Design database for Zen class program

Create Database

```
use zenDB
```

create collections and insert data – “users”

```
db.users.insertMany([
    {"userId": 1, "name": "Violet Parker", "email": "v.parker@gmail.com" },
    {"userId": 2, "name": "Madaline Carroll", "email": "m.carroll@gmail.com"
},
    {"userId": 3, "name": "Agata Ferguson", "email": "a.ferguson@gmail.com"
},
    {"userId": 4, "name": "Lily Hall", "email": "l.hall@gmail.com" },
    {"userId": 5, "name": "Luke Alexander", "email": "l.alexander@gmail.com"
}
])
```

create collections and insert data – “codekata”

```
db.codekata.insertMany([
    {"userId" : 1, "problemSolved" : 150 },
    {"userId" : 2, "problemSolved" : 100 },
    {"userId" : 3, "problemSolved" : 180 },
    {"userId" : 4, "problemSolved" : 80 },
    {"userId" : 5, "problemSolved" : 120 },
])
```

 # create collections and insert data – “topics”

```
db.topics.insertMany([
    {"topicId":1, "topic": "HTML", "topicDate": new Date("2020-10-04") },
    {"topicId":2, "topic": "CSS", "topicDate": new Date("2020-10-11") },
    {"topicId":3, "topic":"Bootstrap", "topicDate": new Date("2020-10-18")},
    {"topicId":4, "topic": "JavaScript", "topicDate": new Date("2020-10-25")
},
    {"topicId":5, "topic": "React JS", "topicDate": new Date("2020-11-01")
},
])
```

 # create collections and insert data – “tasks”

```
db.tasks.insertMany([
    {"taskId": 1, "userId": 1, "topicId": 1, "task": "HTML Task",
"completed": true, "deadline": new Date("2020-10-04") },
    {"taskId": 2, "userId": 2, "topicId": 2, "task": "CSS Task",
"completed": true, "deadline": new Date("2020-10-11") },
    {"taskId": 3, "userId": 3, "topicId": 3, "task": "Bootstrap Task",
"completed": false, "deadline": new Date("2020-10-18") },
    {"taskId": 4, "userId": 4, "topicId": 4, "task": "JavaScript Task",
"completed": true, "deadline": new Date("2020-10-25") },
    {"taskId": 5, "userId": 5, "topicId": 5, "task": "React JS Task",
"completed": false, "deadline": new Date("2020-11-01") }
])
```

 # create collections and insert data – “attendance”

```
db.attendance.insertMany([
    {"userId": 1, "topicId": 2, "attended": true },
    {"userId": 2, "topicId": 1, "attended": true },
    {"userId": 3, "topicId": 3, "attended": false },
    {"userId": 4, "topicId": 5, "attended": true },
    {"userId": 5, "topicId": 4, "attended": false }
])
```

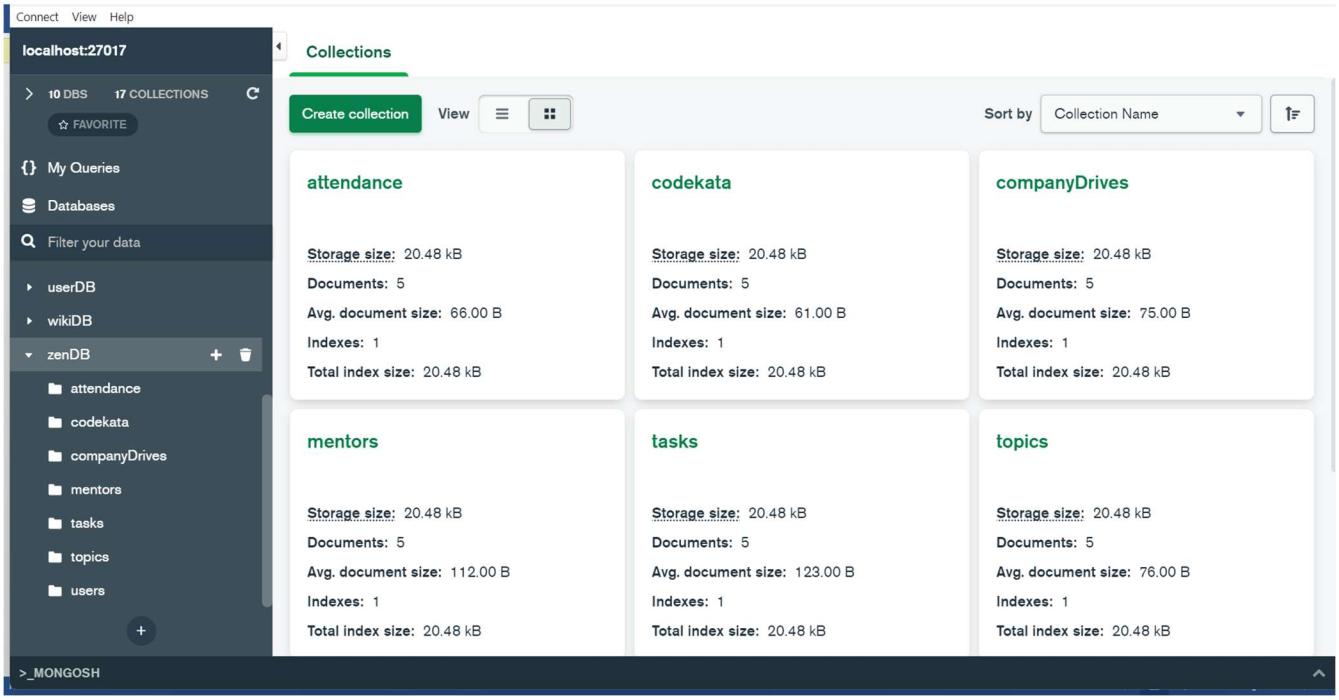
 # create collections and insert data – “companyDrives”

```
db.companyDrives.insertMany([
    {"userId": 1, "company": "TCS", "driveDate": new Date("2020-10-04") },
    {"userId": 2, "company": "HCL", "driveDate": new Date("2020-10-11") },
    {"userId": 3, "company": "Meta", "driveDate": new Date("2020-10-18") },
    {"userId": 4, "company": "Amazon", "driveDate": new Date("2020-10-25")
},
    {"userId": 5, "company": "Google", "driveDate": new Date("2020-11-01") }
])
```

 # create collections and insert data – “mentors”

```
db.mentors.insertMany([
    {"mentorId": 1, "name": "Agata Farrell", "email": "a.farrell@gmail.com",
"mentee": 15 },
    {"mentorId": 2, "name": "Connie Perkins", "email":
"c.perkins@gmail.com", "mentee": 20 },
    {"mentorId": 3, "name": "Amanda Gibson", "email": "a.gibson@gmail.com",
"mentee": 10 },
    {"mentorId": 4, "name": "Ellia Smith", "email": "e.smith@gmail.com",
"mentee": 18 },
    {"mentorId": 5, "name": "Kristian Richardson", "email":
"k.richardson@gmail.com","mentee" : 25 }
])
```

Zen class Database



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

Answer:

```
db.topics.aggregate([
    {
        $lookup: {
            from: "tasks",
            localField: "topicId",
            foreignField: "topicId",
            as: "taskInfo"
```

```
        }
    },
    {
        $unwind: "$taskInfo"
    },
    {
        $match:{
            $and: [
                {topicDate:{$lte:new Date("2020-10-31"), $gte: new
Date("2020-10-01")}},
                {"taskInfo.deadline": {$lte:new Date("2020-10-31"), $gte:
new Date("2020-10-01")}}
            ]

        }
    },
    {
        $project: {
            _id:0,
            topicId:1,
            topic:1,
            topicDate: {
                $dateToString:{format: "%Y-%m-%d", date: "$topicDate"}
            },
            task: "$taskInfo.task",
            status: "$taskInfo.completed",
            deadline: "$taskInfo.deadline"
        }
    }

]).pretty()
```

```
> db.topics.aggregate([
...     {
...         $lookup: {
...             from: "tasks",
...             localField: "topicId",
...             foreignField: "topicId",
...             as: "taskInfo"
...         }
...     },
...     {
...         $unwind: "$taskInfo"
...     },
...     {
...         $match:{
...             $and: [
...                 {topicDate:{$lte:new Date("2020-10-31"), $gte: new Date("2020-10-01")}},
...                 {"taskInfo.deadline": {$lte:new Date("2020-10-31"), $gte: new Date("2020-10-01")}}
...             ]
...
...         }
...     },
...     {
...         $project: {
...             _id:0,
...             topicId:1,
...             topic:1,
...             topicDate: {
...                 $dateToString:{format: "%Y-%m-%d", date: "$topicDate"}
...             },
...             task: "$taskInfo.task",
...             status: "$taskInfo.completed",
...             deadline: "$taskInfo.deadline"
...         }
...     }
...
... ]).pretty()
{
{
        "topicId" : 1,
        "topic" : "HTML",
        "topicDate" : "2020-10-04",
        "task" : "HTML Task",
        "status" : true,
        "deadline" : ISODate("2020-10-04T00:00:00Z")
}
{
        "topicId" : 2,
        "topic" : "CSS",
        "topicDate" : "2020-10-11",
        "task" : "CSS Task",
        "status" : true,
        "deadline" : ISODate("2020-10-11T00:00:00Z")
}
{
        "topicId" : 3,
        "topic" : "Bootstrap",
        "topicDate" : "2020-10-18",
        "task" : "Bootstrap Task",
        "status" : false,
        "deadline" : ISODate("2020-10-18T00:00:00Z")
}
{
        "topicId" : 4,
        "topic" : "JavaScript",
        "topicDate" : "2020-10-25",
        "task" : "JavaScript Task",
        "status" : true,
        "deadline" : ISODate("2020-10-25T00:00:00Z")
}
>
```

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

Answer:

```
db.companyDrives.aggregate([
    {
        $match:{
                driveDate:{$lte:new Date("2020-10-31"), $gte: new
Date("2020-10-15")}
        }
    },
    {
        $project: {
            _id:0,
            userId: 1,
            company: 1,
            driveDate: {
                $dateToString:{format: "%Y-%m-%d", date: "$driveDate"}
            }
        }
    },
    {
        $sort: {driveDate:1}
    }

]).pretty()
```

```
> db.companyDrives.aggregate([
...     {
...         $match:{
...                 driveDate:{$lte:new Date("2020-10-31"), $gte: new Date("2020-10-15")}
...         }
...     },
...     {
...         $project: {
...             _id:0,
...             userId: 1,
...             company: 1,
...             driveDate: {
...                 $dateToString:{format: "%Y-%m-%d", date: "$driveDate"}
...             }
...         }
...     },
...     {
...         $sort: {driveDate:1}
...     }
... ]).pretty()
{ "userId" : 3, "company" : "Meta", "driveDate" : "2020-10-18" }
{ "userId" : 4, "company" : "Amazon", "driveDate" : "2020-10-25" }
>
```

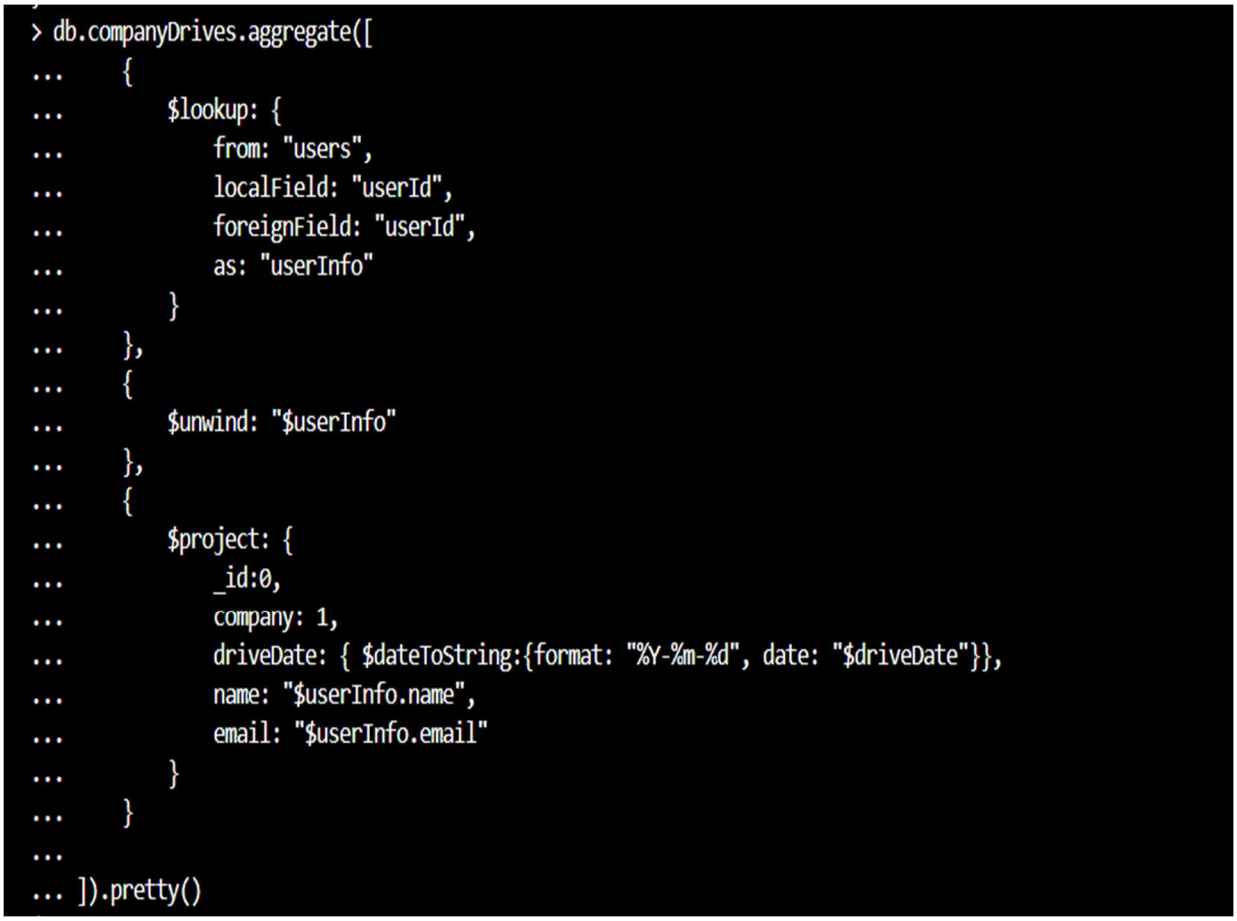
3. **Find all the company drives and students who are appeared for the placement.**

Answer:

```
db.companyDrives.aggregate([
    {
        $lookup: {
            from: "users",
            localField: "userId",
            foreignField: "userId",
            as: "userInfo"
        }
    },
    {
        $unwind: "$userInfo"
    },
    {
        $project: {
            _id:0,
            company: 1,
```

```
            driveDate: { $dateToString:{format: "%Y-%m-%d", date:
"$driveDate"}},
            name: "$userInfo.name",
            email: "$userInfo.email"
        }
    }

]).pretty()
```



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

Answer:

```
db.codekata.aggregate([
    {
        $lookup: {
            from: "users",
            localField: "userId",
            foreignField: "userId",
            as: "userInfo"
        }
    },
    {
        $unwind: "$userInfo"
    },
    {
        $project: {
```

```
            _id:0,
            userId: 1,
            name: "$userInfo.name",
            problemSolved: 1,
        }
    }

]).pretty()
```

```
> db.codekata.aggregate([
...     {
...         $lookup: {
...             from: "users",
...             localField: "userId",
...             foreignField: "userId",
...             as: "userInfo"
...         }
...     },
...     {
...         $unwind: "$userInfo"
...     },
...     {
...         $project: {
...             _id:0,
...             userId: 1,
...             name: "$userInfo.name",
...             problemSolved: 1,
...         }
...     }
... ]).pretty()
{ "userId" : 1, "problemSolved" : 150, "name" : "Violet Parker" }
{ "userId" : 2, "problemSolved" : 100, "name" : "Madaline Carroll" }
{ "userId" : 3, "problemSolved" : 180, "name" : "Agata Ferguson" }
{ "userId" : 4, "problemSolved" : 80, "name" : "Lily Hall" }
{ "userId" : 5, "problemSolved" : 120, "name" : "Luke Alexander" }
>
```

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

Answer:

```
db.mentors.aggregate([
    {
        $match: {
            mentee: {$gt:15}
        }
    },
    {
        $project: {
            _id:0,
            mentorId: 1,
            name: 1,
            mentee: 1,
        }
    },
    {
        $sort: {mentee: -1}
    }

]).pretty()
```

```
> db.mentors.aggregate([
...     {
...         $match: {
...             mentee: {$gt:15}
...         }
...     },
...     {
...         $project: {
...             _id:0,
...             mentorId: 1,
...             name: 1,
...             mentee: 1,
...         }
...     },
...     {
...         $sort: {mentee: -1}
...     }
... ]).pretty()
{ "mentorId" : 5, "name" : "Kristian Richardson", "mentee" : 25 }
{ "mentorId" : 2, "name" : "Connie Perkins", "mentee" : 20 }
{ "mentorId" : 4, "name" : "Ellia Smith", "mentee" : 18 }
>
```

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

Answer:

```
db.attendance.aggregate([
    {
        $lookup: {
            from: "tasks",
            localField: "topicId",
            foreignField: "topicId",
            as: "taskInfo"
        }
```

```
    },
    {
        $lookup: {
            from: "topics",
            localField: "topicId",
            foreignField: "topicId",
            as: "topicInfo"
        }
    },
    { $unwind: "$taskInfo"},
    { $unwind: "$topicInfo"},
    {
        $match: {
            $and: [
                {attended: false},
                {$and: [
                    {"taskInfo.completed": false},
                    {"topicInfo.topicDate":{$lte:new Date("2020-10-31"),
$gte: new Date("2020-10-15")}}
                ]}
            ]
        }
    },
    {
        $project: {
            _id: 0,
            userId: 1,
            attended: 1,
            completed: "$taskInfo.completed"

        }
    }
]).pretty()
```

```
> db.attendance.aggregate([
...     {
...         $lookup: {
...             from: "tasks",
...             localField: "topicId",
...             foreignField: "topicId",
...             as: "taskInfo"
...         }
...
...     },
...     {
...         $lookup: {
...             from: "topics",
...             localField: "topicId",
...             foreignField: "topicId",
...             as: "topicInfo"
...         }
...     },
...     { $unwind: "$taskInfo"},
...     { $unwind: "$topicInfo"},
...     {
...         $match: {
...             $and: [
...                 {attended: false},
...                 {$and: [
...                     {"taskInfo.completed": false},
...                     {"topicInfo.topicDate":{$lte:new Date("2020-10-31"), $gte: new Date("2020-10-15")}}
...                 ]}
...             ]
...         }
...     },
...     {
...         $project: {
...             _id: 0,
...             userId: 1,
...             attended: 1,
...             completed: "$taskInfo.completed"
...
...         }
...     }
... ]).pretty()
{ "userId" : 3, "attended" : false, "completed" : false }
```