

Review

Learning Management System (LMS)

Table of Contents

1. Executive Summary
2. Technology Stack
3. System Overview
4. User Authentication System
5. Admin Dashboard
6. Teacher Dashboard
7. Student Dashboard
8. Additional Features
9. Icons & UI Components
10. Database Structure

Executive Summary

Logix Dive LMS is a comprehensive, modern Learning Management System designed for educational institutions. The platform provides role-based access control with dedicated dashboards for Admins, Teachers, and Students. Built with cutting-edge technologies, the system offers seamless course management, attendance tracking, grade management, and real-time analytics.

Key Highlights:

- **3 User Roles:** Admin, Teacher, Student
- **Real-time Analytics:** Live performance tracking
- **Responsive Design:** Works on all devices
- **Premium UI/UX:** Modern, professional interface
- **Secure Authentication:** Password encryption & JWT tokens

Technology Stack

Frontend Technologies

Technology	Version	Purpose
React	18.3.1	Core UI framework
Vite	5.4.2	Build tool & dev server
TailwindCSS	4.1.18	Utility-first CSS framework
React Router DOM	6.26.0	Client-side routing
Phosphor Icons	2.1.10	Premium icon library
Chart.js	4.5.1	Data visualization

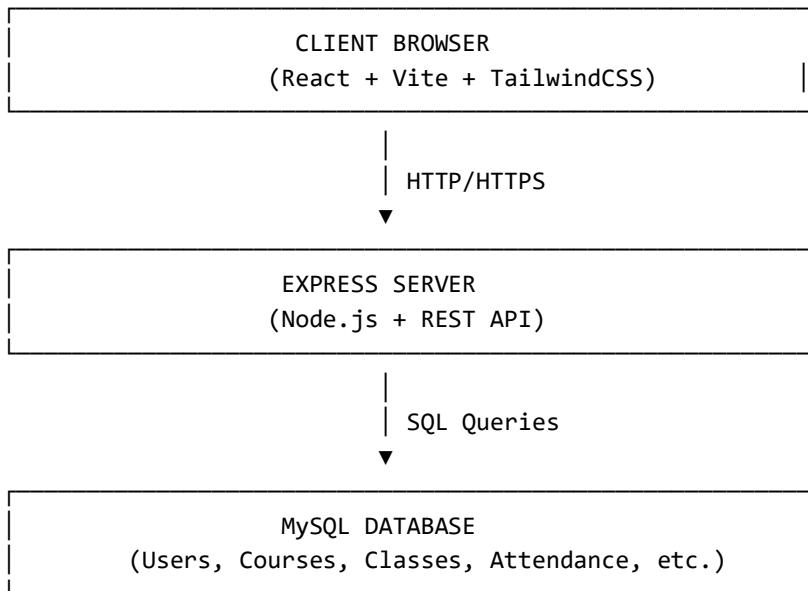
XLSX	0.18.5	Excel export functionality
------	--------	----------------------------

Backend Technologies

Technology	Version	Purpose
Node.js	-	Runtime environment
Express	4.18.2	Web server framework
MySQL2	3.6.5	Database driver
bcrypt	5.1.1	Password hashing
jsonwebtoken	9.0.2	Authentication tokens
Multer	2.0.2	File upload handling
CORS	2.8.5	Cross-origin requests
dotenv	16.3.1	Environment variables

System Overview

Architecture Diagram



User Authentication System

1. Sign In Page

[: Sign In Page]

Key Features:

- Email & Password Authentication

- **Remember Me** checkbox
- **Password visibility toggle** (Eye/EyeSlash icon)
- **Forgot Password** link
- **Role-based routing** (Admin/Teacher/Student)
- **Pending approval notification** for students
- **Premium glassmorphism design**

UI Components:

- Animated background orbs
- Glass card design
- Branding section with logo
- Input fields with icons
- Loading spinner
- Error toast notifications

Icons Used:

- Envelope - Email field
- Lock - Password field
- Eye/EyeSlash - Password visibility toggle
- GraduationCap - Logo
- ArrowRight - Submit button
- ChartLineUp - Analytics feature
- Users - Team management feature

Functionality:

1. User enters email and password
2. Form validates input fields
3. API call to /api/signin endpoint
4. If successful, user data stored in localStorage
5. Redirects to appropriate dashboard based on role
6. If pending approval, shows waiting message

File Location:

frontend/src/pages/SignIn.jsx

2. Sign Up Page

[: Sign Up Page]

Key Features:

- **Full Name** input field
- **Email** validation
- **Password** with strength indicator
- **Confirm Password** matching
- **Password visibility toggles** for both fields
- **Real-time password strength meter**

- **Teacher approval workflow**

Password Strength Levels:

Strength	Color	Criteria
Very Weak	Red	< 6 characters
Weak	Orange	6+ characters
Fair	Yellow	10+ chars + mixed case
Good	Light Green	+ numbers
Strong	Green	+ special chars

Icons Used:

- User - Name field
- Envelope - Email field
- Lock - Password field
- ShieldCheck - Confirm password field
- Eye/EyeSlash - Password visibility
- CheckCircle - Feature highlights
- ArrowRight - Submit button

Functionality:

1. Real-time password strength calculation
2. Password match validation
3. Form submission to /api/signup
4. Student registrations marked as "pending"
5. Notification of pending approval
6. Auto-redirect to Sign In page

File Location:

frontend/src/pages/SignUp.jsx

3. Forgot Password Page

[: Forgot Password Page]

Key Features:

- **Email input** for account recovery
- **Reset link generation**
- **Email notification**
- **Security token system**

Icons Used:

- Envelope - Email input
- ArrowRight - Submit button

File Location:

frontend/src/pages/ForgotPassword.jsx

4. Reset Password Page

[: Reset Password Page]

Key Features:

- **New password** input
- **Confirm password** validation
- **Password strength indicator**
- **Token validation**
- **Secure reset process**

Icons Used:

- Lock - Password fields
- ShieldCheck - Confirm password
- Eye/EyeSlash - Visibility toggle

File Location:

frontend/src/pages/ResetPassword.jsx

Admin Dashboard

[: Admin Dashboard Overview]

Overview

The Admin Dashboard is the command center for managing the entire educational institution. It provides comprehensive control over classes, teachers, students, and system analytics.

Key Sections:

1. Dashboard Overview

[: Admin Dashboard Stats]

Main Statistics Cards:

- **Total Classes** - Number of active classes
- **Teachers** - Total teaching staff
- **Students** - Enrolled students count
- **Trend Indicators** - Growth metrics

Analytics Chart:

[: Admin Analytics Chart]

- **Interactive Chart.js visualization**
- **Student enrollment trends**
- **Performance metrics**

- **Monthly comparisons**

2. Class Management

[: Class Management Table]

Features:

- View all classes
- Add new class
- Edit class details
- Delete class
- Class name, teacher assignment, room number

Icons Used:

- Buildings - Classes section
- Plus - Add new class
- PencilSimple - Edit class
- Trash - Delete class

Add Class Modal:

[: Add Class Modal]

Form Fields:

- Class Name
- Teacher Assignment (dropdown)
- Room Number

3. Teacher Management

[: Teacher Management Section]

Features:

- View all teachers
- Add new teacher
- Remove teacher
- Teacher name, email, subject

Add Teacher Modal:

[: Add Teacher Modal]

Form Fields:

- Full Name
- Email Address
- Password
- Subject/Department

Icons Used:

- ChalkboardTeacher - Teachers section
- UserPlus - Add teacher
- Trash - Remove teacher

4. Student Management

[: Student Management Section]

Features:

- View all students
- Add new student
- Remove student
- Student name, email, class

Icons Used:

- GraduationCap - Students section
- UserPlus - Add student
- Trash - Remove student

5. Right Panel - Activity Feed

[: Admin Activity Feed]

Components:

- **Profile Card** - Admin profile with avatar
- **Activity Logs** - Recent system activities
- **Quick Actions** - Frequently used functions

Icons Used:

- UserCircle - Profile section
- Pulse - Activity indicator
- DotsThreeVertical - More options

6. Sidebar Navigation

[: Admin Sidebar]

Navigation Items:

- **Dashboard** - Main overview
- **Classes** - Class management
- **Teachers** - Teacher management
- **Students** - Student management
- **Reports** - Analytics & reports
- **Timetable** - Schedule management
- **Logout** - Sign out

Icons Used:

- House - Dashboard
- Buildings - Classes
- ChalkboardTeacher - Teachers
- UserCircle - Students
- ClipboardText - Reports
- CalendarBlank - Timetable
- SignOut - Logout

File Location:

frontend/src/pages/AdminDashboard.jsx

Teacher Dashboard

[: Teacher Dashboard Overview]

Overview

The Teacher Dashboard provides educators with tools to manage their courses, track student attendance, assign grades, and monitor student progress.

Key Sections:

1. Dashboard Overview

[: Teacher Stats Cards]

Statistics Cards:

- **My Courses** - Courses taught
- **Pending Approvals** - Student enrollment requests
- **Total Students** - Students across all courses

2. Course Management

[: Teacher Course List]

Features:

- View all courses
- Create new course
- Course details (name, code, students)
- Quick actions per course

Create Course Modal:

[: Create Course Modal]

Form Fields:

- Course Name
- Course Code
- Description

Icons Used:

- BookOpen - Courses section
- PlusCircle - Create course
- List - Course list view

3. Pending Student Approvals

[: Pending Approvals Section]

Features:

- View pending enrollment requests
- Approve student enrollment
- Reject enrollment request
- Student details (name, email, course)

Icons Used:

- UserPlus - Pending approvals
- CheckCircle - Approve
- X - Reject

4. Class Attendance

[: Class Attendance Page]

Features:

- Select class from dropdown
- View enrolled students
- Mark attendance (Present/Absent/Late)
- Submit attendance records
- View existing attendance

Attendance Status Options:

-  **Present** - Student attended
-  **Absent** - Student missed class
-  **Late** - Student arrived late

Icons Used:

- CheckCircle - Present
- XCircle - Absent
- Clock - Late
- CalendarBlank - Date selection
- Users - Students
- PaperPlaneTilt - Submit

File Location:

frontend/src/pages/ClassAttendance.jsx

5. Grades Management

[: Grades Section]

Features:

- Select course
- View enrolled students
- Assign grades
- Grade types (Quiz, Assignment, Midterm, Final)
- Add new grade modal

Add Grade Modal:

[: Add Grade Modal]

Form Fields:

- Select Student
- Select Course
- Grade Type (dropdown)

- Score (0-100)

Icons Used:

- - Grades section
- - Edit grade

6. Timetable View

[: Teacher Timetable]

Features:

- Weekly schedule view
- Class timings
- Room assignments
- Course details per slot

Icons Used:

- - Timetable
- - Time display

7. Sidebar Navigation

[: Teacher Sidebar]

Navigation Items:

- **Dashboard** - Main overview
- **Courses** - Course management
- **Approvals** - Pending student requests
- **Attendance** - Mark attendance
- **Grades** - Student grades
- **Timetable** - Schedule
- **Profile** - Account settings
- **Logout** - Sign out

Icons Used:

- - Dashboard
- - Courses
- - Approvals
- - Attendance

- - Grades
- - Timetable
- - Profile
- - Logout

File Location:

frontend/src/pages/TeacherDashboard.jsx

Student Dashboard

[: Student Dashboard Overview]

Overview

The Student Dashboard provides learners with access to their courses, grades, attendance records, timetable, and fee challans.

Key Sections:

1. Dashboard Overview

[: Student Stats Cards]

Statistics Cards:

Enrolled Courses - Current courses

- **Attendance** - Overall attendance rate
- **Average Grade** - Academic performance

2. My Courses

: Student Course Grid]

Features:

- View enrolled courses
- Course details
- Instructor information
- Quick access to course materials

Icons Used:

- - Courses
- - Instructor

3. Enroll in New Courses

[: Available Courses]

Features:

- Browse available courses
- View course details
- Enroll in course
- Pending approval status

Icons Used:

- PlusCircle - Enroll button
- CaretRight - View details

4. Register for Classes

[: Class Registration]

Features:

- View available classes
- Class details (teacher, room, timings)
- Register for class
- Class capacity information

Icons Used:

- Buildings - Classes
- Clock - Timings

5. My Grades

[: Student Grades Table]

Features:

- View all grades
- Grade breakdown by course
- Grade types (Quiz, Assignment, Midterm, Final)
- Score and percentage

Table Columns:

- Course Name
- Grade Type
- Score
- Max Score
- Percentage

Icons Used:

- ChartLineUp - Grades section

6. Attendance Records

[: Student Attendance]

Features:

- View attendance history
- Course-wise attendance
- Status (Present/Absent/Late)
- Date and time
- Attendance percentage

Icons Used:

- CheckCircle - Present
- XCircle - Absent
- Clock - Late

7. Fee Challans

[: Fee Challans Section]

Features:

- View fee challans
- Download challan
- Payment status
- Due dates
- Amount details

Icons Used:

- CreditCard - Payments

- **Wallet** - Challan
- **IdentificationCard** - Student ID

8. Timetable

[: Student Timetable]

Features:

- Weekly class schedule
- Day-wise view
- Class timings
- Room locations
- Instructor names

Icons Used:

- **CalendarBlank** - Timetable
- **Clock** - Time slots

9. Sidebar Navigation

Navigation Items:

- **Home** - Dashboard overview
- **Courses** - My courses
- **Grades** - Academic performance
- **Attendance** - Attendance records
- **Payments** - Fee challans
- **Timetable** - Class schedule
- **Profile** - Account settings
- **Logout** - Sign out

Icons Used:

- **House** - Home
- **BookOpen** - Courses
- **ChartLineUp** - Grades
- **Clock** - Attendance
- **CreditCard** - Payments
- **CalendarBlank** - Timetable
- **UserCircle** - Profile
- **SignOut** - Logout

File Location:

frontend/src/pages/StudentDashboard.jsx

Additional Features

1. Analytics Dashboard

Features:

- Data visualization with Chart.js
- Performance metrics
- Enrollment trends
- Attendance statistics
- Grade distribution

File Location:

frontend/src/pages/Analytics.jsx

2. Class Timetable Management

Features:

- Create timetable slots
- Assign classes to time slots
- Room allocation
- Day-wise schedule
- Conflict detection

File Location:

frontend/src/pages/ClassTimetable.jsx

3. Student Assignments

Features:

- View assignments
- Download assignment files
- Submit assignments
- Due dates tracking
- Assignment status

File Location:

frontend/src/pages/StudentAssignments.jsx

Icons & UI Components

Phosphor Icons Library

The system uses **Phosphor Icons** v2.1.10, a premium, flexible icon family for interfaces.

Complete Icon Reference:

Icon Name	Usage	Pages
House	Dashboard/Home navigation	All Dashboards
GraduationCap	Logo, Students section	Global
ChalkboardTeacher	Teachers section	Admin, Student
UserCircle	Profile, User management	All Dashboards
Buildings	Classes section	Admin, Student
ClipboardText	Reports, Attendance	Admin, Teacher
CalendarBlank	Timetable, Calendar	All Dashboards
BookOpen	Courses section	All Dashboards
CheckCircle	Approvals, Present status	Teacher, Attendance
XCircle	Reject, Absent status	Teacher, Attendance
Clock	Late status, Timings	Attendance, Timetable
Envelope	Email fields	Auth Pages
Lock	Password fields	Auth Pages
Eye	Show password	Auth Pages
EyeSlash	Hide password	Auth Pages
ArrowRight	Submit buttons	Auth Pages
Plus	Add actions	Admin Dashboard
Trash	Delete actions	Admin Dashboard
PencilSimple	Edit actions	Admin Dashboard
SignOut	Logout button	All Dashboards
CaretDown	Dropdowns	All Dashboards
Phone	Contact info	Dashboards
VideoCamera	Video features	Dashboards
DotsThreeVertical	More options menu	Admin Dashboard
DotsThreeOutline	Actions menu	Dashboards
TrendUp	Statistics trend	Admin Dashboard
Pulse	Activity indicator	Admin Dashboard
UserPlus	Add user actions	Admin, Teacher
PlusCircle	Create course, Enroll	Teacher, Student
List	List view	Teacher Dashboard
X	Close, Reject	Modals, Forms
FileText	Grades, Documents	Teacher Dashboard
ChartLineUp	Grades, Analytics	Student, Analytics
CreditCard	Payments	Student Dashboard

Wallet	Fee challans	Student Dashboard
IdentificationCard	Student ID	Student Dashboard
ArrowLeft	Back navigation	Multiple pages
User	Name fields	SignUp
ShieldCheck	Confirm password	Auth Pages
Users	Team management	SignIn
PaperPlaneTilt	Submit attendance	Attendance
WarningCircle	Warnings	Attendance
Table	Table view	Attendance
ArrowsClockwise	Refresh	Attendance

Database Structure

Database Tables:

1. users

- id - Primary key
- name - User full name
- email - Unique email
- password - Hashed password
- role - admin/teacher/student
- status - active/pending
- created_at - Timestamp

2. courses

- id - Primary key
- course_name - Course title
- course_code - Unique code
- teacher_id - Foreign key to users
- description - Course description
- created_at - Timestamp

3. classes

- id - Primary key
- class_name - Class name
- teacher_id - Foreign key to users
- room_number - Room assignment
- created_at - Timestamp

4. enrollments

- id - Primary key

- `student_id` - Foreign key to users
- `course_id` - Foreign key to courses
- `status` - pending/approved
- `enrolled_at` - Timestamp

5. **attendance**

- `id` - Primary key
- `student_id` - Foreign key to users
- `class_id` - Foreign key to classes
- `date` - Attendance date
- `status` - present/absent/late
- `marked_by` - Teacher ID
- `created_at` - Timestamp

6. **grades**

- `id` - Primary key
- `student_id` - Foreign key to users
- `course_id` - Foreign key to courses
- `grade_type` - quiz/assignment/midterm/final
- `score` - Numeric score
- `max_score` - Maximum possible score
- `created_at` - Timestamp

7. **timetables**

- `id` - Primary key
- `class_id` - Foreign key to classes
- `course_id` - Foreign key to courses
- `day_of_week` - Monday-Friday
- `start_time` - Class start time
- `end_time` - Class end time
- `room_number` - Room location

8. **challans**

- `id` - Primary key
- `student_id` - Foreign key to users
- `amount` - Fee amount
- `due_date` - Payment deadline
- `status` - paid/unpaid
- `created_at` - Timestamp

Design & Styling

Color Palette:

Color	Hex Code	Usage
Primary	#4f46e5	Buttons, Logo, Links
Dark	#0f172a	Text, Headers
Light	#f8fafc	Background
Border	#e2e8f0	Borders, Dividers
Gray	#64748b	Secondary text
Success	#22c55e	Success states
Warning	#eab308	Warnings
Danger	#ef4444	Errors, Delete

Typography:

- **Font Family:** 'Plus Jakarta Sans', sans-serif
- **Headings:** 800 weight
- **Body:** 400-600 weight

Design System:

- **Border Radius:** 12px - 32px (rounded corners)
- **Shadows:** Subtle box shadows
- **Spacing:** Consistent padding/margins
- **Animations:** Smooth transitions
- **Glassmorphism:** Auth pages
- **Gradients:** Background elements

API Endpoints

Authentication:

- POST /api/signin - User login
- POST /api/signup - User registration
- POST /api/forgot-password - Password reset request
- POST /api/reset-password - Password reset

Courses:

- GET /api/courses - Get all courses
- POST /api/courses - Create course
- GET /api/courses/:id - Get course details
- DELETE /api/courses/:id - Delete course

Classes:

- GET /api/classes - Get all classes

- `POST /api/classes` - Create class
- `PUT /api/classes/:id` - Update class
- `DELETE /api/classes/:id` - Delete class

Attendance:

- `GET /api/attendance/class/:classId` - Get class attendance
- `POST /api/attendance` - Submit attendance
- `GET /api/attendance/student/:studentId` - Student attendance

Grades:

- `GET /api/grades/course/:courseId` - Course grades
- `POST /api/grades` - Add grade
- `GET /api/grades/student/:studentId` - Student grades

Enrollments:

- `GET /api/enrollments/pending` - Pending approvals
- `POST /api/enrollments` - Enroll student
- `PUT /api/enrollments/:id/approve` - Approve enrollment
- `DELETE /api/enrollments/:id` - Reject enrollment

Responsive Design

- [[Mobile View - Sign In](#)]
- [[Mobile View - Dashboard](#)]
- [[Tablet View - Dashboard](#)]

Breakpoints:

- **Desktop:** 1024px and above
- **Tablet:** 768px - 1023px
- **Mobile:** Below 768px

Features:

- Collapsible sidebar on mobile
- Stacked layouts for small screens
- Touch-friendly buttons
- Optimized tables for mobile
- Responsive grid systems

File Location:

frontend/src/responsive.css

Security Features

1. Password Security:

- **bcrypt hashing** (10 rounds)
- **Minimum 6 characters** requirement
- **Strength validation** on signup
- **Secure reset tokens**

2. Authentication:

- **JWT tokens** for session management
- **Token expiration** (24 hours)
- **localStorage** for client-side storage
- **Protected routes** with authentication guards

3. Authorization:

- **Role-based access control** (RBAC)
- **Route protection** based on user role
- **API endpoint** authorization
- **Student approval workflow**

4. Data Validation:

- **Email format** validation
- **Required field** checks
- **Password matching** verification
- **Input sanitization** on backend

Installation & Setup

Prerequisites:

- Node.js (v14 or higher)
- MySQL (v8.0 or higher)
- npm or yarn package manager

Backend Setup:

```
cd backend
npm install
# Configure .env file with database credentials
npm run dev
```

Frontend Setup:

```
cd frontend
npm install
npm run dev
```

Database Setup:

```
# Import the SQL file
mysql -u root -p university_lms < RUN_THIS_NOW.sql
```

Additional Resources

Files Included:

- **README.md** - Project documentation
- **LMS_QUICK_GUIDE.md** - Quick start guide
- **RUN_THIS_NOW.sql** - Database schema
- **package.json** (Frontend & Backend)
- **All source code** files

Custom Styles:

- index.css - Global styles
- custom-styles.css - Custom components
- responsive.css - Media queries
- SignIn.css - Sign in page styles
- SignUp.css - Sign up page styles
- ForgotPassword.css - Password recovery styles
- ResetPassword.css - Password reset styles
- Dashboard.css - Dashboard styles

Support & Maintenance

Features for Future Enhancement:

- Mobile applications (iOS/Android)
- Live chat support
- Email notifications
- Document management system
- Video conferencing integration
- Advanced analytics & reporting
- Push notifications
- Progressive Web App (PWA)

Conclusion

Logix Dive LMS is a comprehensive, modern, and secure Learning Management System designed to streamline educational institution management. With its intuitive interface, robust features, and scalable architecture, it provides an excellent platform for administrators, teachers, and students.

Key Strengths:

- **Modern Tech Stack** - React, TailwindCSS, Node.js, MySQL
- **Premium UI/UX** - Professional, responsive design
- **Role-Based System** - Admin, Teacher, Student dashboards
- **Comprehensive Features** - Courses, Attendance, Grades, Timetable
- **Secure & Scalable** - JWT auth, password encryption
- **Real-time Analytics** - Chart.js visualizations

Document Version: 1.0

Last Updated: January 30, 2026

Prepared For: Client Documentation

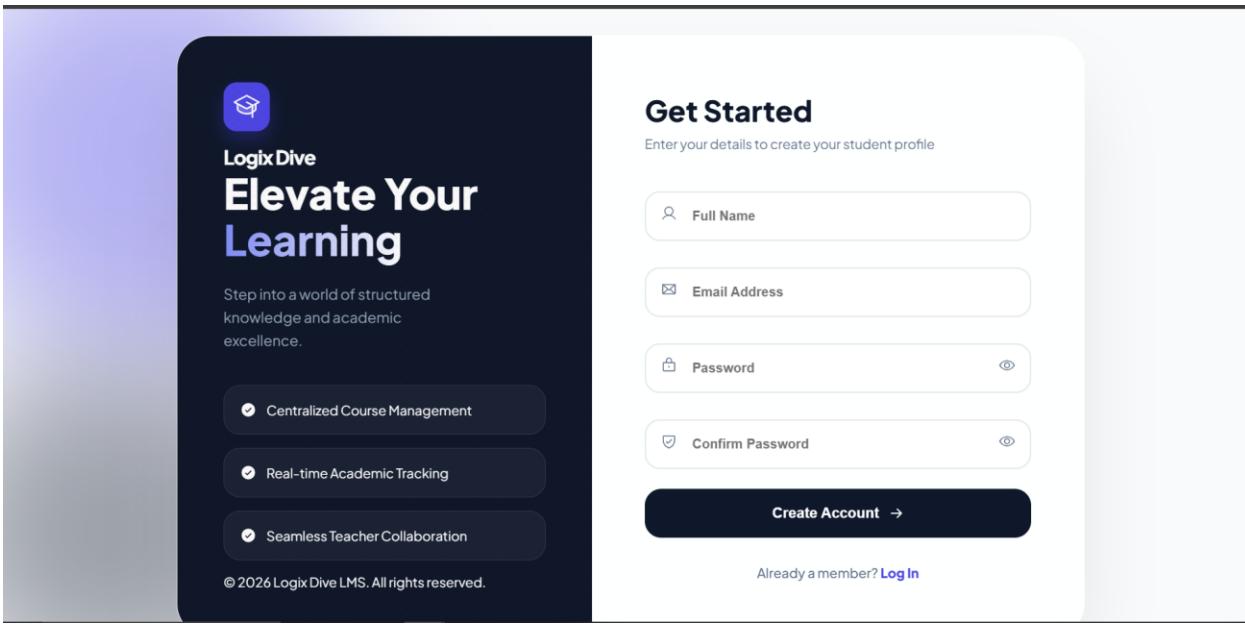
Prepared By: Logix Dive Development Team

Sign In Page

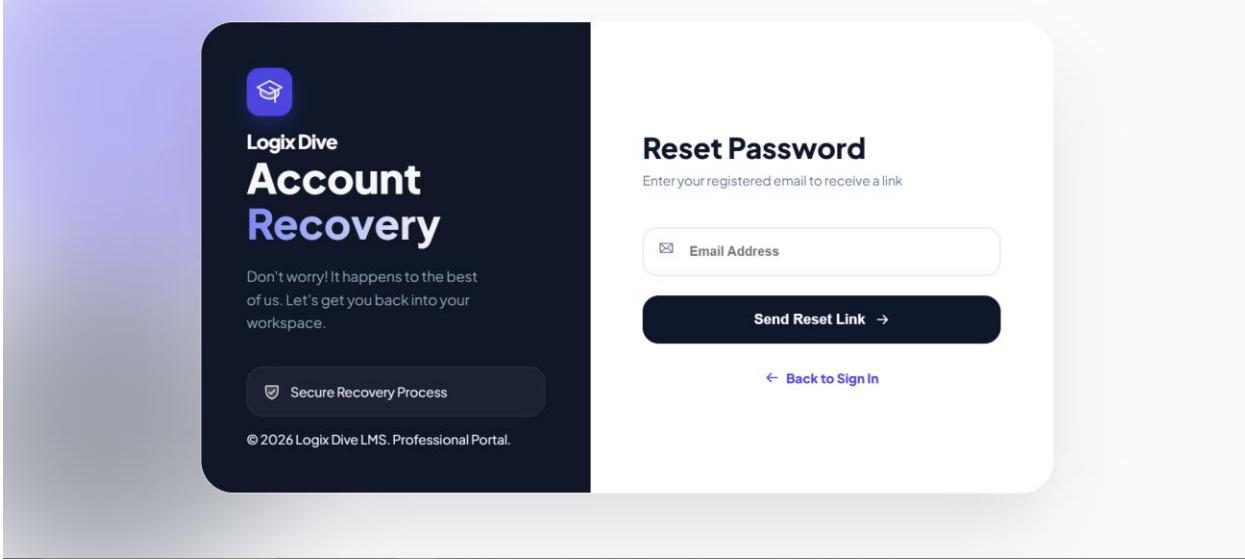
The screenshot shows the Logix Dive LMS sign-in interface. On the left, there's a dark-themed sidebar with a purple-to-grey gradient background. It features a logo icon (a graduation cap), the text "Logix Dive", and a large "Welcome Back" heading. Below this, there's a sub-headline: "Sign in to manage your students, track performance, and lead your institution effectively." At the bottom of the sidebar, there are two rounded rectangular buttons: one for "Team Management" (with a magnifying glass icon) and one for "Live Analytics" (with a bar chart icon). At the very bottom of the sidebar, it says "© 2026 Logix Dive LMS. Professional Suite.".

The main area is titled "Sign In" and contains the instruction "Enter your credentials to access your dashboard". It has two input fields: "Email Address" with an envelope icon and "Password" with a lock icon. There's also a "Remember me" checkbox, a "Forgot password?" link, and a prominent "Sign In →" button. Below the sign-in form, a small note says "Don't have an account? [Sign Up](#)".

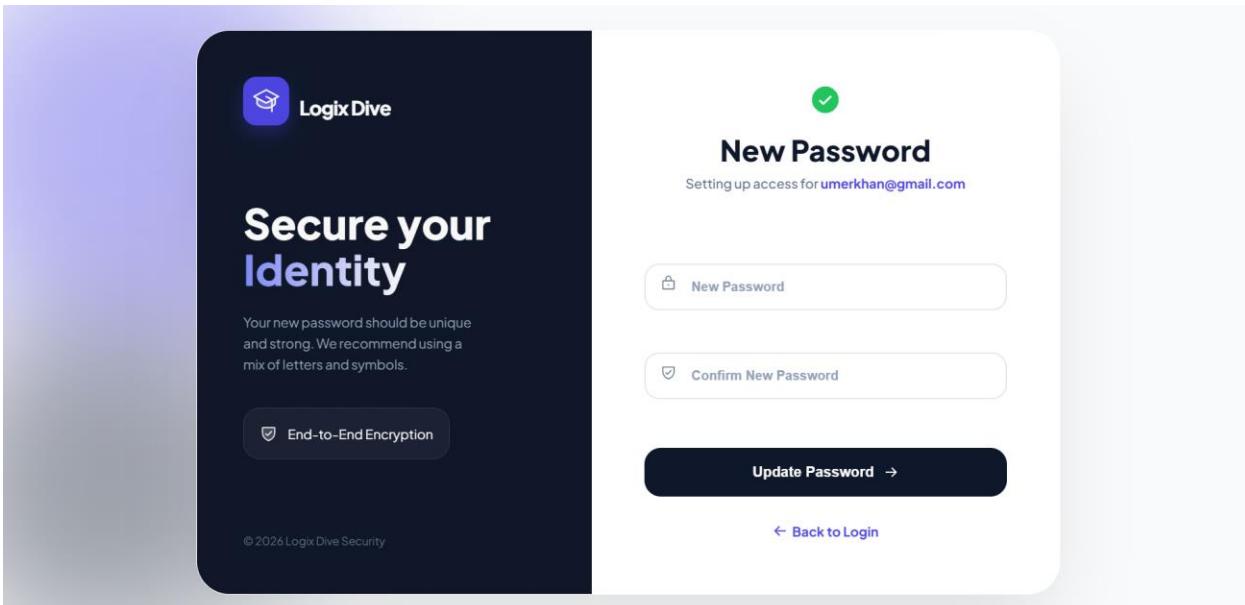
Sign Up Page



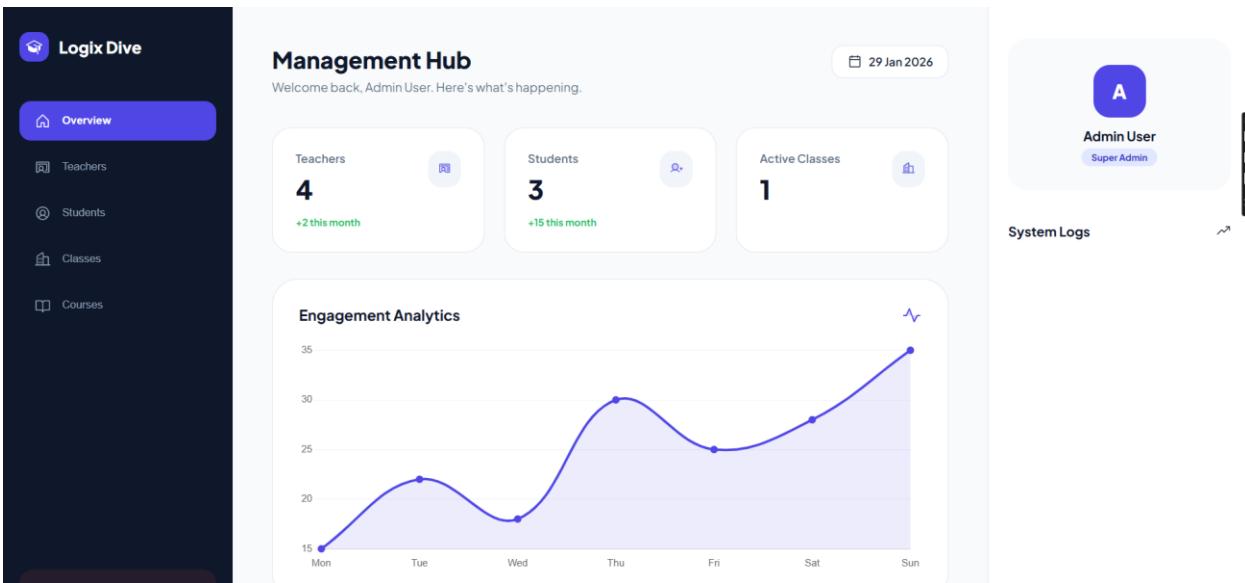
Forgot Password Page



Reset Password Page



Admin Dashboard Overview



Teacher Dashboard Overview

Logix Dive

Faculty Hub

Welcome back, Prof. Sir shaheryar

29 Jan 2026

COURSES 2 STUDENTS 2 WEEKLY CLASSES 0

Quick Academic Actions

+ New Course Mark Attendance Update Grades

My Courses Class Attendance Course Attendance Grades Time Table Pending Requests My Profile Logout

Student Dashboard Overview

Logix Dive

Portal Overview

Fri Jan 30 2026

Hi Umer khan, you have 2 lectures today.

ACTIVE COURSES 5 AVG ATTENDANCE 88% GPA 3.8

Enrolled Courses

ai
Core curriculum module.
Sirshaheryar

Web Development Fundamentals
Learn HTML, CSS, JavaScript and modern web development
Dr. Sarah Johnson

Important
New grade posted in Applied Physics.
Check results tab.

STUDENT MENU

My Courses Browse Courses Class Registration Schedule

ACADEMICS Attendance Results Finance

Logout