Project Proposal

On

Employee Payroll System

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INTRODUCTION

The Employee Payroll Management System is a complete software solution developed to reduce the effort and time associated with manual payroll operations.

Payroll management is one of the most crucial administrative functions within any organization, as it ensures employees are compensated accurately, timely, and in compliance with organizational rules and governmental regulations.

The digital payroll system presented in this project addresses all these challenges by implementing an automated, structured, and centralized platform for managing employees, attendance, leaves, bonuses, deductions, and salary generation.

This system is specifically designed to minimize HR workload, improve data accuracy, enhance productivity, and provide instant access to payroll-related reports.

OBJECTIVE

- To automate the employee payroll cycle completely.
- To ensure high accuracy in salary calculations by eliminating manual errors.
- To centralize employee information for easy access and management.
- To simplify attendance tracking and leave management using digital records.
- To provide a transparent breakdown of earnings, deductions, and bonuses.
- To generate monthly, quarterly, and yearly payroll reports for management.
- To reduce the workload of HR departments using automation.
- To improve organizational productivity and financial accuracy.

PROJECT CATEGORY

Database Management / Application Development

Technology Stack:

Frontend: Java (Core Java + Swing/JavaFX)

Backend: MySQL database

Connectivity: JDBC (Java Database Connectivity)

ANALYSIS

a) Modules and Description

1. Employee Management Module
   - Add new employee details
   - Update employee information
   - Remove employee records
   - View list of employees

2. Attendance Management Module
   - Record monthly attendance
   - Calculate payable days
   - Manage overtime/leave

3. Salary Management Module
   - Define basic salary, HRA, allowances, PF, tax, etc.
   - Auto-calculate gross salary, net salary
   - Generate salary slips

4. Bonus and Deduction Module
   - Manages Additional Earnings(bonuses)
   - Handles Salary Reductions
   - Automatic Integration with Payroll
   - Improves financial Accuracy

5. Payroll Module
   - Core Salary Calculations
   - Integrates all Salary Components

6. User/ Admin Module
   - Secure login system for administrator
   - Admin can add/remove users
   - Role-based access

7. Reports and Analytics Module
   - Employee report
   - Salary report
   - Monthly payroll report with analysis

b) **Database Design**

Main tables used:

- EMPLOYEE Table Design:

Fields	Datatype	Properties
emp_id	int	Primary key, not null
emp_name	varchar(100)	not null
contact	varchar(10)	not null
gender	varchar(10)	not null
dob	date	not null
address	varchar(200)	not null
department	varchar(50)	not null
designation	varchar(50)	not null
date of joining	date	not null

- ATTENDANCE Table Design:

Fields	Datatype	Properties
attendance_id	int	Primary key, not null
emp_id	int	Foreign key, not null
date	date	not null
check_in_time	time	nullable
check_out_time	time	nullable
status	varchar(20)	not null, default 'Present'
working_hours	decimal(5,2)	nullable

- SALARY Table Design:

Fields	Datatype	Properties
salary_id	int	Primary key, not null
emp_id	varchar(100)	Foreign key, not null
basic_salary	decimal(10,2)	not null
hra	decimal(10,2)	Default 0
da	decimal(10,2)	Default 0
pf	decimal(10,2)	Default 0
tax	decimal(10,2)	Default 0
gross_salary	decimal(10,2)	not null
net_salary	decimal(10,2)	not null
salary_month	varchar(20)	not null

- BONUS and DEDUCTION Table Design:

Fields	Datatype	Properties
bd_id	int	Primary key, not null
emp_id	int	Foreign key, not null
type	varchar(20)	not null
amount	decimal(10,2)	not null
reason	varchar(250)	nullable
date-applied	varchar(200)	Default CURRENT_DATE
added_by	varchar(50)	nullable

- PAYROLL Table Design:

Fields	Datatype	Properties
payroll_id	int	Primary key, not null
emp_id	int	Foreign key, not null
basic_salary	decimal(10,2)	required
total_bonus	decimal(10,2)	Default 0
total_deduction	decimal(10,2)	Default 0
net_salary	decimal(10,2)	required
payroll_month	varchar(20)	required
generated_date	datetime	Default: Current Timestamp
status	varchar(20)	Default ‘generated’

- REPORTS/ANALYTICS Table Design:

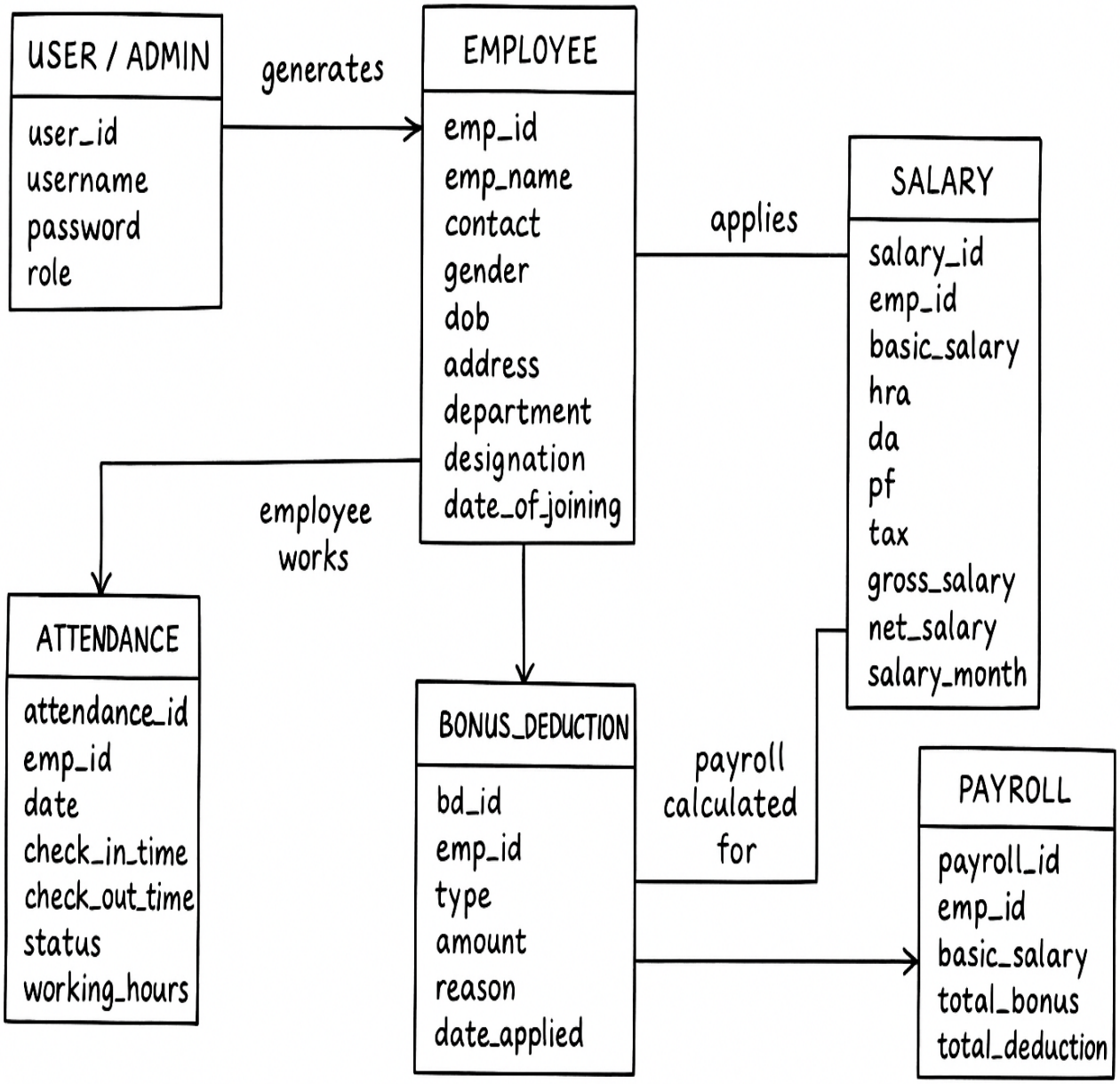
Fields	Datatype	Properties
report_id	int	Primary key, not null
report_type	varchar(50)	not null
month	varchar(15)	nullable
year	int	nullable
generated_by	varchar(50)	nullable
generated_date	datetime	Default: Current Timestamp
file_path	varchar(50)	nullable

- USER/ADMIN Table Design:

Fields	Datatype	Properties
user_id	int	Primary key, not null
username	varchar(50)	Unique not null
password	varchar(100)	not null
role	varchar(30)	Default ‘admin’

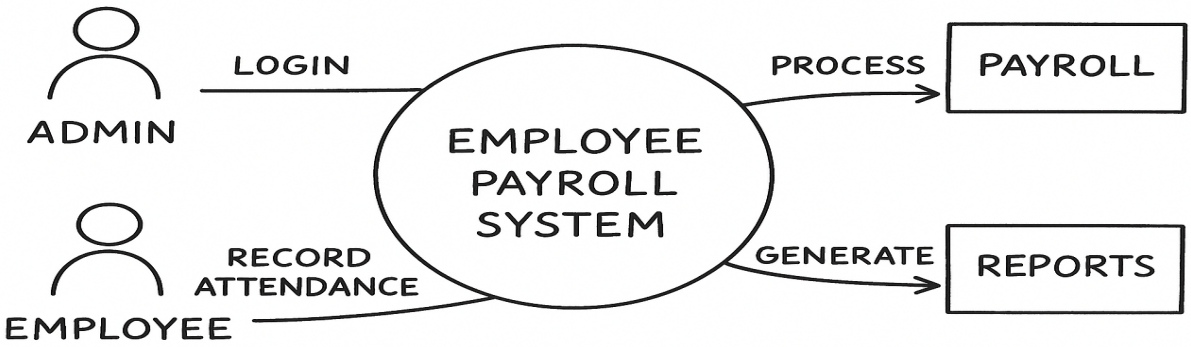
The design follows normalization rules to avoid redundancy and ensure data integrity.

ER DIAGRAM

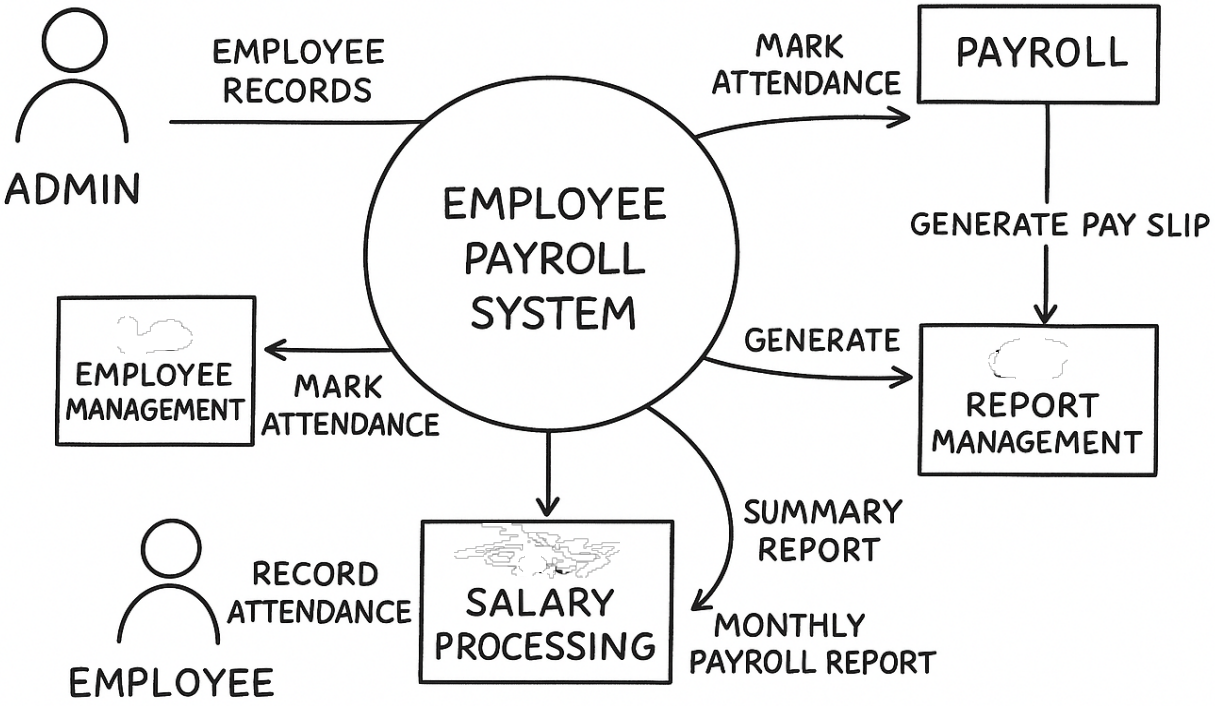

USER / ADMIN
user_id
username
password
role
generates
EMPLOYEE
emp_id
emp_name
contact
gender
dob
address
department
designation
date_of_joining
applies
SALARY
salary_id
emp_id
basic_salary
hra
da
pf
tax
gross_salary
net_salary
salary_month
employee
works
ATTENDANCE
attendance_id
emp_id
date
check_in_time
check_out_time
status
working_hours
BONUS_DEDUCTION
bd_id
emp_id
type
amount
reason
date_applied
payroll
calculated
for
PAYROLL
payroll_id
emp_id
basic_salary
total_bonus
total_deduction

DATA FLOW DIAGRAM (DFD)

LEVEL-0 DFD

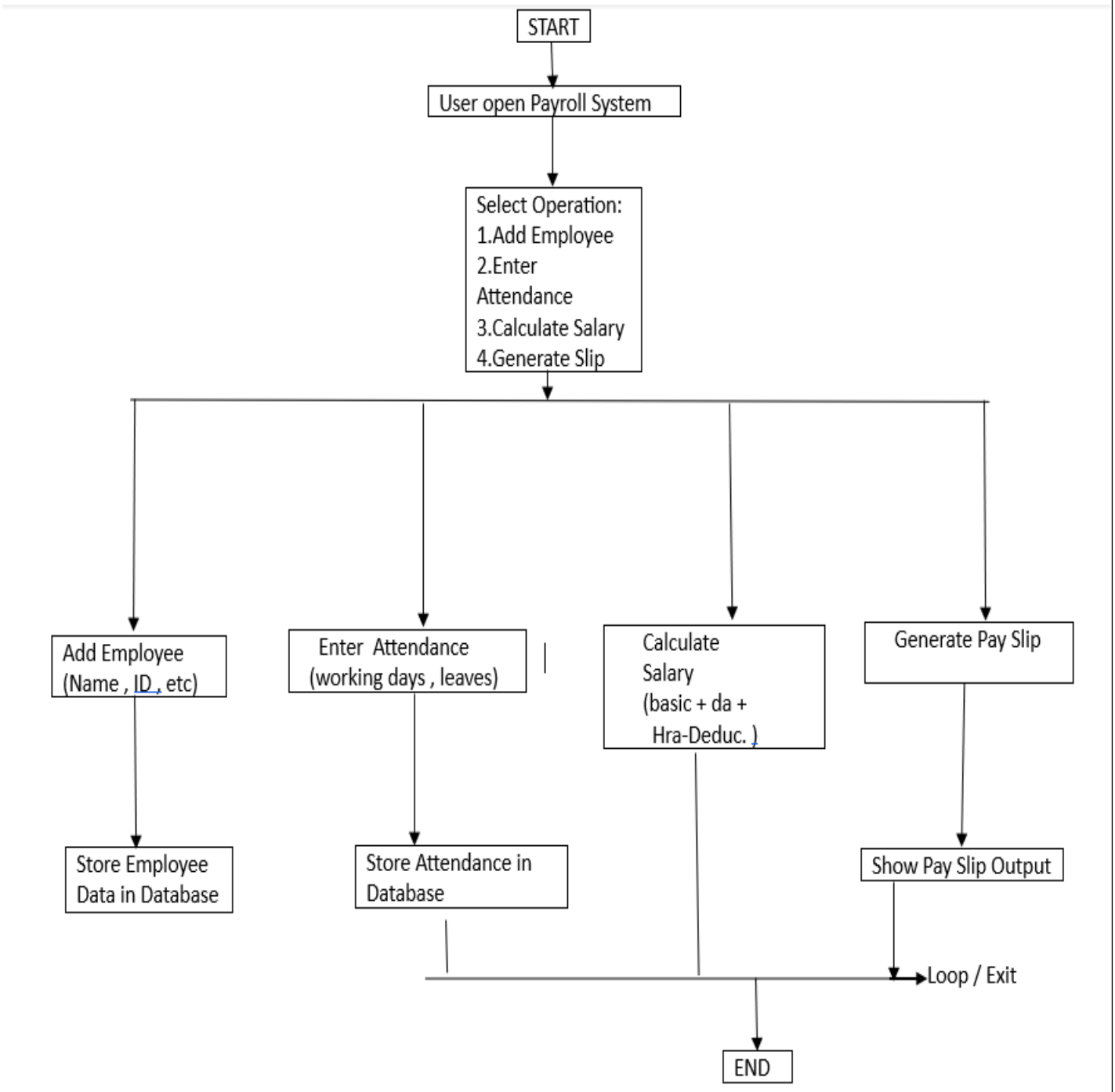


LEVEL-1 DFD



COMPLETE STRUCTURE

- Process Logic Diagram



Platform Used

a) Hardware Requirements

- Processor: Intel i3 or higher
- RAM: Minimum 4GB
- Hard Disk: 500MB free space
- Operating System: Windows/Linux/Mac

b) Software Requirements

- JDK 8 or above
- MySQL Server
- MySQL Workbench / phpMyAdmin
- IDE: Eclipse / IntelliJ IDEA / NetBeans
- JDBC Driver
- OS: Windows 10/11

FUTURE SCOPE

- Integration with biometric attendance systems
- Integration with company HRMS and accounting systems
- Cloud-based payroll solution
- Mobile app version for employees
- Auto tax filing computations
- Multi-company payroll support
- Advanced analytics: salary trend reports, cost forecasting

BIBLIOGRAPHY

- Oracle Java Documentation
- MySQL Official Documentation
- JDBC API Guide
- Reference books on DBMS and Java Programming
- Online educational resources (GeeksforGeeks, TutorialsPoint, JavaTPoint)