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# Wang & Hridoy's Tech

## Employee Management System

### Description:

This project follows all the instructions you provided for the Employee Management System Project. And tried to make it a bit colorful to make it more interactive.

### Code Usage Instructions

#### 1. Main Menu Navigation

After launching, use the numeric keys (1-8) to access features:

```
PS C:\Users\X-man\Desktop\C# Practice\EmployeeManagementSystem> dotnet run
===== WANG & HRIDOY'S TECH - EMPLOYEE MANAGEMENT =====
1. Add New Employee
2. Update Employee
3. Delete Employee
4. Search Employee (ID/Name)
5. Show All Employees
6. Payroll Menu
7. Vacation Menu
8. Exit
=====
Enter your choice: █
```

Option	Function
1	Add new employee (enter name, department, salary, etc.)
2	Update existing employee (requires employee ID)
3	Delete employee (requires ID + confirm with "Y")
4	Search employee by ID or name
5	View all employees (Has two <b>default values</b> named <b>Wang</b> and <b>Hridoy</b> )

- 6      Open Payroll Menu (generate pay reports)

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- 7      Open Vacation Menu (manage vacation days)

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- 8      Exit the application

## 4. Key Feature Guides

### Payroll Management (Menu 6)

1.      Select "1" to generate a single employee's pay report (enter ID).
2.      Select "2" to generate reports for all employees.
3.      Reports display:
  1.      Gross Pay
  2.      Taxes Deducted
  3.      Net Pay

```
=== PAYROLL MENU ===
1. Generate Report for Single Employee
2. Generate Report for All Employees
Choice (1/2): 2
=== PAYROLL REPORT ===
Employee: Wang Haochen (ID: 1)
Department: Engineering | Tenure: 5 Years

Annual Gross: $    20,000.00
Annual Taxes: $     5,400.00
Annual Net:   $    14,600.00

Monthly Gross: $     1,666.67
Monthly Net:  $     1,216.67
Pay Period: December 2025
=====
```

## Vacation Management (Menu 7)

1. Select "1" to add vacation days (enter ID + 0-365 days).
2. Select "2" to record used vacation days (system checks for sufficient days).
3. Select "3"/"4" to generate vacation reports (total/used/remaining days).

```
=== VACATION MENU ===
1. Add Vacation Days
2. Use Vacation Days
3. Single Employee Report
4. All Employees Report
Choice (1-4): 4
=== VACATION REPORT ===
Employee: Wang Haochen (ID: 1)
Department: Engineering | Tenure: 5 Years

Total Allocated:    15
Days Used:          0
Remaining:          15
=====
```

## 5. Input Guidelines

1. All inputs include **validation** (e.g., salary: 10k–1M; dates: MM/dd/yyyy).

```
Enter the number for your choice: 1
Annual Salary (10000-1000000, no $ or 'k'): 21
✗ Salary must be between $10,000 and $1,000,000 (enter full number, e.g., 800000)
Annual Salary (10000-1000000, no $ or 'k'): 20000
Hire Date (MM/dd/yyyy) : 20/10/2020
✗ Invalid date format. Use MM/dd/yyyy (e.g., 10/20/2020).
Hire Date (MM/dd/yyyy) : 10/20/2030
✗ Hire date cannot be in the future.
Hire Date (MM/dd/yyyy) : 10/10/2010
✗ our company was established in 2020. Hire date cannot be before 2020.
Hire Date (MM/dd/yyyy) : 10/10/2020
Initial Vacation Days (0-365): 10
✅ Employee added! ID: 3 | Name: hridoy Hawladar
```

2. Leave fields blank during updates to keep current values.

## 4. Project Structure (Reference)

```
EmployeeManagementSystem/
├── Models/
│   ├── Employee.cs           # Domain model (encapsulates state/behaviour)
│   └── Enums/
│       └── Department.cs     # department enum
├── Interfaces/
│   ├── IEmployeeRepository.cs # Data access contract
│   ├── IPayrollService.cs     # Payroll logic contract
│   └── IVacationService.cs    # Vacation logic contract
├── Repositories/
│   └── InMemoryEmployeeRepository.cs # In-memory data store
├── Services/
│   ├── PayrollService.cs      # Implements payroll logic
│   └── VacationService.cs     # Implements vacation logic
├── UI/
│   └── ConsoleMenu.cs         # Handles user input/output
└── Program.cs                 # Entry point
```