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Secure Instant Payslip Access Using Permission Based Authentication

Sasitharan[1], Sushma[2]
Department of Computer Science, Rathinam College of Arts and Science (Autonomous), Coimbatore
Tamil Nadu, India
[1]sasitharan58569@gmail.com

Abstract: *The secure instant payslip access using permission-based authentication is a full-stack web application developed using React.js with Prime React components for the front-end, Node.js with Express.js for the back-end REST API, and MySQL as the relational database management system. The system is designed to automate and streamline the entire payroll and payslip management process for organizations. The application provides complete Employee CRUD (Create, Read, Update, Delete) operations, allowing HR administrators to efficiently manage employee master data including personal details, designation, department, salary structure, and bank information. Each employee record is associated with a unique QR code that is dynamically embedded in the generated payslip PDF. The QR code links to a token-protected URL, enabling secure and verifiable payslip downloads while preventing unauthorized access. The system implements Permission-Based Access Control (PBAC) using JWT (JSON Web Token) authentication.* ***HR*** *administrators are granted full access to manage employees, configure salary components, and generate payslips in bulk. Employees, upon login, can only view and download their own payslips, ensuring data privacy and access security. The payslip PDF includes a detailed breakdown of earnings (****Basic Pay, HRA, DA, Conveyance Allowance****), deductions (****PF, ESI, TDS, Professional Tax****), and net pay calculations. The responsive Prime React interface provides a rich user experience across desktop and mobile devices. The MySQL database ensures structured and persistent storage of employee records, payroll transactions, user roles, and access permissions. The system is scalable and suitable for organizations of all sizes.*

Keywords: *Payslip Generator, React.js, Node.js, Express.js, Prime React, MySQL, Employee CRUD, QR Code Generation, PDF Generation, Permission-Based Access Control.*

I. INTRODUCTION

Payroll management is a critical function in organizations, often handled manually or with limited automation. These methods are prone to errors, lack security, and do not provide employees with direct access to their payslips. This paper proposes a secure web-based system that automates payroll processing and ensures secure access using permission-based authentication.

II. PROBLEM STATEMENT

Existing payroll systems suffer from:

- Manual processing errors
- Lack of secure authentication
- No employee self-service portal
- No verification mechanism
- Risk of unauthorized access

III. PROPOSED SYSTEM

The proposed system introduces:

- Automated payslip generation
- JWT-based authentication
- Role-based access control
- QR code-based verification
- Secure PDF download

IV. SYSTEM ARCHITECTURE

The system follows a three-tier architecture:

- **Presentation Layer:** React.js
- **Application Layer:** Node.js with Express.js
- **Data Layer:** MySQL database

V. METHODOLOGY

A. Authentication

JWT-based authentication ensures secure access to APIs.

B. Payroll Calculation

Salary components are automatically calculated:

- Basic Pay
- HRA, DA
- Allowances
- Deductions (PF, ESI, Tax)

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C. QR Code Security

Each payslip contains a unique QR code linked to a secure download URL.

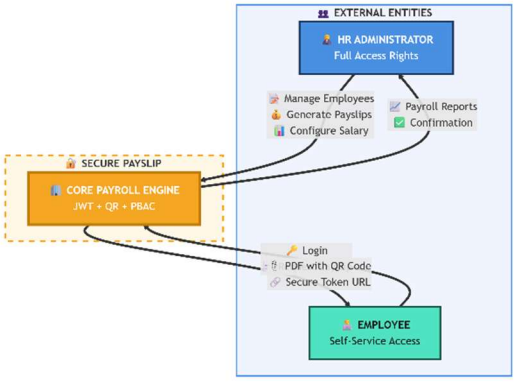
VI. MODULES

1. User Authentication & Authorization
2. Employee Management
3. Payslip Generation
4. QR Code Verification
5. Permission-Based Access Control
6. Employee Self-Service Portal

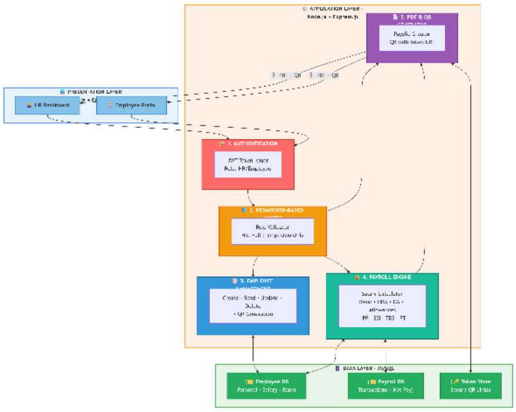
VII. DATA FLOW DIAGRAM

The system includes:

- **Level 0:** Interaction between HR and Employee



- **Level 1:** Authentication, Payroll Processing, Payslip Generation



VIII. RESULTS AND DISCUSSION

The system was successfully implemented and tested:

- Secure login functionality
- Efficient employee management
- Automated payslip generation
- QR-based secure download

IX. ADVANTAGES

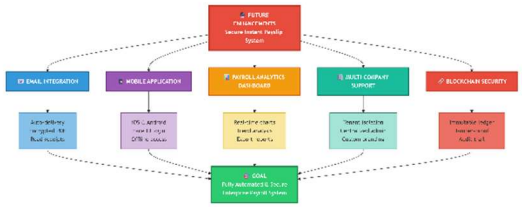
- Reduces manual errors
- Ensures data security
- Provides employee self-access
- Scalable and efficient
- Tamper-proof payslips

X. CONCLUSION

The proposed system provides a secure and automated payroll management solution. By integrating JWT authentication and QR-based verification, it ensures data privacy and efficient payslip distribution.

XI. FUTURE ENHANCEMENTS

- Email integration
- Mobile application
- Payroll analytics dashboard
- Multi-company support
- Blockchain-based security



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