date: ISODate('2024-03-12T00:00:00.000Z'),
    user: { username: 'Charlie', email: 'charlie@example.com' },
    title: 'Hiking Trails',
    number_of_words: 650,
    upvotes: 30,
    tags: [ 'Hiking', 'Outdoors', 'Travel', 'Popular' ]
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf206'),
    date: ISODate('2024-03-15T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Photography Tips',
    number_of_words: 400,
    upvotes: 10,
    tags: [ 'Photography', 'Travel', 'Outdoors' ]
  }
]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts>
```

### Question 9:

Write an aggregation query to calculate the average number of words for blog posts tagged with "Travel".

### Query 9:

```
db.BlogPost.aggregate([{$match:{tags:"Travel"}},{ $group:{_id:null,avgerage_words:{$avg:$number_of_words}}}]])
```

```
MongoServerError(Location:19956): a group specification must include an _id
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.aggregate([{$match:{tags:"Travel"}},{ $group:{_id:null,avgerage_words:{$avg:$number_of_words}}}]])
[ { _id: null, avgerage_words: 543.3333333333334 } ]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts>
```

### Question 10:

Write a command to delete all blog posts that have fewer than 10 upvotes.

### Query 10:

```
db.BlogPost.deleteMany({upvotes:{$lt:10}})
```

### Screenshot 10:

```
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.aggregate([{$match:{tags:"Travel"}},{ $group:{_id:null,avgerage_words:{$avg:$number_of_words}}}]])
[ { _id: null, avgerage_words: 543.3333333333334 } ]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.deleteMany({upvotes:{$lt:10}})
{ acknowledged: true, deletedCount: 1 }
Atlas atlas-145fcg-shard-0 [primary] BlogPosts>
```

```
mongosh mongodb+srv://ec:
  average_words: 650
}
]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.aggregate([{$match:{tags:"Travel"}},{ $group:{_id:null,avgerage_words:{$avg:$number_of_words}}}]])
[ { _id: null, avgerage_words: 543.3333333333334 } ]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.aggregate([{$match:{tags:"Travel"}},{ $group:{average_words:{$avg:$number_of_words}}}]])
MongoServerError(Location:19956): a group specification must include an _id
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.aggregate([{$match:{tags:"Travel"}},{ $group:{_id:null,avgerage_words:{$avg:$number_of_words}}}]])
[ { _id: null, avgerage_words: 543.3333333333334 } ]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.deleteMany({upvotes:{$lt:10}})
{ acknowledged: true, deletedCount: 1 }
Atlas atlas-145fcg-shard-0 [primary] BlogPosts> db.BlogPost.find()
[
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf282'),
    date: ISODate('2024-03-01T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Summer Travel',
    number_of_words: 500,
    upvotes: 15,
    tags: [ 'Travel', 'Beach' ]
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf283'),
    date: ISODate('2024-03-02T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Favorite Foods',
    number_of_words: 600,
    upvotes: 20,
    tags: [ 'Food', 'Cooking', 'Popular' ]
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf285'),
    date: ISODate('2024-03-12T00:00:00.000Z'),
    user: { username: 'Charlie', email: 'charlie@example.com' },
    title: 'Hiking Trails',
    number_of_words: 650,
    upvotes: 30,
    tags: [ 'Hiking', 'Outdoors', 'Travel', 'Popular' ]
  },
  {
    _id: ObjectId('65fcb2d0cc51b9eee78bf286'),
    date: ISODate('2024-03-15T00:00:00.000Z'),
    user: { username: 'Alice', email: 'alice@example.com' },
    title: 'Photography Tips',
    number_of_words: 400,
    upvotes: 10,
    tags: [ 'Photography', 'Travel', 'Outdoors' ]
  }
]
Atlas atlas-145fcg-shard-0 [primary] BlogPosts>
```