MongoDB Task

Design database for Zen class programme

```
> use zenClass;
< switched to db zenClass
> show collections;
< attendance
  codekata
  company_drives
  mentors
  tasks
  topics
  users
```

users:

```
> db.users.insertOne({
    name: "Thahira Sherin",
    email: "sherin@example.com"
});
< {
    acknowledged: true,
    insertedId: ObjectId('687cf4c2dff1b9d52965d3a7')
  }
```

codekata:

```
> db.codekata.insertOne({
    user_id: ObjectId('687cf4c2dff1b9d52965d3a7'),
    problems_solved: 50
});
< {
    acknowledged: true,
    insertedId: ObjectId('687cf5a9dff1b9d52965d3a8')
}
```

attendance:

```
> db.attendance.insertOne({
    user_id: ObjectId('687cf4c2dff1b9d52965d3a7'),
    date: ISODate("2020-10-20"),
    status: "Absent"
});
< {
    acknowledged: true,
    insertedId: ObjectId('687cf71fdff1b9d52965d3a9')
}
```

topics:

```
> db.topics.insertOne({
    topic: "JavaScript Basics",
    date: ISODate("2020-10-18")
});
< {
    acknowledged: true,
    insertedId: ObjectId('687cf736dff1b9d52965d3aa')
}
```

tasks:

```
> db.tasks.insertOne({
    user_id: ObjectId('687cf4c2dff1b9d52965d3a7'),
    topic_id: ObjectId('687cf736dff1b9d52965d3aa'),
    submitted: false,
    date: ISODate("2020-10-20")
});
< {
    acknowledged: true,
    insertedId: ObjectId('687cfb52dff1b9d52965d3ad')
}
```

company_drives:

```
> db.company_drives.insertOne({
    company: "TCS",
    date: ISODate("2020-10-22"),
    attended_users: [ObjectId("687cf4c2dff1b9d52965d3a7")]
});
< {
    acknowledged: true,
    insertedId: ObjectId('687cfb6fdff1b9d52965d3ae')
}
```

mentors:

```
> db.mentors.insertOne({
    name: "Mentor A",
    mentees: [ObjectId('687cf4c2dff1b9d52965d3a7')]
});
< {
    acknowledged: true,
    insertedId: ObjectId('687cfb97dff1b9d52965d3af')
}
```

Inserted document in all collections:

```
> db.users.find().pretty();
< {
    _id: ObjectId('687cf4c2dff1b9d52965d3a7'),
    name: 'Thahira Sherin',
    email: 'sherin@example.com'
  }
> db.codekata.find().pretty();
< {
    _id: ObjectId('687cf5a9dff1b9d52965d3a8'),
    user_id: ObjectId('687cf4c2dff1b9d52965d3a7'),
    problems_solved: 50
  }
> db.attendance.find().pretty();
< {
    _id: ObjectId('687cf834dff1b9d52965d3ab'),
    user_id: ObjectId('687cf5a9dff1b9d52965d3a8'),
    date: 2020-10-20T00:00:00.000Z,
    status: 'Absent'
  }
```

```
> db.company_drives.find().pretty();
< {
    _id: ObjectId('687cfb6fdff1b9d52965d3ae'),
    company: 'TCS',
    date: 2020-10-22T00:00:00.000Z,
    attended_users: [
      ObjectId('687cf4c2dff1b9d52965d3a7')
    ]
  }
> db.mentors.find().pretty();
< {
    _id: ObjectId('687cfb97dff1b9d52965d3af'),
    name: 'Mentor A',
    mentees: [
      ObjectId('687cf4c2dff1b9d52965d3a7')
    ]
  }
```

```
> db.tasks.find().pretty();
< {
    _id: ObjectId('687cfb52dff1b9d52965d3ad'),
    user_id: ObjectId('687cf4c2dff1b9d52965d3a7'),
    topic_id: ObjectId('687cf736dff1b9d52965d3aa'),
    submitted: false,
    date: 2020-10-20T00:00:00.000Z
  }
> db.topics.find().pretty();
< {
    _id: ObjectId('687cf736dff1b9d52965d3aa'),
    topic: 'JavaScript Basics',
    date: 2020-10-18T00:00:00.000Z
  }
```

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

```
> db.topics.find({
    date: {
      $gte: ISODate("2020-10-01"),
      $lte: ISODate("2020-10-31")
    }
  }).pretty();
< {
    _id: ObjectId('687cf736dff1b9d52965d3aa'),
    topic: 'JavaScript Basics',
    date: 2020-10-18T00:00:00.000Z
  }
> db.tasks.find({
    date: {
      $gte: ISODate("2020-10-01"),
      $lte: ISODate("2020-10-31")
    }
  }).pretty();
< {
    _id: ObjectId('687cfb52dff1b9d52965d3ad'),
    user_id: ObjectId('687cf4c2dff1b9d52965d3a7'),
    topic_id: ObjectId('687cf736dff1b9d52965d3aa'),
    submitted: false,
    date: 2020-10-20T00:00:00.000Z
  }
```

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

```
> db.company_drives.find({
    date: {
      $gte: ISODate("2020-10-15"),
      $lte: ISODate("2020-10-31")
    }
  }).pretty();
< {
    _id: ObjectId('687cfb6fdff1b9d52965d3ae'),
    company: 'TCS',
    date: 2020-10-22T00:00:00.000Z,
    attended_users: [
      ObjectId('687cf4c2dff1b9d52965d3a7')
    ]
  }
```

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

```
> db.company_drives.aggregate([
    {
      $lookup: {
        from: "users",
        localField: "attended_users",
        foreignField: "_id",
        as: "students"
      }
    }
]).pretty();
< {
    _id: ObjectId('687cfb6fdff1b9d52965d3ae'),
    company: 'TCS',
    date: 2020-10-22T00:00:00.000Z,
    attended_users: [
      ObjectId('687cf4c2dff1b9d52965d3a7')
    ],
    students: [
      {
        _id: ObjectId('687cf4c2dff1b9d52965d3a7'),
        name: 'Thahira Sherin',
        email: 'sherin@example.com'
      }
    ]
```

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

```
> db.company_drives.aggregate([
    {
      $lookup: {
        from: "users",
        localField: "attended_users",
        foreignField: "_id",
        as: "students"
      }
    }
  ]).pretty();
< {
    _id: ObjectId('687cfb6fdff1b9d52965d3ae'),
    company: 'TCS',
    date: 2020-10-22T00:00:00.000Z,
    attended_users: [
      ObjectId('687cf4c2dff1b9d52965d3a7')
    ],
    students: [
      {
        _id: ObjectId('687cf4c2dff1b9d52965d3a7'),
        name: 'Thahira Sherin',
        email: 'sherin@example.com'
      }
    ]
```

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

inserting one:

```
> db.mentors.insertOne({
    name: "Mentor B",
    mentees: [
      ObjectId("687cf4c2dff1b9d52965d3a7"),
      ObjectId("687cf5a9dff1b9d52965d3a8"),
      ObjectId("687cf71fdff1b9d52965d3a9"),
      ObjectId("687cf834dff1b9d52965d3ab"),
      ObjectId("687cf8cddff1b9d52965d3ac"),
      ObjectId("687cfa10dff1b9d52965d3ad"),
      ObjectId("687cfa99dff1b9d52965d3ae"),
      ObjectId("687cfb97dff1b9d52965d3af"),
      ObjectId("687cfc88dff1b9d52965d3b0"),
      ObjectId("687cfd13dff1b9d52965d3b1"),
      ObjectId("687cfda4dff1b9d52965d3b2"),
      ObjectId("687cfe25dff1b9d52965d3b3"),
      ObjectId("687cfea6dff1b9d52965d3b4"),
      ObjectId("687cff27dff1b9d52965d3b5"),
      ObjectId("687cffa8dff1b9d52965d3b6"),
      ObjectId("687d0029dff1b9d52965d3b7")
    ]
});
```

answers:

```
> db.mentors.find({
    $expr: {
      $gt: [{ $size: "$mentees" }, 15]
    }
  });
< {
    _id: ObjectId('687d4bf9dff1b9d52965d3b0'),
    name: 'Mentor B',
    mentees: [
      ObjectId('687cf4c2dff1b9d52965d3a7'),
      ObjectId('687cf5a9dff1b9d52965d3a8'),
      ObjectId('687cf71fdff1b9d52965d3a9'),
      ObjectId('687cf834dff1b9d52965d3ab'),
      ObjectId('687cf8cddff1b9d52965d3ac'),
      ObjectId('687cfa10dff1b9d52965d3ad'),
      ObjectId('687cfa99dff1b9d52965d3ae'),
      ObjectId('687cfb97dff1b9d52965d3af'),
      ObjectId('687cfc88dff1b9d52965d3b0'),
      ObjectId('687cfd13dff1b9d52965d3b1'),
      ObjectId('687cfda4dff1b9d52965d3b2'),
      ObjectId('687cfe25dff1b9d52965d3b3'),
      ObjectId('687cfea6dff1b9d52965d3b4'),
      ObjectId('687cff27dff1b9d52965d3b5'),
      ObjectId('687cffa8dff1b9d52965d3b6'),
```

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: {
        status: "Absent",
        date: {
          $gte: ISODate("2020-10-15"),
          $lte: ISODate("2020-10-31")
        }
      }
    },
    {
      $lookup: {
        from: "tasks",
        let: { userId: "$user_id", attDate: "$date" },
        pipeline: [
          {
            $match: {
              $expr: {
                $and: [
                  { $eq: ["$user_id", "$$userId"] },
                  { $gte: ["$date", ISODate("2020-10-15")] },
                  { $lte: ["$date", ISODate("2020-10-31")] },
                  { $eq: ["$submitted", true] }
                ]
```

```
                { $gte: ["$date", ISODate("2020-10-15")] },
                { $lte: ["$date", ISODate("2020-10-31")] },
                { $eq: ["$submitted", true] }
              ]
            }
          }
        }
      ],
      as: "taskInfo"
    }
  },
  {
    $match: {
      taskInfo: { $eq: [] } // no task submitted
    }
  },
  {
    $group: {
      _id: "$user_id"
    }
  },
  {
    $count: "total_absent_no_task"
  }
```

```
    {
      $group: {
        _id: "$user_id"
      }
    },
    {
      $count: "total_absent_no_task"
    }
  ]);
< {
    total_absent_no_task: 1
  }
```