



COLLEGE CODE : 9111

COLLEGE NAME : SRM Madurai College for Engineering and Technology

DEPARTMENT : B.Tech Information Technology

STUDENT NM-ID :

ROLL NO : 911123205025 DATE : 15-09-2025

Completed the project named as Phase – 2 - Problem

Understanding & Requirements

TECHNOLOGY PROJECT NAME : IBM-FE-Employee Directory with Search

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Tech Stack Selection :

- Frontend: React.js (for component-based UI, reusability, and responsiveness).
- Backend: Node.js with Express.js (for building REST APIs and handling requests).
- Database: MongoDB (for storing employee details in a flexible JSON-like format).
- Styling: CSS / Bootstrap (for responsive and clean UI design).
- Hosting:
 - o Frontend → Vercel / Netlify
 - o Backend → Render / Heroku
 - o Database → MongoDB Atlas

UI Structure / API Schema Design:

UI Structure:

1. Header Section – Project title and navigation.
2. Search Bar – Input field with search functionality.
3. Filters Section – Dropdowns for department and role selection.
4. Employee List/Grid – Employee cards showing name, role, department, and contact.
5. Footer Section – Copyright / credits.

APISchema (Employee Example)

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

Data Handling Approach

- Frontend → Backend
 - User enters search/filter input.
 - Request sent via API to backend.
- Backend → Database
 - Backend queries MongoDB based on name/department/role.
 - Returns filtered data in JSON format.
- Frontend (Display):
 - React renders employee cards dynamically using response data.
 - Optimized rendering to ensure fast search and filter results.

Component / Module Diagram

Main Components:

- App.js → Rootcomponent, handles routing.
- Navbar.js → Contains title, navigation, and search bar.
- Filter.js → Dropdown filters for department and role.
- EmployeeList.js → Renders list of employees (cards).
- EmployeeCard.js → Displays individual employee details.
- API Service Module → Handles API calls (GET, search, filter).

Basic Flow Diagram

