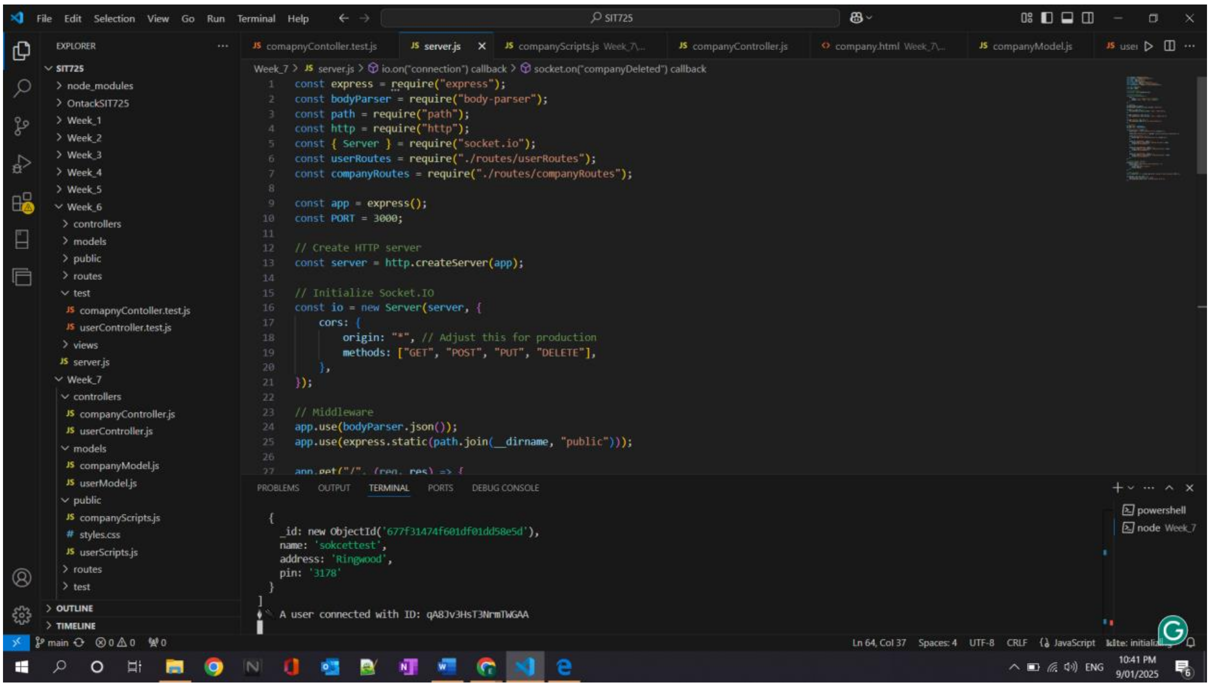
GitHub Link: https://github.com/emmalujosephwork/SIT725

Socket programming is a way of enabling two devices to communicate directly with each other over a network, such as the Internet. It creates a "socket," which acts like a virtual phone line between a client and a server. Once connected, both devices can send and receive data in real-time. This is commonly used in applications that need instant updates, like chat applications, online games, or live notifications.

Example

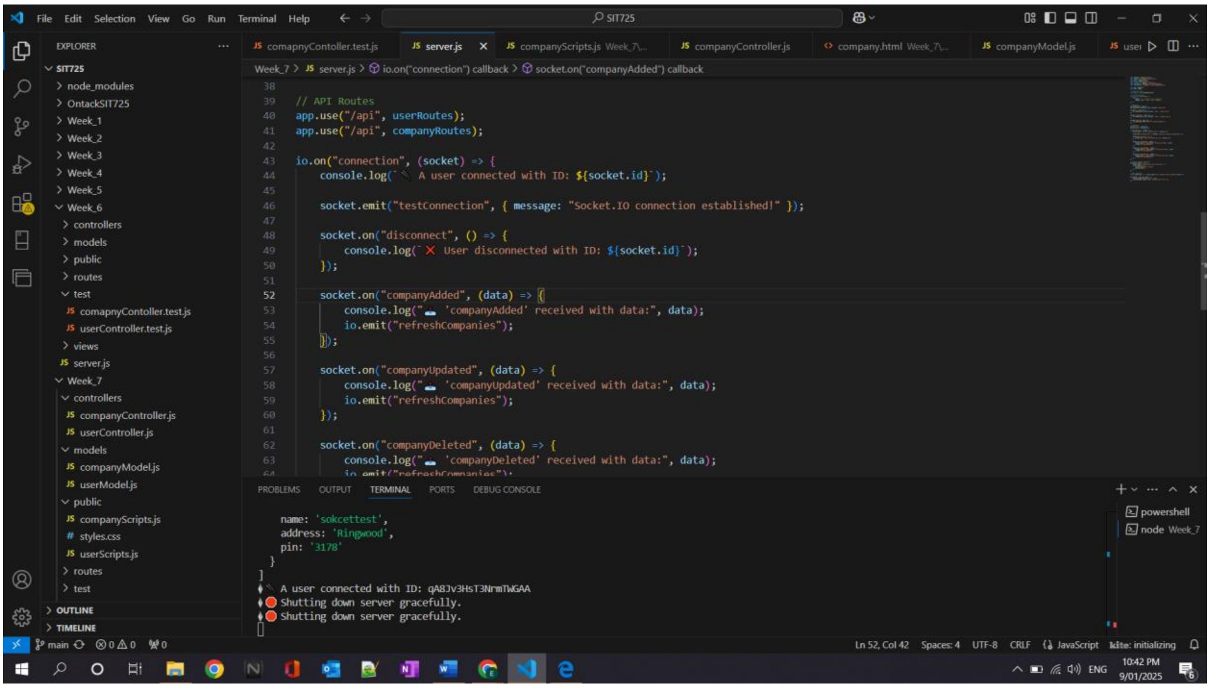
Ticket booking: If a person books a ticket in one place, it will be blocked for other users in their system.

Product Count update: if a person buys a product from a store or website, the count will be updated for every other system in the store or for every other user who uses the website.



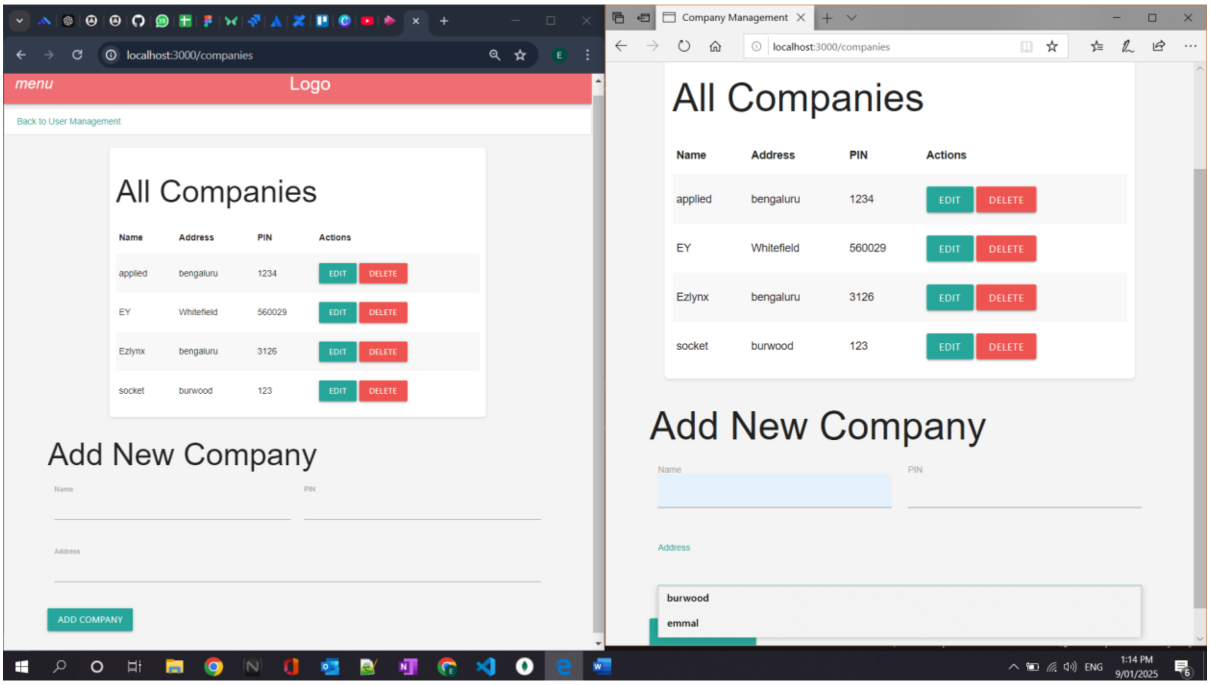
```javascript
const express = require("express");
const bodyParser = require("body-parser");
const path = require("path");
const http = require("http");
const { Server } = require("socket.io");
const userRoutes = require("./routes/userRoutes");
const companyRoutes = require("./routes/companyRoutes");

const app = express();
const PORT = 3000;

// Create HTTP server
const server = http.createServer(app);

// Initialize Socket.IO
const io = new Server(server, {
    cors: {
        origin: "*", // Adjust this for production
        methods: ["GET", "POST", "PUT", "DELETE"],
    },
});

// Middleware
app.use(bodyParser.json());
app.use(express.static(path.join(__dirname, "public")));

app.get("/", (req, res) => {
```

```
  {
    _id: new ObjectId('677f31474f601df01dd58e5d'),
    name: 'sokcettest',
    address: 'Ringwood',
    pin: '3178'
  }
]
A user connected with ID: qA8Jv3HsT3NrmTWGAA
```



```javascript
// API Routes
app.use("/api", userRoutes);
app.use("/api", companyRoutes);

io.on("connection", (socket) => {
    console.log(`🔌 A user connected with ID: ${socket.id}`);

    socket.emit("testConnection", { message: "Socket.IO connection established!" });

    socket.on("disconnect", () => {
        console.log(`❌ User disconnected with ID: ${socket.id}`);
    });

    socket.on("companyAdded", (data) => {
        console.log("📥 'companyAdded' received with data:", data);
        io.emit("refreshCompanies");
    });

    socket.on("companyUpdated", (data) => {
        console.log("📥 'companyUpdated' received with data:", data);
        io.emit("refreshCompanies");
    });

    socket.on("companyDeleted", (data) => {
        console.log("📥 'companyDeleted' received with data:", data);
        io.emit("refreshCompanies");
```

```
    name: 'sokcettest',
    address: 'Ringwood',
    pin: '3178'
  }
]
🔌 A user connected with ID: qA8Jv3HsT3NrmTWGAA
🔴 Shutting down server gracefully.
🔴 Shutting down server gracefully.
```



All Companies

Name	Address	PIN	Actions
applied	bengaluru	1234	EDIT DELETE
EY	Whitefield	560029	EDIT DELETE
Ezlynx	bengaluru	3126	EDIT DELETE
socket	burwood	123	EDIT DELETE

Add New Company

Name

PIN

Address

ADD COMPANY

All Companies

Name	Address	PIN	Actions
applied	bengaluru	1234	EDIT DELETE
EY	Whitefield	560029	EDIT DELETE
Ezlynx	bengaluru	3126	EDIT DELETE
socket	burwood	123	EDIT DELETE

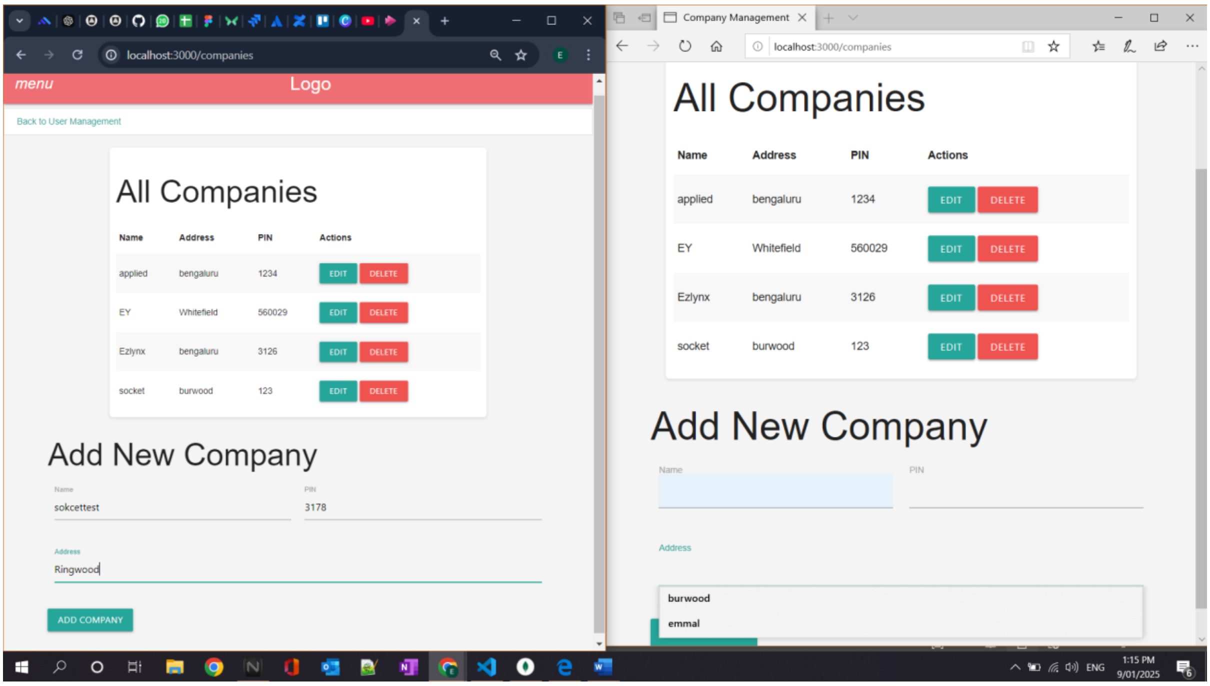
Add New Company

Name

PIN

Address

burwood
emmal



All Companies

Name	Address	PIN	Actions
applied	bengaluru	1234	EDIT DELETE
EY	Whitefield	560029	EDIT DELETE
Ezlynx	bengaluru	3126	EDIT DELETE
socket	burwood	123	EDIT DELETE

Add New Company

Name: sokcettest

PIN: 3178

Address: Ringwood

ADD COMPANY

All Companies

Name	Address	PIN	Actions
applied	bengaluru	1234	EDIT DELETE
EY	Whitefield	560029	EDIT DELETE
Ezlynx	bengaluru	3126	EDIT DELETE
socket	burwood	123	EDIT DELETE

Add New Company

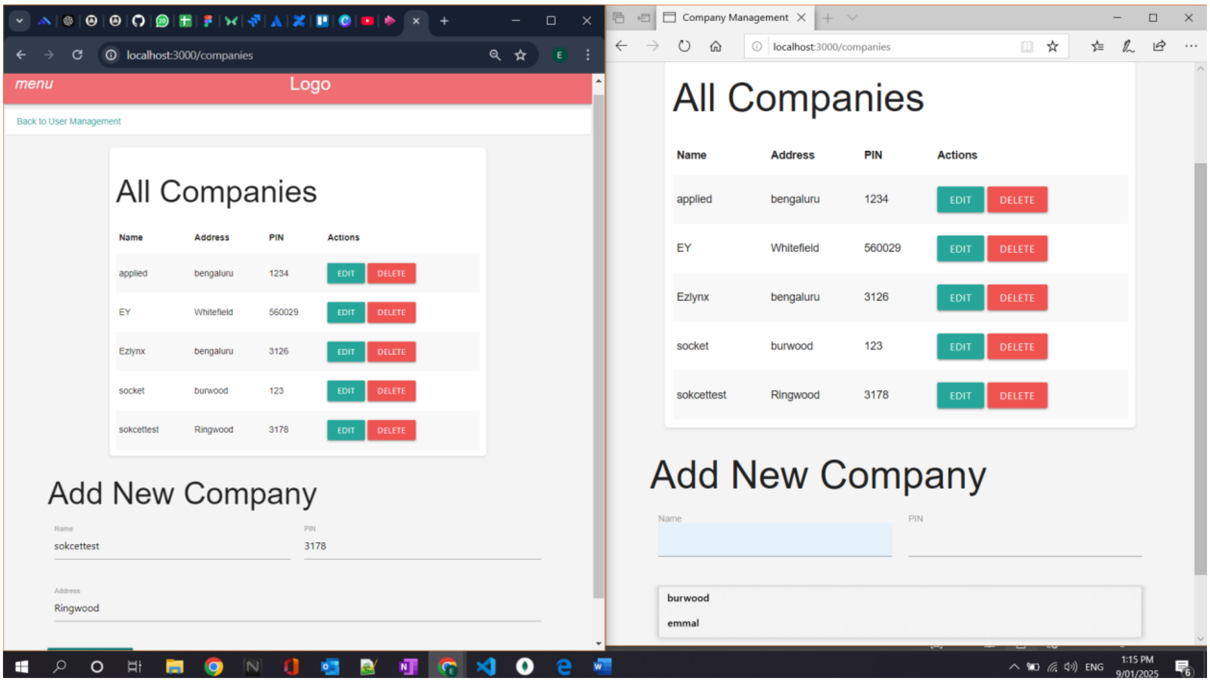
Name

PIN

Address

burwood

emmal



menu Logo

Back to User Management

All Companies

Name	Address	PIN	Actions
applied	bengaluru	1234	EDIT DELETE
EY	Whitefield	560029	EDIT DELETE
Ezlynx	bengaluru	3126	EDIT DELETE
socket	burwood	123	EDIT DELETE
sokcettest	Ringwood	3178	EDIT DELETE

Add New Company

Name: sokcettest
PIN: 3178
Address: Ringwood

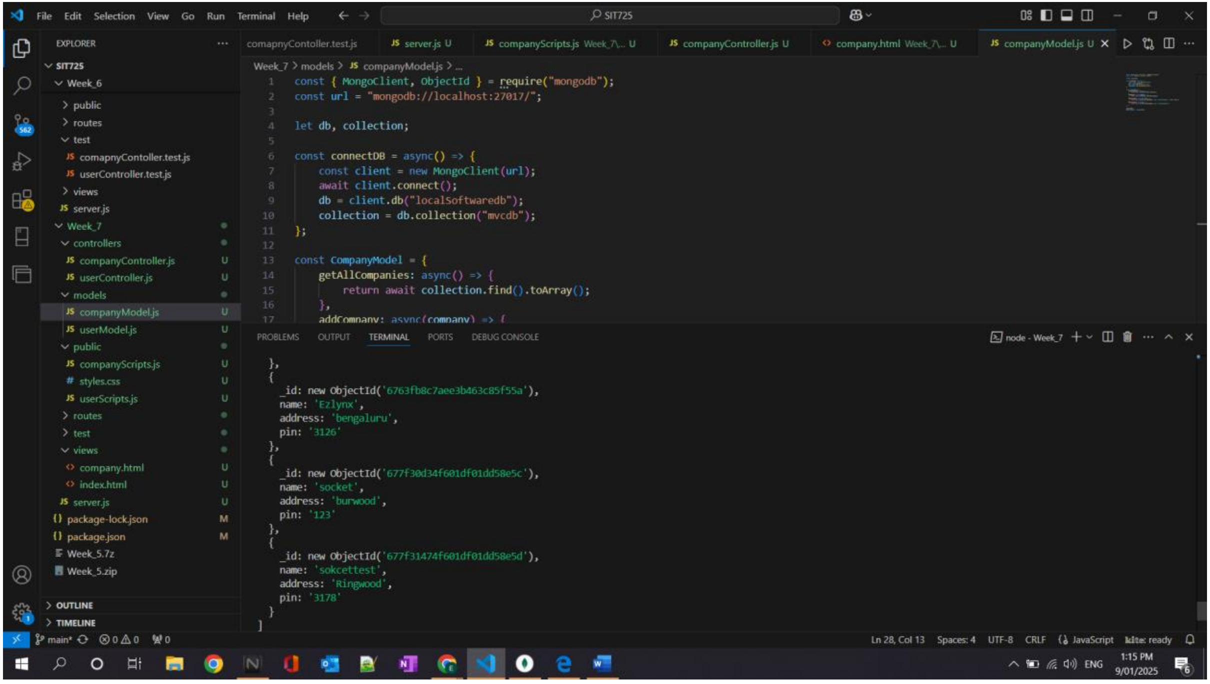
All Companies

Name	Address	PIN	Actions
applied	bengaluru	1234	EDIT DELETE
EY	Whitefield	560029	EDIT DELETE
Ezlynx	bengaluru	3126	EDIT DELETE
socket	burwood	123	EDIT DELETE
sokcettest	Ringwood	3178	EDIT DELETE

Add New Company

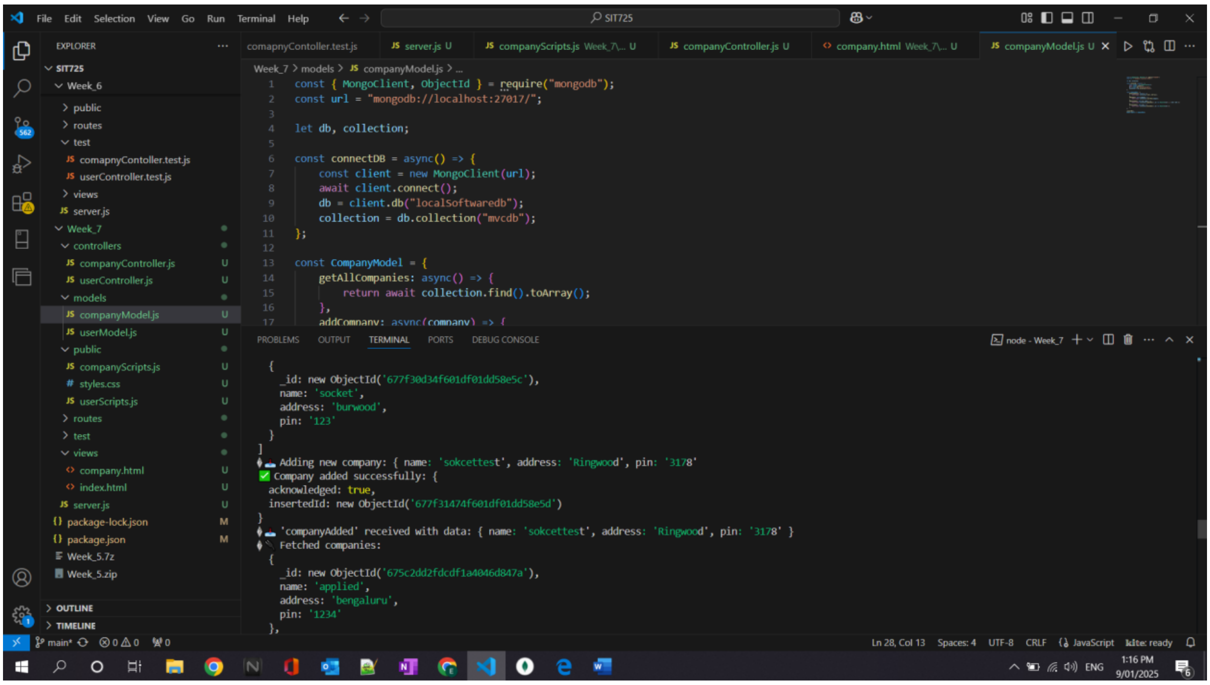
Name
PIN

burwood
emmal



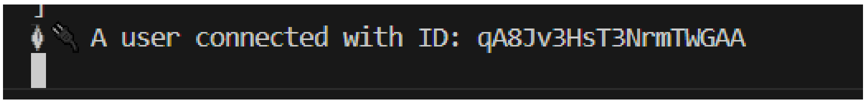
```
const { MongoClient, ObjectId } = require("mongodb");
const url = "mongodb://localhost:27017/";

let db, collection;

const connectDB = async() => {
    const client = new MongoClient(url);
    await client.connect();
    db = client.db("localSoftwaredb");
    collection = db.collection("mvcdb");
};

const CompanyModel = {
    getAllCompanies: async() => {
        return await collection.find().toArray();
    },
    addCompany: async(company) => {
```

```
  },
  {
    _id: new ObjectId('6763fb8c7aee3b463c85f55a'),
    name: 'Ezlynx',
    address: 'bengaluru',
    pin: '3126'
  },
  {
    _id: new ObjectId('677f30d34f601df01dd58e5c'),
    name: 'socket',
    address: 'burwood',
    pin: '123'
  },
  {
    _id: new ObjectId('677f31474f601df01dd58e5d'),
    name: 'sokcettest',
    address: 'Ringwood',
    pin: '3178'
  }
]
```

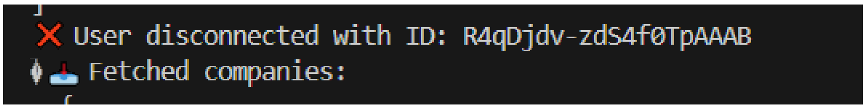

File Edit Selection View Go Run Terminal Help
SIT725
EXPLORER
comapnyContoller.test.js
server.js U
companyScripts.js Week_7\... U
companyController.js U
company.html Week_7\... U
companyModel.js U
Week_7 > models > companyModel.js > ...
PROBLEMS OUTPUT TERMINAL PORTS DEBUG CONSOLE
node - Week_7
Ln 28, Col 13 Spaces: 4 UTF-8 CRLF JavaScript
1:16 PM 9/01/2025

```
const { MongoClient, ObjectId } = require("mongodb");
const url = "mongodb://localhost:27017/";

let db, collection;

const connectDB = async() => {
    const client = new MongoClient(url);
    await client.connect();
    db = client.db("localSoftwaredb");
    collection = db.collection("mvcdb");
};

const CompanyModel = {
    getAllCompanies: async() => {
        return await collection.find().toArray();
    },
    addCompany: async(company) => {
```

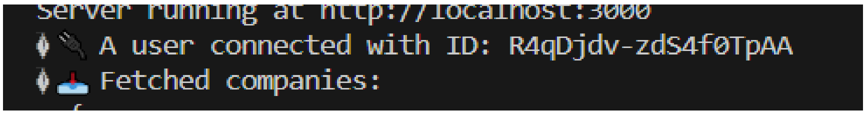
```
  {
    _id: new ObjectId('677f30d34f601df01dd58e5c'),
    name: 'socket',
    address: 'burwood',
    pin: '123'
  }
]
📥 Adding new company: { name: 'sokcettest', address: 'Ringwood', pin: '3178'
✅ Company added successfully: {
  acknowledged: true,
  insertedId: new ObjectId('677f31474f601df01dd58e5d')
}
📥 'companyAdded' received with data: { name: 'sokcettest', address: 'Ringwood', pin: '3178' }
🔌 Fetched companies:
  {
    _id: new ObjectId('675c2dd2fdcdf1a4046d847a'),
    name: 'applied',
    address: 'bengaluru',
    pin: '1234'
  },
```



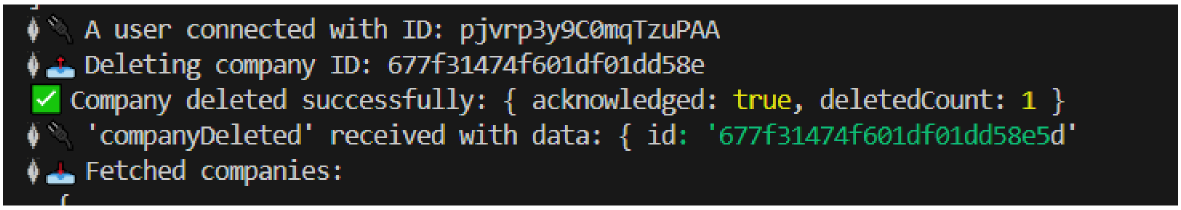
```
]
🔌 A user connected with ID: qA8Jv3HsT3NrmTWGAA
```



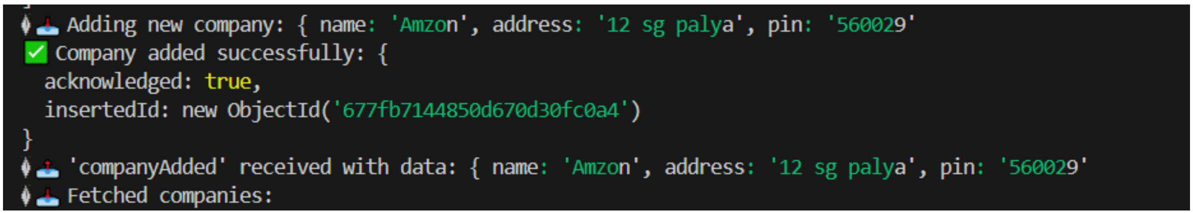
```
]
❌ User disconnected with ID: R4qDjdv-zdS4f0TpAAAB
📥 Fetched companies:
  {
```



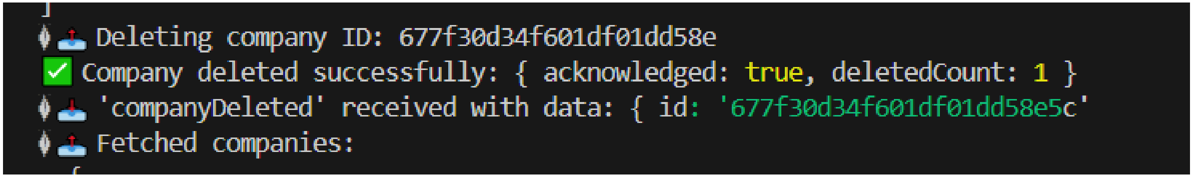
```
Server running at http://localhost:3000
🔌 A user connected with ID: R4qDjdv-zdS4f0TpAA
📥 Fetched companies:
  {
```



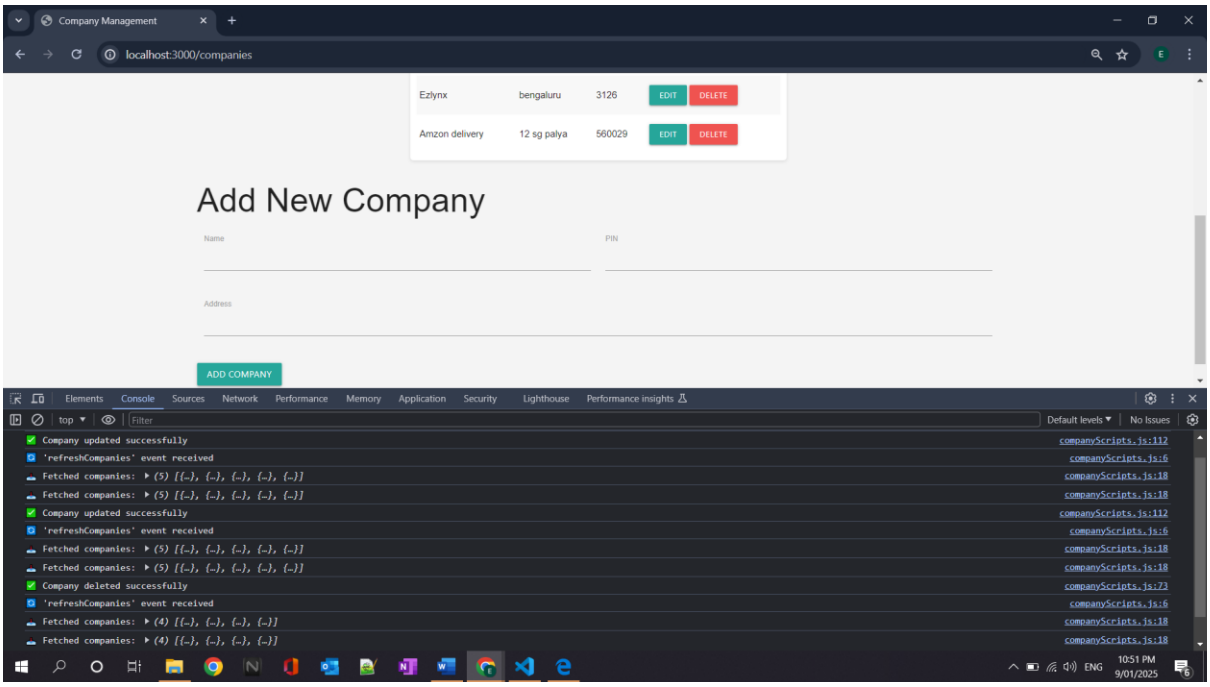
```
]
🔌 A user connected with ID: pjvrp3y9C0mqTzuPAA
📥 Deleting company ID: 677f31474f601df01dd58e
✅ Company deleted successfully: { acknowledged: true, deletedCount: 1 }
🔌 'companyDeleted' received with data: { id: '677f31474f601df01dd58e5d'
📥 Fetched companies:
  {
```



```
]
📥 Adding new company: { name: 'Amzon', address: '12 sg palya', pin: '560029'
✅ Company added successfully: {
  acknowledged: true,
  insertedId: new ObjectId('677fb7144850d670d30fc0a4')
}
📥 'companyAdded' received with data: { name: 'Amzon', address: '12 sg palya', pin: '560029'
📥 Fetched companies:
```



```
]
📥 Deleting company ID: 677f30d34f601df01dd58e
✅ Company deleted successfully: { acknowledged: true, deletedCount: 1 }
📥 'companyDeleted' received with data: { id: '677f30d34f601df01dd58e5c'
📥 Fetched companies:
  {
```



Ezlynx	bengaluru	3126	EDIT DELETE
Amzon delivery	12 sg palya	560029	EDIT DELETE

Add New Company

Name

PIN

Address

ADD COMPANY

```
Company updated successfully                                   companyScripts.js:112
'refreshCompanies' event received                              companyScripts.js:6
Fetched companies:  ▸ (5) [{…}, {…}, {…}, {…}, {…}]            companyScripts.js:18
Fetched companies:  ▸ (5) [{…}, {…}, {…}, {…}, {…}]            companyScripts.js:18
Company updated successfully                                   companyScripts.js:112
'refreshCompanies' event received                              companyScripts.js:6
Fetched companies:  ▸ (5) [{…}, {…}, {…}, {…}, {…}]            companyScripts.js:18
Fetched companies:  ▸ (5) [{…}, {…}, {…}, {…}, {…}]            companyScripts.js:18
Company deleted successfully                                   companyScripts.js:73
'refreshCompanies' event received                              companyScripts.js:6
Fetched companies:  ▸ (4) [{…}, {…}, {…}, {…}]                 companyScripts.js:18
Fetched companies:  ▸ (4) [{…}, {…}, {…}, {…}]                 companyScripts.js:18
```