EMPLOYEE, MANAGER & PROJECT MANAGEMENT SYSTEM

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INTRODUCTION

In the fast-paced and dynamic landscape of contemporary workplaces, effective management of human resources and projects is crucial for organizational success. Introducing the Employee, Manager, and Project Management System—a comprehensive solution designed to streamline and enhance the efficiency of workforce management and project execution.

Essentially the three main components will have a unique role which comes together or an effective management of the entire system. The key role of each component are as follows:

1. Employee Data Management:

This system provides a centralized hub for managing employee data. It will contain data mainly related to the personal information of the employee like ID, name, position, and the department in which the employee is assigned or works in.

2. Manager Data Management:

The Manager module offers insights into team dynamics, and the information related to the head or the manager of each department or the manager assigned to a particular project.

It will mainly contain information like the name of the manager, the managerial role/position like head / tech coordinator / Dean of the department which they are assigned and the department the which they are managing.

3. Project Data Management:

The Project Component consists of the data related to projects which are present in the company like the name of the project, the status of the project, the department the project belongs to, the employe who are assigned and working for the project and finally the manager ID who is managing the project at various levels.

With the Employee, Manager, and Project Management System, organizations can harness the power of integration to create a cohesive and efficient work environment. This system not only simplifies daily operations but also empowers stakeholders at all levels to contribute to the overall success of the organization.

DATA

The system will have three main collections: Employee, Manager and Project. The data structure for the Employee, Manager, and Project Management System would involve organized collections and attributes for each component

## Employee

* emp\_id: An integer to uniquely identify each employee.
* name: String which contains the name of the employee.
* position: String which indicates the position the Employee is working in.
* department: String which indicates the department in which the employee works.

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## Manager

* man\_id: An integer to uniquely identify each manager.
* name: String which contains the name of the manager.
* position: String which indicates the position the Manager is working in.
* department: String which indicates the department in which the manager works.

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## Project

* pro\_id: An integer to uniquely identify each project.
* name: String which contains the name of the project.
* status: String which indicates the status of the project like running, closed.
* department: String which indicates the department the project belongs to.
* emp\_id : indicating the employee who is working on the project
* pro\_id : indicating the manager who is in charge of the project

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Screenshot of database collection in MongoDB compass:

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CRUD FUNCTIONALITIES

## Employee:

### View Employee:

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### Add Employee:

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### Update Employee:

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### Delete Employee:

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## Manager:

### View Manager:

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### Add Manager

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### Update Manager

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### Delete Manager

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## Project:

### View Project:

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### Add Manager

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### Update Manager

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### Delete Manager

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Complex Queries

## Query 1

List all the Employees Managers and Projects by a particular department.

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## Query 2

List all the Employees Details and Projects Details for employee with employee ID

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## Query 3

List all the Manager Details and Projects Details for manager with manager ID

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Visualization

## Visualization 1

Visualize the graph for the number of employees vs the department showing us exactly how many employees are present in each department.

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## Visualization 2

Visualize the graph for the number of projects vs the department showing us exactly how many projects are present in each department.

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Technologies Used

**Frontend:**

* HTML (Hypertext Markup Language)
* CSS (Cascading Style Sheets)
* JavaScript
* Bootstrap

**Backend:**

* Python
* Flask

**Database:**

* MongoDB
* MongoDB Compass

Accomplishments

**User Interface Development:**

**Basic CRUD Operations:**

Designed and developed user interfaces for adding, deleting, and updating records for three collections: Employee, Manager and Project

Integrated these UI components with backend APIs to interact with the NoSQL database.

**Search Queries UI:**

Implemented a user interface for executing complex search queries (query1, query2 and query3) involving data from all three collections.

Provided user-friendly input forms to pass parameters for executing the search queries.

**Backend Integration:**

Integrated UI components with backend APIs to seamlessly perform add, delete, update, and search operations on MongoDB collections (employee, manager, and project).

**MongoDB Queries:**

**Query1, Query2 and Query3 MongoDB Queries:**

Wrote MongoDB queries for query1, query2 and query3 to efficiently retrieve and filter data from the three collections based on the specified parameters.

**Results Display:**

**Displaying Query Results:**

Integrated UI components with backend APIs to retrieve and display the results of query1, query2 and query3 in the user interface.

**Dashboard Implementation:**

**Dashboard Design:**

Designed and implemented a dashboard that provides a graphical representation of relevant data from the three collections (employee, manager, and project)

**Chart Visualization:**

Incorporated two sections to display charts that visualize data trends or insights from the NoSQL database.

**General Requirements:**

**Three Collections:**

Ensured the project includes at least three collections in the NoSQL database, namely Employee, Manager, and Project.

**Basic View, Insert, Update, and Delete:**

Implemented basic views for each collection, allowing users to insert, update, and delete records through the user interface.

**Search Queries Involving All Collections:**

Developed three search queries involving data from all three collections, providing a comprehensive search functionality for users.

**Chart Visualization Sections:**

Included two sections in the UI to visually represent data through charts, enhancing the user experience and providing insights into the database information.

**NoSQL Database Usage:**

Utilized a NoSQL database (MongoDB) for storing and managing the data efficiently.

By accomplishing these tasks, the project ensures a robust user interface, seamless interaction with the backend, effective search functionalities, and a visually appealing dashboard for data representation.