

Project Title: Employee Management System with CSV Integration

Project Requirements:

1. Employee and Department Management:

- At the start of the program, different departments should be created (e.g., Engineering, Marketing).
- Each department can have multiple types of employees such as Full-Time, Part-Time, Consultant, and Manager.
- The user should be able to add employees to any department. The following information will be required for each employee:
 - First Name
 - Last Name
 - Employee ID (unique identifier)
 - Department
 - Salary (based on employee type)
 - For Part-Time employees: Hourly rate and work hours
 - For Consultant: Project fee
 - For Manager: Monthly salary

2. CSV Integration:

- All employees should be automatically saved in a CSV file named `employees.csv`.
- If the CSV file already exists, the program should load the employee data from the file into the system at the start.
- When new employees are added or changes are made, the system should export the updated information back to the CSV file.
- The CSV file should store the following details for each employee:
 - First Name, Last Name, Employee ID, Department, Salary, Vacation Days, Employee Type

3. Employee Features:

- Each employee will have a default number of vacation days depending on their employment type:
 - Full-Time Employees: 20 vacation days
 - Part-Time Employees: 10 vacation days
 - Consultants: 14 vacation days
 - Managers: 14 vacation days
- Employees should be able to apply for vacation. The system will subtract the requested days from their available vacation days.
- Employees can receive salary raises or bonuses, and their salary will be updated accordingly.

4. Manager Specific Features:

- A Manager will have a list of employees they manage. The user should be able to assign employees to a manager.
- Managers should be able to view all the employees they manage.

5. Department Features:

- Each department should track the total number of employees.
- The total monthly salary cost for each department should be calculated and displayed when requested.
- The department should provide a summary of all employees, listing their details.

6. Encapsulation and Inheritance:

- The program should demonstrate the concepts of inheritance, with different employee types (Full-Time, Part-Time, Consultant, and Manager) inheriting from a base `Employee` class.
- Employee salary and ID should be encapsulated and only modifiable via appropriate methods (e.g., `set_salary`, `apply_raise`).

Game Flow:

- The program should start by loading any existing employees from the `employees.csv` file.
- The user should be able to:
 1. Add a new employee to a department.
 2. Assign employees to a manager.
 3. Calculate the total monthly salary cost for each department.
 4. View a list of all employees in a department or under a specific manager.
 5. Apply salary changes or bonuses to employees.
 6. Manage employee vacation requests.
- After any changes, the employee data should be exported to the `employees.csv` file.

Score Management and Leaderboard:

- Not applicable to this project.

Additional Features:

- Managers are treated as employees and are included in the total monthly salary cost of a department.
- You must add a feature to check if the id name is already in the database if that is the case you must retrieve it from the data.

Optional Features:

- Implement an option to view and manage employees through a simple command-line interface (CLI).