# HRMS Product Requirement Document (PRD)

**1.1 Overview**

The HRMS with Payroll Management is a comprehensive system designed to manage employee information, attendance, leave, performance, and payroll processes. It automates salary computation, tax deductions, benefits allocation, and payslip generation. The solution is accessible via web and mobile platforms.

**1.2 Objectives**

* Centralize HR functions (employee records, attendance, leave)
* Automate payroll with accurate tax compliance
* Provide self-service portals for employees and HR
* Integrate with biometric attendance devices
* Ensure secure and auditable records

**1.3 Scope**

**Core HR**

* Employee profile management
* Attendance & leave tracking
* Document management
* Performance reviews

**Payroll Management**

* Salary structure definition
* Earnings & deductions
* Tax & compliance (PF, ESI, TDS, gratuity)
* Monthly payroll runs
* Payslip generation & distribution
* Bank transfer file generation

**Reports & Analytics**

* Payroll reports
* Tax summaries
* Leave balance reports
* Employee attrition analytics

**1.4 Stakeholders**

* HR Department
* Finance Department
* Employees
* Management

**1.5 Functional Requirements**

* Employee CRUD
* Attendance integration
* Leave application & approval workflow
* Payroll computation engine
* Tax calculation & compliance reports
* Role-based access control
* Notification system (Email, SMS, Portal alerts)

**1.6 Non-Functional Requirements**

* Scalability to handle 50,000+ employees
* Secure authentication & data encryption
* Response time < 2 seconds for UI actions
* Cloud-ready deployment (AWS/Azure)

**2. High-Level Design (HLD)**

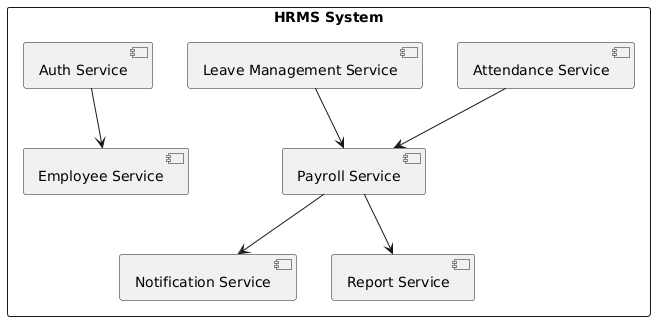
**Architecture Overview:**

* **Frontend**: Angular/React for Web, Flutter for Mobile
* **Backend**: Spring Boot microservices
* **Database**: PostgreSQL for transactional data
* **Integration**: Apache Camel for data pipelines
* **Messaging**: Kafka for payroll event processing
* **Authentication**: Key cloak (OIDC + SSO)

**Services in HLD:**

1. **Employee Service** – Manages employee data
2. **Attendance Service** – Biometric device integration
3. **Leave Management Service** – Tracks leave balances and requests
4. **Payroll Service** – Salary computation & payslip generation
5. **Notification Service** – Sends alerts
6. **Report Service** – Generates reports
7. **Auth Service** – Manages user authentication & authorization

**HLD Diagram**

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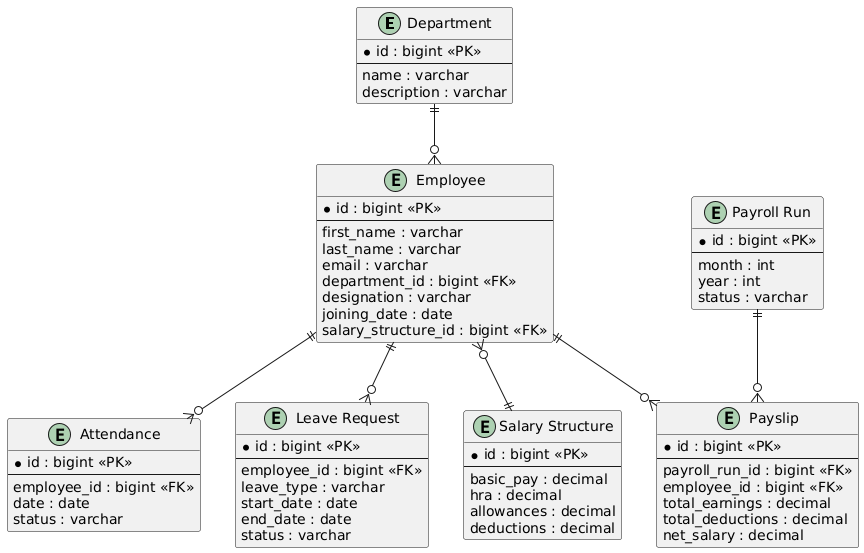
**Sequence Diagram**

**A screenshot of a service

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**Database Schema (Core Tables)**

**ER Diagram**

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**SQL DDL Script**

CREATE TABLE department (

id BIGSERIAL PRIMARY KEY,

name VARCHAR(100) NOT NULL,

description TEXT

);

CREATE TABLE salary\_structure (

id BIGSERIAL PRIMARY KEY,

basic\_pay DECIMAL(10,2) NOT NULL,

hra DECIMAL(10,2),

allowances DECIMAL(10,2),

deductions DECIMAL(10,2)

);

CREATE TABLE employee (

id BIGSERIAL PRIMARY KEY,

first\_name VARCHAR(50) NOT NULL,

last\_name VARCHAR(50),

email VARCHAR(100) UNIQUE NOT NULL,

department\_id BIGINT REFERENCES department(id),

designation VARCHAR(50),

joining\_date DATE NOT NULL,

salary\_structure\_id BIGINT REFERENCES salary\_structure(id)

);

CREATE TABLE attendance (

id BIGSERIAL PRIMARY KEY,

employee\_id BIGINT REFERENCES employee(id),

date DATE NOT NULL,

status VARCHAR(20) CHECK (status IN ('Present','Absent','Leave'))

);

CREATE TABLE leave\_request (

id BIGSERIAL PRIMARY KEY,

employee\_id BIGINT REFERENCES employee(id),

leave\_type VARCHAR(50),

start\_date DATE NOT NULL,

end\_date DATE NOT NULL,

status VARCHAR(20) CHECK (status IN ('Pending','Approved','Rejected'))

);

CREATE TABLE payroll\_run (

id BIGSERIAL PRIMARY KEY,

month INT CHECK (month BETWEEN 1 AND 12),

year INT,

status VARCHAR(20) CHECK (status IN ('Pending','Completed'))

);

CREATE TABLE payslip (

id BIGSERIAL PRIMARY KEY,

payroll\_run\_id BIGINT REFERENCES payroll\_run(id),

employee\_id BIGINT REFERENCES employee(id),

total\_earnings DECIMAL(10,2),

total\_deductions DECIMAL(10,2),

net\_salary DECIMAL(10,2)

);

## **API Design (Sample)**

**POST /api/payroll/run** – Trigger payroll calculation  
**GET /api/payroll/{month}/{year}/payslips** – Fetch payslips for a period  
**GET /api/employee/{id}** – Fetch employee details  
**POST /api/leave/request** – Apply for leave

**Test Cases**

| **Test Case ID** | **Scenario** | **Steps** | **Expected Result** |
| --- | --- | --- | --- |
| TC\_PAY\_001 | Payroll Run | Initiate run for August 2025 | Payslips generated |
| TC\_PAY\_002 | Leave Deduction | Employee on leave | Salary reduced accordingly |
| TC\_PAY\_003 | Tax Calculation | Apply TDS rules | Tax deducted accurately |