Islamic University of Technology (IUT)

Report on Lab 7

Submitted By

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CSE 4410 Database Management Systems II Lab

Submitted To

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Introduction

These lab tasks were based on the use of NoSQL using mongosh.

Question

- Think of a scenario of social media platform that allows users to create profiles, post, follow other users, and like posts. Generally, the user provides his basic information for example name, email, password (here you don't have to think of hashing password), phone no, date of birth, address, and profile creation date. Other than that users may add their working status (like what is he/she doing currently, and how long they are doing this), bios, hobbies, and so on. Any user can post content and anybody can like and comment on that post. Additionally, a user can follow others.

Now, your task is to:

1. Create necessary collections with respective attributes.
2. Insertion
   (a) An entry of a user with only email, name and password.
   (b) Multiple entries of users with basic info and hobbies.
   (c) An entry of a user with basic info and working status.
   (d) Add multiple followers for multiple users.
   (e) Multiple posts with content, creation time, like and the user id who likes.
   (f) Add multiple comments for multiple posts.
3. Data Retrieving
   (a) Display the most recent to oldest posts along with their poster.
   (b) Show all the posts that were created in the last 24 hours.
   (c) Show all the users who have more than 3 followers.
   (d) Show all the users who are following more than 3 users.

```
//Task 2(a)

db.user.insertOne(
    {
        "name": "Corax Maria",
        "email": "corax@gmail.com",
        "password": "maria1234"
    }
)
```

Figure 1: Task 2(a)-code

```
socialMedia> db.user.insertOne(
...     {
...         "name": "Corax Maria",
...         "email": "corax@gmail.com",
...         "password": "maria1234"
...     }
... )
{
  acknowledged: true,
  insertedId: ObjectId("6415d718e05a1c740cad9a25")
}
```

Figure 2: Task 2(a)-result

```
//Task 2(c)

db.user.insertOne(
    {
        "name":"May NonShelby",
        "email": "may@gmail.com",
        "password": "may123",
        "phoneNumber": "01597772094",
        "dob": new Date("1871-02-02"),
        "address": "buckingham",
        "profileCreationDate": new Date(),
        "workingStatus": [
            {
                "status":"Working as a Race Horse Trainer",
                "duration":5
            }
        ]
    }
)
```

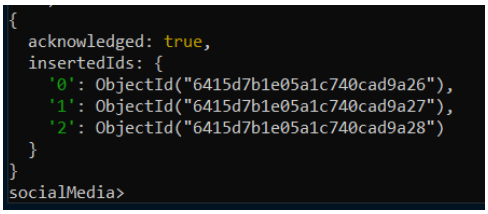
Figure 3: Task 2(c)-code

```
...     {
...         "name":"May NonShelby",
...         "email": "may@gmail.com",
...         "password": "may123",
...         "phoneNumber": "01597772094",
...         "dob": new Date("1871-02-02"),
...         "address": "buckingham",
...         "profileCreationDate": new Date(),
...         "workingStatus": [
...             {
...                 "status":"Working as a Race Horse Trainer",
...                 "duration":5
...             }
...         ]
...     }
... )
{
  acknowledged: true,
  insertedId: ObjectId("6415d7e5e05a1c740cad9a29")
}
socialMedia>
```

Figure 4: Task 2(c)-result

```
//Task 2(b)

db.user.insertMany(
[
    {
        "name":"Tommy Shelby",
        "email": "tommy@gmail.com",
        "password": "tommy123",
        "phoneNumber": "01819954271",
        "dob": new Date("1851-04-06"),
        "address": "birmingham",
        "profileCreationDate": new Date(),
        "hobbies": [
            "horse-racing",
            "gambling"
        ]
    },
    {
        "name":"Michael Shelby",
        "email": "michael@gmail.com",
        "password": "michael123",
        "phoneNumber": "018458923711",
        "dob": new Date("1902-11-21"),
        "address": "london",
        "profileCreationDate": new Date(),
        "hobbies": [
            "accounting",
            "playing tag"
        ]
    },
    {
        "name":"Polly Shelby",
        "email": "polly@gmail.com",
        "password": "polly123",
        "phoneNumber": "01629749016",
        "dob": new Date("1822-09-12"),
        "address": "new york",
        "profileCreationDate": new Date(),
        "hobbies": [
            "intimidating people",
            "keeping the shelbys in line"
        ]
    }
]
)
```

Figure 5: Task 2(b)-code



```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("6415d7b1e05a1c740cad9a26"),
    '1': ObjectId("6415d7b1e05a1c740cad9a27"),
    '2': ObjectId("6415d7b1e05a1c740cad9a28")
  }
}
socialMedia>
```

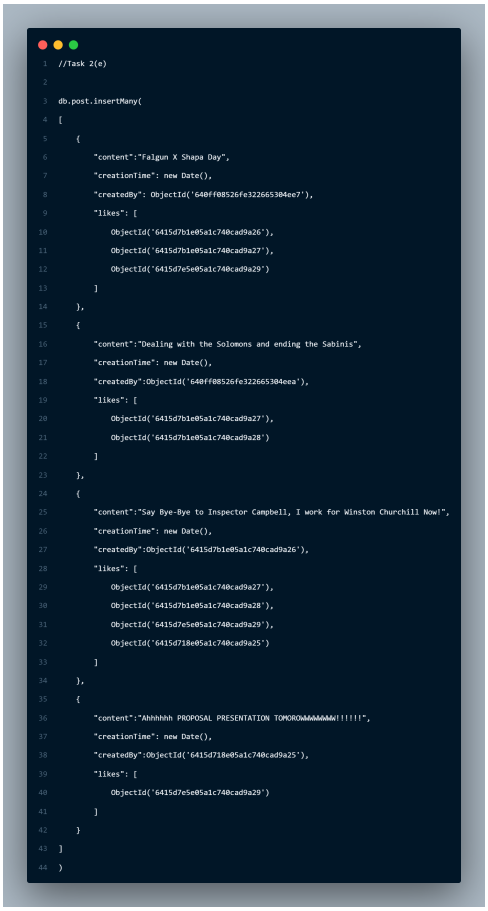
Figure 6: Task 2(b)-result

```
//Task 2(d)

db.user.updateMany(
    {
        "_id": {
            $in : [
                ObjectId('6415d7b1e05a1c740cad9a26'),
                ObjectId('6415d7b1e05a1c740cad9a27'),
                ObjectId('6415d7b1e05a1c740cad9a28')
            ]
        }
    },
    {
        $set: {
            "followers": [
                ObjectId('6415d718e05a1c740cad9a25'),
                ObjectId('6415d7e5e05a1c740cad9a29')
            ]
        }
    }
)
```

Figure 7: Task 2(d)-code

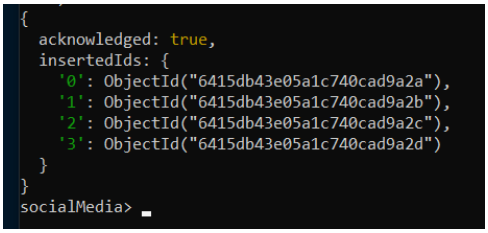
```
...     {
...         "_id": {
...             $in : [
...                 ObjectId('6415d7b1e05a1c740cad9a26'),
...                 ObjectId('6415d7b1e05a1c740cad9a27'),
...                 ObjectId('6415d7b1e05a1c740cad9a28')
...             ]
...         }
...     },
...     {
...         $set: {
...             "followers": [
...                 ObjectId('6415d718e05a1c740cad9a25'),
...                 ObjectId('6415d7e5e05a1c740cad9a29')
...             ]
...         }
...     }
... )
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 3,
  modifiedCount: 3,
  upsertedCount: 0
}
```

Figure 8: Task 2(d)-result



```
//Task 2(e)

db.post.insertMany(
[
    {
        "content":"Falgun X Shapa Day",
        "creationTime": new Date(),
        "createdBy": ObjectId('640ff08526fe32266530 4ee7'),
        "likes": [
            ObjectId('6415d7b1e05a1c740cad9a26'),
            ObjectId('6415d7b1e05a1c740cad9a27'),
            ObjectId('6415d7e5e05a1c740cad9a29')
        ]
    },
    {
        "content":"Dealing with the Solomons and ending the Sabinis",
        "creationTime": new Date(),
        "createdBy":ObjectId('640ff08526fe32266530 4eea'),
        "likes": [
            ObjectId('6415d7b1e05a1c740cad9a27'),
            ObjectId('6415d7b1e05a1c740cad9a28')
        ]
    },
    {
        "content":"Say Bye-Bye to Inspector Campbell, I work for Winston Churchill Now!",
        "creationTime": new Date(),
        "createdBy":ObjectId('6415d7b1e05a1c740cad9a26'),
        "likes": [
            ObjectId('6415d7b1e05a1c740cad9a27'),
            ObjectId('6415d7b1e05a1c740cad9a28'),
            ObjectId('6415d7e5e05a1c740cad9a29'),
            ObjectId('6415d718e05a1c740cad9a25')
        ]
    },
    {
        "content":"Ahhhhhh PROPOSAL PRESENTATION TOMOROWWWWWW!!!!!",
        "creationTime": new Date(),
        "createdBy":ObjectId('6415d718e05a1c740cad9a25'),
        "likes": [
            ObjectId('6415d7e5e05a1c740cad9a29')
        ]
    }
]
)
```

Figure 9: Task 2(e)-code

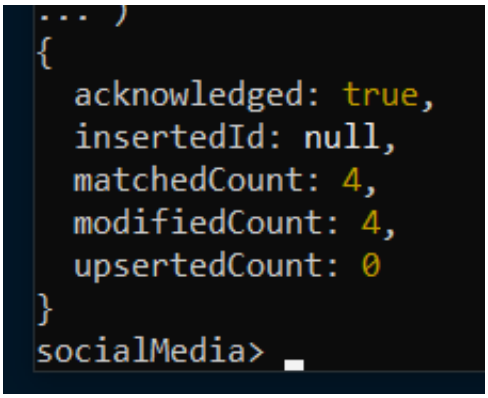


```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("6415db43e05a1c740cad9a2a"),
    '1': ObjectId("6415db43e05a1c740cad9a2b"),
    '2': ObjectId("6415db43e05a1c740cad9a2c"),
    '3': ObjectId("6415db43e05a1c740cad9a2d")
  }
}
socialMedia>
```

Figure 10: Task 2(e)-result

```
db.post.updateMany(
    {
        "_id": {
            $in : [
                ObjectId('6415db43e05a1c740cad9a2a'),
                ObjectId('6415db43e05a1c740cad9a2b'),
                ObjectId('6415db43e05a1c740cad9a2c'),
                ObjectId('6415db43e05a1c740cad9a2d')
            ]
        }
    },
    {
        $set: {
            "comments": [
                {
                    "commentContent":"Lessss Goooooo",
                    "commentedBy": ObjectId('6415d7b1e05a1c740cad9a27')
                },
                {
                    "commentContent":"I don't know what's happening here...",
                    "commentedBy": ObjectId('6415d7e5e05a1c740cad9a29')
                }
            ]
        }
    }
)
```

Figure 11: Task 2(f)-code



```
... )
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 4,
  modifiedCount: 4,
  upsertedCount: 0
}
socialMedia>
```

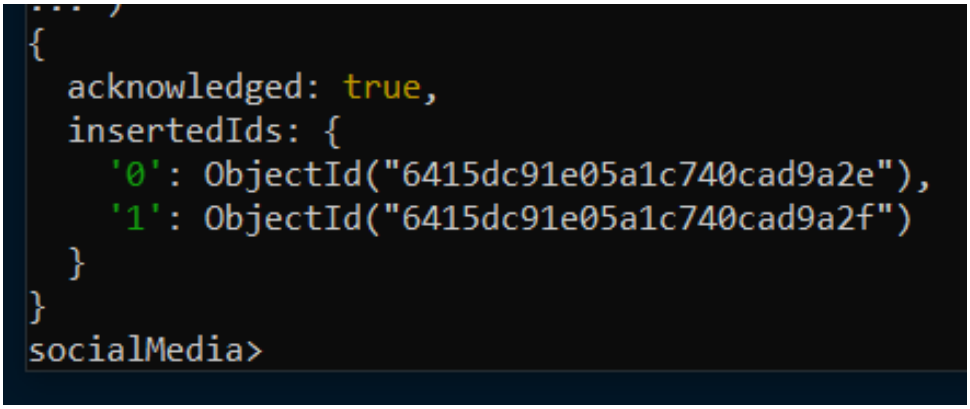
Figure 12: Task 2(f)-result

```
//Task 3(a)

db.post.insertMany(
[
    {
        "content":"Married to Grace",
        "creationTime": new Date("1871-02-02"),
        "createdBy": ObjectId('6415d7b1e05a1c740cad9a26'),
        "likes": [
            ObjectId('6415d718e05a1c740cad9a25'),
            ObjectId('6415d7b1e05a1c740cad9a27'),
            ObjectId('6415d7e5e05a1c740cad9a29')
        ]
    },
    {
        "content":"Another great day killing cordyceps with Ellie. Not a scratch as always!",
        "creationTime": new Date("1871-02-02"),
        "createdBy":ObjectId('6415d718e05a1c740cad9a25'),
        "likes": [
            ObjectId('6415d7b1e05a1c740cad9a26'),
            ObjectId('6415d7b1e05a1c740cad9a28')
        ]
    }
]
)

db.post.find().sort({creationTime: 1});
```

Figure 13: Task 3(a)-code

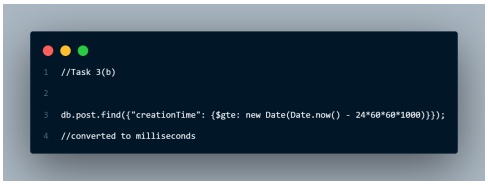
```
socialMedia> db.post.find().sort({creationTime: 1});
[
  {
    _id: ObjectId("6415dc91e05a1c740cad9a2e"),
    content: 'Married to Grace',
    creationTime: ISODate("1871-02-02T00:00:00.000Z"),
    createdBy: ObjectId("6415d7b1e05a1c740cad9a26"),
    likes: [
      ObjectId("6415d718e05a1c740cad9a25"),
      ObjectId("6415d7b1e05a1c740cad9a27"),
      ObjectId("6415d7e5e05a1c740cad9a29")
    ]
  },
  {
    _id: ObjectId("6415dc91e05a1c740cad9a2f"),
    content: 'Another great day killing cordyceps with Ellie. Not a scratch as always!',
    creationTime: ISODate("1871-02-02T00:00:00.000Z"),
    createdBy: ObjectId("6415d718e05a1c740cad9a25"),
    likes: [
      ObjectId("6415d7b1e05a1c740cad9a26"),
      ObjectId("6415d7b1e05a1c740cad9a28")
    ]
  },
socialMedia>
    _id: ObjectId("6415db43e05a1c740cad9a2a"),
    content: 'Falgun X Shaan Day',
    creationTime: ISODate("2023-03-18T15:39:47.026Z"),
    createdBy: ObjectId("640ff08526fe322665304ee7"),
    likes: [
      ObjectId("6415d7b1e05a1c740cad9a26"),
      ObjectId("6415d7b1e05a1c740cad9a27"),
      ObjectId("6415d7e5e05a1c740cad9a29")
    ],
    comments: [
      {
        commentContent: 'Lessss Goooooo',
        commentedBy: ObjectId("6415d7b1e05a1c740cad9a27")
      },
      {
        commentContent: "I don't know what's happening here...",
        commentedBy: ObjectId("6415d7e5e05a1c740cad9a29")
      }
    ]
  },
  {
    _id: ObjectId("6415db43e05a1c740cad9a2b"),
    content: 'Dealing with the Solomons and ending the Sabinis',
    creationTime: ISODate("2023-03-18T15:39:47.026Z"),
    createdBy: ObjectId("640ff08526fe322665304eea"),
    likes: [
      ObjectId("6415d7b1e05a1c740cad9a27"),
```

Figure 14: Task 3(a)-result



```
... )
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("6415dc91e05a1c740cad9a2e"),
    '1': ObjectId("6415dc91e05a1c740cad9a2f")
  }
}
socialMedia>
```

Figure 15: Task 3(a)-insert result



```
//Task 3(b)

db.post.find({"creationTime": {$gte: new Date(Date.now() - 24*60*60*1000)}});
//converted to milliseconds
```

Figure 16: Task 3(b)-code

```
socialMedia> db.post.find({"creationTime": {$gte: new Date(Date.now() - 24*60*60*1000)}});
[
  {
    _id: ObjectId("6415db43e05a1c740cad9a2a"),
    content: 'Falgun X Shapa Day',
    creationTime: ISODate("2023-03-18T15:39:47.026Z"),
    createdBy: ObjectId("640ff08526fe322665304ee7"),
    likes: [
      ObjectId("6415d7b1e05a1c740cad9a26"),
      ObjectId("6415d7b1e05a1c740cad9a27"),
      ObjectId("6415d7e5e05a1c740cad9a29")
    ],
    comments: [
      {
        commentContent: 'Lesss Goooooo',
        commentedBy: ObjectId("6415d7b1e05a1c740cad9a27")
      },
      {
        commentContent: "I don't know what's happening here...",
        commentedBy: ObjectId("6415d7e5e05a1c740cad9a29")
      }
    ]
  },
  {
    _id: ObjectId("6415db43e05a1c740cad9a2b"),
    content: 'Dealing with the Solomons and ending the Sabinis',
    creationTime: ISODate("2023-03-18T15:39:47.026Z"),
    createdBy: ObjectId("640ff08526fe322665304eea"),
    likes: [
      ObjectId("6415d7b1e05a1c740cad9a27"),
      ObjectId("6415d7b1e05a1c740cad9a28")
    ],
    comments: [
      {
        commentContent: 'Lesss Goooooo',
        commentedBy: ObjectId("6415d7b1e05a1c740cad9a27")
      },
      {
        commentContent: "I don't know what's happening here...",
        commentedBy: ObjectId("6415d7e5e05a1c740cad9a29")
      }
    ]
  },
  {
    _id: ObjectId("6415db43e05a1c740cad9a2c"),
    content: 'Say Bye-Bye to Inspector Campbell, I work for Winston Churchill Now!',
    creationTime: ISODate("2023-03-18T15:39:47.026Z"),
    createdBy: ObjectId("6415d7b1e05a1c740cad9a26"),
    likes: [
      ObjectId("6415d7b1e05a1c740cad9a27"),
      ObjectId("6415d7b1e05a1c740cad9a28"),
      ObjectId("6415d7e5e05a1c740cad9a29"),
      ObjectId("6415d718e05a1c740cad9a25")
    ],
```

Figure 17: Task 3(b)-result

```
//Task 3(c)

db.user.updateOne(
     {
          "_id": {
               $in : [
                    ObjectId('6415d7b1e05a1c740cad9a26')
               ]
          }
     },
     {
          $set: {
               "followers": [
                    ObjectId('6415d718e05a1c740cad9a25'),
                    ObjectId('6415d7b1e05a1c740cad9a27'),
                    ObjectId('6415d7b1e05a1c740cad9a28'),
                    ObjectId('6415d7e5e05a1c740cad9a29')
               ],
               "following": []
          }
     }
)

db.user.updateOne(
     {
          "_id": {
               $in : [
                    ObjectId('6415d718e05a1c740cad9a25')
               ]
          }
     },
     {
          $set: {
               "followers": [
               ],
               "following": [
                    ObjectId('6415d718e05a1c740cad9a26'),
                    ObjectId('6415d7b1e05a1c740cad9a27'),
                    ObjectId('6415d7b1e05a1c740cad9a28'),
                    ObjectId('6415d7e5e05a1c740cad9a29')
               ]
          }
     }
)

db.user.updateMany(
     {
          "_id": {
               $in : [
                    ObjectId('6415d7b1e05a1c740cad9a27'),
                    ObjectId('6415d7b1e05a1c740cad9a28'),
                    ObjectId('6415d7e5e05a1c740cad9a29')
               ]
          }
     },
     {
          $set: {
               "following": [
               ]
          }
     }
)

db.user.updateOne(
     {
          "_id": {
               $in : [
                    ObjectId('6415d7e5e05a1c740cad9a29')
               ]
          }
     },
     {
          $set: {
               "followers": [
               ]
          }
     }
)
```

Figure 18: Task 3(c)-update code

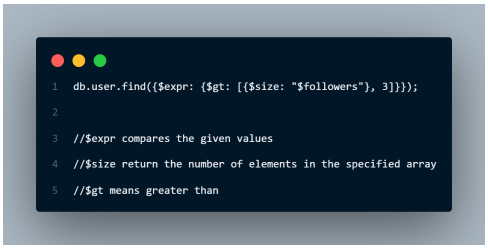


Figure 19: Task 3(c)-code

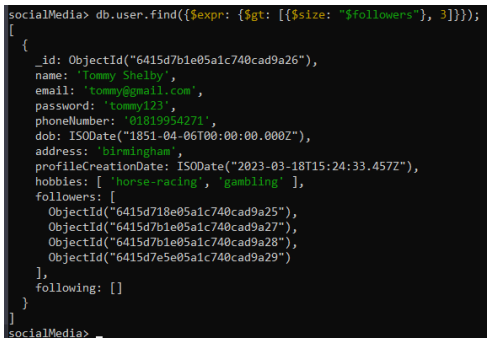


Figure 20: Task 3(c)- result

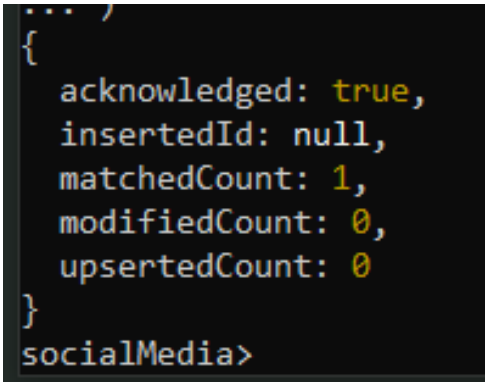


Figure 21: Task 3(c)-update result 1

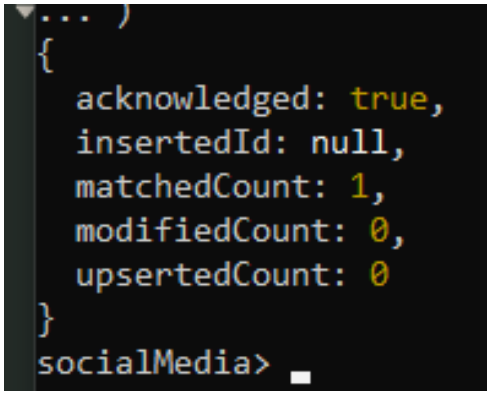


Figure 22: Task 3(c)-update result 2

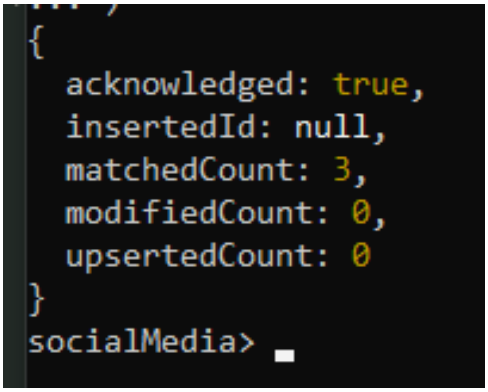


Figure 23: Task 3(c)-update result 3

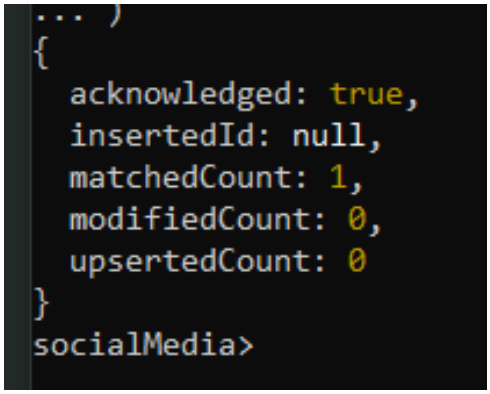


Figure 24: Task 3(c)-update result 4

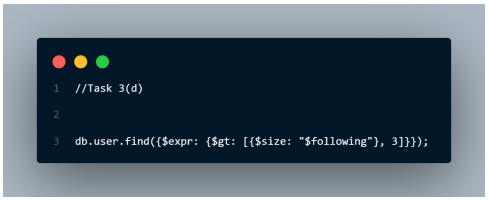


Figure 25: Task 3(d)-code

Figure 26: Task 3(d)-result