

MONGODB CASE STUDY – 2

ZEN CLASS

Design database for Zen class programme

- users
- codekata
- attendance
- topics
- tasks
- company_drives
- mentors

INSERTION OF DATA BASE

USERS:

```
[
  {
    "userid": 1,
    "name": "Boobathi",
    "email": "boobathi@gmail.com",
    "mentor": "Sathish"
  },
  {
    "userid": 2,
    "name": "Mani",
    "email": "mani@gmail.com",
    "mentor": "Nagaraj"
  },
  {
    "userid": 3,
    "name": "Karthi",
    "email": "karthi@gmail.com",
    "mentor": "Sathish"
  },
  {
```

```
"userid": 4,
"name": "Dharshini",
"email": "dharshini@gmail.com",
"mentor": "Rupan"
},
{
"userid": 5,
"name": "Balu",
"email": "balu@gmail.com",
"mentor": "Sathish"
}
]
```

CODEKATA:

```
[
{ "user_id": 1, "codekata_solved": 300, "webkata_solved": 50 },
{ "user_id": 2, "codekata_solved": 250, "webkata_solved": 90 },
{ "user_id": 3, "codekata_solved": 200, "webkata_solved": 50 },
{ "user_id": 4, "codekata_solved": 190, "webkata_solved": 90 },
{ "user_id": 5, "codekata_solved": 180, "webkata_solved": 100 }
]
```

ATTENDANCE:

```
[
{ "userid": 1, "Class_date": "2023-10-07T00:00:00Z", "attendance": true },
{ "userid": 1, "Class_date": "2023-10-08T00:00:00Z", "attendance": true },
{ "userid": 1, "Class_date": "2023-10-14T00:00:00Z", "attendance": true },
{ "userid": 1, "Class_date": "2023-10-15T00:00:00Z", "attendance": true },
{ "userid": 1, "Class_date": "2023-10-21T00:00:00Z", "attendance": true },
{ "userid": 1, "Class_date": "2023-10-22T00:00:00Z", "attendance": true },
{ "userid": 1, "Class_date": "2023-10-28T00:00:00Z", "attendance": true },
{ "userid": 1, "Class_date": "2023-10-29T00:00:00Z", "attendance": true },
{ "userid": 1, "Class_date": "2023-11-05T00:00:00Z", "attendance": true },
{ "userid": 1, "Class_date": "2023-11-06T00:00:00Z", "attendance": true },
{ "userid": 2, "Class_date": "2023-10-07T00:00:00Z", "attendance": true },
]
```

[illegible]

```
{ "userid": 5, "Class_date": "2023-10-22T00:00:00Z", "attendance": true },
{ "userid": 5, "Class_date": "2023-10-28T00:00:00Z", "attendance": false },
{ "userid": 5, "Class_date": "2023-10-29T00:00:00Z", "attendance": true },
{ "userid": 5, "Class_date": "2023-11-05T00:00:00Z", "attendance": false },
{ "userid": 5, "Class_date": "2023-11-06T00:00:00Z", "attendance": false }
]
```

TOPICS:

```
[
{
  "topic_id": 1,
  "task_id": 1,
  "topic": "HTML",
  "description": "Master Html",
  "start_date": "2023-10-07T00:00:00Z",
  "end_date": "2023-10-08T00:00:00Z"
},
{
  "topic_id": 2,
  "task_id": 2,
  "topic": "CSS",
  "description": "Master Css",
  "start_date": "2023-10-14T00:00:00Z",
  "end_date": "2023-10-15T00:00:00Z"
},
{
  "topic_id": 3,
  "task_id": 3,
  "topic": "Javascript",
  "description": "Master Javascript",
  "start_date": "2023-10-21T00:00:00Z",
  "end_date": "2023-10-22T00:00:00Z"
},
{
  "topic_id": 4,
```

```
"task_id": 4,
"topic": "React",
"description": "Master React",
"start_date": "2023-10-28T00:00:00Z",
"end_date": "2023-10-29T00:00:00Z"
},
{
"topic_id": 5,
"task_id": 5,
"topic": "Bootstrap",
"description": "Master Bootstrap",
"start_date": "2023-11-05T00:00:00Z",
"end_date": "2023-11-06T00:00:00Z"
}
]
```

TASKS:

```
[
{
"topic_id": 1,
"task_id": 1,
"topic": "HTML",
"description": "Create a content using HTML",
"deadline_date": "2023-10-09T00:00:00Z"
},
{
"topic_id": 2,
"task_id": 2,
"topic": "CSS",
"description": "Style - created HTML content",
"deadline_date": "2023-10-16T00:00:00Z"
},
{
"topic_id": 3,
"task_id": 3,
```

```
"topic": "Javascript",
"description": "Add logics to the created content",
"deadline_date": "2023-10-23T00:00:00Z"
},
{
"topic_id": 4,
"task_id": 4,
"topic": "React",
"description": "Create same website (created by using of html,css & js) using react",
"deadline_date": "2023-10-30T00:00:00Z"
},
{
"topic_id": 5,
"task_id": 5,
"topic": "Bootstrap",
"description": "Create same website using bootstrap",
"deadline_date": "2023-11-06T00:00:00Z"
}
]
```

COMPANY DRIVES:

```
[
{ "userid": 1, "drive_date": "2023-10-16T00:00:00Z", "company": "TCS" },
{ "userid": 1, "drive_date": "2023-10-19T00:00:00Z", "company": "HCL" },
{ "userid": 2, "drive_date": "2023-10-22T00:00:00Z", "company": "Amazon" },
{ "userid": 3, "drive_date": "2023-10-28T00:00:00Z", "company": "Wipro" },
{ "userid": 4, "drive_date": "2023-11-01T00:00:00Z", "company": "ITC" }
]
```

MENTORS:

```
[
{ "mentor_id": 1, "mentor_name": "Sathish", "mentees": 30 },
{ "mentor_id": 2, "mentor_name": "Sudar", "mentees": 13 },
{ "mentor_id": 3, "mentor_name": "Thillan", "mentees": 50 },
{ "mentor_id": 4, "mentor_name": "Kulunthan", "mentees": 70 },
]
```

```
[
  { "mentor_id": 5, "mentor_name": "Mani", "mentees": 16 },
  { "mentor_id": 6, "mentor_name": "Balu", "mentees": 10 },
  { "mentor_id": 7, "mentor_name": "Guru", "mentees": 13 },
  { "mentor_id": 8, "mentor_name": "Parthiban", "mentees": 32 },
  { "mentor_id": 9, "mentor_name": "Nesamani", "mentees": 14 },
  { "mentor_id": 10, "mentor_name": "Vijay", "mentees": 35 }
]
```

QUESTIONS

1. Find all the topics and tasks taught in October 2023

A. From topics collection

```
db.topics.find({
  start_date: {
    $gte: "2023-10-01T00:00:00Z",
    $lte: "2023-10-31T23:59:59Z"
  }
}).pretty()
```

```
> db.topics.find({
  start_date: {
    $gte: "2023-10-01T00:00:00Z",
    $lte: "2023-10-31T23:59:59Z"
  }
}).pretty()
< [
  {
    _id: ObjectId('6880f324170e79266410d04d'),
    topic_id: 1,
    task_id: 1,
    topic: 'HTML',
    description: 'Master Html',
    start_date: '2023-10-07T00:00:00Z',
    end_date: '2023-10-08T00:00:00Z'
  },
  {
    _id: ObjectId('6880f324170e79266410d04e'),
    topic_id: 2,
    task_id: 2,
    topic: 'CSS',
    description: 'Master Css',
    start_date: '2023-10-14T00:00:00Z',
    end_date: '2023-10-15T00:00:00Z'
  },
  {
    _id: ObjectId('6880f324170e79266410d04f'),
    topic_id: 3,
    task_id: 3,
    topic: 'Javascript',
    description: 'Master Javascript',
    start_date: '2023-10-21T00:00:00Z',
    end_date: '2023-10-22T00:00:00Z'
  },
  {
    _id: ObjectId('6880f324170e79266410d050'),
    topic_id: 4,
    task_id: 4,
    topic: 'React',
    description: 'Master React',
    start_date: '2023-10-28T00:00:00Z',
    end_date: '2023-10-29T00:00:00Z'
  }
]
```

```
description: 'Master Javascript',
start_date: '2023-10-21T00:00:00Z',
end_date: '2023-10-22T00:00:00Z'
}
{
  _id: ObjectId('6880f324170e79266410d050'),
  topic_id: 4,
  task_id: 4,
  topic: 'React',
  description: 'Master React',
  start_date: '2023-10-28T00:00:00Z',
  end_date: '2023-10-29T00:00:00Z'
}
```

B. From tasks collection

```
db.tasks.find({
  deadline_date: {
    $gte: "2023-10-01T00:00:00Z",
    $lte: "2023-10-31T23:59:59Z"
  }
}).pretty()
```

```
}
}).pretty()
```

```
db.tasks.find({
  deadline_date: {
    $gte: "2023-10-01T00:00:00Z",
    $lte: "2023-10-31T23:59:59Z"
  }
}).pretty()
<
  _id: ObjectId('6880f30c170e79266410d047'),
  topic_id: 1,
  task_id: 1,
  topic: 'HTML',
  description: 'Create a content using HTML',
  deadline_date: '2023-10-09T00:00:00Z'
}
  _id: ObjectId('6880f30c170e79266410d048'),
  topic_id: 2,
  task_id: 2,
  topic: 'CSS',
  description: 'Style - created HTML content',
  deadline_date: '2023-10-16T00:00:00Z'
}
  _id: ObjectId('6880f30c170e79266410d049'),
  topic_id: 3,
  task_id: 3,
  topic: 'Javascript',
  description: 'Add logics to the created content',
  deadline_date: '2023-10-23T00:00:00Z'
```

```
}
{
  _id: ObjectId('6880f30c170e79266410d04a'),
  topic_id: 4,
  task_id: 4,
  topic: 'React',
  description: 'Create same website (created by using of html,css & js) using react',
  deadline_date: '2023-10-30T00:00:00Z'
}
gen_class>
```

2. Find all company drives between 15-Oct-2023 and 31-Oct-2023

```
db.company_drives.find({
  drive_date: {
    $gte: "2023-10-15T00:00:00Z",
    $lte: "2023-10-31T23:59:59Z"
  }
}).pretty()
```

```
> db.company_drives.find({
  drive_date: {
    $gte: "2023-10-15T00:00:00Z",
    $lte: "2023-10-31T23:59:59Z"
  }
}).pretty()
< {
  _id: ObjectId('6880f114170e79266410d036'),
  userid: 1,
  drive_date: '2023-10-16T00:00:00Z',
  company: 'TCS'
}
{
  _id: ObjectId('6880f114170e79266410d037'),
  userid: 1,
  drive_date: '2023-10-19T00:00:00Z',
  company: 'HCL'
}
{
  _id: ObjectId('6880f114170e79266410d038'),
  userid: 2,
  drive_date: '2023-10-22T00:00:00Z',
  company: 'Amazon'
}
{
  _id: ObjectId('6880f114170e79266410d039'),
  userid: 3,
  drive_date: '2023-10-28T00:00:00Z',
  company: 'Wipro'
```


3. Find the number of problems solved by each user in codekata

```
db.codekata.find({}, {  
  _id: 0,  
  user_id: 1,  
  codekata_solved: 1  
}).pretty()
```

```
> db.codekata.find(  
  {},  
  {  
    _id: 0,  
    user_id: 1,  
    codekata_solved: 1  
  }  
)  
.pretty()  
< {  
  user_id: 1,  
  codekata_solved: 300  
}  
{  
  user_id: 2,  
  codekata_solved: 250  
}  
{  
  user_id: 3,  
  codekata_solved: 200  
}  
{  
  user_id: 4,  
  codekata_solved: 190  
}  
{  
  user_id: 5,  
  codekata_solved: 180  
}
```

4. Find all mentors with mentees > 15

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

```
> db.mentors.find({  
  mentees: { $gt: 15 }  
}).pretty()  
< {  
  _id: ObjectId('6880f246170e79266410d03c'),  
  mentor_id: 1,  
  mentor_name: 'Sathish',  
  mentees: 30  
}  
{  
  _id: ObjectId('6880f246170e79266410d03e'),  
  mentor_id: 3,  
  mentor_name: 'Thillan',  
  mentees: 50  
}  
{  
  _id: ObjectId('6880f246170e79266410d03f'),  
  mentor_id: 4,  
  mentor_name: 'Kulunthan',  
  mentees: 70  
}  
{  
  _id: ObjectId('6880f246170e79266410d040'),  
  mentor_id: 5,  
  mentor_name: 'Mani',  
  mentees: 16  
}  
{  
  _id: ObjectId('6880f246170e79266410d043'),  
  mentor_id: 6,  
  mentor_name: 'Vijay',  
  mentees: 35  
}
```

```
mentor_id: 8,  
mentor_name: 'Parthiban',  
mentees: 32  
}  
{  
  _id: ObjectId('6880f246170e79266410d045'),  
  mentor_id: 10,  
  mentor_name: 'Vijay',  
  mentees: 35  
}  
zen_class>
```

5. Find number of users who are:

A. Users absent in that date range

```
db.attendance.find({
  Class_date: {
    $gte: "2023-10-15T00:00:00Z",
    $lte: "2023-10-31T23:59:59Z"
  },
  attendance: false
}).pretty()
```

```
    $gte: "2023-10-15T00:00:00Z",
    $lte: "2023-10-31T23:59:59Z"
  },
  attendance: false
}).pretty()
< {
  _id: ObjectId('6880f057170e79266410d00f'),
  userid: 2,
  Class_date: '2023-10-15T00:00:00Z',
  attendance: false
}
{
  _id: ObjectId('6880f057170e79266410d019'),
  userid: 3,
  Class_date: '2023-10-15T00:00:00Z',
  attendance: false
}
{
  _id: ObjectId('6880f057170e79266410d02e'),
  userid: 5,
  Class_date: '2023-10-21T00:00:00Z',
  attendance: false
}
{
  _id: ObjectId('6880f057170e79266410d030'),
  userid: 5,
  Class_date: '2023-10-28T00:00:00Z',
  attendance: false
}
}
zen class>|
```

B. Tasks not submitted in that date range

```
db.tasks.find({
  deadline_date: {
    $gte: "2023-10-15T00:00:00Z",
    $lte: "2023-10-31T23:59:59Z"
  },
  submitted: false
}).pretty()
```

```
db.tasks.find({
  deadline_date: {
    $gte: "2023-10-15T00:00:00Z",
    $lte: "2023-10-31T23:59:59Z"
  },
  submitted: false
}).pretty()
{
  _id: ObjectId('6880f30c170e79266410d048'),
  topic_id: 2,
  task_id: 2,
  topic: 'CSS',
  description: 'Style - created HTML content',
  deadline_date: '2023-10-16T00:00:00Z',
  submitted: false
}
```