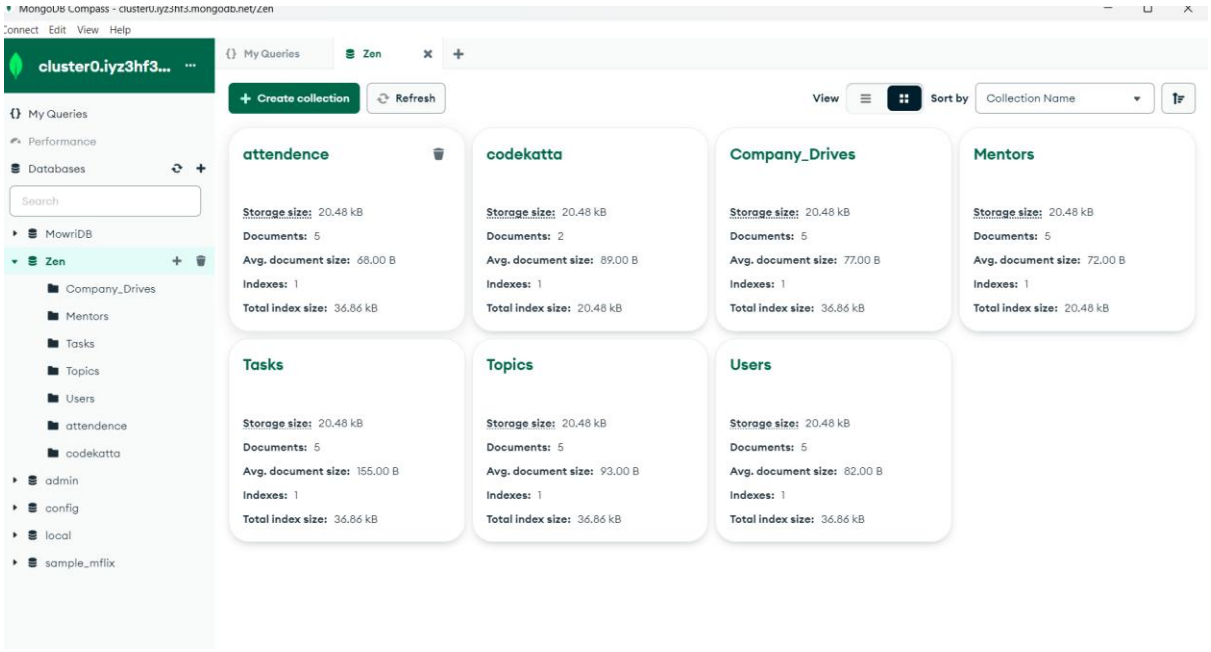
MongoDB

Design database for Zen class programme:

1) users
2) codekata
3) attendance
4) topics
5) tasks
6) company_drives
7) mentors

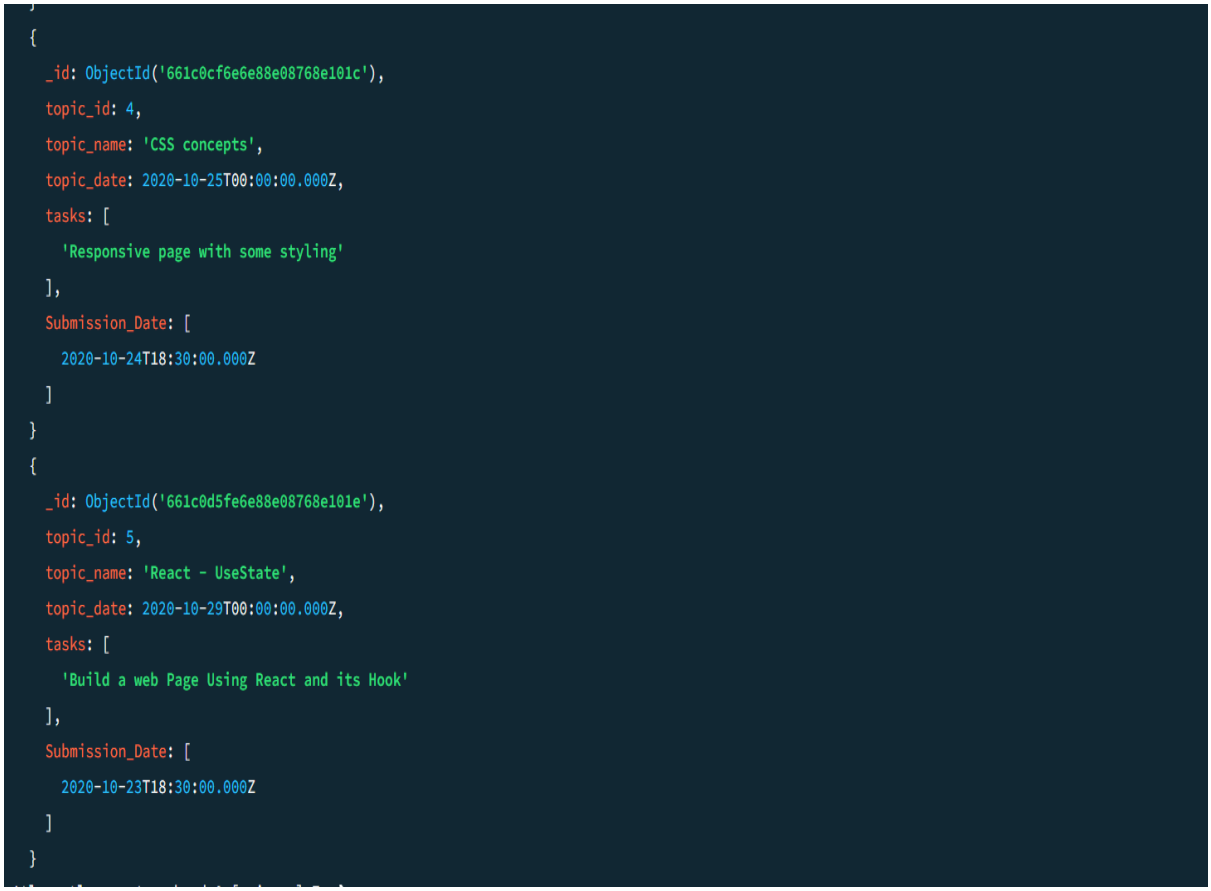


1)Find all the topics and tasks which are thought in the month of October

All The Queries used are present in the screenshot

```
}
db.Topics.aggregate([
  {
    $lookup: {
      from: "Tasks",
      localField: "topic_id",
      foreignField: "topic_id",
      as: "related_tasks"
    }
  },
  {
    $match: {
      $and: [
        { "topic_date": { $gte: ISODate("2020-10-01"), $lt: ISODate("2020-11-01") } }, // Filter topics by October 2020
        {
          $or: [
            { "related_tasks.Submission_Date": { $gte: ISODate("2020-10-01"), $lt: ISODate("2020-11-01") } }, // Filter tasks by October 2020
            { "related_tasks": { $size: 0 } } // Include topics with no related tasks
          ]
        }
      ]
    }
  }, {
    $project: {
      topic_id: 1,
      topic_name: 1,
```

```
    }
  }, {
    $project: {
      topic_id: 1,
      topic_name: 1,
      topic_date: 1,tasks:"$related_tasks.task_name",Submission_Date:"$related_tasks.Submission_Date"}}])
{
  _id: ObjectId('661c0c83e6e88e08768e1019'),
  topic_id: 1,
  topic_name: 'Introduction to Javascript',
  topic_date: 2020-10-18T00:00:00.000Z,
  tasks: [
    'Javascript problems'
  ],
  Submission_Date: [
    2020-10-17T18:30:00.000Z
  ]
}
{
  _id: ObjectId('661c0c83e6e88e08768e101a'),
  topic_id: 2,
  topic_name: 'Javascript Object and Class Concepts',
  topic_date: 2020-10-28T00:00:00.000Z,
  tasks: [
    'Javascript Object and Class Problems'
  ],
```



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2) Find all the company drives which appeared between 15 oct-2020 and 31-oct-2020

Query:

db.Company_drives.find({drive_date:{$gte:new Date("15-Oct-2020"),$lte:new Date("30-Oct-2020")}})

```
> db.Company_Drives.find({drive_date:{$gte:new Date("01-Oct-2020"),$lte:new Date("30-Oct-2020")}})
< {
    _id: ObjectId('661c1223e6e88e08768e1025'),
    user_id: 1,
    Company: 'Tech Mahendra',
    drive_date: 2020-10-19T18:30:00.000Z
  }
  {
    _id: ObjectId('661c1223e6e88e08768e1026'),
    user_id: 2,
    Company: 'Infosys',
    drive_date: 2020-10-21T18:30:00.000Z
  }
  {
    _id: ObjectId('661c128ce6e88e08768e1028'),
    user_id: 4,
    Company: 'Apple',
    drive_date: 2020-10-28T18:30:00.000Z
  }
  {
    _id: ObjectId('661c12c6e6e88e08768e102a'),
    user_id: 5,
    Company: 'Amazon',
    drive_date: 2020-10-26T18:30:00.000Z
  }
```

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3) Find all the company drives and students who are appeared for the placement

Query used is available is this below screenshot

```
> db.Company_Drives.aggregate([
    {
      $lookup: {
        from: "Users",
        localField: "user_id",
        foreignField: "user_id",
        as: "info"
      }
    }, {
      $project: {
        _id: 0,
        Company: 1,
        students: "$info"}}])
< {
    Company: 'Tech Mahendra',
    students: [
      {
        _id: ObjectId('661bc089be033970f8f39695'),
        name: 'Mowriyaa',
        email: 'mowriyaa@gmail.com',
        user_id: 1
      }
    ]
```

```
}
{
  Company: 'Infosys',
  students: [
    {
      _id: ObjectId('661bec13be033970f8f39699'),
      user_id: 2,
      name: 'Sudhan',
      email: 'Sudhan@example.com'
    }
  ]
}
{
  Company: 'Microsoft',
  students: [
    {
      _id: ObjectId('661bed25be033970f8f3969c'),
      user_id: 3,
      name: 'Jayasri',
      email: 'jayasri@gmail.com'
    }
  ]
}
```

```
  ]
}
{
  Company: 'Apple',
  students: [
    {
      _id: ObjectId('661bed79be033970f8f3969e'),
      user_id: 4,
      name: 'Sathish',
      email: 'sathish@gmail.com'
    }
  ]
}
{
  Company: 'Amazon',
  students: [
    {
      _id: ObjectId('661bed79be033970f8f3969f'),
      user_id: 5,
      name: 'Rohit Varma',
      email: 'rohit@gmail.com'
    }
  ]
}
```

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4) Find the number of problems solved by the user in codekata

Query:

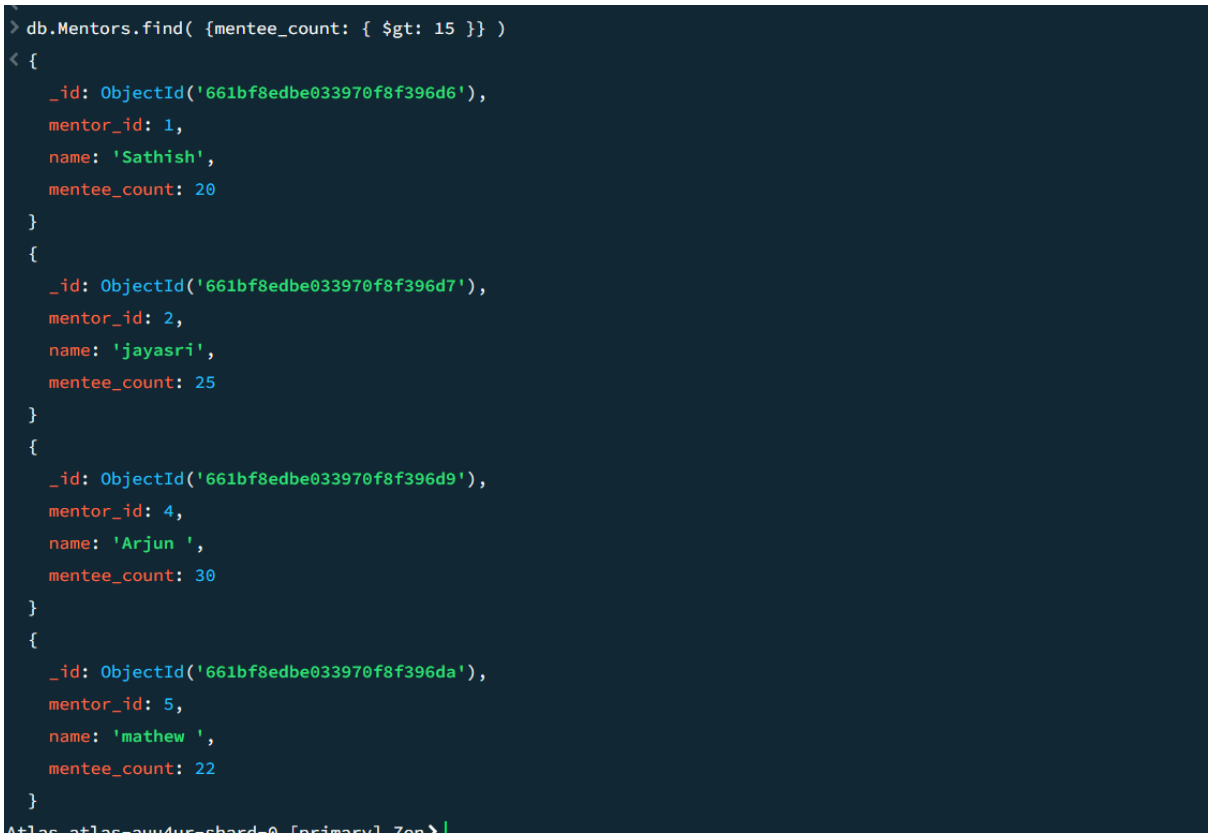
```
Atlas atlas-auu4ur-shard-0 [primary] Zen> db.codekatta.aggregate( {
                                          $group: {

                                            _id: "$user_id",

                                            total_problems_solved: {$sum : "$problems_solved"}
                                          }
                                        },
                                        {
                                          $lookup: {
                                            from: "Users",
                                            localField: "_id",
                                            foreignField: "user_id",
                                            as: "user_details"
                                          }
                                        },
                                        {
                                          $project: {
                                            _id: 0,
                                            user_id: "$_id",
                                            total_problems_solved:1,
                                            user_name:"$user_details.name",email:"$user_details.email"
                                          }
                                        })
```

Output:

```
  total_problems_solved: 35,
  user_id: 2,
  user_name: [
    'Sudhan'
  ],
  email: [
    'Sudhan@example.com'
  ]
}
{
  total_problems_solved: 80,
  user_id: 3,
  user_name: [
    'Jayasri'
  ],
  email: [
    'jayasri@gmail.com'
  ]
}
{
  total_problems_solved: 50,
  user_id: 1,
  user_name: [
    'Mowriyaa'
  ],
  email: [
```

5) Find all the mentors with who has the mentee's count more than 15

Query: db.Mentors.find({mentee_count:{$gt:15}})



```
> db.Mentors.find( {mentee_count: { $gt: 15 }} )
< {
    _id: ObjectId('661bf8edbe033970f8f396d6'),
    mentor_id: 1,
    name: 'Sathish',
    mentee_count: 20
  }
  {
    _id: ObjectId('661bf8edbe033970f8f396d7'),
    mentor_id: 2,
    name: 'jayasri',
    mentee_count: 25
  }
  {
    _id: ObjectId('661bf8edbe033970f8f396d9'),
    mentor_id: 4,
    name: 'Arjun ',
    mentee_count: 30
  }
  {
    _id: ObjectId('661bf8edbe033970f8f396da'),
    mentor_id: 5,
    name: 'mathew ',
    mentee_count: 22
  }
```

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6) Find the number of users who are absent and task is not submitted between 15 oct-2020 and 31-oct-2020

Query is available in the below screenshot along with Output ***(Here number_student_absent which tells number of users who are absent and task is not submitted between 15 oct-2020 and 31-oct-2020).***

```
> db.attendence.aggregate([
    {
      $lookup: {
        from: "Topics",
        localField: "topic_id",
        foreignField: "topic_id",
        as: "topics"
      }
    },
    {
      $lookup: {
        from: "Tasks",
        localField: "topic_id",
        foreignField: "topic_id",
        as: "tasks"
      }
    },
    {
      $match: {
        "tasks.status": "pending",
        "topics.topic_date": {
          $gte: new Date("2020-10-15"),
          $lte: new Date("2020-10-31")
        },
```

```
  {
    $match: {
      "tasks.status": "pending",
      "topics.topic_date": {
        $gte: new Date("2020-10-15"),
        $lte: new Date("2020-10-31")
      },
      "tasks.Submission_Date": {
        $gte: new Date("2020-10-15"),
        $lte: new Date("2020-10-31")
      }
    }
  },
  {
    $count: "num_students_absent"
  }
])
{
  num_students_absent: 2
}
```
