Design DB - Zenclass

Steps:

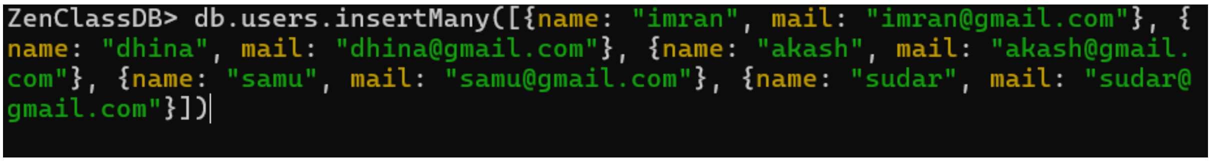
Show dbs

1. Use ZenClassDB

2. Create collections

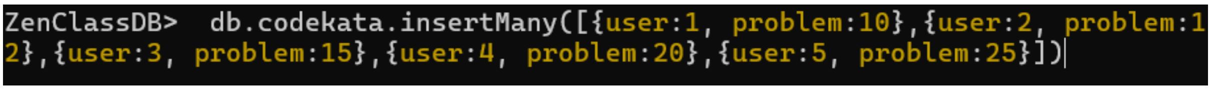
- db.users.insertMany()
- db.codekata.insertMany()
- db.attendance.insertMany()
- db.topics.insertMany()
- db.tasks.insertMany()
- db.companydrives.insertMany()
- db.mentors.insertMany()

users:



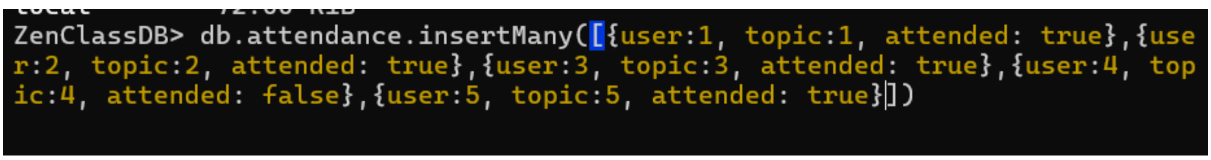
```
ZenClassDB> db.users.insertMany([{name: "imran", mail: "imran@gmail.com"}, {
name: "dhina", mail: "dhina@gmail.com"}, {name: "akash", mail: "akash@gmail.
com"}, {name: "samu", mail: "samu@gmail.com"}, {name: "sudar", mail: "sudar@
gmail.com"}])
```

Codekata:



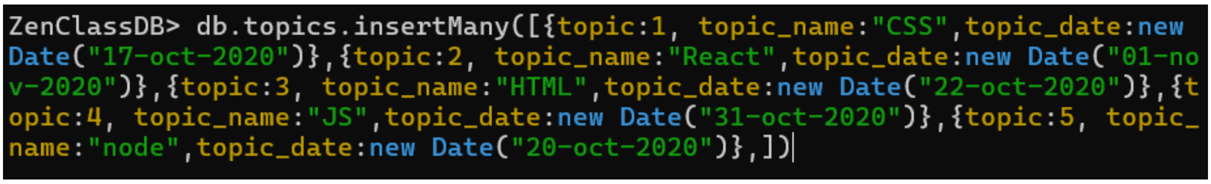
```
ZenClassDB>  db.codekata.insertMany([{user:1, problem:10},{user:2, problem:1
2},{user:3, problem:15},{user:4, problem:20},{user:5, problem:25}])
```

attendance:



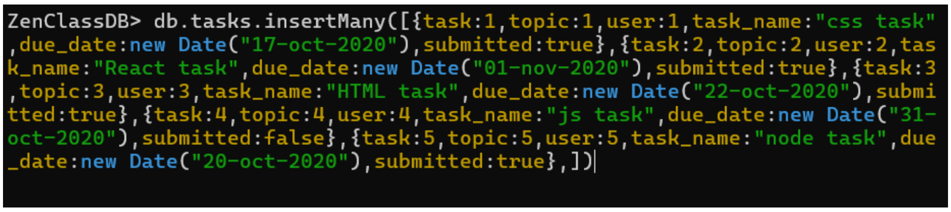
```
local      72.00 KiB
ZenClassDB> db.attendance.insertMany([{user:1, topic:1, attended: true},{use
r:2, topic:2, attended: true},{user:3, topic:3, attended: true},{user:4, top
ic:4, attended: false},{user:5, topic:5, attended: true}])
```

topics:



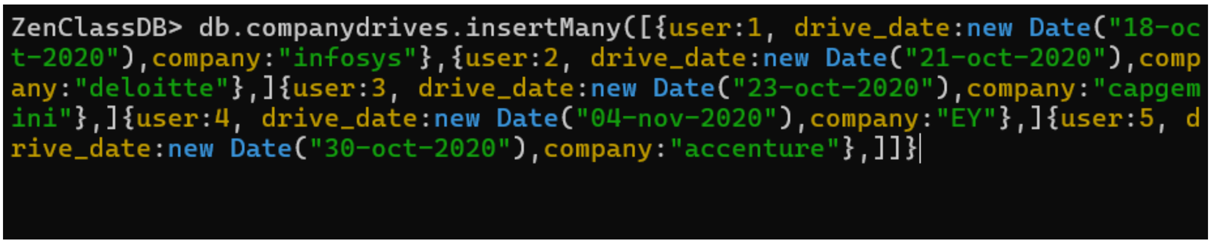
```
ZenClassDB> db.topics.insertMany([{topic:1, topic_name:"CSS",topic_date:new
Date("17-oct-2020")},{topic:2, topic_name:"React",topic_date:new Date("01-no
v-2020")},{topic:3, topic_name:"HTML",topic_date:new Date("22-oct-2020")},{t
opic:4, topic_name:"JS",topic_date:new Date("31-oct-2020")},{topic:5, topic_
name:"node",topic_date:new Date("20-oct-2020")},])
```

tasks:



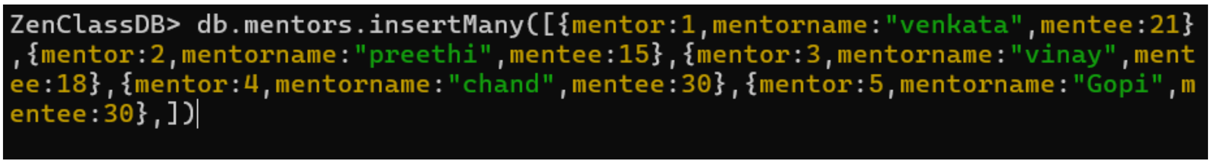
```
ZenClassDB> db.tasks.insertMany([{task:1,topic:1,user:1,task_name:"css task"
,due_date:new Date("17-oct-2020"),submitted:true},{task:2,topic:2,user:2,tas
k_name:"React task",due_date:new Date("01-nov-2020"),submitted:true},{task:3
,topic:3,user:3,task_name:"HTML task",due_date:new Date("22-oct-2020"),submi
tted:true},{task:4,topic:4,user:4,task_name:"js task",due_date:new Date("31-
oct-2020"),submitted:false},{task:5,topic:5,user:5,task_name:"node task",due
_date:new Date("20-oct-2020"),submitted:true},])
```

companydrives:



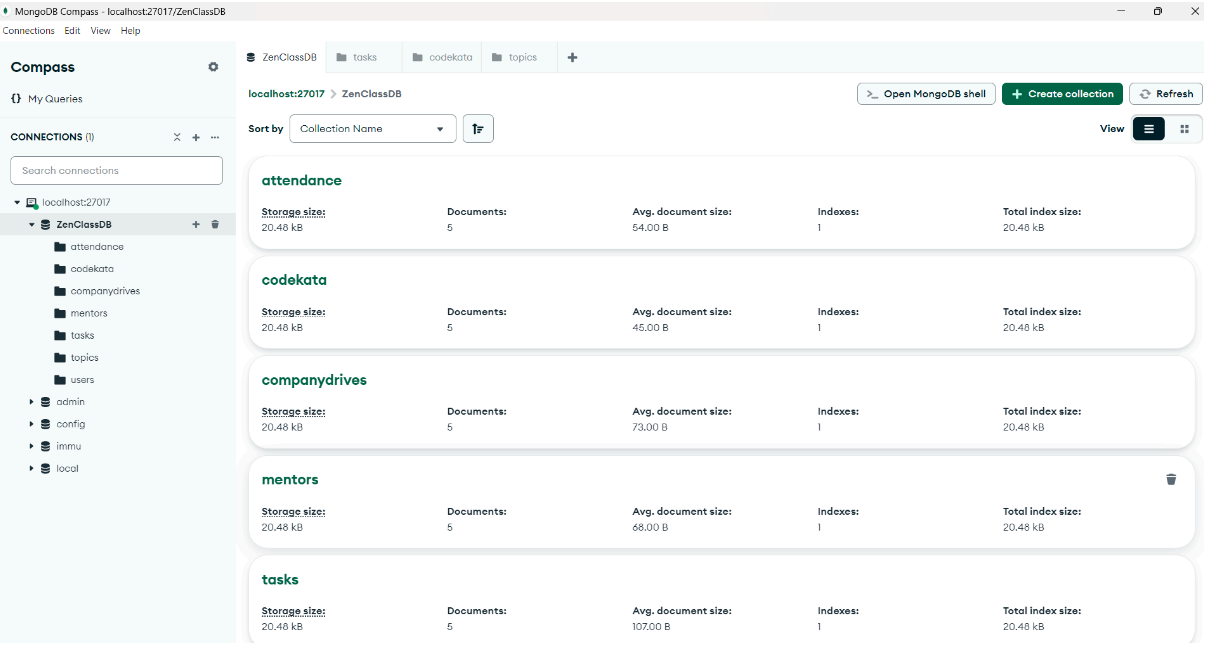
```
ZenClassDB> db.companydrives.insertMany([{user:1, drive_date:new Date("18-oc
t-2020"),company:"infosys"},{user:2, drive_date:new Date("21-oct-2020"),comp
any:"deloitte"},]{user:3, drive_date:new Date("23-oct-2020"),company:"capgem
ini"},]{user:4, drive_date:new Date("04-nov-2020"),company:"EY"},]{user:5, d
rive_date:new Date("30-oct-2020"),company:"accenture"},]]}
```

mentors:



```
ZenClassDB> db.mentors.insertMany([{mentor:1,mentorname:"venkata",mentee:21}
,{mentor:2,mentorname:"preethi",mentee:15},{mentor:3,mentorname:"vinay",ment
ee:18},{mentor:4,mentorname:"chand",mentee:30},{mentor:5,mentorname:"Gopi",m
entee:30},])
```

MongoDB Compass:

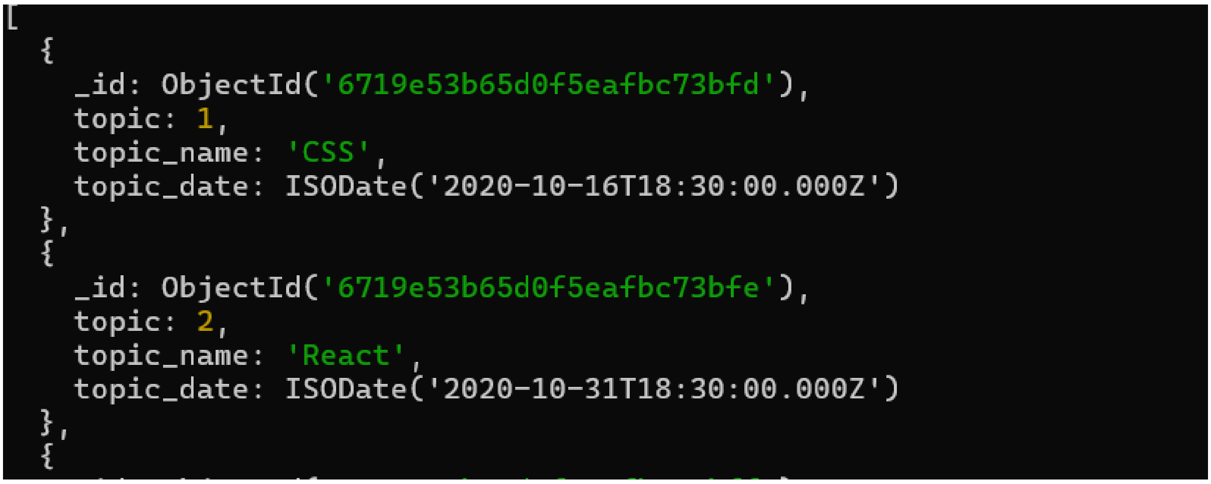


	Storage size:	Documents:	Avg. document size:	Indexes:	Total index size:
attendance	20.48 kB	5	54.00 B	1	20.48 kB
codekata	20.48 kB	5	45.00 B	1	20.48 kB
companydrives	20.48 kB	5	73.00 B	1	20.48 kB
mentors	20.48 kB	5	68.00 B	1	20.48 kB
tasks	20.48 kB	5	107.00 B	1	20.48 kB

Queries:

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

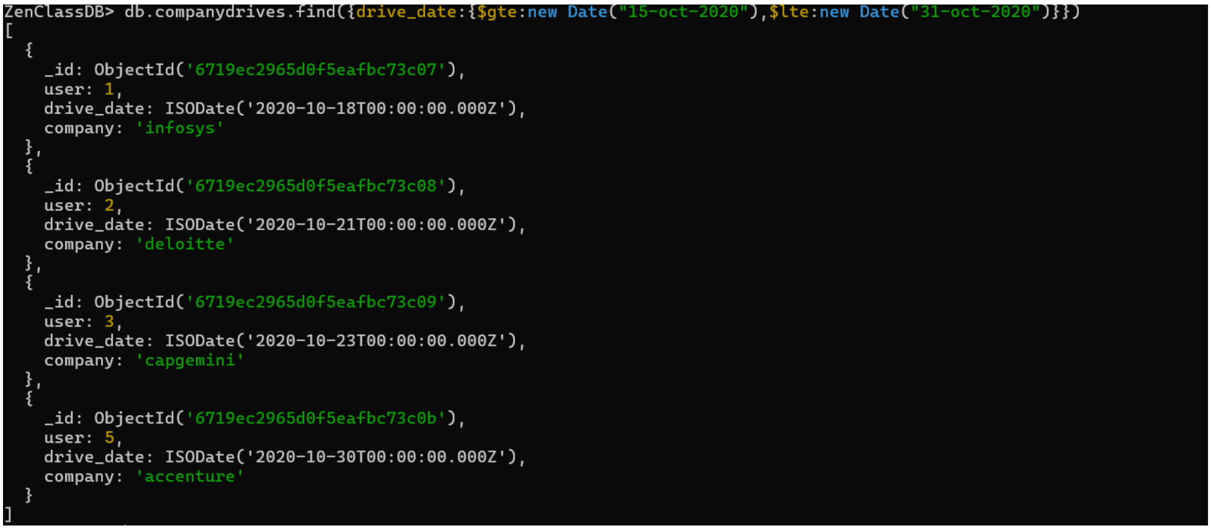
```
db.topics.aggregate([
 {
  $match: {
   topic_date: { $gte: new Date("2020-10-01"), $lt: new Date("2020-11-01") }
  }
 },
 {
  $unionWith: {
   coll: "tasks",
      pipeline: [
        {
          $match: {
            due_date: { $gte: new Date("2020-10-01"), $lt: new Date("2020-11-01") }
          }
        }
      ]
    }
  }
]);
```



```
[
  {
    _id: ObjectId('6719e53b65d0f5eafbc73bfd'),
    topic: 1,
    topic_name: 'CSS',
    topic_date: ISODate('2020-10-16T18:30:00.000Z')
  },
  {
    _id: ObjectId('6719e53b65d0f5eafbc73bfe'),
    topic: 2,
    topic_name: 'React',
    topic_date: ISODate('2020-10-31T18:30:00.000Z')
  },
  {
```

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

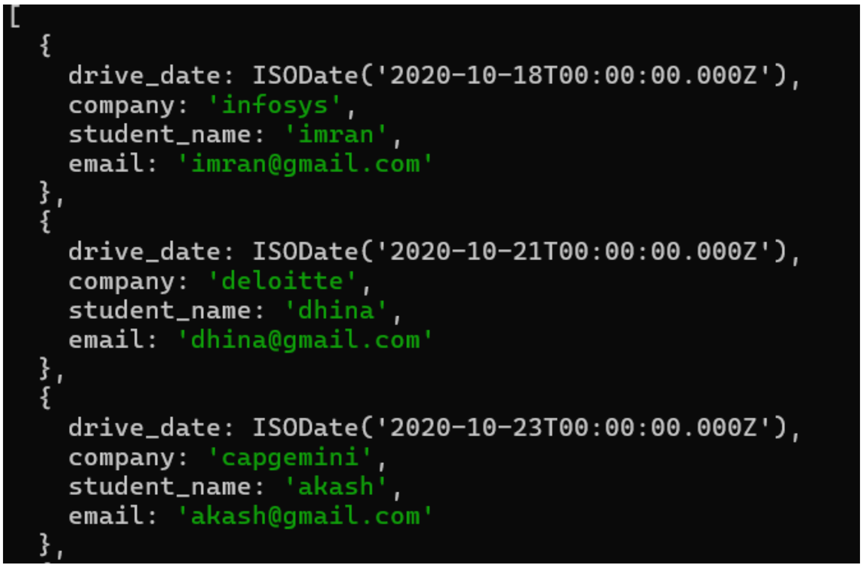
```
db.companydrives.find({drive_date:{$gte:new Date("15-oct-2020"),$lte:new Date("31-oct-2020")}})
```



```
ZenClassDB> db.companydrives.find({drive_date:{$gte:new Date("15-oct-2020"),$lte:new Date("31-oct-2020")}})
[
  {
    _id: ObjectId('6719ec2965d0f5eafbc73c07'),
    user: 1,
    drive_date: ISODate('2020-10-18T00:00:00.000Z'),
    company: 'infosys'
  },
  {
    _id: ObjectId('6719ec2965d0f5eafbc73c08'),
    user: 2,
    drive_date: ISODate('2020-10-21T00:00:00.000Z'),
    company: 'deloitte'
  },
  {
    _id: ObjectId('6719ec2965d0f5eafbc73c09'),
    user: 3,
    drive_date: ISODate('2020-10-23T00:00:00.000Z'),
    company: 'capgemini'
  },
  {
    _id: ObjectId('6719ec2965d0f5eafbc73c0b'),
    user: 5,
    drive_date: ISODate('2020-10-30T00:00:00.000Z'),
    company: 'accenture'
  }
]
```

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

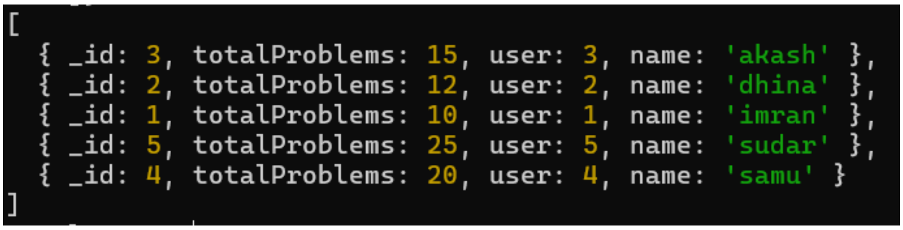
```
db.companydrives.aggregate([
 {
  $lookup: {
   from: "users",
   localField: "user",
   foreignField: "user",
   as: "student_info"
  }
 },
 {
  $unwind: "$student_info"
 },
 {
  $project: {
   _id: 0,
   company: 1,
   student_name: "$student_info.name",
   email: "$student_info.mail",
   drive_date: 1
  }
 }
])
```



```
[
  {
    drive_date: ISODate('2020-10-18T00:00:00.000Z'),
    company: 'infosys',
    student_name: 'imran',
    email: 'imran@gmail.com'
  },
  {
    drive_date: ISODate('2020-10-21T00:00:00.000Z'),
    company: 'deloitte',
    student_name: 'dhina',
    email: 'dhina@gmail.com'
  },
  {
    drive_date: ISODate('2020-10-23T00:00:00.000Z'),
    company: 'capgemini',
    student_name: 'akash',
    email: 'akash@gmail.com'
  },
```

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

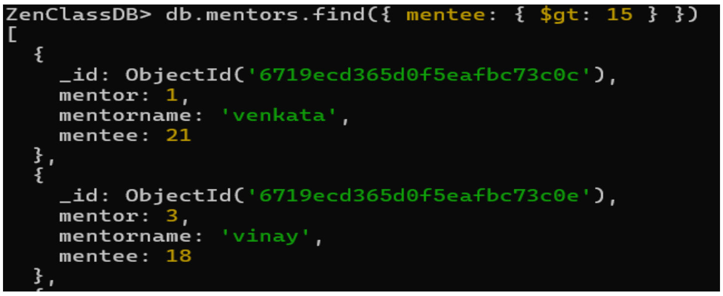
```
db.codekata.aggregate([
 {
  $group: {
   _id: "$user",
   totalProblems: { $sum: "$problem" }
  }
 },
 {
  $lookup: {
   from: "users",
    localField: "_id",
    foreignField: "user",
    as: "user_info"
  }
 },
 {
  $unwind: "$user_info"
 },
 {
  $project: {
    user: "$_id",
    name: "$user_info.name",
    totalProblems: 1
  }
 }
])
```



```
[
  { _id: 3, totalProblems: 15, user: 3, name: 'akash' },
  { _id: 2, totalProblems: 12, user: 2, name: 'dhina' },
  { _id: 1, totalProblems: 10, user: 1, name: 'imran' },
  { _id: 5, totalProblems: 25, user: 5, name: 'sudar' },
  { _id: 4, totalProblems: 20, user: 4, name: 'samu' }
]
```

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

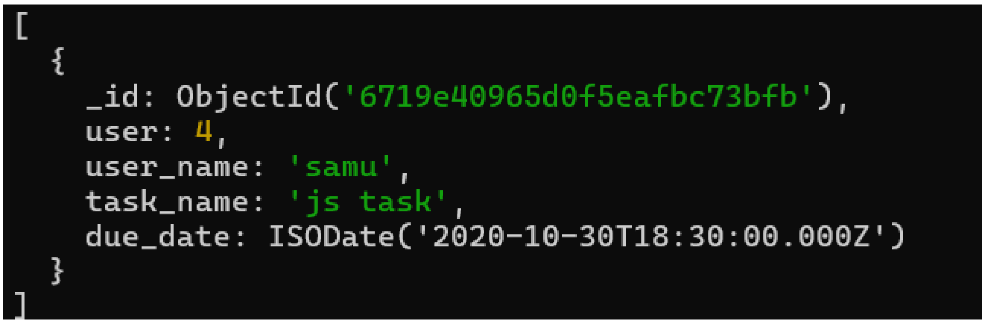
```
db.mentors.find({ mentee: { $gt: 15 } })
```



```
ZenClassDB> db.mentors.find({ mentee: { $gt: 15 } })
[
  {
    _id: ObjectId('6719ecd365d0f5eafbc73c0c'),
    mentor: 1,
    mentorname: 'venkata',
    mentee: 21
  },
  {
    _id: ObjectId('6719ecd365d0f5eafbc73c0e'),
    mentor: 3,
    mentorname: 'vinay',
    mentee: 18
  },
```

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

```
db.attendance.aggregate([
 {
  $match: {
    attended: false
  }
 },
 {
  $lookup: {
    from: "tasks",
    localField: "user",
    foreignField: "user",
    as: "task_info"
  }
 },
 {
  $unwind: "$task_info"
 },
 {
  $match: {
    "task_info.submitted": false,
    "task_info.due_date": {
      $gte: new Date("15-oct-2020"),
      $lte: new Date("31-oct-2020")
    }
  }
 },
 {
  $lookup: {
    from: "users",
    localField: "user",
    foreignField: "user",
    as: "user_info"
  }
 },
 {
  $unwind: "$user_info"
 },
 {
  $project: {
    user: "$user",
    user_name: "$user_info.name",
    task_name: "$task_info.task_name",
    due_date: "$task_info.due_date"
  }
 }
])
```



```
[
  {
    _id: ObjectId('6719e40965d0f5eafbc73bfb'),
    user: 4,
    user_name: 'samu',
    task_name: 'js task',
    due_date: ISODate('2020-10-30T18:30:00.000Z')
  }
]
```