MongoDB Task

Design database for Zen class programme

Created Database and added collection named “users”

```
>_MONGOSH
> db.users.insertMany([
      { userid: 1, name: "Sheldon", email: "Sheldon@gmail.com" },
      { userid: 2, name: "Leonard", email: "Leonard@gmail.com" },
      { userid: 3, name: "Howard", email: "Howard@gmail.com" },
      { userid: 4, name: "Raj", email: "Raj@gmail.com" },
      { userid: 5, name: "Penny", email: "Penny@gmail.com" } ])
< {
    acknowledged: true,
    insertedIds: {
      '0': ObjectId('667556d5b374422b9667625a'),
      '1': ObjectId('667556d5b374422b9667625b'),
      '2': ObjectId('667556d5b374422b9667625c'),
      '3': ObjectId('667556d5b374422b9667625d'),
```

Created a new collection named “codekata” and inserted data

```
> db.createCollection("codekata");
  db.codekata.insertMany([
      { userid: 1, problems: 50 },
      { userid: 2, problems: 60 },
      { userid: 3, problems: 90 },
      { userid: 4, problems: 51 },
      { userid: 5, problems: 61 }
  ])
< {
    acknowledged: true,
    insertedIds: {
      '0': ObjectId('66755736b374422b9667625f'),
      '1': ObjectId('66755736b374422b96676260'),
      '2': ObjectId('66755736b374422b96676261'),
      '3': ObjectId('66755736b374422b96676262'),
      '4': ObjectId('66755736b374422b96676263')
    }
  }
```

Created a new collection named “attendance” and inserted data

```
>_MONGOSH
> db.createCollection("attendance");
  db.attendance.insertMany([
      { userid: 1, topicid: 2, attended: true },
      { userid: 2, topicid: 1, attended: true },
      { userid: 3, topicid: 5, attended:false },
      { userid: 4, topicid: 3, attended: true },
      { userid: 5, topicid: 4, attended: false }
  ])
< {
    acknowledged: true,
    insertedIds: {
      '0': ObjectId('66755859b374422b96676264'),
      '1': ObjectId('66755859b374422b96676265'),
      '2': ObjectId('66755859b374422b96676266'),
      '3': ObjectId('66755859b374422b96676267'),
      '4': ObjectId('66755859b374422b96676268')
    }
  }
```

Created a new collection named “topics” and inserted data

```
>_MONGOSH
> db.createCollection("topics");
  db.topics.insertMany([
      { topicid: 1, topic: "HTML", topic_date: new Date("18-Oct-2020") },
      { topicid: 2, topic: "CSS", topic_date: new Date("28-Oct-2020") },
      { topicid: 3, topic: "JavaScript", topic_date: new Date("05-Nov-2020") },
      { topicid: 4, topic: "ReactJS", topic_date: new Date("15-Nov-2020") },
      { topicid: 5, topic: "NodeJS", topic_date: new Date("25-Nov-2020") }
  ])

< {
    acknowledged: true,
    insertedIds: {
      '0': ObjectId('667558ecb374422b96676269'),
      '1': ObjectId('667558ecb374422b9667626a'),
      '2': ObjectId('667558ecb374422b9667626b'),
      '3': ObjectId('667558ecb374422b9667626c'),
      '4': ObjectId('667558ecb374422b9667626d')
    }
  }
```

Created a new collection named “tasks” and inserted data

```
>_MONGOSH
> db.createCollection("tasks");
  db.tasks.insertMany([
      { taskid: 1, topicid: 1, userid: 1, task: "HTML Task", due_date: new Date("18-Oct-2020"), submitted: true },
      { taskid: 2, topicid: 2, userid: 2, task: "CSS Task", due_date: new Date("28-Oct-2020"), submitted: false },
      { taskid: 3, topicid: 3, userid: 3, task: "Javascript Task", due_date: new Date("05-Nov-2020"), submitted: true },
      { taskid: 4, topicid: 4, userid: 4, task: "React Task", due_date: new Date("15-Nov-2020"), submitted: true },
      { taskid: 5, topicid: 5, userid: 5, task: "NodeJS Task", due_date: new Date("25-Nov-2020"), submitted: false }
  ])
< {
    acknowledged: true,
    insertedIds: {
      '0': ObjectId('6675593bb374422b9667626e'),
      '1': ObjectId('6675593bb374422b9667626f'),
      '2': ObjectId('6675593bb374422b96676270'),
      '3': ObjectId('6675593bb374422b96676271'),
      '4': ObjectId('6675593bb374422b96676272')
    }
  }
```

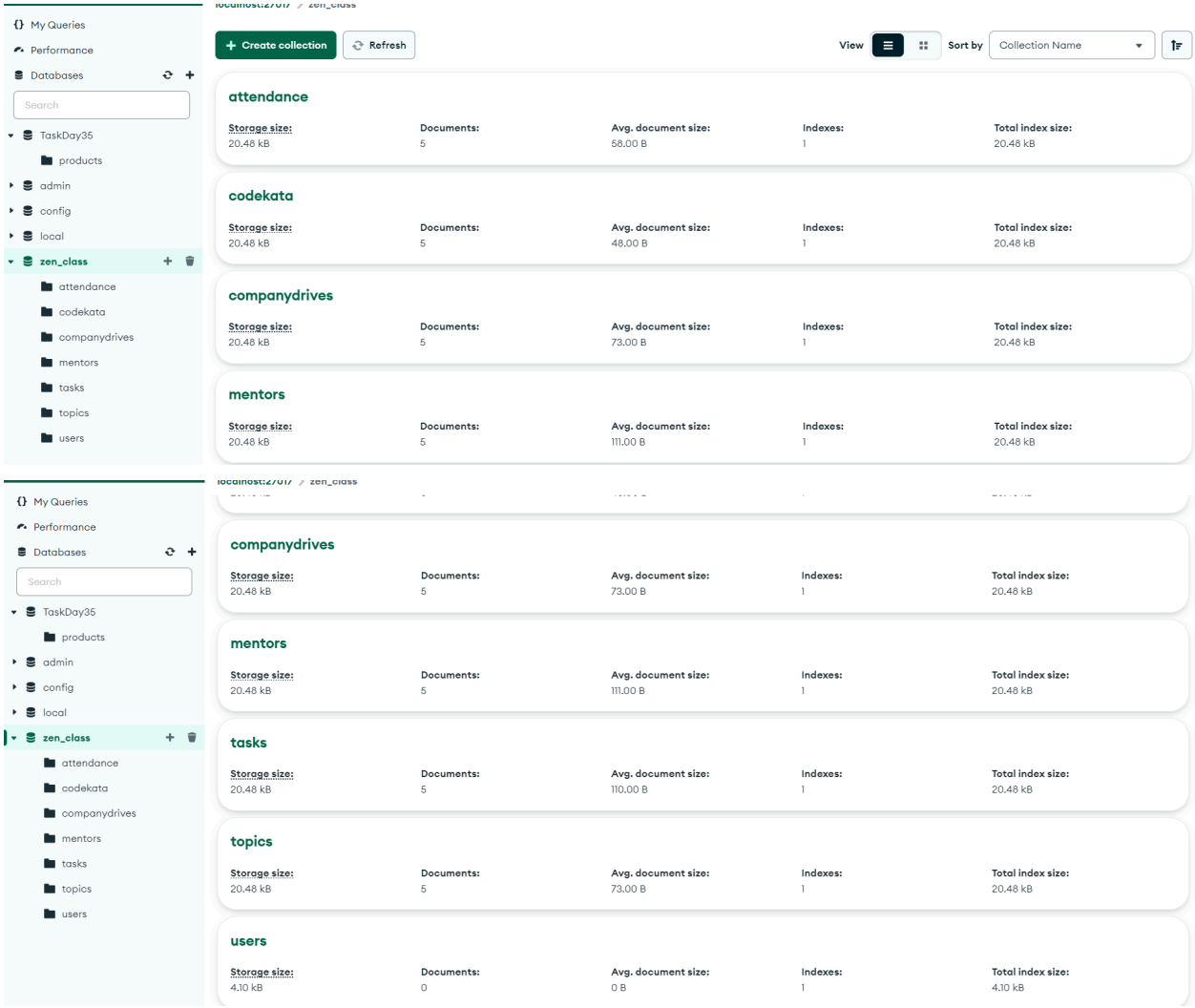
Created a new collection named “company_drives” and inserted data

```
>_MONGOSH
> db.createCollection("companydrives");
  db.companydrives.insertMany([
      { userid: 1, drive_date: new Date("20-Oct-2020"), company: "Meta" },
      { userid: 1, drive_date: new Date("22-Oct-2020"), company: "Amazon" },
      { userid: 2, drive_date: new Date("25-Oct-2020"), company: "Apple" },
      { userid: 3, drive_date: new Date("30-Oct-2020"), company: "Netflix" },
      { userid: 4, drive_date: new Date("05-Nov-2020"), company: "Google" }
  ])
< {
    acknowledged: true,
    insertedIds: {
      '0': ObjectId('667559b9b374422b96676273'),
      '1': ObjectId('667559b9b374422b96676274'),
      '2': ObjectId('667559b9b374422b96676275'),
      '3': ObjectId('667559b9b374422b96676276'),
      '4': ObjectId('667559b9b374422b96676277')
    }
  }
```

Created a new collection named “mentors” and inserted data

```
>_MONGOSH
> db.createCollection("mentors");
  db.mentors.insertMany([
      { mentorid: 1, mentorname: "Stephen", mentor_email: "Stephen@gmail.com", mentee_count: 20 },
      { mentorid: 2, mentorname: "Mike", mentor_email: "Mike@gmail.com", mentee_count: 18 },
      { mentorid: 3, mentorname: "Elon", mentor_email: "Elon@gmail.com", mentee_count: 30 },
      { mentorid: 4, mentorname: "Charles", mentor_email: "Charles@gmail.com", mentee_count: 15 },
      { mentorid: 5, mentorname: "Thomas", mentor_email: "Thomas@gmail.com", mentee_count: 20 }
  ])
< {
    acknowledged: true,
    insertedIds: {
      '0': ObjectId('66755a42b374422b96676278'),
      '1': ObjectId('66755a42b374422b96676279'),
      '2': ObjectId('66755a42b374422b9667627a'),
      '3': ObjectId('66755a42b374422b9667627b'),
      '4': ObjectId('66755a42b374422b9667627c')
    }
  }
```

Created “DATABASE”



Task Questions

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

Solution:

```
db.topics.aggregate([
{

        $lookup: {

        from: "tasks",

        localField: "topicid",

        foreignField: "topicid",

        as: "taskinfo"

        }

        },

        {

        $match: {

        $and: [

                { topic_date: { $gte: new Date("2020-10-01"), $lt: new Date("2020-11-01")
} },

                {

                $or: [

                { "taskinfo.due_date": { $gte: new Date("2020-10-01"), $lt: new
Date("2020-11-01") } },

                { "taskinfo.due_date": { $exists: false } }

                ]

                }

        ]

        }
```

```
        },
        {
        $project: {
        _id: 0,
        topicid: 1,
        topic: 1,
        topic_date: 1,
        tasks: "$taskinfo.task",
        due_dates: "$taskinfo.due_date"
        }
        }
])
```

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

Solution:

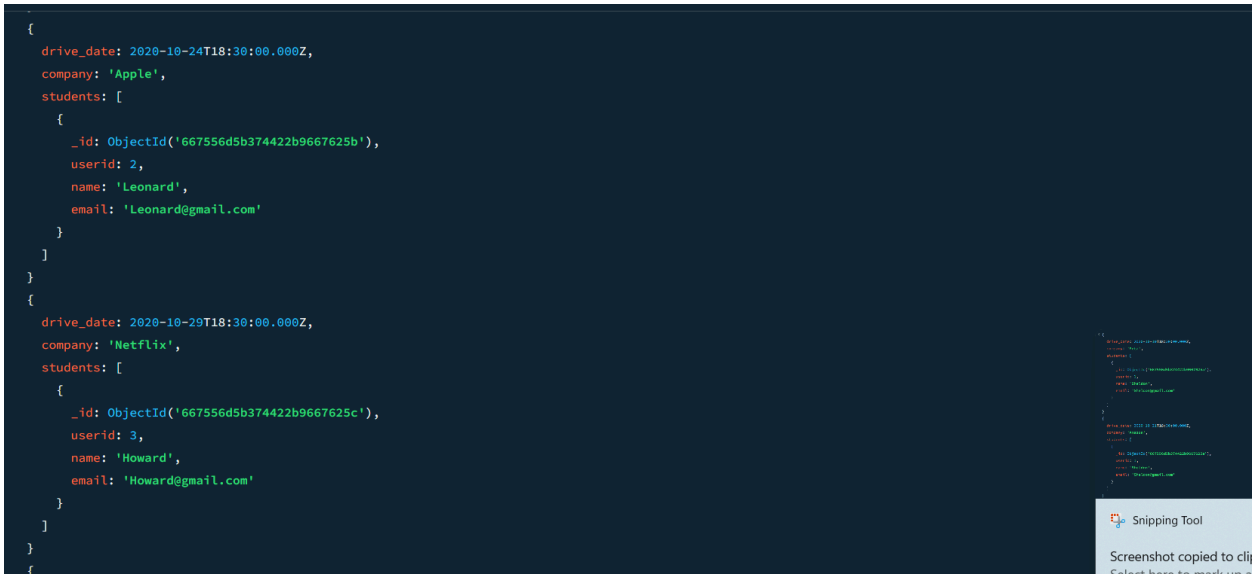
```
db.companydrives.find({

$or: [

{ drive_date: { $gte: new Date("15-oct-2020") } },

{ drive_date: { $lte: new Date("31-oct-2020") } }

]

})
```

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

Solution:

```
db.companydrives.aggregate([

{

$lookup: {

from: "users",

localField: "userid",

foreignField: "userid",
```

```
    as: "userinfo"
}
  },
  {
$project: {
    _id: 0,
    company: 1,
    drive_date: 1,
    students: "$userinfo"
}
  } ])
```



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

Solution:

```
db.codekata.aggregate([

{

$lookup: {

from: "users",

localField: "userid",

foreignField: "userid",

as: "userinfo"

}

},
```

```
        {
        $group: {
        _id: {
                userid: "$userid",
                username: "$userinfo.name"
        },
         total_problems_solved: { $sum: "$problems" }
        }
        },
        {
        $project: {
        _id: 0,
        userid: "$_id.userid",
        username: "$_id.username",
         total_problems_solved: 1
        }
        }
])
```

5. Find all the mentors with who has the mentee's count more than 15
   Solution:

```
db.users.aggregate([
{
$match: { mentorid: { $exists: true } }
},
{
$group: {
_id: "$mentorid",
mentorname: { $first: "$mentorname" },
mentee_count: { $sum: 1 }
}
},
```

```
    {
  $match: { mentee_count: { $gt: 15 } }
    },
    {
  $project: {
     _id: 0,
     mentorid: "$_id",
     mentorname: 1,
     mentee_count: 1
  }
    }
])
```

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

   Solution:

```
db.attendance.aggregate([
    {
```

```
$lookup: {
from: "topics",
localField: "topicid",
foreignField: "topicid",
as: "topics"
}
},
{
$lookup: {
from: "tasks",
localField: "topicid",
foreignField: "topicid",
as: "tasks"
}
},
{
$match: {
attended: false,
 "tasks.submitted": false,
$and: [
        { "topics.topic_date": { $gte: new Date("15-oct-2020") } },
        { "topics.topic_date": { $lte: new Date("31-oct-2020") } },
        { "tasks.due_date": { $gte: new Date("15-oct-2020") } },
```

{ "tasks.due_date": { $lte: new Date("31-oct-2020") } }

]

}

},

{$count: "No_of_students_absent"}])

```
zen_class > db.attendance.aggregate([
        {
            $lookup: {
                from: "topics",
                localField: "topicid",
                foreignField: "topicid",
                as: "topics"
            }
        },
        {
            $lookup: {
                from: "tasks",
                localField: "topicid",
                foreignField: "topicid",
                as: "tasks"
            }
        },
        {
            $match: {
                attended: false,
                "tasks.submitted": false,
                $and: [
                    { "topics.topic_date": { $gte: new Date("15-oct-2020") } },
                    { "topics.topic_date": { $lte: new Date("31-oct-2020") } },
                    { "tasks.due_date": { $gte: new Date("15-oct-2020") } },
                    { "tasks.due_date": { $lte: new Date("31-oct-2020") } }
```