Student Management System
Project Development Summary

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Georgia Job Challenge Academy

Generated: February 14, 2026
Version: 2.0.0 | Phases 0–2 Complete

Project Overview

The Student Management System (SMS) is a full-stack web application designed for managing student information, academic records, and educational administration. Built with Laravel 12, Vue 3, PostgreSQL, and Tailwind CSS using Inertia.js as the bridge between backend and frontend.

Development Timeline

Development began on February 8, 2026 and progressed rapidly through multiple phases over the course of one week.

Phase 0: Foundation & Theme System *February 8–9, 2026*

The project began with scaffolding the Laravel 12 application with Vue 3 and Inertia.js, establishing the core architecture that all subsequent features build upon.

- Initial application scaffolding with Laravel Breeze authentication
- User registration, login, password reset, and session management
- Responsive design with mobile and desktop support
- Dark mode support with system preference detection
- Live theme color customization system with real-time preview
- 5 customizable color schemes with persistent settings
- Copyright footer and branding setup
- Comprehensive project README and documentation

Phase 1: Student & Course Foundation *February 9, 2026*

Built the core data models and management interfaces for students, teachers, courses, and academic structure.

Backend:
- Student management with demographics, guardian relationships, and photo uploads
- Student ID auto-generation (STU-YYYY-###)
- Student status tracking (active, inactive, graduated, withdrawn, suspended)

- Teacher/Employee profiles with qualifications and department tracking
- Teacher ID auto-generation (TCH-YYYY-###)
- Course catalog with unique codes, departments, levels, and credit tracking
- Academic year and term/semester management
- Database migrations and model relationships

  Frontend:
- Admin dashboard with real-time statistics
- CRUD interfaces for students, teachers, and courses
- Search and filtering capabilities
- Quick Action navigation cards on admin dashboard
- Reusable Vue component library (StatCard, AdminActionCard, PageHeader, etc.)

  Documentation:
- Architecture overview (docs/ARCHITECTURE.md)
- Database schema documentation (docs/DATABASE.md)
- Backend documentation (docs/BACKEND.md)
- Frontend documentation (docs/FRONTEND.md)
- API documentation (docs/API.md)

Phase 2: Class Scheduling & Enrollment *February 9, 2026*

Added the operational layer for managing class sections, schedules, and student enrollment.

- Class section creation with schedule definitions
- Teacher-to-class assignment
- Room allocation and capacity management (max students per class)
- Schedule conflict detection for both students and teachers
- Student enrollment with status tracking
- Capacity enforcement preventing over-enrollment
- Drop/withdraw functionality
- Student schedule viewing
- Class status tracking (open, closed, in_progress, completed)
- Frontend Index pages for all admin modules
- Updated all documentation for Phase 2 completion

Branding & Configuration *February 9–10, 2026*

- Set organization name to Georgia Job Challenge Academy
- Updated all copyright notices to Brian K. Rich
- Renamed application to Student Management System
- Restored original logo and branding
- Replaced Teacher model with broader Employee system
- Added class and employee seed data

- Cleaned up legacy references from earlier project naming

Deployment & DevOps *February 12, 2026*

- GitHub Actions CI/CD workflow for AWS Lightsail deployment
- Manual workflow_dispatch trigger for on-demand deploys
- Fixed npm peer dependency conflicts with --legacy-peer-deps
- Resolved Ubuntu permission issues in deployment pipeline
- Environment variable configuration for deploy paths
- Tested and validated full deployment pipeline

Tech Stack Summary

Layer	Technology
Backend Framework	Laravel 12
Frontend Framework	Vue 3 (Composition API)
CSS Framework	Tailwind CSS
Build Tool	Vite
Database	PostgreSQL
Auth	Laravel Breeze
SPA Bridge	Inertia.js
Routing	Ziggy
PHP Version	8.3
Node.js Version	24.13.0
Hosting	AWS Lightsail
CI/CD	GitHub Actions

Seed Data

The project includes comprehensive seed data for development and testing:

- Academic year 2025–2026 with Fall and Spring terms
- 10 courses across different departments
- 5 teachers with assignments
- 20 students with guardian information
- 12 class sections with schedules
- Sample enrollments

Security Features

- Bcrypt password hashing
- CSRF protection
- SQL injection protection via Eloquent ORM
- XSS protection via Vue.js template escaping
- Rate limiting on authentication endpoints
- Secure session management
- Role-based access control (Admin / User)

Planned Roadmap

Phase	Feature	Status
Phase 0	Theme System	Complete
Phase 1	Student & Course Foundation	Complete
Phase 2	Class Scheduling & Enrollment	Complete
Phase 3	Grading & Assessments	Next
Phase 4	Attendance Management	Planned
Phase 5	Parent/Guardian Portal	Planned
Phase 6	Academic Calendar	Planned
Phase 7	Document Management	Planned
Phase 8	Reporting & Analytics	Planned

Commit Statistics

Metric	Value
Total Commits	45
Development Period	Feb 8–12, 2026
Phases Completed	3 (Phase 0–2)
Contributors	1