Ex-no: 10
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**UCS 2611 INTERNET PROGRAMMING LABORATORY**

**10. THREE TIER ARCHITECTURE APPLICATION**

**Hierarchy:**

**Program code:**

**App.js (client code)**

```
import {useEffect, useState} from 'react';
import axios from 'axios';
function App() {
  const [users, setUsers] = useState([]);
  console.log(users)
  useEffect(() => {
    axios.get('http://localhost:3001/getUsers')
      .then((users)=>{
        setUsers(users.data)
      }).catch(err=>{
        console.log(err)
      })
  },[]);
  return (
    <div>
      <h1>MVC architecture as client and server model</h1>
      {users.map(user => (
        <div key={user._id}>
          <h1>{user.name}</h1>
          <h1>{user.rno}</h1>
        </div>
      ))}
    </div>
  );
}
export default App;
```

**User.js (module code)**

```
const mongoose=require('mongoose');

const userSchema=new mongoose.Schema({
    name:{
        type:String,
        required:true
    },
    rno:{
        type:Number,
        required:true
    }

})

const userModel=mongoose.model('users',userSchema);
module.exports=userModel;
```

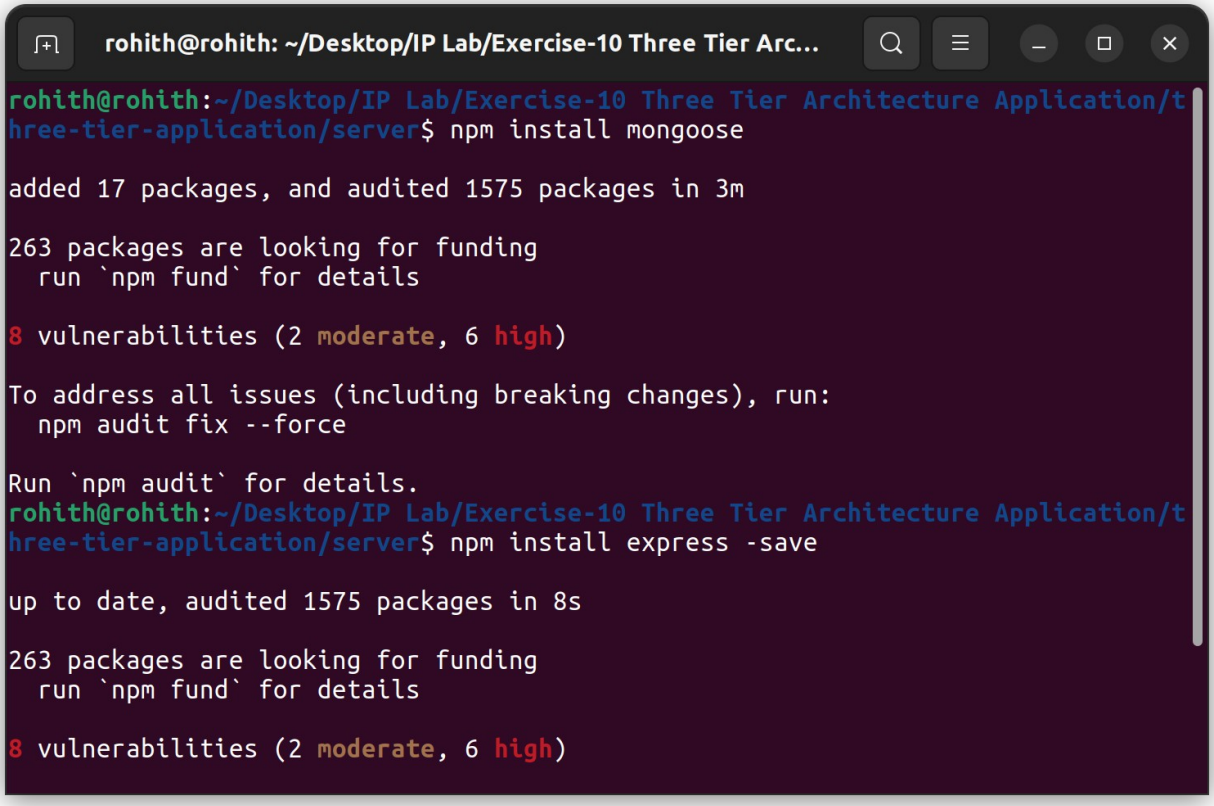
**server.js (server code)**

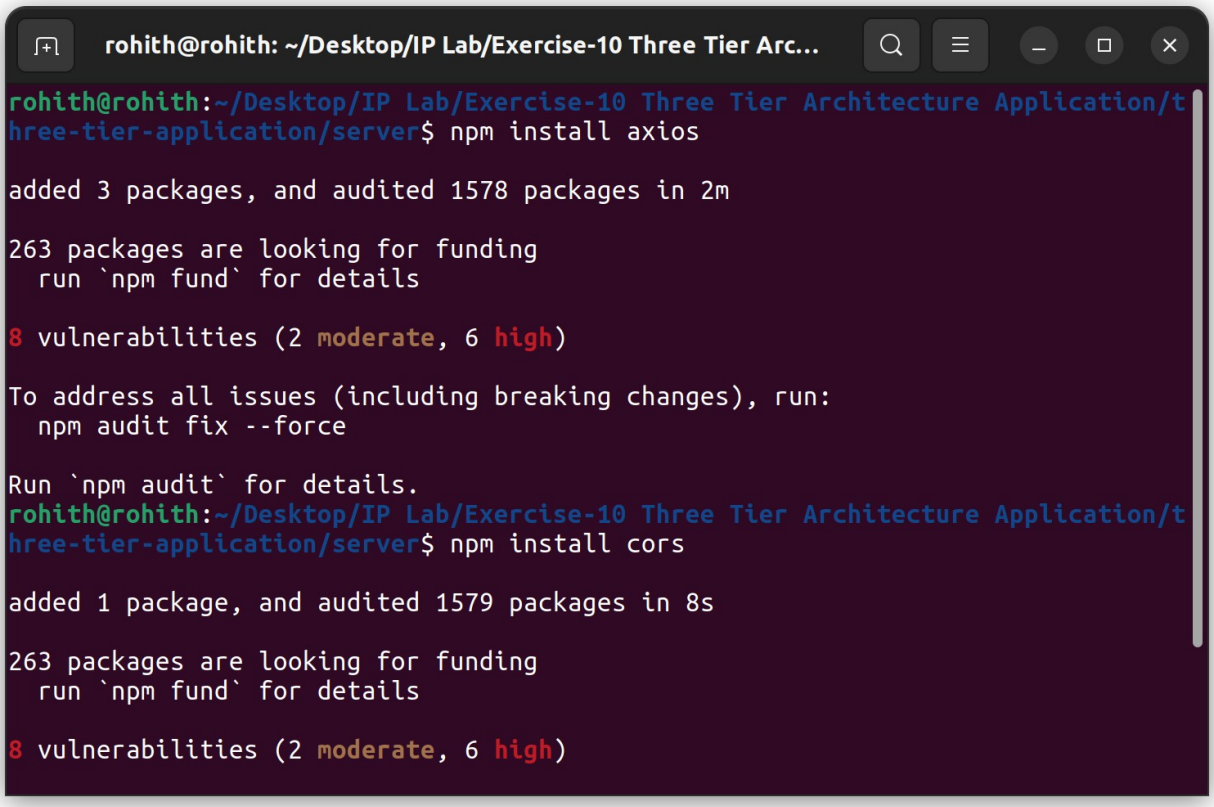
```
const express = require("express");
const mongoose = require("mongoose");
const cors = require("cors");
const UserModel = require("./model/User");

const app = express();
app.use(cors());
app.use(express.json());

mongoose.connect("mongodb://0.0.0.0:27017/student");

app.get("/getUsers", (req, res) => {
    UserModel.find({}).then(function(users){
        res.json(users);
    }).catch(function(err){
        res.json(err)
    })
});

app.listen(3001, () => {
    console.log("Server is running on port 3001");
})
```

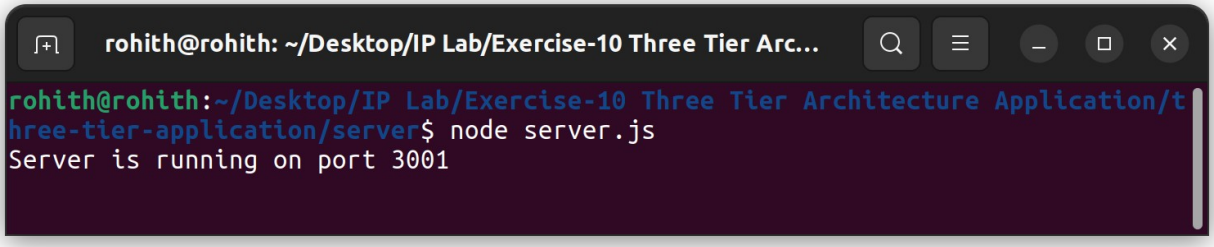
**index.js**

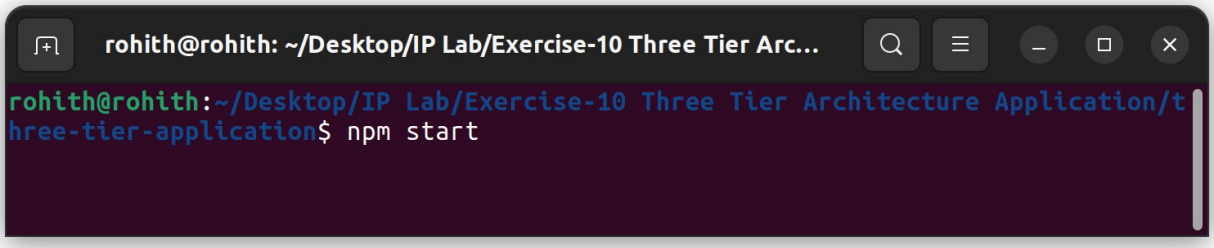
```
import React from 'react';
import ReactDOM from 'react-dom/client';
import App from './App';

const root = ReactDOM.createRoot(document.getElementById('root'));
root.render(
  <React.StrictMode>
    <App />
  </React.StrictMode>
);
```

**Output:**

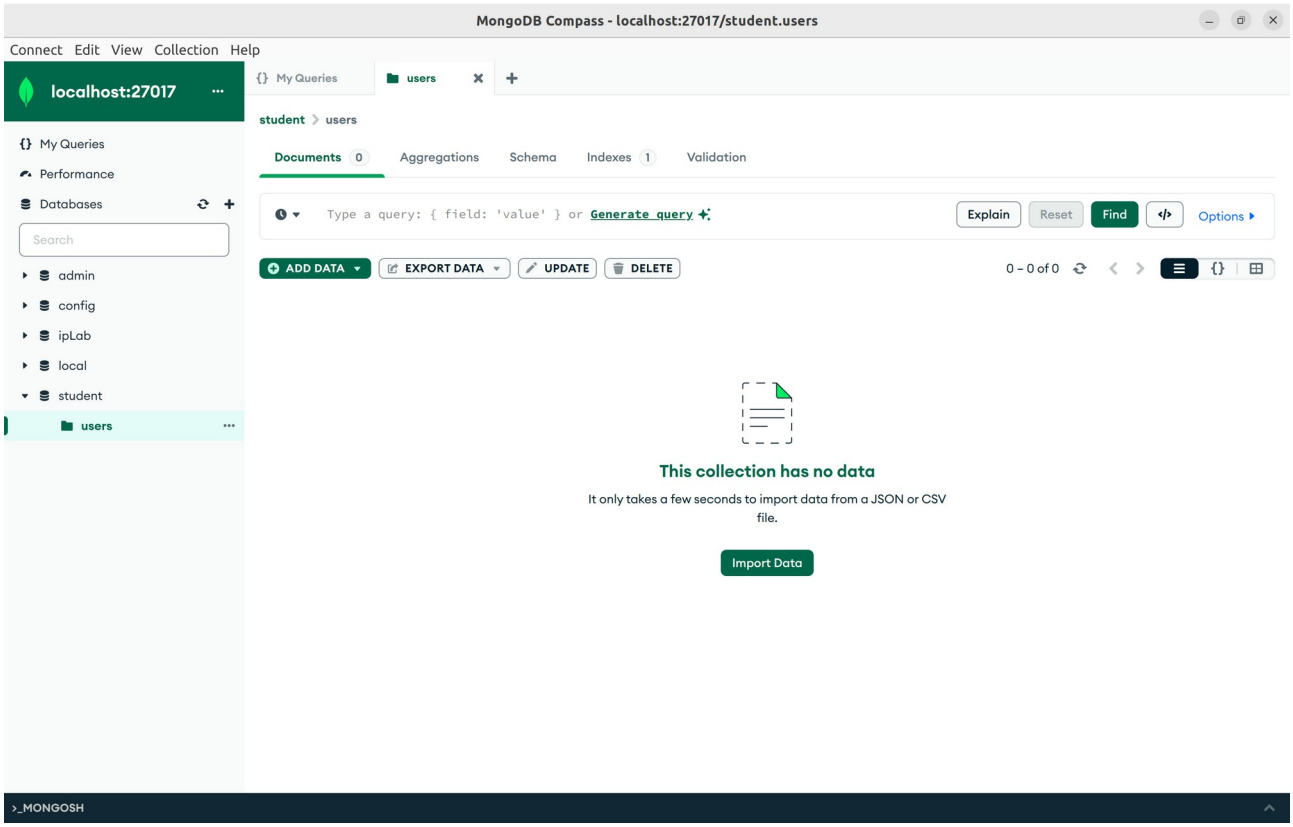

rohith@rohith: ~/Desktop/IP Lab/Exercise-10 Three Tier Arc...
rohith@rohith:~/Desktop/IP Lab/Exercise-10 Three Tier Architecture Application/three-tier-application/server$ npm install mongoose
added 17 packages, and audited 1575 packages in 3m
263 packages are looking for funding
run `npm fund` for details
8 vulnerabilities (2 moderate, 6 high)
To address all issues (including breaking changes), run:
npm audit fix --force
Run `npm audit` for details.
rohith@rohith:~/Desktop/IP Lab/Exercise-10 Three Tier Architecture Application/three-tier-application/server$ npm install express -save
up to date, audited 1575 packages in 8s
263 packages are looking for funding
run `npm fund` for details
8 vulnerabilities (2 moderate, 6 high)

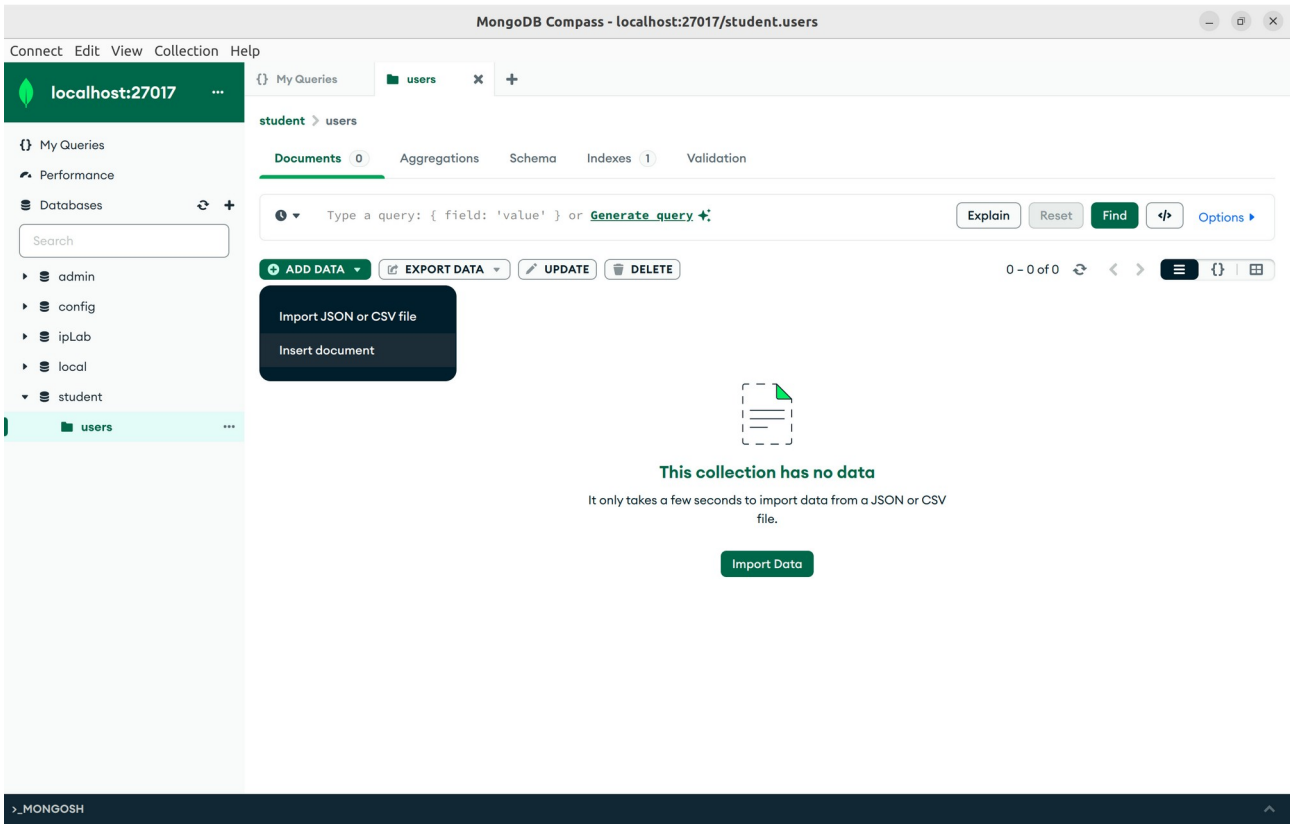

rohith@rohith: ~/Desktop/IP Lab/Exercise-10 Three Tier Arc...
rohith@rohith:~/Desktop/IP Lab/Exercise-10 Three Tier Architecture Application/three-tier-application/server$ npm install axios
added 3 packages, and audited 1578 packages in 2m
263 packages are looking for funding
run `npm fund` for details
8 vulnerabilities (2 moderate, 6 high)
To address all issues (including breaking changes), run:
npm audit fix --force
Run `npm audit` for details.
rohith@rohith:~/Desktop/IP Lab/Exercise-10 Three Tier Architecture Application/three-tier-application/server$ npm install cors
added 1 package, and audited 1579 packages in 8s
263 packages are looking for funding
run `npm fund` for details
8 vulnerabilities (2 moderate, 6 high)



**MVC architecture as client and server model**


MongoDB Compass - localhost:27017/student.users
Connect Edit View Collection Help
localhost:27017
My Queries
Performance
Databases
Search
admin
config
ipLab
local
student
users
My Queries
users
student > users
Documents 0
Aggregations
Schema
Indexes 1
Validation
Type a query: { field: 'value' } or Generate query
Explain
Reset
Find
Options
ADD DATA
EXPORT DATA
UPDATE
DELETE
0 – 0 of 0
This collection has no data
It only takes a few seconds to import data from a JSON or CSV file.
Import Data
>_MONGOSH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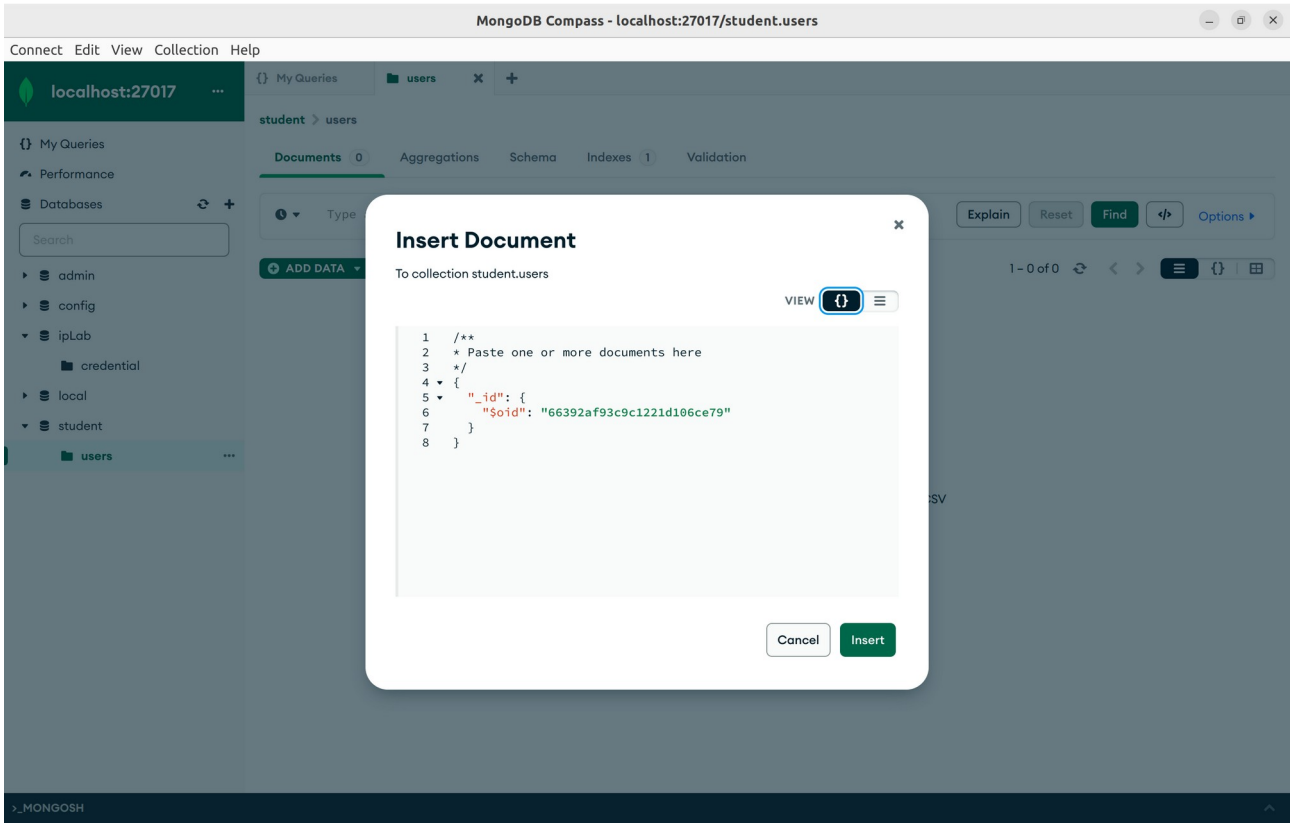
My Queries
users
student > users
Documents 0
Aggregations
Schema
Indexes 1
Validation
Type a query: { field: 'value' } or Generate query
Explain
Reset
Find
Options
ADD DATA
EXPORT DATA
UPDATE
DELETE
0 – 0 of 0
Import JSON or CSV file
Insert document
This collection has no data
It only takes a few seconds to import data from a JSON or CSV file.
Import Data
>_MONGOSH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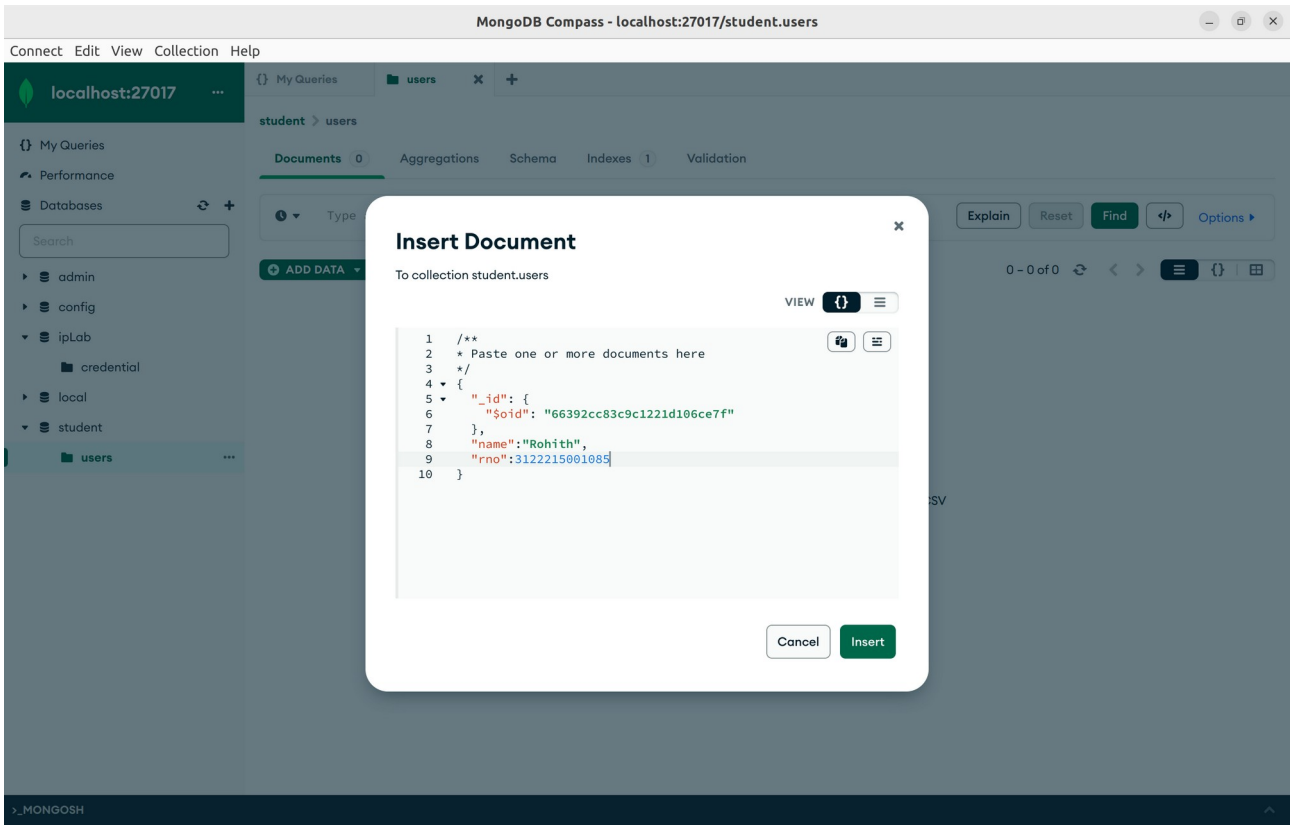
local
student
users
My Queries
users
student > users
Documents 0
Aggregations
Schema
Indexes 1
Validation
Type
Explain
Reset
Find
Options
ADD DATA
1 - 0 of 0
Insert Document
To collection student.users
VIEW
{}
1 /**
2 * Paste one or more documents here
3 */
4 {
5 "_id": {
6 "$oid": "66392af93c9c1221d106ce79"
7 }
8 }
Cancel
Insert
>_MONGOSH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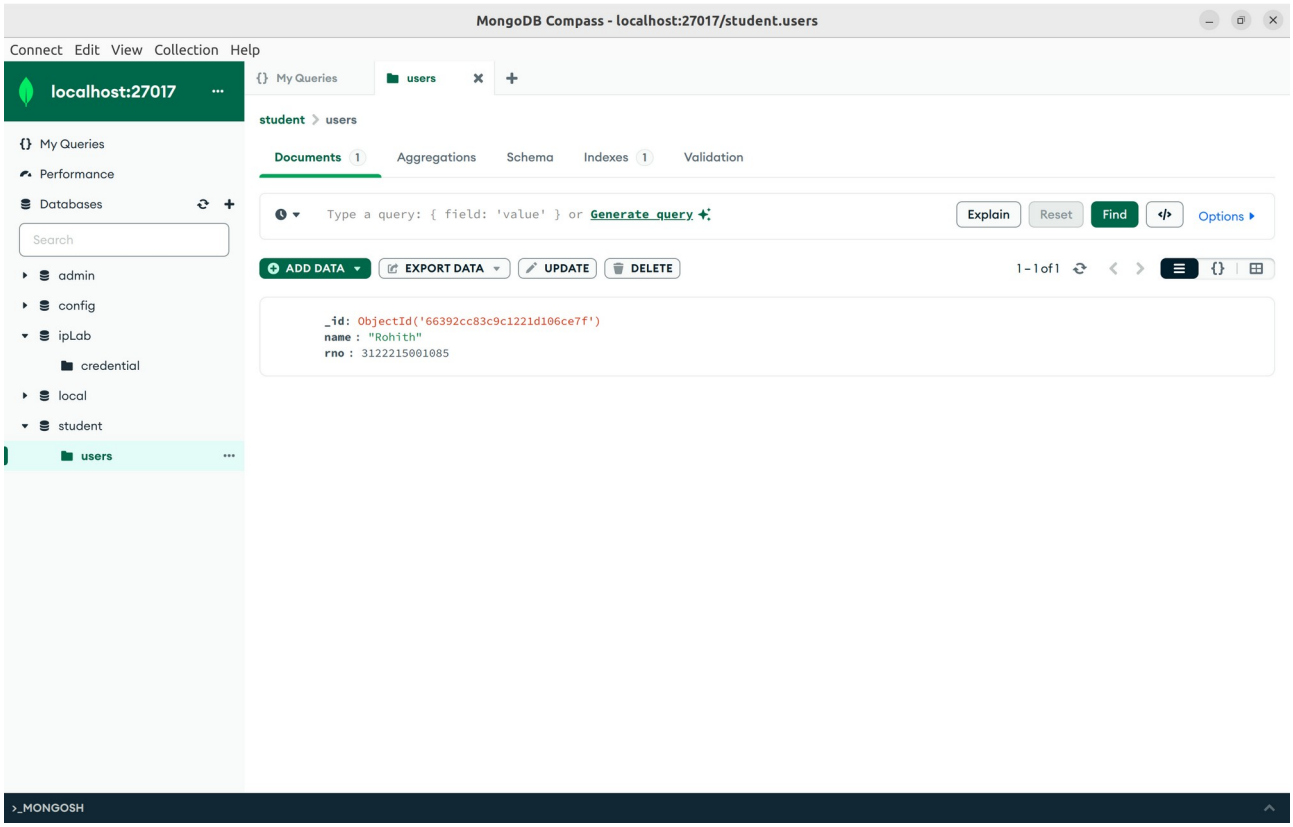
student > users
Documents 0
Aggregations
Schema
Indexes 1
Validation
Type
Explain
Reset
Find
Options
ADD DATA
0 - 0 of 0
Insert Document
To collection student.users
VIEW
{}
1 /**
2 * Paste one or more documents here
3 */
4 {
5 "_id": {
6 "$oid": "66392cc83c9c1221d106ce7f"
7 },
8 "name":"Rohith",
9 "rno":3122215001085
10 }
Cancel
Insert
>_MONGOSH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Documents 1
Aggregations
Schema
Indexes 1
Validation
Type a query: { field: 'value' } or Generate query
Explain
Reset
Find
Options
ADD DATA
EXPORT DATA
UPDATE
DELETE
1 - 1 of 1
_id: ObjectId('66392cc83c9c1221d106ce7f')
name : "Rohith"
rno : 3122215001085
>_MONGOSH

React App
Insert Documents - Mong
ChatGPT
localhost:3000
MVC architecture as client and server model
Rohith
3122215001085