

Project Overview

The Payroll Management System is designed to automate payroll processing, ensuring accuracy in salary calculations, tax deductions, and benefits allocations. This system utilizes PostgreSQL for database management and Excel for reporting.

Key Features

SQL Database Implementation:

- Structured relational database with tables for employee details and payroll transactions.
- Ensures data integrity with foreign key constraints.

Automated Payroll Processing:

- SQL queries compute base salary, tax deductions, benefits deductions, and net salary.
- Payroll processing is conducted for each pay period.

Excel Reporting:

- Employee payroll details are stored in an Excel file for analysis.
- Pivot tables and charts visualize salary distributions and deductions.

Database Schema

- **Employees Table:** Stores employee details such as name, department, salary, tax rate, and benefits.
- **Payroll Table:** Logs salary payments, tax deductions, and benefits deductions per employee per pay period.

SQL Queries & Reports

Employee Payroll Report : Retrieves payroll records with employee details, tax deductions, and net salary.

```
SELECT e.FirstName, e.LastName, e.Department, e.Position, p.PayPeriod, p.BaseSalary,  
p.TaxDeduction, p.BenefitsDeduction, p.NetSalary  
FROM Payroll p  
JOIN Employees e ON p.EmployeeID = e.EmployeeID  
ORDER BY p.PayPeriod DESC;
```

Monthly Payroll Summary: Summarizes total salary, tax deductions, and benefits per pay period.

```
SELECT PayPeriod, SUM(BaseSalary) AS TotalSalary, SUM(TaxDeduction) AS TotalTaxes,  
SUM(BenefitsDeduction) AS TotalBenefits, SUM(NetSalary) AS TotalNetPay  
FROM Payroll  
GROUP BY PayPeriod  
ORDER BY PayPeriod DESC;
```

Department-wise Payroll Summary: Analyzes payroll expenses per department.

```
SELECT e.Department, SUM(p.BaseSalary) AS TotalSalary, SUM(p.TaxDeduction) AS  
TotalTaxes, SUM(p.BenefitsDeduction) AS TotalBenefits, SUM(p.NetSalary) AS TotalNetPay  
FROM Payroll p  
JOIN Employees e ON p.EmployeeID = e.EmployeeID  
GROUP BY e.Department  
ORDER BY TotalNetPay DESC;
```

Excel Report Insights

The Excel file contains payroll calculations with automated formulas. Pivot tables and charts provide graphical representations of payroll trends.

- Total payroll expenses for each month.
- Tax and benefits distribution across employees.
- Departmental payroll comparison to analyze cost distribution.

Business Impact

- Increased efficiency: Automating salary processing reduces errors and saves time.
- Compliance assurance: Tax deductions and benefits allocations ensure legal compliance.
- Data-driven decision making: Reports provide insights for financial planning and budgeting.