



# **Islamic University of Technology**

**CSE-4410**

**Database Management Systems - II Lab**

## **Lab Report - 7**

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## Task - 2 : Insertion :

(a) An entry of a user with only email, name and password.

```
db.users.insertOne({name:"John",email:john@gmail.com,password:"123456"})
```

(b) Multiple entries of users with basic info and hobbies.

```
db.users.insertOne({name:"Nibir Kabir",email: "kabira@gmail.com",password:
"mypassword",phone: "444-567-8901",date_of_birth: "1992-11-25",address:
"Anytown USA",profile_creation_date:
ISODate("2023-03-14T01:10:18.965Z"),hobbies: ["Reading", "Hiking", "Yoga"]})
```

(c) An entry of a user with basic info and working status.

```
db.users.insertOne({name:"Nibir Kabir",email: "kabira@gmail.com",password:
"mypassword",phone: "444-567-8901",date_of_birth: "1992-11-25",address:
"Anytown USA",profile_creation_date:
ISODate("2023-02-11T01:10:18.965Z"),working_status:"BCS Cadre"})
```

(d) Add multiple followers for multiple users.

```
db.followers.insertOne({user_id:ObjectId("640fe3ffa439cdcf75fcba2"),followe
r_id:[ObjectId("640fe3ffa439cdcf75fcba3"),ObjectId("640fe3ffa439cdcf75fcba4
")]}))
```

```
db.followers.insertOne({user_id:ObjectId("640fe3ffa439cdcf75fcba4"),followe
r_id:[ObjectId("640fe3ffa439cdcf75fcba2"),ObjectId("640fe3ffa439cdcf75fcba3
")]}))
```

```
db.followers.insertOne({user_id:ObjectId("6418c87cf8bb5a4cffcc76be"),followe
r_id:[ObjectId("640fe3ffa439cdcf75fcba2"),ObjectId("640fe3ffa439cdcf75fcba3
"),ObjectId("640fe3ffa439cdcf75fcba4"),ObjectId("6418c8b5f8bb5a4cffcc76bf"
) ]});
```

(e) Multiple posts with content, creation time, like and the user id who likes.

```
db.posts.insertOne({user_id:ObjectId("640fe3ffa439cdcf75fcba2"),text:"Hello
, Social media",creationDate:"2023-03-12"})
```

```
db.posts.insertOne({user_id:ObjectId("640fe3ffa439cdcf75fcba3"),text:"Hello
Mama",creationDate:"2023-03-13"})
```

```
db.posts.insertMany([ {user_id:ObjectId("640fe3ffa439cdcf75fcba4"),text:"SPL
Cancel",creationDate:"2023-03-13"}, {user_id:ObjectId("640fe3ffa439cdcf75fba
f4"),text:"Cholo Ghurte Jai",creationDate:"2023-03-13"} ])
```

```
db.posts.insertOne({user_id:ObjectId("640fe3ffa439cdcf75fcbaf3"),text:"Hello  
Mama",creationDate:ISODate("2023-03-13T01:11:18.965Z"),likes:["640fe3ffa439c  
dcf75fcbaf2","640fe3ffa439cdcf75fcbaf4"]})
```

(f) Add multiple comments for multiple posts.

```
db.posts.insertOne({user_id:ObjectId("640fe3ffa439cdcf75fcbaf2"),text:"Cholo  
Ghurte  
Jai",creationDate:ISODate("2023-03-12T01:11:18.965Z"),likes:["640fe3ffa439cd  
cf75fcbaf3","640fe3ffa439cdcf75fcbaf4"],comments:["Shei Bhai Shei","Bhai  
Amakeo Nen"]})
```

```
db.posts.insertOne({user_id:ObjectId("640fe3ffa439cdcf75fcbaf4"),text:"Good  
Morning",creationDate:ISODate("2023-03-12T01:12:18.965Z"),likes:["640fe3ffa4  
39cdcf75fcbaf3"],comments:["Cholen bhai Nasta Kori"]})
```

### Task - 3 (a) :

Display the most recent to oldest posts along with their poster.

Query:

```
db.posts.aggregate([{$lookup: {from: "users",localField:  
"user_id",foreignField: "_id",as: "user"}},{$unwind:  
"$user"},{$sort: {creationDate: -1}},{$project: {_id: 1,text:  
1,creationDate: 1,likes: 1,"user.name": 1}}]);
```

Result :

```
[  
  {  
    _id: ObjectId("640fe92294cee2af86ee54bd"),  
    text: 'Hello Mama',  
    creationDate: ISODate("2023-03-13T01:11:18.965Z"),  
    likes: [ '640fe3ffa439cdcf75fcbaf2', '640fe3ffa439cdcf75fcbaf4' ],  
    user: { name: 'Samuel Johnson' }  
  },  
  {  
    _id: ObjectId("640feae794cee2af86ee54bf"),  
    text: 'Good Morning',  
    creationDate: ISODate("2023-03-12T01:12:18.965Z"),  
    likes: [ '640fe3ffa439cdcf75fcbaf3' ],  
    user: { name: 'Samantha Rodriguez' }  
  },  
  {  
    _id: ObjectId("640fea2494cee2af86ee54be"),  
    text: 'Cholo Ghurte Jai',  
    creationDate: ISODate("2023-03-12T01:11:18.965Z"),  
    likes: [ '640fe3ffa439cdcf75fcbaf3', '640fe3ffa439cdcf75fcbaf4' ],  
    user: { name: 'Alice Lee' }  
  }  
]
```

### Task -3 (b) :

Show all the posts that were created in the last 24 hours

Query:

```
db.posts.find({creationDate: {$gt: new Date(Date.now() - 24*60*60*1000)}});
```

Result :

```
[
  {
    _id: ObjectId("6418c6e2f8bb5a4cffcc76bc"),
    user_id: ObjectId("640fe3ffa439cdcf75fcbaf2"),
    text: 'Cholo Ghurte Jai',
    creationDate: ISODate("2023-03-21T01:01:18.965Z"),
    likes: [ '640fe3ffa439cdcf75fcbaf3', '640fe3ffa439cdcf75fcbaf4' ],
    comments: [ 'Shei Bhai Shei', 'Bhai Amakeo Nen' ]
  },
  {
    _id: ObjectId("6418c771f8bb5a4cffcc76bd"),
    user_id: ObjectId("640fe3ffa439cdcf75fcbaf2"),
    text: 'Goru Party',
    creationDate: ISODate("2023-03-21T01:01:15.965Z"),
    likes: [ '640fe3ffa439cdcf75fcbaf3', '640fe3ffa439cdcf75fcbaf4' ],
    comments: [ 'Shei Bhai Shei', 'Bhai Amakeo Nen' ]
  }
]
```

### Task-3 (c) :

Show all the users who have more than 3 followers.

Query :

```
db.followers.aggregate([{$unwind: "$follower_id"},{$group: {_id: "$user_id",followers_count: { $sum: 1 }}}},{ $match: {followers_count: { $gt: 3 }}}},{ $lookup: {from: "users",localField: "_id",foreignField: "_id",as: "user"}},{ $project: {_id: 0,user_id: "$_id",name: { $arrayElemAt: ["$user.name", 0] },email: { $arrayElemAt: ["$user.email", 0] },followers_count: 1}}]);
```

Result :

```
{
  followers_count: 4,
  user_id: ObjectId("6418c87cf8bb5a4cffcc76be"),
  name: 'Kabir Khan',
  email: 'kabira@gmail.com'
}
```

### Task-3 (d) :

Show all the users who are following more than 3 users.

Query:

```
db.followers.aggregate([{$unwind: "$follower_id" },{$group: {_id:
"$follower_id",following_count: { $sum: 1 }}},$$match:
{following_count: { $gt: 3 }}},$$lookup: {from:
"users",localField: "_id",foreignField: "_id",as:
"user"}},$$project: {_id: 0,user_id: "$_id",name: { $arrayElemAt:
["$user.name", 0] },email: { $arrayElemAt: ["$user.email", 0]
},following_count: 1}}]);
```

Result :

```
[
  {
    following_count: 4,
    user_id: ObjectId("640fe3ffa439cdcf75fcbaf2"),
    name: 'Alice Lee',
    email: 'alicelee@example.com'
  },
  {
    following_count: 4,
    user_id: ObjectId("640fe3ffa439cdcf75fcbaf4"),
    name: 'Samantha Rodriguez',
    email: 'srodriguez@example.com'
  },
  {
    following_count: 4,
    user_id: ObjectId("640fe3ffa439cdcf75fcbaf3"),
    name: 'Samuel Johnson',
    email: 'sjohnson@example.com'
  }
]
```