



COLLEGE CODE : 9111

COLLEGE NAME : SRM Madurai College for Engineering and Technology

DEPARTMENT : B.Tech Information Technology

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Completed the project named as

Phase – 2 - Problem Understanding & Requirements

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

SUBMITTED BY,

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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:**
 - Frontend → Vercel / Netlify
 - Backend → Render / Heroku
 - 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.

API Schema (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** → Root component, 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

