

# MongoDB Blog Site

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## Database Setup & Sample Data

### Task 1. ~ Create a new database

Query:

```
use blog
```

### Task 2. ~ Create the collections for the required data

We will create a collection for the following data:

- BlogUsers
- BlogEntries
- BlogCategories
- Comments

Query:

```
db.createCollection("BlogUsers")
db.createCollection("BlogEntries")
db.createCollection("BlogCategories")
db.createCollection("Comments")
```

## 3. Create 5 blog users

We will create 5 blog users with the following fields:

- username
- name
  - firstName
  - lastName
- email
- password (for this task, it will be clear text)

Query:

```

db.BlogUsers.insertMany([
  {
    username: "luna",
    name: { firstName: "Luna", lastName: "Klatzer" },
    email: "l.k@email.com",
    password: "luna_klatzer123456789!?"
  },
  {
    username: "mia",
    name: { firstName: "Mia", lastName: "Marceta" },
    email: "m.m@email.com",
    password: "mia_marceta123456789!?"
  },
  {
    username: "jane",
    name: { firstName: "Jane", lastName: "Doe" },
    email: "j.d@email.com",
    password: "jane_doe123456789!?"
  },
  {
    username: "john",
    name: { firstName: "John", lastName: "Doe" },
    email: "j2.d@email.com",
    password: "john_doe123456789!?"
  },
  {
    username: "jane2",
    name: { firstName: "Jane", lastName: "Doe" },
    email: "j3.d@email.com",
    password: "jane_doe123456789!?"
  },
  {
    username: "thisismypassword",
    name: { firstName: "This", lastName: "IsMyPassword" },
    email: "thisismypassword@email.com",
    password: "thisismypassword"
  },
  {
    username: "admin",
    name: { firstName: "Admin", lastName: "Admin" },
    email: "admin@email.com",
    password: "admin123456789!?"
  },
  {
    username: "guest",
    name: { firstName: "Guest", lastName: "Guest" },
    email: "guest@email.com",
    password: "guest123456789!?"
  }
])

```

## 4. Create 5 blog entries which are distributed among 3 categories

We will create 5 blog entries with the following fields:

- `title`
- `author` (reference to a user)
- `description`
- `creationDate`
- `editDates`
- `impressionCount`
- `content`
- `commentsAllowed`
- `category` (reference to a category)

As well as 3 categories with the following fields:

- `name`
- `description`

Query:

```
db.BlogCategories.insertMany([
  {
    name: "Technology",
    description: "The latest news in technology"
  },
  {
    name: "Travel",
    description: "Travel stories and tips"
  },
  {
    name: "Food",
    description: "Recipes and food reviews"
  }
])
db.BlogEntries.insertMany([
  {
    title: "First Blog Entry",
    author: db.BlogUsers.findOne({ username: "luna" })._id,
    description: "This is the first blog entry.",
    creationDate: new Date("2016-05-14T16:00:00Z"),
    editDates: [],
    impressionCount: 0,
    content: {
```

```

    text: "Content of the first blog entry.",
    images: [
      "image1.jpg",
      "image2.jpg"
    ],
    videos: [],
    location: {
      latitude: 40.7128,
      longitude: -74.0060
    },
    links: [
      {
        title: "Link 1",
        url: "http://www.link1.com"
      },
      {
        title: "Link 2",
        url: "http://www.link2.com"
      }
    ]
  },
  commentsAllowed: true,
  category: db.BlogCategories.findOne({ name: "Technology" })._id
},
{
  title: "Second Blog Entry",
  author: db.BlogUsers.findOne({ username: "mia" })._id,
  description: "This is the second blog entry.",
  creationDate: new Date("2016-05-15T16:00:00Z"),
  editDates: [],
  impressionCount: 0,
  content: {
    text: "Content of the second blog entry.",
    images: [
      "image3.jpg",
      "image4.jpg"
    ],
    videos: [
      "video1.mp4"
    ],
    location: {
      latitude: 34.0522,
      longitude: -118.2437
    },
    links: [
      {
        title: "Link 3",
        url: "http://www.link3.com"
      }
    ]
  }
},

```

```

    commentsAllowed: true,
    category: db.BlogCategories.findOne({ name: "Travel" })._id
  },
  {
    title: "Third Blog Entry",
    author: db.BlogUsers.findOne({ username: "jane" })._id,
    description: "This is the third blog entry.",
    creationDate: new Date("2016-05-16T16:00:00Z"),
    editDates: [],
    impressionCount: 0,
    content: {
      text: "Content of the third blog entry.",
      images: [
        "image5.jpg",
        "image6.jpg"
      ],
      videos: [],
      location: {
        latitude: 51.5074,
        longitude: -0.1278
      },
      links: []
    },
    commentsAllowed: false,
    category: db.BlogCategories.findOne({ name: "Food" })._id
  },
  {
    title: "Fourth Blog Entry",
    author: db.BlogUsers.findOne({ username: "john" })._id,
    description: "This is the fourth blog entry.",
    creationDate: new Date("2016-05-17T16:00:00Z"),
    editDates: [],
    impressionCount: 0,
    content: {
      text: "Content of the fourth blog entry.",
      images: [],
      videos: [],
      location: {
        latitude: 48.8566,
        longitude: 2.3522
      },
      links: [
        {
          title: "Link 4",
          url: "http://www.link4.com"
        }
      ]
    },
    commentsAllowed: false,
    category: db.BlogCategories.findOne({ name: "Technology" })._id
  },

```

```

{
  title: "Fifth Blog Entry",
  author: db.BlogUsers.findOne({ username: "jane2" })._id,
  description: "This is the fifth blog entry.",
  creationDate: new Date("2016-05-18T16:00:00Z"),
  editDates: [
    new Date("2022-05-18T16:00:00Z"),
    new Date()
  ],
  impressionCount: 0,
  content: {
    text: "Content of the fifth blog entry.",
    images: [
      "image7.jpg",
      "image8.jpg"
    ],
    videos: [],
    location: null,
    links: [
      {
        title: "Link 5",
        url: "http://www.link5.com"
      }
    ]
  },
  commentsAllowed: true,
  category: db.BlogCategories.findOne({ name: "Travel" })._id
}
])

```

## 5. Create 4 comments for the blog entries (for blog entries that allow it)

We will create 4 comments with the following fields:

- **content**
- **author** (reference to a user)
- **entry** (reference to a blog entry)
- **creationDate**

Query:

```

db.Comments.insertMany([
  {
    content: "This is a comment for the first blog entry.",
    author: db.BlogUsers.findOne({ username: "mia" })._id,
    entry: db.BlogEntries.findOne({ title: "First Blog Entry" })._id,

```

```

    creationDate: new Date("2016-05-14T16:30:00Z")
  },
  {
    content: "This is a comment for the first blog entry.",
    author: db.BlogUsers.findOne({ username: "jane" })._id,
    entry: db.BlogEntries.findOne({ title: "First Blog Entry" })._id,
    creationDate: new Date("2016-05-14T17:30:00Z")
  },
  {
    content: "This is a comment for the second blog entry.",
    author: db.BlogUsers.findOne({ username: "jane" })._id,
    entry: db.BlogEntries.findOne({ title: "Second Blog Entry" })._id,
    creationDate: new Date("2016-05-15T16:30:00Z")
  },
  {
    content: "This is a comment for the fifth blog entry.",
    author: db.BlogUsers.findOne({ username: "john" })._id,
    entry: db.BlogEntries.findOne({ title: "Fifth Blog Entry" })._id,
    creationDate: new Date("2016-05-18T16:30:00Z")
  },
]
})

```

## Queries

### Find all users where username is the same as the password

Query:

```
db.BlogUsers.find({ $where: "this.username === this.password" })
```

Result:

```

[
  {
    _id: ObjectId('6618dc1cd1b7d6a3107b2dbf'),
    username: 'thisismypassword',
    name: { firstName: 'This', lastName: 'IsMyPassword' },
    email: 'thisismypassword@email.com',
    password: 'thisismypassword'
  }
]

```

## Find all blog entries that were created by a user with a certain username

We will search for **Jane**.

Query:

```
db.BlogEntries.find({ author: db.BlogUsers.findOne({ username: "jane" })._id })
```

Result:

```
[
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dbc'),
    title: 'Third Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2dab'),
    description: 'This is the third blog entry.',
    creationDate: ISODate('2016-05-16T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,
    content: {
      text: 'Content of the third blog entry.',
      images: [ 'image5.jpg', 'image6.jpg' ],
      videos: [],
      location: { latitude: 51.5074, longitude: -0.1278 },
      links: []
    },
    commentsAllowed: false,
    category: ObjectId('6618d840d1b7d6a3107b2db0')
  }
]
```

## Find all blog entries with no coordinates

Query:

```
db.BlogEntries.find({ "content.location": null })
```

Result:

```
[
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dbe'),
    title: 'Fifth Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2dad'),
```



```

description: 'This is the fifth blog entry.',
creationDate: ISODate('2016-05-18T16:00:00.000Z'),
editDates: [
  ISODate('2022-05-18T16:00:00.000Z'),
  ISODate('2024-04-12T06:59:09.481Z')
],
impressionCount: 0,
content: {
  text: 'Content of the fifth blog entry.',
  images: [ 'image7.jpg', 'image8.jpg' ],
  videos: [],
  location: null,
  links: [ { title: 'Link 5', url: 'http://www.link5.com' } ]
},
commentsAllowed: true,
category: ObjectId('6618d840d1b7d6a3107b2daf')
}
]

```

## Find all blog entries with more than one image

Query:

```
db.BlogEntries.find({ $where: "this.content.images.length > 1" })
```

Result:

```

[
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dba'),
    title: 'First Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2da9'),
    description: 'This is the first blog entry.',
    creationDate: ISODate('2016-05-14T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,
    content: {
      text: 'Content of the first blog entry.',
      images: [ 'image1.jpg', 'image2.jpg' ],
      videos: [],
      location: { latitude: 40.7128, longitude: -74.006 },
      links: [
        { title: 'Link 1', url: 'http://www.link1.com' },
        { title: 'Link 2', url: 'http://www.link2.com' }
      ]
    },
    commentsAllowed: true,
    category: ObjectId('6618d840d1b7d6a3107b2dae')
  }
]

```

```

},
{
  _id: ObjectId('6618dbbdd1b7d6a3107b2dbb'),
  title: 'Second Blog Entry',
  author: ObjectId('6618d834d1b7d6a3107b2daa'),
  description: 'This is the second blog entry.',
  creationDate: ISODate('2016-05-15T16:00:00.000Z'),
  editDates: [],
  impressionCount: 0,
  content: {
    text: 'Content of the second blog entry.',
    images: [ 'image3.jpg', 'image4.jpg' ],
    videos: [ 'video1.mp4' ],
    location: { latitude: 34.0522, longitude: -118.2437 },
    links: [ { title: 'Link 3', url: 'http://www.link3.com' } ]
  },
  commentsAllowed: true,
  category: ObjectId('6618d840d1b7d6a3107b2daf')
},
{
  _id: ObjectId('6618dbbdd1b7d6a3107b2dbc'),
  title: 'Third Blog Entry',
  author: ObjectId('6618d834d1b7d6a3107b2dab'),
  description: 'This is the third blog entry.',
  creationDate: ISODate('2016-05-16T16:00:00.000Z'),
  editDates: [],
  impressionCount: 0,
  content: {
    text: 'Content of the third blog entry.',
    images: [ 'image5.jpg', 'image6.jpg' ],
    videos: [],
    location: { latitude: 51.5074, longitude: -0.1278 },
    links: []
  },
  commentsAllowed: false,
  category: ObjectId('6618d840d1b7d6a3107b2db0')
},
{
  _id: ObjectId('6618dbbdd1b7d6a3107b2dbe'),
  title: 'Fifth Blog Entry',
  author: ObjectId('6618d834d1b7d6a3107b2dad'),
  description: 'This is the fifth blog entry.',
  creationDate: ISODate('2016-05-18T16:00:00.000Z'),
  editDates: [
    ISODate('2022-05-18T16:00:00.000Z'),
    ISODate('2024-04-12T06:59:09.481Z')
  ],
  impressionCount: 0,
  content: {
    text: 'Content of the fifth blog entry.',
    images: [ 'image7.jpg', 'image8.jpg' ],

```

```

    videos: [],
    location: null,
    links: [ { title: 'Link 5', url: 'http://www.link5.com' } ]
  },
  commentsAllowed: true,
  category: ObjectId('6618d840d1b7d6a3107b2daf')
}
]

```

## Find all blog entries with images and coordinates

Query:

```

db.BlogEntries.find({
  "content.images": { $exists: true, $ne: [] },
  "content.location": { $exists: true }
})

```

Result:

```

[
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dba'),
    title: 'First Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2da9'),
    description: 'This is the first blog entry.',
    creationDate: ISODate('2016-05-14T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,
    content: {
      text: 'Content of the first blog entry.',
      images: [ 'image1.jpg', 'image2.jpg' ],
      videos: [],
      location: { latitude: 40.7128, longitude: -74.006 },
      links: [
        { title: 'Link 1', url: 'http://www.link1.com' },
        { title: 'Link 2', url: 'http://www.link2.com' }
      ]
    },
    commentsAllowed: true,
    category: ObjectId('6618d840d1b7d6a3107b2dae')
  },
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dbb'),
    title: 'Second Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2daa'),
    description: 'This is the second blog entry.',
    creationDate: ISODate('2016-05-15T16:00:00.000Z'),

```

```

editDates: [],
impressionCount: 0,
content: {
  text: 'Content of the second blog entry.',
  images: [ 'image3.jpg', 'image4.jpg' ],
  videos: [ 'video1.mp4' ],
  location: { latitude: 34.0522, longitude: -118.2437 },
  links: [ { title: 'Link 3', url: 'http://www.link3.com' } ]
},
commentsAllowed: true,
category: ObjectId('6618d840d1b7d6a3107b2daf')
},
{
  _id: ObjectId('6618dbbdd1b7d6a3107b2dbc'),
  title: 'Third Blog Entry',
  author: ObjectId('6618d834d1b7d6a3107b2dab'),
  description: 'This is the third blog entry.',
  creationDate: ISODate('2016-05-16T16:00:00.000Z'),
  editDates: [],
  impressionCount: 0,
  content: {
    text: 'Content of the third blog entry.',
    images: [ 'image5.jpg', 'image6.jpg' ],
    videos: [],
    location: { latitude: 51.5074, longitude: -0.1278 },
    links: []
  },
  commentsAllowed: false,
  category: ObjectId('6618d840d1b7d6a3107b2db0')
},
{
  _id: ObjectId('6618dbbdd1b7d6a3107b2dbe'),
  title: 'Fifth Blog Entry',
  author: ObjectId('6618d834d1b7d6a3107b2dad'),
  description: 'This is the fifth blog entry.',
  creationDate: ISODate('2016-05-18T16:00:00.000Z'),
  editDates: [
    ISODate('2022-05-18T16:00:00.000Z'),
    ISODate('2024-04-12T06:59:09.481Z')
  ],
  impressionCount: 0,
  content: {
    text: 'Content of the fifth blog entry.',
    images: [ 'image7.jpg', 'image8.jpg' ],
    videos: [],
    location: null,
    links: [ { title: 'Link 5', url: 'http://www.link5.com' } ]
  },
  commentsAllowed: true,
  category: ObjectId('6618d840d1b7d6a3107b2daf')
}

```

```
]
```

## Find all blog entries of a specific author (search by last name) or "admin", but not "guest"

We will search for **Marceta** (case-insensitive).

Query:

```
db.BlogEntries.find({
  author: {
    $in: [
      db.BlogUsers.findOne({ "name.lastName": /marceta/i })._id,
      db.BlogUsers.findOne({ username: "admin" })._id
    ],
    $nin: [ db.BlogUsers.findOne({ username: "guest" })._id ]
  }
})
```

Result:

```
[
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dbb'),
    title: 'Second Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2daa'),
    description: 'This is the second blog entry.',
    creationDate: ISODate('2016-05-15T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,
    content: {
      text: 'Content of the second blog entry.',
      images: [ 'image3.jpg', 'image4.jpg' ],
      videos: [ 'video1.mp4' ],
      location: { latitude: 34.0522, longitude: -118.2437 },
      links: [ { title: 'Link 3', url: 'http://www.link3.com' } ]
    },
    commentsAllowed: true,
    category: ObjectId('6618d840d1b7d6a3107b2daf')
  }
]
```

## Find all blog entries that reference their title in the content (case-insensitive)

Query:

```
db.BlogEntries.find({
  $where: "this.content.text.toLowerCase().includes(this.title.toLowerCase())"
})
```

Result:

```
[
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dba'),
    title: 'First Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2da9'),
    description: 'This is the first blog entry.',
    creationDate: ISODate('2016-05-14T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,
    content: {
      text: 'Content of the first blog entry.',
      images: [ 'image1.jpg', 'image2.jpg' ],
      videos: [],
      location: { latitude: 40.7128, longitude: -74.006 },
      links: [
        { title: 'Link 1', url: 'http://www.link1.com' },
        { title: 'Link 2', url: 'http://www.link2.com' }
      ]
    },
    commentsAllowed: true,
    category: ObjectId('6618d840d1b7d6a3107b2dae')
  },
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dbb'),
    title: 'Second Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2daa'),
    description: 'This is the second blog entry.',
    creationDate: ISODate('2016-05-15T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,
    content: {
      text: 'Content of the second blog entry.',
      images: [ 'image3.jpg', 'image4.jpg' ],
      videos: [ 'video1.mp4' ],
      location: { latitude: 34.0522, longitude: -118.2437 },
      links: [ { title: 'Link 3', url: 'http://www.link3.com' } ]
    },
  },
]
```

```

    commentsAllowed: true,
    category: ObjectId('6618d840d1b7d6a3107b2daf')
  },
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dbc'),
    title: 'Third Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2dab'),
    description: 'This is the third blog entry.',
    creationDate: ISODate('2016-05-16T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,
    content: {
      text: 'Content of the third blog entry.',
      images: [ 'image5.jpg', 'image6.jpg' ],
      videos: [],
      location: { latitude: 51.5074, longitude: -0.1278 },
      links: []
    },
    commentsAllowed: false,
    category: ObjectId('6618d840d1b7d6a3107b2db0')
  },
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dbd'),
    title: 'Fourth Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2dac'),
    description: 'This is the fourth blog entry.',
    creationDate: ISODate('2016-05-17T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,
    content: {
      text: 'Content of the fourth blog entry.',
      images: [],
      videos: [],
      location: { latitude: 48.8566, longitude: 2.3522 },
      links: [ { title: 'Link 4', url: 'http://www.link4.com' } ]
    },
    commentsAllowed: false,
    category: ObjectId('6618d840d1b7d6a3107b2dae')
  },
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dbe'),
    title: 'Fifth Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2dad'),
    description: 'This is the fifth blog entry.',
    creationDate: ISODate('2016-05-18T16:00:00.000Z'),
    editDates: [
      ISODate('2022-05-18T16:00:00.000Z'),
      ISODate('2024-04-12T06:59:09.481Z')
    ],
    impressionCount: 0,
    content: {

```

```

    text: 'Content of the fifth blog entry.',
    images: [ 'image7.jpg', 'image8.jpg' ],
    videos: [],
    location: null,
    links: [ { title: 'Link 5', url: 'http://www.link5.com' } ]
  },
  commentsAllowed: true,
  category: ObjectId('6618d840d1b7d6a3107b2daf')
}
]

```

## Find all blog users sorted by username

Query:

```
db.BlogUsers.find().sort({ username: 1 })
```

Result:

```

[
  {
    _id: ObjectId('6618ddc8d1b7d6a3107b2dc0'),
    username: 'admin',
    name: { firstName: 'Admin', lastName: 'Admin' },
    email: 'admin@email.com',
    password: 'admin123456789!?'
  },
  {
    _id: ObjectId('6618ddc8d1b7d6a3107b2dc1'),
    username: 'guest',
    name: { firstName: 'Guest', lastName: 'Guest' },
    email: 'guest@email.com',
    password: 'guest123456789!?'
  },
  {
    _id: ObjectId('6618d834d1b7d6a3107b2dab'),
    username: 'jane',
    name: { firstName: 'Jane', lastName: 'Doe' },
    email: 'j.d@email.com',
    password: 'jane_doe123456789!?'
  },
  {
    _id: ObjectId('6618d834d1b7d6a3107b2dad'),
    username: 'jane2',
    name: { firstName: 'Jane', lastName: 'Doe' },
    email: 'j3.d@email.com',
    password: 'jane_doe123456789!?'
  },
]

```



```

{
  _id: ObjectId('6618d834d1b7d6a3107b2dac'),
  username: 'john',
  name: { firstName: 'John', lastName: 'Doe' },
  email: 'j2.d@email.com',
  password: 'john_doe123456789!?'
},
{
  _id: ObjectId('6618d834d1b7d6a3107b2da9'),
  username: 'luna',
  name: { firstName: 'Luna', lastName: 'Klatzer' },
  email: 'l.k@email.com',
  password: 'luna_klatzer123456789!?'
},
{
  _id: ObjectId('6618d834d1b7d6a3107b2daa'),
  username: 'mia',
  name: { firstName: 'Mia', lastName: 'Marceta' },
  email: 'm.m@email.com',
  password: 'mia_marceta123456789!?'
},
{
  _id: ObjectId('6618dc1cd1b7d6a3107b2dbf'),
  username: 'thisismypassword',
  name: { firstName: 'This', lastName: 'IsMyPassword' },
  email: 'thisismypassword@email.com',
  password: 'thisismypassword'
}
]

```

## Find the two latest blog entries for every user

Query:

```

db.BlogEntries.aggregate([
  { $sort: { createDate: -1 } },
  {
    $group: {
      _id: "$author",
      entries: { $push: "$$ROOT" }
    }
  },
  {
    $project: {
      _id: 1,
      entries: { $slice: ["$entries", 2] }
    }
  }
])

```

```
])
```

## Find the second oldest blog entry

Query:

```
db.BlogEntries.find().sort({ creationDate: 1 }).skip(1).limit(1)
```

Result:

```
[
  {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dbb'),
    title: 'Second Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2daa'),
    description: 'This is the second blog entry.',
    creationDate: ISODate('2016-05-15T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,
    content: {
      text: 'Content of the second blog entry.',
      images: [ 'image3.jpg', 'image4.jpg' ],
      videos: [ 'video1.mp4' ],
      location: { latitude: 34.0522, longitude: -118.2437 },
      links: [ { title: 'Link 3', url: 'http://www.link3.com' } ]
    },
    commentsAllowed: true,
    category: ObjectId('6618d840d1b7d6a3107b2daf')
  }
]
```

## Find all blog entries of the last week that have at least one comment

*Since all the dates of the blog entries are so long ago, to test this we will use the week of 2016-05-09 ~ 15. (one week later than the creation dates of the first blog entries).*

Query (For the example, we will use the start of the week 2016-05-09 and the start of the next week at midnight):

```
db.Comments.aggregate([
  {
    $lookup: {
      from: "BlogEntries",
      localField: "entry",
```

```

        foreignField: "_id",
        as: "entry"
    }
},
{ $unwind: "$entry" },
{
    $match: {
        createDate: {
            $gte: new Date("2016-05-09T00:00:00Z"),
            $lt: new Date("2016-05-16T00:00:00Z")
        }
    }
},
{
    $group: {
        _id: "$entry",
        comments: { $push: "$$ROOT" }
    }
},
{
    $match: {
        "comments.1": { $exists: true }
    }
}
])

```

Result:

```

[
  {
    _id: {
      _id: ObjectId('6618dbbdd1b7d6a3107b2dba'),
      title: 'First Blog Entry',
      author: ObjectId('6618d834d1b7d6a3107b2da9'),
      description: 'This is the first blog entry.',
      createDate: ISODate('2016-05-14T16:00:00.000Z'),
      editDates: [],
      impressionCount: 0,
      content: {
        text: 'Content of the first blog entry.',
        images: [ 'image1.jpg', 'image2.jpg' ],
        videos: [],
        location: { latitude: 40.7128, longitude: -74.006 },
        links: [
          { title: 'Link 1', url: 'http://www.link1.com' },
          { title: 'Link 2', url: 'http://www.link2.com' }
        ]
      }
    },
    commentsAllowed: true,
    category: ObjectId('6618d840d1b7d6a3107b2dae')
  }
]

```

```

},
comments: [
  {
    _id: ObjectId('661f8ab97bd02d34407b2da9'),
    content: 'This is a comment for the first blog entry.',
    author: ObjectId('6618d834d1b7d6a3107b2daa'),
    entry: {
      _id: ObjectId('6618dbbdd1b7d6a3107b2dba'),
      title: 'First Blog Entry',
      author: ObjectId('6618d834d1b7d6a3107b2da9'),
      description: 'This is the first blog entry.',
      creationDate: ISODate('2016-05-14T16:00:00.000Z'),
      editDates: [],
      impressionCount: 0,
      content: {
        text: 'Content of the first blog entry.',
        images: [ 'image1.jpg', 'image2.jpg' ],
        videos: [],
        location: { latitude: 40.7128, longitude: -74.006 },
        links: [
          { title: 'Link 1', url: 'http://www.link1.com' },
          { title: 'Link 2', url: 'http://www.link2.com' }
        ]
      }
    },
    commentsAllowed: true,
    category: ObjectId('6618d840d1b7d6a3107b2dae')
  },
  {
    creationDate: ISODate('2016-05-14T16:30:00.000Z')
  },
  {
    _id: ObjectId('661f8ab97bd02d34407b2daa'),
    content: 'This is a comment for the first blog entry.',
    author: ObjectId('6618d834d1b7d6a3107b2dab'),
    entry: {
      _id: ObjectId('6618dbbdd1b7d6a3107b2dba'),
      title: 'First Blog Entry',
      author: ObjectId('6618d834d1b7d6a3107b2da9'),
      description: 'This is the first blog entry.',
      creationDate: ISODate('2016-05-14T16:00:00.000Z'),
      editDates: [],
      impressionCount: 0,
      content: {
        text: 'Content of the first blog entry.',
        images: [ 'image1.jpg', 'image2.jpg' ],
        videos: [],
        location: { latitude: 40.7128, longitude: -74.006 },
        links: [
          { title: 'Link 1', url: 'http://www.link1.com' },
          { title: 'Link 2', url: 'http://www.link2.com' }
        ]
      }
    }
  },
],

```

```

        commentsAllowed: true,
        category: ObjectId('6618d840d1b7d6a3107b2dae')
      },
      creationDate: ISODate('2016-05-14T17:30:00.000Z')
    }
  ]
}
]

```

## Find the latest two blog comments which were posted as comments to certain person's blog entries

We will search for **Luna Klatzer** as the author of the blog entries.

Query:

```

db.Comments.aggregate([
  {
    $lookup: {
      from: "BlogEntries",
      localField: "entry",
      foreignField: "_id",
      as: "entry"
    }
  },
  { $unwind: "$entry" },
  {
    $lookup: {
      from: "BlogUsers",
      localField: "author",
      foreignField: "_id",
      as: "author"
    }
  },
  { $unwind: "$author" },
  {
    $match: {
      "entry.author": db.BlogUsers.findOne({ "name.lastName": "Klatzer" })._id
    },
  },
  { $sort: { creationDate: -1 } },
  { $limit: 2 }
])

```

Result:

```
[
```

```

{
  _id: ObjectId('661f8ab97bd02d34407b2daa'),
  content: 'This is a comment for the first blog entry.',
  author: {
    _id: ObjectId('6618d834d1b7d6a3107b2dab'),
    username: 'jane',
    name: { firstName: 'Jane', lastName: 'Doe' },
    email: 'j.d@email.com',
    password: 'jane_doe123456789!?'
  },
  entry: {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dba'),
    title: 'First Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2da9'),
    description: 'This is the first blog entry.',
    creationDate: ISODate('2016-05-14T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,
    content: {
      text: 'Content of the first blog entry.',
      images: [ 'image1.jpg', 'image2.jpg' ],
      videos: [],
      location: { latitude: 40.7128, longitude: -74.006 },
      links: [
        { title: 'Link 1', url: 'http://www.link1.com' },
        { title: 'Link 2', url: 'http://www.link2.com' }
      ]
    },
    commentsAllowed: true,
    category: ObjectId('6618d840d1b7d6a3107b2dae')
  },
  creationDate: ISODate('2016-05-14T17:30:00.000Z')
},
{
  _id: ObjectId('661f8ab97bd02d34407b2da9'),
  content: 'This is a comment for the first blog entry.',
  author: {
    _id: ObjectId('6618d834d1b7d6a3107b2daa'),
    username: 'mia',
    name: { firstName: 'Mia', lastName: 'Marceta' },
    email: 'm.m@email.com',
    password: 'mia_marceta123456789!?'
  },
  entry: {
    _id: ObjectId('6618dbbdd1b7d6a3107b2dba'),
    title: 'First Blog Entry',
    author: ObjectId('6618d834d1b7d6a3107b2da9'),
    description: 'This is the first blog entry.',
    creationDate: ISODate('2016-05-14T16:00:00.000Z'),
    editDates: [],
    impressionCount: 0,

```

```

    content: {
      text: 'Content of the first blog entry.',
      images: [ 'image1.jpg', 'image2.jpg' ],
      videos: [],
      location: { latitude: 40.7128, longitude: -74.006 },
      links: [
        { title: 'Link 1', url: 'http://www.link1.com' },
        { title: 'Link 2', url: 'http://www.link2.com' }
      ]
    },
    commentsAllowed: true,
    category: ObjectId('6618d840d1b7d6a3107b2dae')
  },
  creationDate: ISODate('2016-05-14T16:30:00.000Z')
}
]

```

## Updates

### Add another author to the latest BlogEntry, or change this if adding is not possible

Query:

```

db.BlogEntries.updateOne(
  {
    _id: db.BlogEntries.find().sort({ creationDate: -1 }).next()._id
  },
  { $set: { author: db.BlogUsers.findOne({ username: "guest" })._id } }
);

```

Result:

```

{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}

```

### Expand the latest BlogEntry with a new field **hashtags**

Query:

```
db.BlogEntries.updateOne(
  { _id: db.BlogEntries.find().sort({ creationDate: -1 }).next()._id },
  { $set: { hashtags: ["sport", "fun", "tags"] } }
);
```

Result:

```
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

## Change BlogCategory name

Query:

```
db.BlogCategories.updateOne(
  { name: "Technology" },
  { $set: { name: "Science" } }
);
```

Result:

```
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

## Add new Entry or upsert existing one

Query:

```
var newBlogEntry = {
  title: "Sixth Blog Entry",
  author: db.BlogUsers.findOne({ username: "admin" })._id,
  description: "This is the sixth blog entry.",
  creationDate: new Date("2016-05-19T16:00:00Z"),
  editDates: [],
```



```

impressionCount: 0,
content: {
  text: "Content of the sixth blog entry.",
  images: [
    "image9.jpg",
    "image10.jpg"
  ],
  videos: [],
  location: null,
  links: [
    {
      title: "Link 6",
      url: "http://www.link6.com"
    }
  ]
},
commentsAllowed: true,
category: db.BlogCategories.findOne({ name: "Science" })._id
};

db.BlogEntries.updateOne(
  { title: newBlogEntry.title },
  { $set: newBlogEntry },
  { upsert: true }
);

newBlogEntry.description = "Updated description for the new blog entry.";
db.BlogEntries.updateOne(
  { _id: newBlogEntry._id },
  { $set: newBlogEntry },
  { upsert: true }
);

```

Result 1:

```

{
  acknowledged: true,
  insertedId: ObjectId('661fabba558f29de560d9539'),
  matchedCount: 0,
  modifiedCount: 0,
  upsertedCount: 1
}

```

Result 2:

```

{
  acknowledged: true,
  insertedId: null,
  matchedCount: 0,

```

```
modifiedCount: 0,  
upsertedCount: 1  
}
```

## Delete a BlogEntry and its comments

Query:

```
db.Comments.deleteMany({ entry: db.BlogEntries.find({ title: "First Blog Entry"  
}).next()._id });  
db.BlogEntries.deleteOne({ _id: db.BlogEntries.find({ title: "First Blog Entry"  
}).next()._id });
```

Result 1:

```
{ acknowledged: true, deletedCount: 2 }
```

Result 2:

```
{ acknowledged: true, deletedCount: 1 }
```

## Indexes

### Create Indexes

```
db.BlogUsers.createIndex({ "username": 1 }, { unique: true });  
  
db.BlogEntries.createIndex({ "title": 1 }, { unique: true });
```

Result 1:

```
username_1
```

Result 2:

```
title_1
```