Employee Management System (EMS) Using MVC Design Pattern

The **Employee Management System (EMS)** is designed to automate key HR functions such as employee data management, salary adjustments, promotions. The system is built using the MVC (Model-View-Controller) design pattern, which separates concerns by organizing the system into three distinct components: Model, View, and Controller. This helps in maintaining a clean, modular, and scalable system.

Overview of EMS Using MVC Design

1. Model

The Model is the core component of the system that deals with data logic, including interacting with the database.

Core Components:

- **Employee**: A class representing an individual employee, holding details like name, ID, salary, and contact information.
- **EmployeeManager**: A class responsible for managing employee records, including storing and retrieving employee data from the database.
- **EmployeeService**: A service class that contains the business logic for handling employee operations such as promoting and updating salary employees.

There are also specialized employee types, such as FullTimeEmployee and PartTimeEmployee, which extend the base Employee class.

Responsibilities:

- Manage and process employee data.
- Store employee records in the database.
- Perform business logic like salary adjustments and promotions.

2. View

The **View** is responsible for displaying the data to the user and presenting it in an understandable format. It listens for updates from the **Controller** and dynamically updates when the data changes.

Components:

- **EmployeeDetailView**: A view dedicated to displaying detailed information about an individual employee when selected.
- **SalaryView**: A view that displays salary-related information, such as the current salary of an employee.

Responsibilities:

- Present data to the user in a readable and interactive manner.
- Dynamically update to reflect changes in employee data.

3. Controller

The **Controller** is the intermediary between the **Model** and the **View**. It processes the user input, updates the Model, and refreshes the View as necessary. It ensures that the system responds to user actions such as adding employees, making salary changes, or applying promotions.

Components:

- **EmployeeController**: A controller responsible for handling requests related to employees, such as adding new employees, updating employee details, and managing promotions. It interacts with the **EmployeeManager** and **EmployeeService** to update data.

Responsibilities:

- Receive input from the user (e.g., form submissions for employee addition or salary adjustments).
- Call the appropriate methods on the **Model** (e.g., update employee details, apply salary increase).
- Update the **View** to reflect any changes made to the data (e.g., employee list or salary information).

How the EMS Works Using MVC

1. Model Interactions:

- When an employee is added, the **EmployeeController** collects data from the user, calls the **EmployeeManager** to store the data in the database, and the **View** is updated accordingly to reflect the new employee.

2. View Updates:

- Whenever data changes, such as a new employee being added or a salary update, the **View** is responsible for rendering the updated information to the user. For example, if an employee's salary is updated, the **SalaryView** will display the new salary.

3. Controller Operations:

- The **EmployeeController** manages employee data by communicating with the **EmployeeManager**, **EmployeeService** and updating the **EmployeeView**.