COLLEGE CODE : 9111

COLLEGE NAME : SRM Madurai College for Engineering and Technology

DEPARTMENT : B.Tech Information Technology

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ROLL NO : 911123205045

DATE : 06-10-2025

Completed the project named as

Phase 5 – Project Demonstration & Documentation

TECHNOLOGY PROJECT NAME :

IBM-FE-Employee Directory with Search

SUBMITTED BY,

NAME : RUJMAL M

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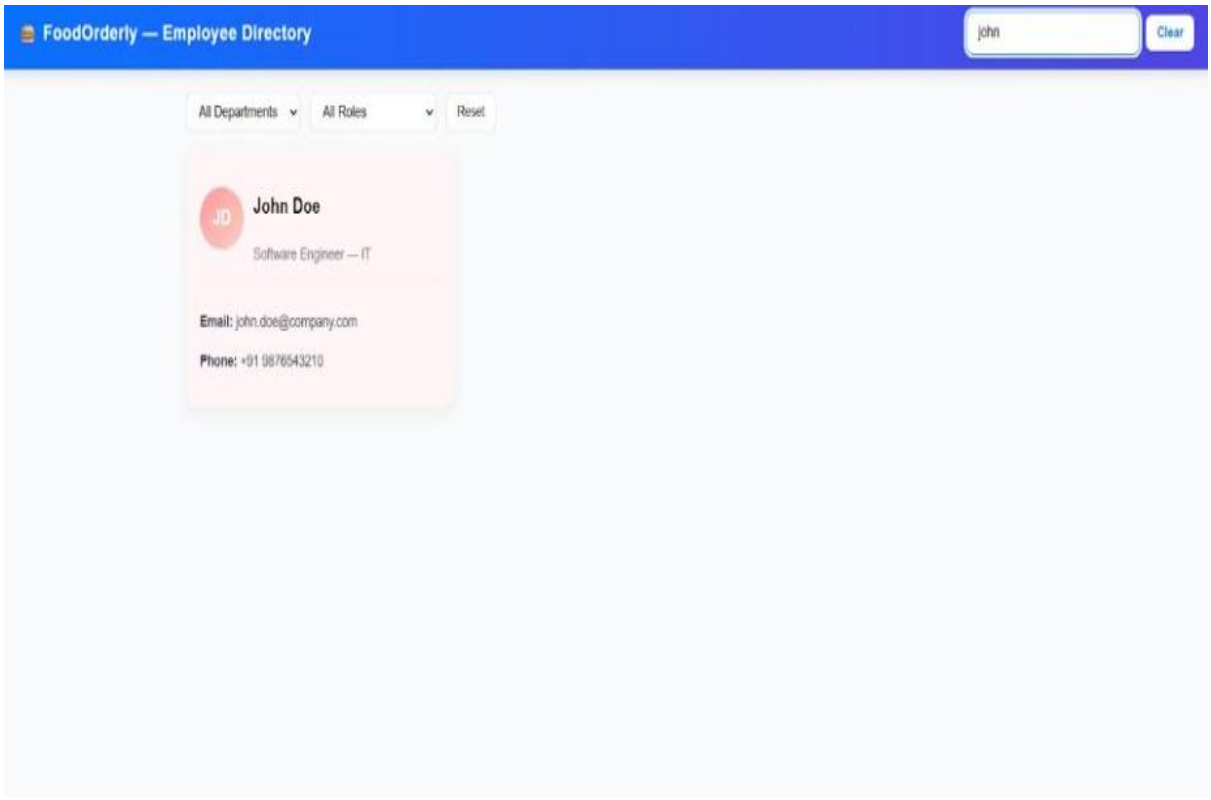
Final Demo Walkthrough

This phase demonstrates the **complete working** of the Employee Directory full-stack web application that integrates both frontend and backend.

Demo Steps

1. **Start the Backend:** Run `node server.js` to launch the Express server (port 5000).
2. **Start the Frontend:** Open the React app and ensure it connects to the backend API.
3. **View Employee Data:** Employee cards are displayed dynamically from the API.
4. **Use the Search Feature:** Filter employees by name, ID, or department.
5. **Check Responsiveness:** Test the app on desktop and mobile view.
6. **Deployment:** Demonstrate the live version on Netlify or Vercel.

Employee Directory UI with Search Functionality



Project Report

Overview

The **Employee Directory Web App** is designed to simplify employee information management within an organization. Users can easily view and search for employees with an intuitive UI.

Objectives

- Create a responsive interface for employee records.
- Build a RESTful API using Node.js and Express.
- Connect frontend + backend seamlessly.
- Deploy a working project to the cloud.

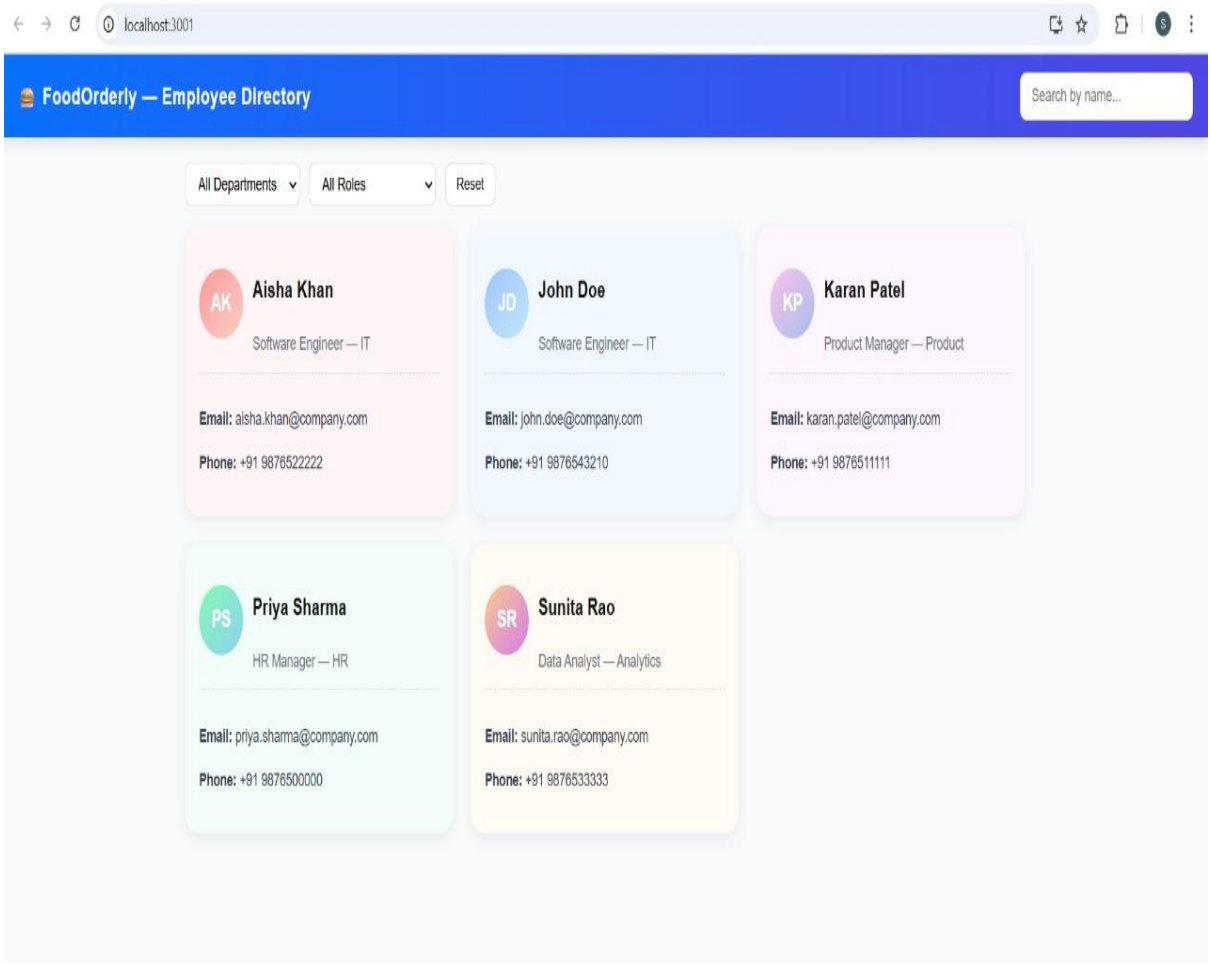
Technologies Used

Layer	Tools / Tech
Frontend	React JS, HTML, CSS
Backend	Node JS, Express JS
Database	JSON / MongoDB
Version Control	Git & GitHub
Deployment	Netlify / Vercel

Features

- Employee details displayed in a card layout.
- Search/filter capability.
- Clean, responsive UI.
- API fetching from backend.
- Hosted deployment link.

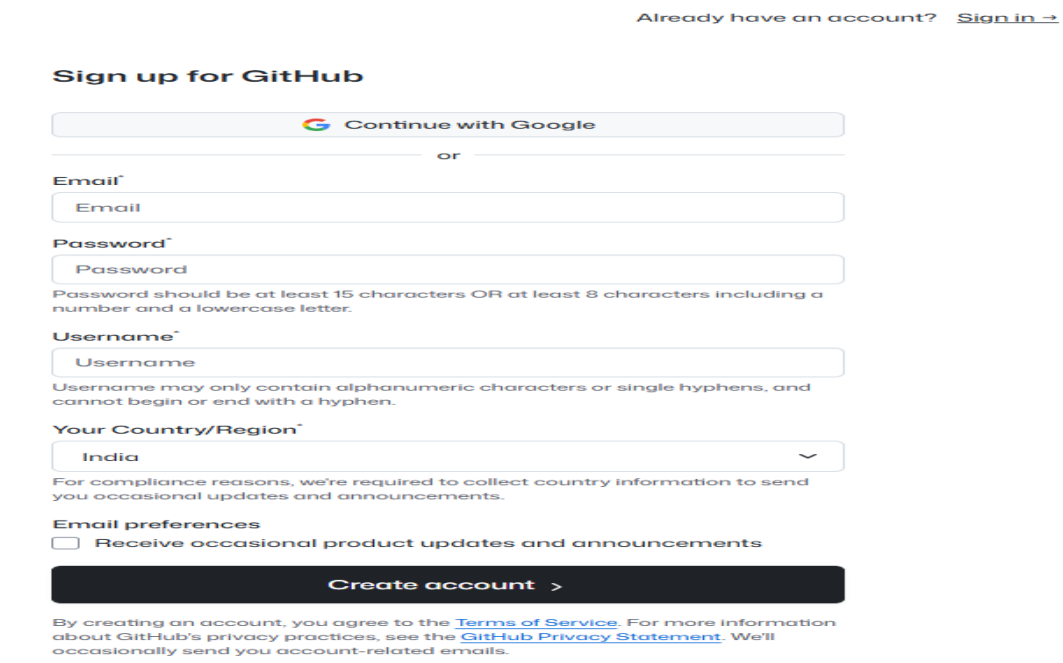
Homepage UI with employee cards.



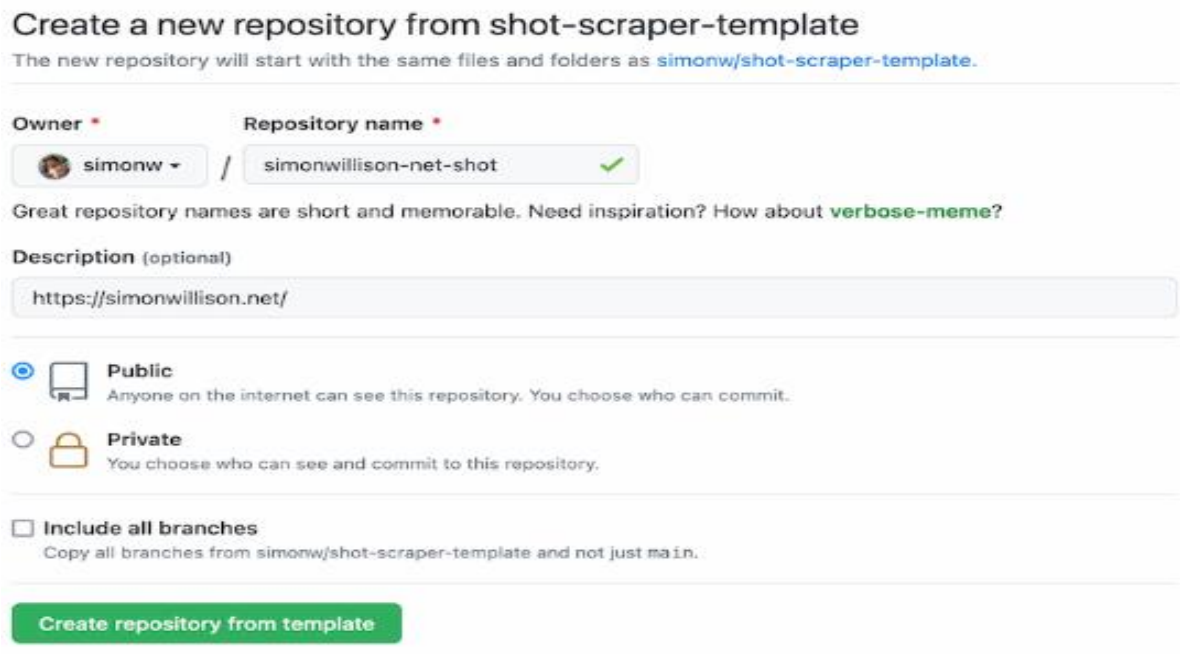
Screenshots / API Documentation

Required Screenshots

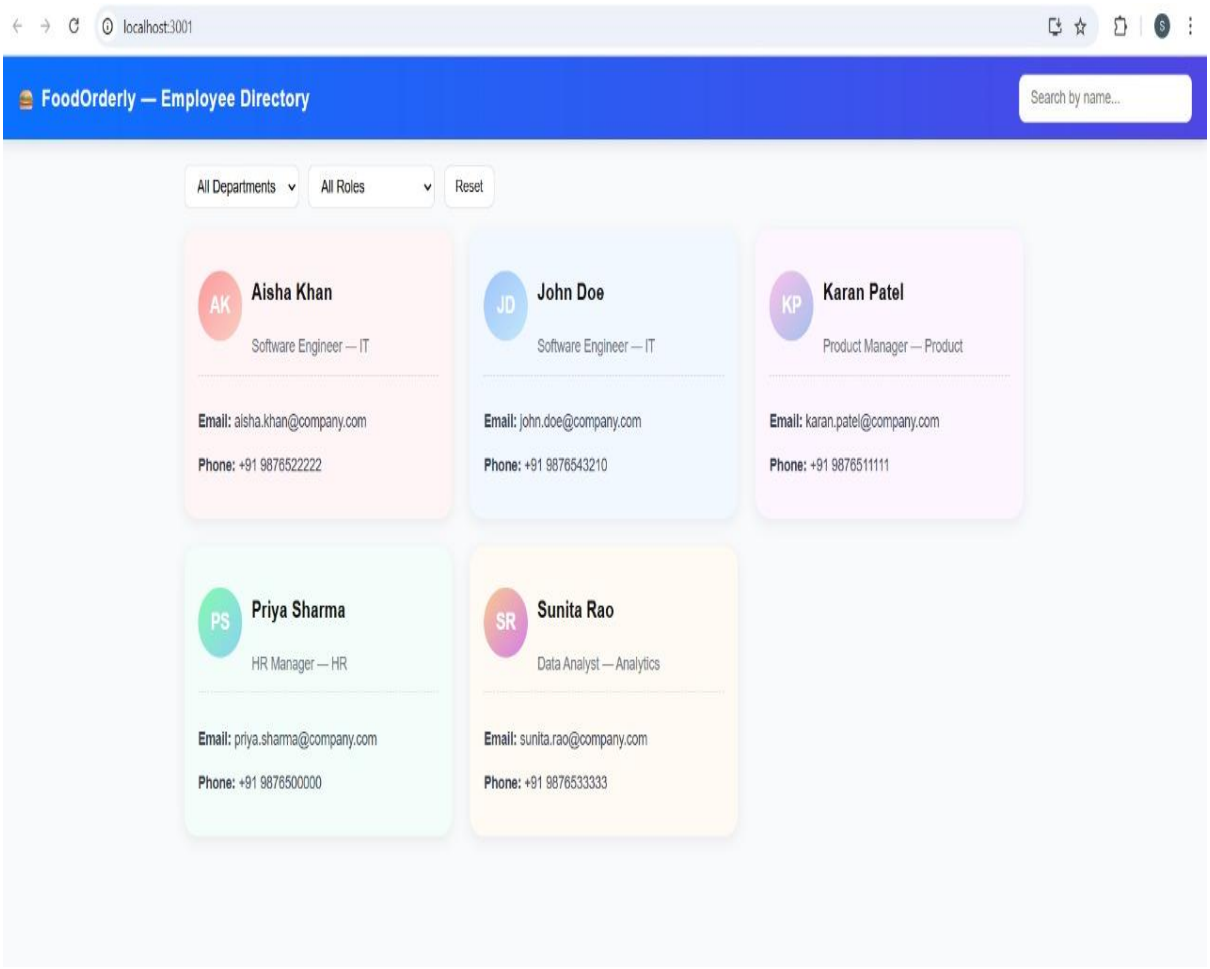
1. GitHub account creation



2. Repository creation



3. Code push (git init → commit → push)
4. Running app UI (employee cards)



5. Deployment success on Netlify or Vercel

API Documentation

Base URL: `http://localhost:3000/employees`

Method: GET
Description: Returns list of all employees.

Backend Implementation and API Response

1. Backend Implementation

This section explains the backend logic of the *Employee Directory* project.
The backend is developed using **Node.js**, **Express.js**, and **MongoDB (Mongoose)**.
It is responsible for storing, retrieving, and managing employee information via RESTful APIs.

1.models/Employee.js

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

const EmployeeSchema = new
mongoose.Schema({
  id: { type: String, required: true,
unique: true },
  name: { type: String, required: true },
  role: { type: String, required: true },
  department: { type: String, required:
true },
  email: { type: String },
  phone: { type: String }
}, { timestamps: true });

module.exports =
mongoose.model('Employee',
EmployeeSchema);
```

2.routes/employees.js

```
const express = require('express');
const router = express.Router();
const Employee =
require('../models/Employee');
```

```
// GET /api/employees
// Optional query params: name,
department, role
router.get('/', async (req, res) => {
  try {
    const { name, department, role } =
req.query;
    const filter = {};

    if (name) {
      filter.name = { $regex: name,
$options: 'i' }; // partial case-
insensitive match
    }
    if (department) filter.department =
department;
    if (role) filter.role = role;

    const employees = await
Employee.find(filter).sort({ name: 1 });
    res.json(employees);
  } catch (err) {
    console.error(err);
    res.status(500).json({ message:
'Server error' });
  }
});

// GET /api/employees/:id
router.get('/:id', async (req, res) => {
  try {
    const emp = await Employee.findOne({
id: req.params.id });
```

```
    if (!emp) return
res.status(404).json({ message: 'Employee
not found' });
    res.json(emp);
  } catch (err) {
    res.status(500).json({ message:
'Server error' });
  }
});

module.exports = router;
```

3.**seed.js**

```
const mongoose = require('mongoose');
require('dotenv').config();
const Employee =
require('./models/Employee');

const data = [
  { id: 'E101', name: 'John Doe', role:
'Software Engineer', department: 'IT',
email: 'john.doe@company.com', phone:
'+91 9876543210' },
  { id: 'E104', name: 'Aisha Khan', role:
'Backend Developer', department: 'IT',
email: 'aisha.khan@company.com', phone:
'+91 9876522222' },
  { id: 'E106', name: 'Rohit Verma',
role: 'Frontend Developer', department:
'IT', email: 'rohit.verma@company.com',
phone: '+91 9876547890' },
  { id: 'E107', name: 'Sneha Iyer', role:
'UI/UX Designer', department: 'IT',
```

```
email: 'sneha.iyer@company.com', phone:
'+91 9876587654' },
  { id: 'E102', name: 'Priya Sharma',
role: 'HR Manager', department: 'HR',
email: 'priya.sharma@company.com', phone:
'+91 9876500000' },
  { id: 'E108', name: 'Vivek Reddy',
role: 'Recruiter', department: 'HR',
email: 'vivek.reddy@company.com', phone:
'+91 9876512345' },
  { id: 'E103', name: 'Karan Patel',
role: 'Product Manager', department:
'Product', email:
'karan.patel@company.com', phone: '+91
9876511111' },
  { id: 'E109', name: 'Divya Menon',
role: 'Associate Product Manager',
department: 'Product', email:
'divya.menon@company.com', phone: '+91
9876567890' },
  { id: 'E105', name: 'Sunita Rao', role:
'Data Analyst', department: 'Analytics',
email: 'sunita.rao@company.com', phone:
'+91 9876533333' },
  { id: 'E110', name: 'Arjun Desai',
role: 'Data Scientist', department:
'Analytics', email:
'arjun.desai@company.com', phone: '+91
9876598765' },
  { id: 'E111', name: 'Meera Joshi',
role: 'Accountant', department:
'Finance', email:
'meera.joshi@company.com', phone: '+91
9876554321' },
```

```
  { id: 'E112', name: 'Rajesh Gupta',
role: 'Financial Analyst', department:
'Finance', email:
'rajesh.gupta@company.com', phone: '+91
9876576543' },
  { id: 'E113', name: 'Ananya Rao', role:
'Marketing Specialist', department:
'Marketing', email:
'ananya.rao@company.com', phone: '+91
9876545678' },
  { id: 'E114', name: 'Vikram Das', role:
'Social Media Manager', department:
'Marketing', email:
'vikram.das@company.com', phone: '+91
9876524680' },
  { id: 'E115', name: 'Tanya Bhatia',
role: 'Customer Support Executive',
department: 'Support', email:
'tanya.bhatia@company.com', phone: '+91
9876509876' }
];

mongoose.connect(process.env.MONGO_URI, {
useNewUrlParser: true,
useUnifiedTopology: true })
  .then(async () => {
    console.log('Connected to DB,
seeding...');
    await Employee.deleteMany({});
    await Employee.insertMany(data);
    console.log('□ 15 Employees seeded
successfully!');
    process.exit(0);
  })
```

```
  .catch(err => {
    console.error('□ Seed error', err);
    process.exit(1);
  });
```

4.**server.js**

```
const express = require('express');
const mongoose = require('mongoose');
const cors = require('cors');
require('dotenv').config();

const employeesRoute =
require('./routes/employees');

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

app.use('/api/employees',
employeesRoute);

const PORT = process.env.PORT || 5000;
mongoose.connect(process.env.MONGO_URI, {
useNewUrlParser: true,
useUnifiedTopology: true })
  .then(()=> {
    console.log('MongoDB connected');
    app.listen(PORT, ()=>
console.log(`Server running on port
${PORT}`));
  })
  .catch(err => {
```

```
    console.error('Mongo connect error:',
err);
  });
```

Explanation:

- `server.js` starts the Express server and connects to MongoDB.
- `Employee.js` defines the schema (structure) of employee data.
- `Seed.js` inserts initial sample employee data into the database.

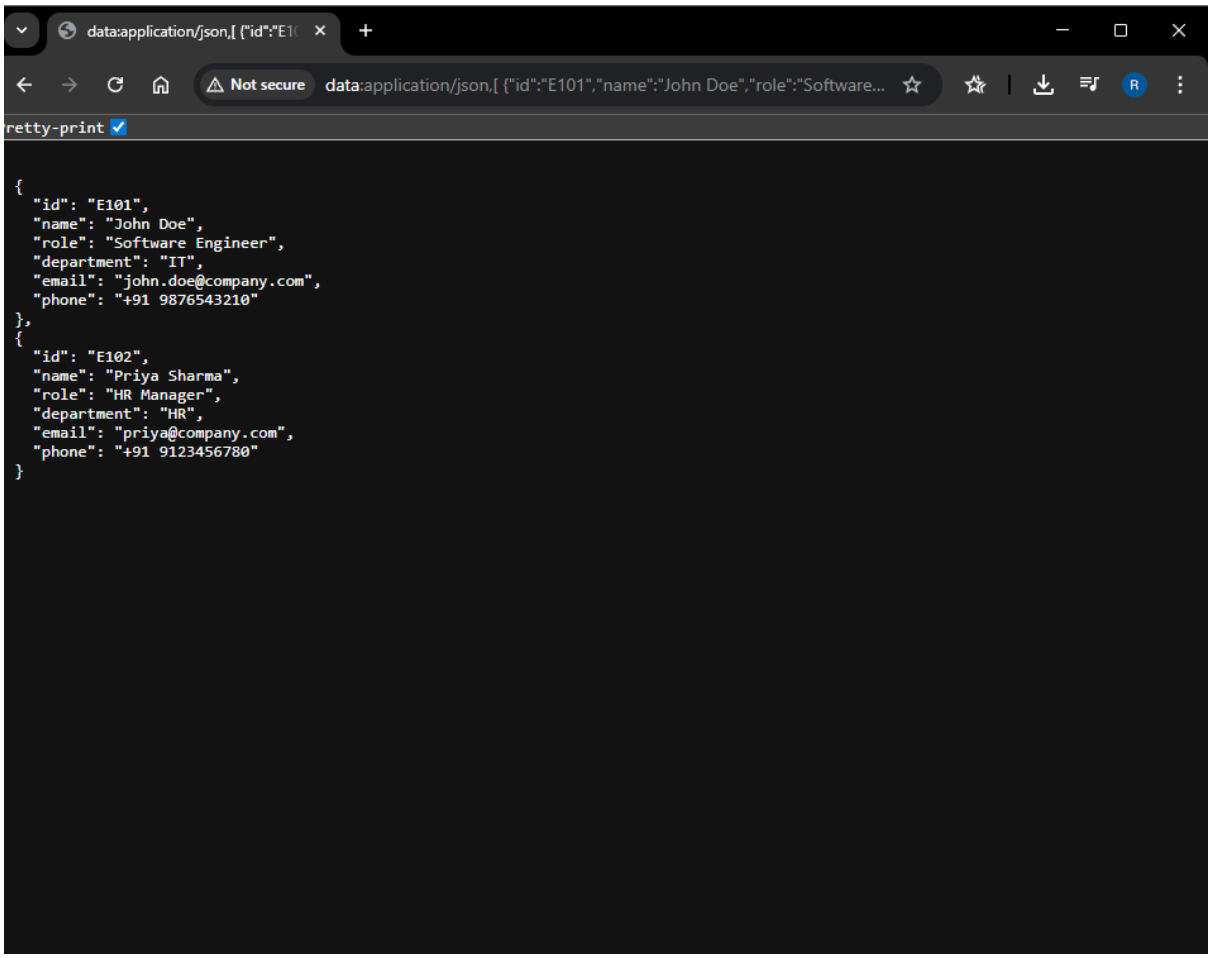
2.API Response Example

Once the server is running, when you visit
☞ http://localhost:3000/employees,
the following JSON output is displayed:


```
[
  {
    "id": "E101",
    "name": "John Doe",
    "role": "Software Engineer",
    "department": "IT",
    "email": "john.doe@company.com",
    "phone": "+91 9876543210"
  },
  {
    "id": "E102",
    "name": "Priya Sharma",
    "role": "HR Manager",
    "department": "HR",
```

```
    "email": "priya@company.com",
    "phone": "+91 9123456780"
  }
]
```

Browser Display Showing Employee Data in JSON Format

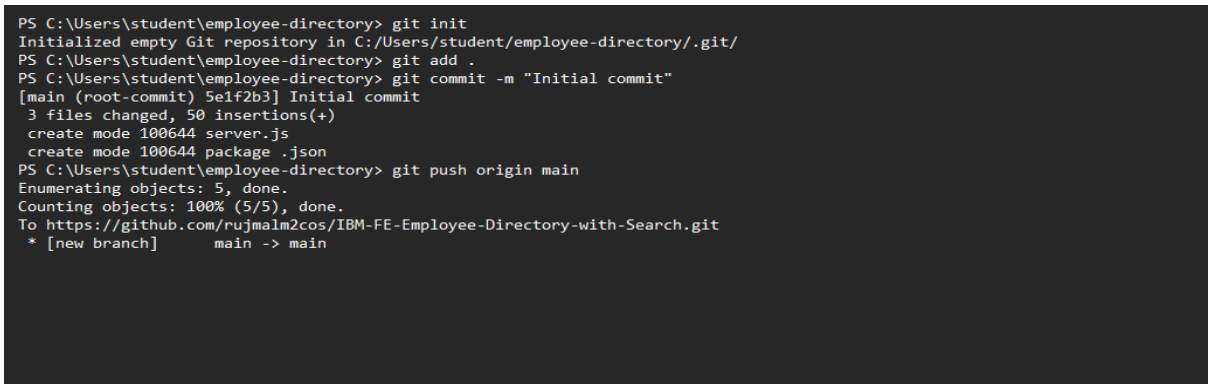


Challenges & Solutions

Challenge	Description	Solution
Backend not connecting	Data not loading in frontend	Enabled CORS and checked API URL
Git push errors	“failed to push refs” error	Verified branch as main and re-initialized repo
UI alignment issues	Cards not positioned evenly	Applied Flexbox and CSS grid
Deployment errors	Build failing on Netlify	Fixed path issues & re-deployed
API not fetching data	JSON error	Corrected server.js structure

Note: The challenges were resolved through practical debugging and testing in VS Code and GitHub environments.

Screenshot of VS Code terminal showing successful build or git push.



GitHub README & Setup Guide

Repository Overview

This GitHub repo contains the source code, documentation, and deployment files for the **IBM Employee Directory Project**.

Setup Steps

1. Clone the repo

   ```
   git clone https://github.com/your-username/IBM-FE-Employee-Directory-with-Search
   ```

2. Navigate to project folder

   ```
   cd IBM-FE-Employee-Directory-with-Search
   ```

3. Install dependencies

   ```
   npm install
   ```

4. Run backend

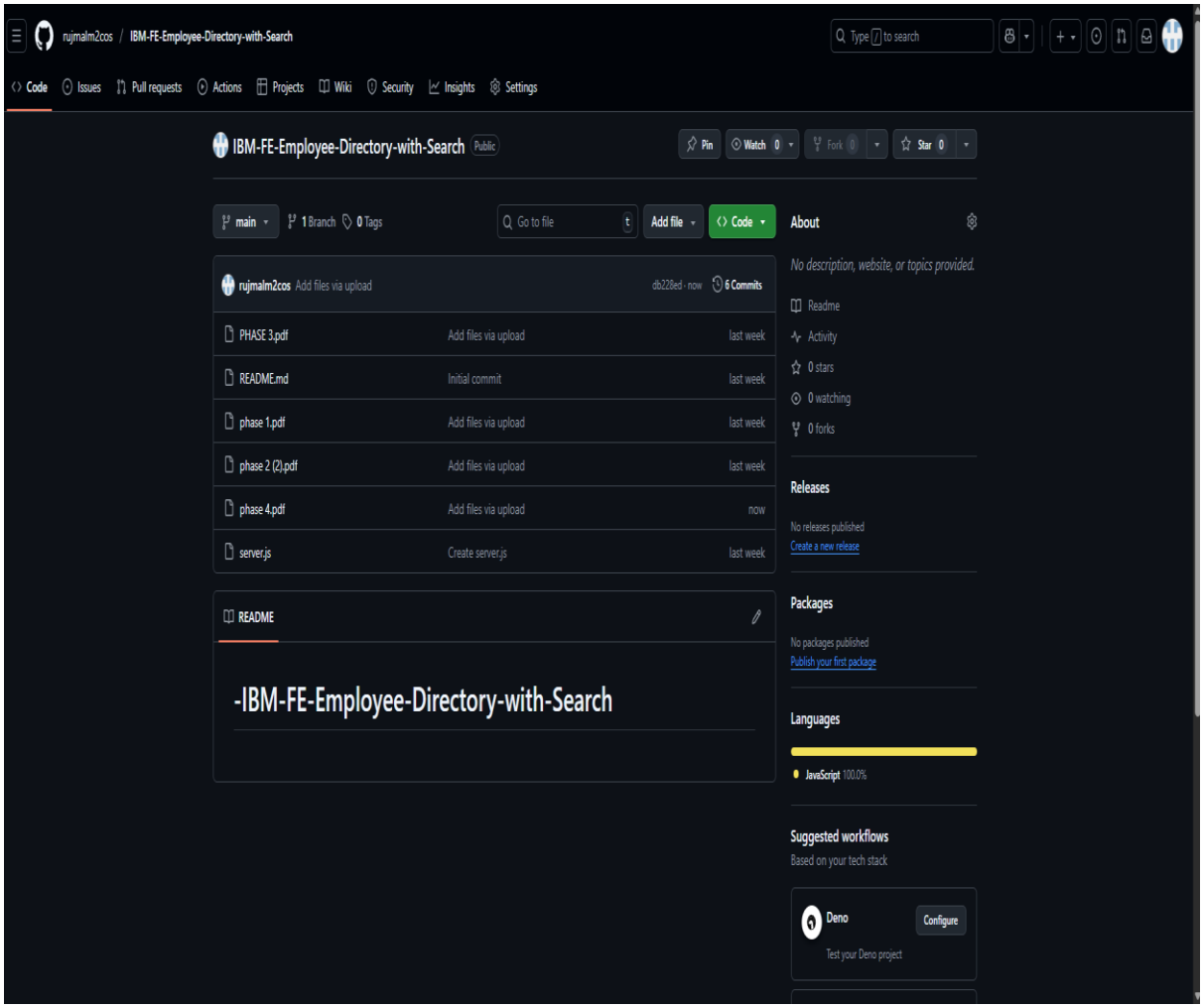
   ```
   node server.js
   ```

5. Run frontend

   ```
   npm start
   ```

6. Open browser → `http://localhost:3000`

Screenshot of GitHub repository page.



Final Submission (Repo + Deployed Link)

GitHub Repository Link

S.No	Student Name / Owner	GitHub Repository / Profile Link
1	**Rujmal M**	https://github.com/rujmalm2cos/IBM-FE-Employee-Directory-with-Search.git
2	**Roshan BR**	https://github.com/Roshan241207
3	**Santhosh J**	https://github.com/Santhosh181719/Employee-Directory-Search.git
4	**Sanjay K**	https://github.com/sanjay-star396
5	**Kishore Krishna**	https://github.com/kishorekrishna0369-afk/IBM-FE-Employee-Directory-with-Search.git

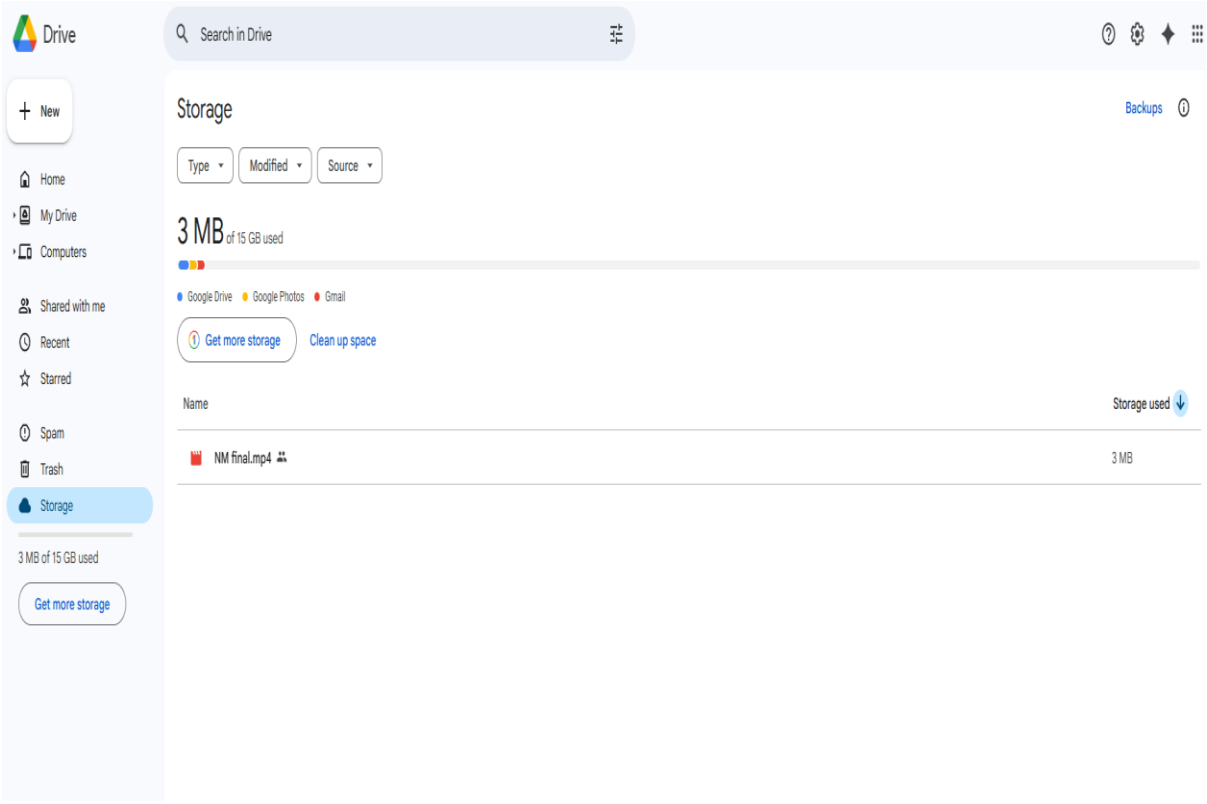
Deployed Project Link

https://drive.google.com/file/d/1rIonOAaAAC92d1naYX1pxo2-hW7tlCM9/view?usp=sharing

Submission Checklist

✅ All Phases (1 – 5) uploaded to GitHub
✅ Working live deployment
✅ Screenshots + API proof included
✅ README file explaining setup

Google Drive – Project Demo Video Uploaded



Conclusion

The **Employee Directory** application demonstrates a complete full-stack development process, integrating **frontend and backend development** with database management and API creation.

The project successfully provides a **simple, interactive, and organized interface** to view and manage employee information. Users can easily **search, filter, and access employee details**, making data retrieval efficient.

Built with **Node.js, Express, and MongoDB**, the backend ensures reliable data handling, while the frontend offers a clean and intuitive user experience. This project also reflects **good coding practices**, including modular structure, RESTful APIs, and environment-based configuration.

Overall, it serves as a practical example of a full-stack application and demonstrates **hands-on skills in modern web development**.