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import json
class Employee:
    def __init__(self, name, emp_id, title, department):
        self.name = name
        self.emp_id = emp_id
        self.title = title
        self.department = department
    def display_details(self):
        print(f"Name: {self.name}")
        print(f"ID: {self.emp_id}")
        print(f"Title: {self.title}")
        print(f"Department: {self.department}")
    def __str__(self):
        return f"{self.name} - ID: {self.emp_id}"
class Department:
    def __init__(self, name):
        self.name = name
        self.employees = []
    def add_employee(self, employee):
        self.employees.append(employee)
    def remove_employee(self, employee):
        if employee in self.employees:
            self.employees.remove(employee)
        else:
            print(f"{employee.name} not found in {self.name}")
    def list_employees(self):
        if self.employees:
            print(f"Employees in {self.name}:")
            for employee in self.employees:
                print(employee)
        else:
            print(f"No employees in {self.name}")
class Company:
    def __init__(self):
        self.departments = {}
    def add_department(self, department):
        self.departments[department.name] = department
    def remove_department(self, department_name):
        if department_name in self.departments:
            del self.departments[department_name]
        else:
            print(f"{department_name} department not found")
    def display_departments(self):
        print("Departments:")
        for department_name in self.departments:
            print(department_name)
def print_menu():
    print("\nEmployee Management System Menu:")
    print("1. Add Employee")
    print("2. Remove Employee")
    print("3. List Employees in Department")
    print("4. Add Department")
    print("5. Remove Department")
    print("6. List Departments")

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    print("7. Quit")
def save_company_data(company):
    with open("company_data.json", "w") as file:
        json.dump(company, file, default=lambda x: x.__dict__)
def load_company_data():
    try:
        with open("company_data.json", "r") as file:
            data = json.load(file)
            company = Company()
            for department_name, department_data in
data["departments"].items():
                department = Department(department_name)
                for emp_data in department_data["employees"]:
                    employee = Employee(emp_data["name"],
emp_data["emp_id"], emp_data["title"], emp_data["department"])
                    department.add_employee(employee)
                    company.add_department(department)
            return company
    except FileNotFoundError:
        return Company()
def main():
    company = load_company_data()
    while True:
        print_menu()
        choice = input("Enter your choice: ")
        if choice == "1":
            name = input("Enter employee name: ")
            emp_id = input("Enter employee ID: ")
            title = input("Enter employee title: ")
            department_name = input("Enter department name: ")
            if department_name in company.departments:
                employee = Employee(name, emp_id, title, department_name)

company.departments[department_name].add_employee(employee)
                print("Employee added successfully.")
            else:
                print(f"{department_name} department does not exist.")
        elif choice == "2":
            emp_id = input("Enter employee ID to remove: ")
            for department in company.departments.values():
                for employee in department.employees:
                    if employee.emp_id == emp_id:
                        department.remove_employee(employee)
                        print("Employee removed successfully.")
                        break
                else:
                    continue
            break
        else:
            print(f"Employee with ID {emp_id} not found.")
        elif choice == "3":
            department_name = input("Enter department name: ")
            if department_name in company.departments:
                company.departments[department_name].list_employees()

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        else:
            print(f"{department_name} department does not exist.")
    elif choice == "4":
        department_name = input("Enter department name to add: ")
        if department_name not in company.departments:
            department = Department(department_name)
            company.add_department(department)
            print("Department added successfully.")
        else:
            print(f"{department_name} department already exists.")
    elif choice == "5":
        department_name = input("Enter department name to remove: ")
        company.remove_department(department_name)
    elif choice == "6":
        company.display_departments()
    elif choice == "7":
        save_company_data(company)
        print("Exiting...")
        break
    else:
        print("Invalid choice. Please choose again.")
if __name__ == "__main__":
    main()

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