

SchoolEMS – School Employee Management System

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Project Summary

SchoolEMS is a full-stack enterprise grade web application designed to digitize and centralize school employee management. The system empowers HR teams, administrators, and staff with tools to manage employee data and leave workflows efficiently.

The platform features a **modern React frontend** and a **secure Spring Boot backend**, enabling real time interaction, robust access control, and scalable data management.

Objectives

- Provide an intuitive and responsive UI for employee and leave management
- Implement secure, role-based access for Admins, Managers, and Employees
- Automate the full lifecycle of leave requests (submission → approval → audit)
- Enable centralized, accurate tracking of employee and leave data
- Ensure accessibility and mobile responsiveness for wider adoption

Technologies Used

Frontend

- React 18 + TypeScript - Component-based architecture
- Vite - Fast development and optimized production builds
- React Router v6 - Declarative routing with nested layouts
- Styled Components / CSS Modules - Scoped styling
- Bun - High-performance JavaScript runtime and package manager

Backend

- Spring Boot 3.x (Java 17+) - RESTful API
- Spring Security - JWT-based stateless authentication
- Spring Data JPA - ORM for PostgreSQL/MySQL/H2
- Lombok - Simplified boilerplate
- Maven - Build and dependency management

Other Tools

- Axios - API communication
- React Context & Custom Hooks - App wide state
- Jest + RTL + MSW - Testing ecosystem
- PostgreSQL (or H2 for development) - Relational database

Key Features

Employee Management

- Full CRUD (Create, Read, Update, Delete) operations
- Role assignment and filtering
- Bulk operations and validation

Leave Management

- Leave request submission form with calendar view
- Real-time approval/rejection workflow
- File attachments (e.g., medical certificates)
- Leave balance checks and conflict detection

Authentication & Authorization

- JWT-based login sessions
- Role-based route protection and UI rendering
- Secure logout, session timeout, multi-tab sync

Dashboard & Reporting

- Role-specific dashboards (Admin, Manager, Employee)
- Visual stats and charts
- Export options: CSV, PDF, Excel

Accessibility & UX

- WCAG 2.1 AA compliant
- Keyboard navigation, screen reader support
- Light/dark themes
- Responsive design (desktop, tablet, mobile)

Pain Points Solved

- ✓ Eliminates manual employee record tracking
- ✓ Streamlines leave approval processes
- ✓ Enforces role-based access to sensitive data
- ✓ Prevents data inconsistencies through validation
- ✓ Centralizes staff data for better HR operations
- ✓ Improves staff-admin communication

Impact & Benefits

Increased administrative efficiency
 Reduction in paperwork and errors
 Enhanced data security and transparency
 Stronger engagement between employees and managers
 Usable on any modern device

Repository Structure

```

schoolEMS/
├── frontend/ React + TypeScript application
│   ├── src/ Components, Pages, Hooks, API, etc.
│   └── public/
├── backend/ Spring Boot project
│   ├── src/main/
│   └── src/test/
├── README.md
├── .gitignore
└── .env.example
  
```

Authentication Flow

1. User logs in → JWT stored in localStorage
2. JWT decoded to identify role (Admin/Manager/Employee)
3. Routes and UI conditionally rendered based on role
4. Session timeout and inactivity warnings
5. Secure logout clears token and resets app state

Deployment-Ready

- CI/CD-compatible with GitHub Actions
- Production-ready builds with Vite & Maven
- Portable `.env`-based config
- Backend packaged as JAR for deployment on cloud or bare metal
- Frontend can be deployed to Vercel, Netlify, or static file servers

Test Coverage Highlights

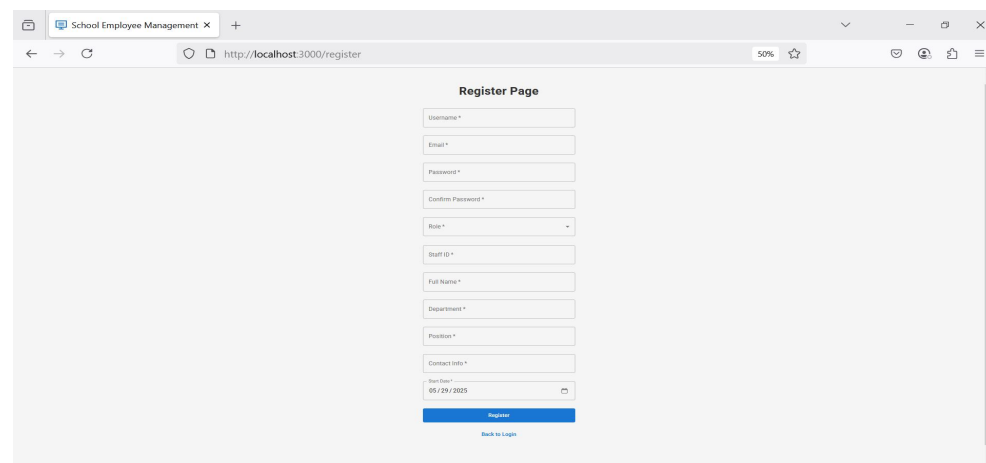
- ✓ Unit + Integration tests for core React components
- ✓ Backend tests using JUnit
- ✓ API mocking via MSW
- ✓ Coverage for protected routes, session behavior, and form validation

Contact

For technical questions or support, reach out via email: praiseolufemi1@gmail.com

Built with precision and passion by Praise Olufemi
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Screenshots

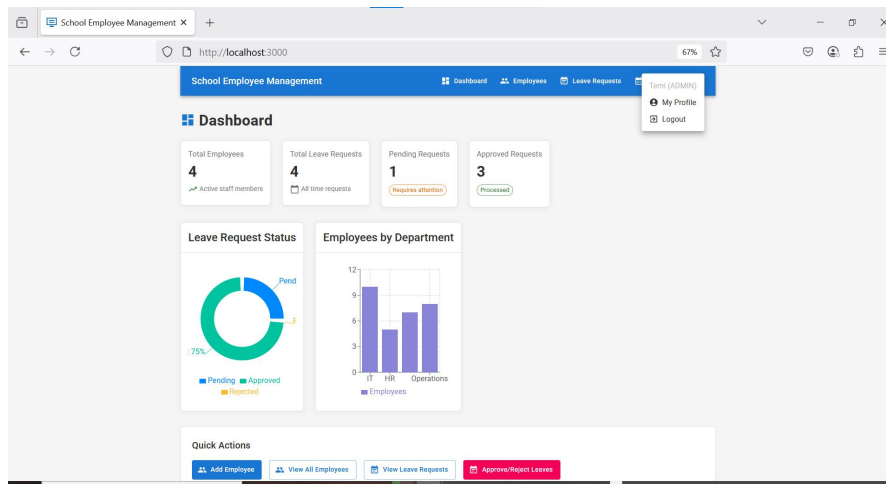


The screenshot shows a web browser window with the title 'School Employee Management'. The address bar shows 'http://localhost:3000/register'. The page content is a registration form titled 'Register Page'. The form includes the following fields: Username, Email, Password, Confirm Password, Role (a dropdown menu), Staff ID, Full Name, Department, Position, Contact Info, and Birth Date (pre-filled with 05/29/2025). At the bottom of the form is a blue 'Register' button and a link that says 'Back to Login'.

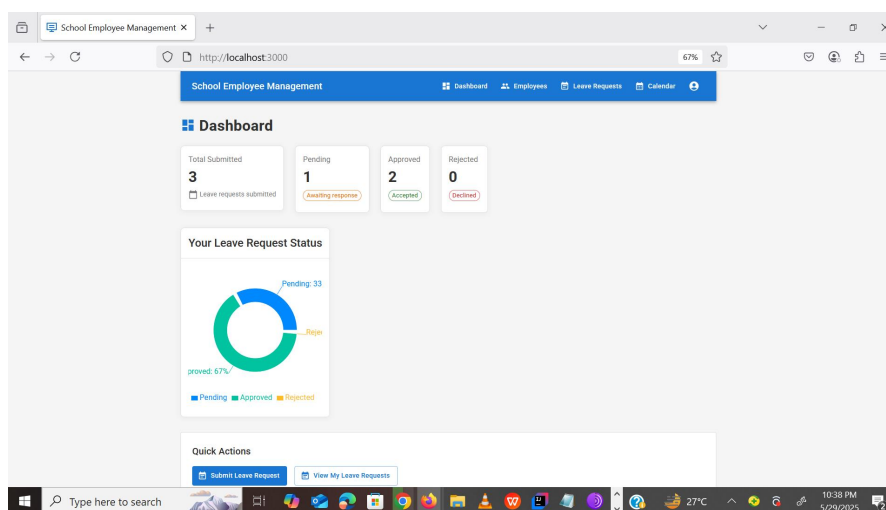
Register Page

The screenshot shows a web browser window with the title "School Employee Management". The address bar shows "http://localhost:3000/login". The main content is a "Login" form with two input fields: "Username *" and "Password *". Below the fields is a blue "Login" button. At the bottom of the form, there is a link that says "Don't have an account? Register".

Login Page



Admin Dashboard




Employee Dashboard

School Employee Management X

http://localhost:3000/profile

My Profile

View and manage your account information

**Temi Praise**
Member since May 2025 [Edit Profile](#)

Personal Information
Full Name:
Username:
Email:
Contact Information:

Work Information
Department:
Position:

Admin Profile

School Employee Management X

http://localhost:3000/leaverequests

All Leave Requests

[Export](#) [+ Submit Request](#)

Search leave requests by employee, type, reason Filters

Employee	Leave Type	Start Date	End Date	Reason	Status	Actions
James J	ANNUAL	2025-05-21	2025-05-30	Annual	APPROVED	
Peter Paul	ANNUAL	2025-05-20	2025-06-30	Vacation	PENDING	✓ ✗
Peter Paul	ANNUAL	2025-05-20	2025-06-07	Vacation	APPROVED	
Peter Paul	ANNUAL	2025-05-20	2025-06-07	Vacation	APPROVED	

Rows per page: 10 1-4 of 4

Leave Requests

School Employee Management X

http://localhost:3000/leaverequests?action=submit

Submit Leave Request

[Export](#) [+ Submit Request](#)

Search leave requests by employee, type, reason Filters

Leave Type *
ANNUAL

Start Date *
05 / 29 / 2025

End Date *
05 / 29 / 2025

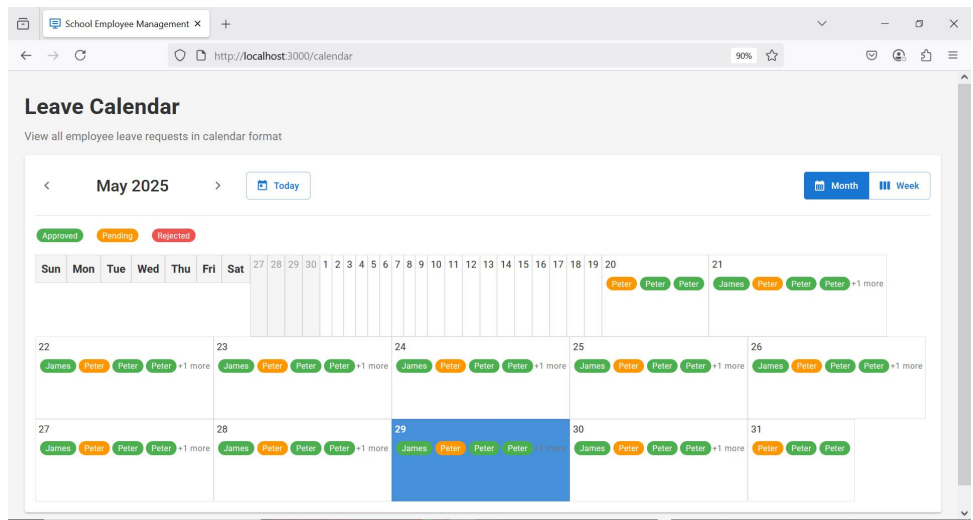
Reason *

[Cancel](#) [Submit](#)

Employee	Leave Type	Status	Delete
Peter Paul	ANNUAL	PENDING	✗
Peter Paul	ANNUAL	APPROVED	
Peter Paul	ANNUAL	APPROVED	

1-3 of 3

Leave Request Submission



Calendar View