KoderEduAI

School Administration Guide

School Management System

Version 3.0 - AI Intelligence Edition

Modules Covered:

Dashboard | Classes & Students | Attendance (AI-Powered)

Face Attendance (Camera-Based) | Academics & Examinations

Finance & Online Payments | HR & Staff Management

Admissions CRM | Transport | Library | Hostel Management

LMS | Notifications | Parent & Student Portals | AI Study Helper

AI Intelligence: Adaptive Thresholds | Drift Detection | Anomaly Alerts

Pipeline Fallback | OR-Tools Timetable | AI Report Comments | Smart Scheduling

To update this guide, edit: generate_user_guide.py (project root)

Then run: python generate_user_guide.py

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1. Getting Started

1.1 Overview

KoderEduAI is a comprehensive School Management System that covers every aspect of school administration - from student enrollment and attendance tracking to finance, HR, academics, examinations, transport, library, and more. The system supports multiple user roles and provides dedicated portals for administrators, teachers, parents, and students.

1.2 User Roles

The system supports the following roles, each with different access levels:

Role	Access Level	Description
Super Admin	Platform-wide	Creates schools & School Admin accounts
School Admin	Full School	Full access; can create users within their school
Principal	School-wide	School operations; can create staff-level users
Teacher	Assigned Classes	Attendance, marks entry, lesson plans
HR Manager	HR Module	Staff management, payroll, leave
Accountant	Finance Module	Fee management, expenses, reports
Staff	Limited	Basic access, notifications
Parent	Parent Portal	View child's attendance, fees, results
Student	Student Portal	View own attendance, timetable, assignments

User Management: School Admins can create Principal, HR Manager, Accountant, Teacher, and Staff users. Principals can create HR Manager, Accountant, Teacher, and Staff users. See the User Management chapter for full details.

1.3 Logging In

1. Open the application URL in your web browser.

2. Enter your username/email and password on the Login page.

3. Click 'Sign In' to access your dashboard.

4. If you manage multiple schools, use the School Switcher (top bar) to select the active school.

> **First-Time Setup**
>
> Your School Admin account is created by the Super Admin. Once you receive your credentials, log in and follow the Initial Setup steps in Chapter 2. You can then create other users from Settings > Users tab.

1.4 Navigating the Application

The application uses a sidebar navigation on the left side of the screen. The sidebar is organized into groups and expandable sections. On mobile devices, the sidebar collapses into a hamburger menu.

Top Bar Features

- School Switcher - Switch between schools if you have access to multiple schools
- Academic Year Switcher - Change the active academic year/session
- Notification Bell - View unread notifications
- User Menu - Profile settings, logout

Sidebar Groups (Admin/Teacher View)

- Dashboard - Main overview page
- Management - Classes and Students
- Attendance - Capture, Review, Register, Face Attendance
- Academics - Subjects, Timetable, Sessions, Examinations, LMS
- Finance - Dashboard, Fee Collection, Expenses, Payment Gateways
- HR & Staff - Staff Directory, Departments, Payroll, Leave
- Admissions - CRM pipeline for new admissions
- Transport - Routes, Vehicles, Assignments
- Library - Book Catalog, Issue/Return, Overdue
- Hostel - Dashboard, Rooms, Allocations, Gate Passes
- Notifications - Inbox, Templates, Send
- Settings - System configuration

2. Initial Setup - Order of Operations

Before using the system, you must set up foundational data in the correct order. Each step depends on the previous one being completed. Follow this sequence carefully.

> **Important Note**
>
> The setup order matters! For example, you cannot add students before creating classes, and you cannot create exams before setting up academic years and subjects. Follow the order below to avoid errors.

2.1 Step 1: Academic Year & Terms

Navigate to: Sidebar > Academics > Sessions

1. Log in with your School Admin credentials.

2. Navigate to Academics > Sessions in the sidebar.

3. In the 'Years' tab, click 'Add Academic Year'.

4. Enter: Name (e.g., '2025-2026'), Start Date, End Date.

5. Click 'Set as Current' to make it the active year.

6. Switch to the 'Terms' tab and click 'Add Term'.

7. Enter: Name (e.g., 'Term 1'), Term Type (Term/Semester/Quarter), Start Date, End Date, Order.

8. Add all terms for the academic year.

> **Why This Matters**
>
> Academic years and terms are required for exams, report cards, fee structures, and student promotions. Set this up first.

2.2 Step 2: Create Classes

Navigate to: Sidebar > Management > Classes

1. Navigate to 'Classes' in the sidebar under Management.

2. Click 'Add Class'.

3. Enter: Class Name (e.g., 'Class 5-A'), Section (e.g., 'A'), Grade Level (e.g., 'Grade 5').

4. Save the class. Repeat for all classes and sections.

5 Classes are displayed grouped by grade level. Use the 'Grid' toggle for an alternate view.

> **Tip**
>
> Create all sections for a grade. For example: Class 5-A, Class 5-B, Class 5-C. The grade level grouping will organize them automatically.

2.3 Step 3: Add Students

Navigate to: Sidebar > Management > Students

1 Navigate to 'Students' in the sidebar.

2 To add one student: Click 'Add Student' and fill in Name, Roll Number, Class, Parent Name, Parent Phone, Admission Number.

3 To bulk import: Click 'Import from Excel', download the template, fill it in, and upload.

4 Students will appear in the list. Use the class filter to view students by class.

5 You can export the student list as PDF, PNG, or Excel using the export buttons.

> **Important Note**
>
> Students must be assigned to a class. Make sure classes are created (Step 2) before adding students.

> **Session Enrollment**
>
> When you add a student (individually or via Excel upload), the system automatically creates an enrollment record for the school's current academic year. This links the student to the correct session. Roll numbers are unique per session and class, so different academic years can have different students with the same roll number in the same class.

2.4 Step 4: Add Subjects

Navigate to: Sidebar > Academics > Subjects

1 Navigate to Academics > Subjects in the sidebar.

2 In the 'Subjects' tab, click 'Add Subject'.

3 Enter: Subject Name, Subject Code, Description, and whether it is an Elective.

4 Save. Repeat for all subjects taught in the school.

5 Switch to the 'Assignments' tab to assign subjects to classes.

6 Select a class, pick a subject, choose the teacher, set periods per week, then save.

2.5 Step 5: Create Timetable

Navigate to: Sidebar > Academics > Timetable

1 Navigate to Academics > Timetable.

2 Select a class to create its timetable.

3 Define time slots (period start time, end time).

4 Assign subjects and teachers to each period for each day of the week.

5 Save the timetable. Students and parents can now view it in their portals.

> **Prerequisite**
>
> Subjects must be assigned to classes (Step 4) before creating timetables.

2.6 Setup Checklist Summary

Step	What to Do	Prerequisite	Who Does It
1	Set up Academic Year & Terms	Logged into school	School Admin
2	Create Classes	None	School Admin
3	Add Students	Classes exist	School Admin
4	Add Subjects & Assign to Classes	Classes exist	School Admin
5	Create Timetable	Subjects assigned	School Admin

3. Attendance Module (AI-Powered)

The Attendance module uses AI-powered OCR to capture attendance from handwritten registers. Teachers upload photos of attendance registers, and the AI extracts student names and marks. The system supports review and approval workflows.

3.1 Capturing Attendance

Navigate to: Sidebar > Attendance > Capture & Review > Upload Tab

1 Navigate to the Attendance section and click 'Capture & Review'.

2 You will see three tabs: Upload, Review, and Approve. Select the 'Upload' tab.

3 Select the Class from the dropdown and pick the Date.

4 Upload an image of the handwritten attendance register (photo or scan).

5 Use the crop/zoom tool to frame the register area correctly.

6 Click 'Process' - the AI will extract student names and attendance marks (P, A, L, etc.).

7 Review the AI-extracted data on screen. Correct any errors if needed.

8 Click 'Submit' to save the captured attendance for review.

3.2 Reviewing Attendance

Navigate to: Sidebar > Attendance > Capture & Review > Review Tab

1 Switch to the 'Review' tab to see all pending attendance records.

2 Click on a record to see the side-by-side view: original image vs. extracted data.

3 Verify each student's mark. Edit any incorrect marks directly in the table.

4 Click 'Approve' to confirm the attendance or 'Reject' to send it back for re-capture.

3.3 Viewing the Attendance Register

Navigate to: Sidebar > Attendance > Register & Analytics

1 Navigate to 'Register & Analytics' under Attendance.

2 Select a class and date range to view the full attendance register.

3 The register shows a grid: students as rows, dates as columns, with marks in each cell.

4 Use the Analytics tab to view attendance trends, percentages, and accuracy metrics.

3.4 Attendance Mark Meanings

Symbol	Meaning	Status
P	Present	Student was in class
A	Absent	Student was not in class
L	Late	Student arrived late
Le	Leave	Student on approved leave
HD	Half Day	Student was present for half the day

Customization

 You can customize attendance marks and their meanings in Settings > Mappings Tab. Add new symbols or change the default mapping.

4. Face Attendance (Camera-Based)

The Face Attendance module uses AI-powered face recognition to take attendance from a single group photo of the class. Instead of scanning handwritten registers, a teacher or admin takes a photo of the class, and the system automatically detects faces, matches them to enrolled students, and marks attendance. This is faster and works well for classes where camera-based attendance is preferred.

How It Works

1. Enroll each student by uploading a clear portrait photo (one-time setup). 2. Take a group photo of the class. 3. The AI detects all faces, matches them to enrolled students, and flags uncertain matches. 4. Review the results and confirm attendance.

Important Note

Face Enrollment is required before using face attendance. Students without an enrolled face photo cannot be matched automatically. Enroll all students in a class before capturing attendance.

4.1 Prerequisites

Before using Face Attendance, ensure:

- Classes are created with students enrolled (see Chapter 2)
- The face recognition library is installed on the server (dlib + face_recognition)
- Supabase storage bucket is configured for image uploads

4.2 Step 1: Enroll Student Faces

Navigate to: Sidebar > Attendance > Face Attendance > Manage Enrollments

Enrollment is a one-time setup where you upload a clear portrait photo of each student. The system extracts a facial fingerprint (embedding) that is used for matching during attendance.

1. Navigate to Face Attendance and click 'Manage Enrollments' (top-right button).

2. Select a Class from the dropdown on the left panel.

3. Select a Student from the student dropdown (shows all students in the class).

4. Upload or capture a clear portrait photo of the student. The photo must show exactly one face.

5. Click 'Enroll Face'. The system uploads the photo, detects the face, and stores the facial embedding.

6 The enrolled student appears in the right panel with a quality score percentage.

7 Repeat for all students in the class.

> **Photo Tips for Enrollment**
>
> Use a clear, well-lit portrait photo with the student facing the camera. Avoid group photos, sunglasses, or heavy shadows. The photo must contain exactly one face. Quality score above 70% is recommended for reliable matching.

Enrollment Summary

The right panel shows all enrolled students for the selected class with their quality scores. At the bottom, a summary shows how many students are enrolled vs. total, highlighting any missing enrollments in orange. Students already enrolled show '[enrolled]' next to their name in the student dropdown.

Removing an Enrollment

8 In the enrolled faces list (right panel), click 'Remove' next to the student.

9 Confirm the removal in the dialog. The enrollment is deactivated (soft delete).

10 You can re-enroll the student with a new photo if needed.

4.3 Step 2: Capture Class Photo

Navigate to: Sidebar > Attendance > Face Attendance > Capture Tab

Once students are enrolled, you can take attendance by capturing a group photo of the class.

1 Navigate to Face Attendance. You will see the Capture tab (default).

2 Select the Class from the dropdown.

3 Select the Date (defaults to today).

4 Click 'Select or Capture Photo' to take a photo using the device camera or upload an existing image.

5 A preview of the photo appears. Click 'Clear' to retake if needed.

6 Click 'Process Attendance'. The photo is uploaded and the AI begins processing.

7 You are automatically navigated to the Review page.

> **Important Note**
>
> If you see a red banner saying 'Face recognition library is not installed', contact your system administrator. The server needs the dlib and face_recognition Python libraries installed.

Status Banners

The main page shows helpful banners based on the current state:

- Red banner: Face recognition library not available on server

- Yellow banner: No students enrolled yet (with link to enrollment page)

- Blue banner: Sessions pending review (with 'Review Now' button)

4.4 Step 3: Review Detected Faces

Navigate to: Sidebar > Attendance > Face Attendance > Review Page

After processing, the Review page shows the AI's results. The page auto-refreshes every 3 seconds while processing is in progress.

Processing State

While the AI is working, you see a spinner with 'Processing Faces...' and a message that it usually takes 10-30 seconds. The page auto-refreshes until results are ready.

Review Layout

Once processing completes, the page shows three sections:

- Captured Image: The original group photo you uploaded

- Detected Faces: Grid of cropped face thumbnails with match information

- Class Roll: List of all students in the class with present/absent toggles

Detected Faces Grid

Each detected face shows:

- Face crop thumbnail (auto-generated from the group photo)

- Matched student name (or 'Unknown' if not matched)

- Confidence percentage

- Color-coded status badge:

Badge	Color	Meaning
Auto	Green	High-confidence match (auto-accepted)
Review	Yellow	Medium-confidence match (needs your review)
Manual	Blue	Manually matched by you
Ignored	Gray	Low-confidence, no match found
Removed	Red	You removed this detection

You can remove incorrect detections by clicking the red X button on each face card.

Class Roll Call

The Class Roll section lists all students in the class. Students matched by the AI are automatically marked as Present (green 'P' badge). Unmatched students are marked Absent (gray 'A' badge). The summary shows the count: e.g., '2

present / 2 absent'.

1 Review the auto-matched results in the Detected Faces grid.

2 In the Class Roll, click on any student to toggle between Present and Absent.

3 Students with 'matched' tag were detected in the photo.

4 Students with 'no face' tag have not been enrolled yet (cannot be auto-matched).

4.5 Step 4: Confirm Attendance

1 After reviewing and adjusting the present/absent selections, click 'Confirm Attendance'.

2 The system saves attendance records for all students in the class (Present or Absent).

3 A success message appears and the session status changes to 'Confirmed' (green badge).

4 Confirmed attendance records appear in the main Attendance Register alongside OCR-captured records.

> **Reprocessing**
>
> If you are unsatisfied with the AI results, click 'Reprocess' to re-run face detection and matching on the same photo. This clears existing detections and starts fresh.

4.6 Viewing Past Sessions

Navigate to: Sidebar > Attendance > Face Attendance > Sessions Tab

1 Click the 'Sessions' tab on the Face Attendance page.

2 View all past sessions with class name, date, face count, and status badge.

3 Click any session to open the Review page (view confirmed results or review pending ones).

Session statuses: Processing (blue), Needs Review (yellow), Confirmed (green), Failed (red).

4.7 Face Attendance Workflow Summary

Step	What to Do	Where	Frequency
1	Enroll student faces	Manage Enrollments	One-time per student
2	Capture class group photo	Capture tab	Daily
3	Review AI-matched faces	Review page	Daily
4	Confirm attendance	Review page	Daily

4.8 Match Confidence Thresholds

The AI uses distance-based matching to compare detected faces against enrolled student photos. Matches are classified into three categories based on confidence:

Category	Threshold	Action
Auto-Matched	Distance < 0.40 (high confidence)	Automatically accepted
Flagged	Distance 0.40-0.55 (medium)	Flagged for manual review
Ignored	Distance >= 0.55 (low)	No match, ignored

5. Academics Module

5.1 Managing Subjects

Navigate to: Sidebar > Academics > Subjects > Subjects Tab

1 Click 'Add Subject' to create a new subject.

2 Fill in: Subject Name, Code (e.g., MATH, ENG), Description.

3 Check 'Is Elective' if the subject is optional for students.

4 Save. The subject appears in the list with AI-generated insights about workload.

Assigning Subjects to Classes

Navigate to: Sidebar > Academics > Subjects > Assignments Tab

5 Switch to the 'Assignments' tab.

6 Click 'Assign Subject' and select: Class, Subject, Teacher, Periods Per Week.

7 Save. This links the subject, teacher, and class together.

8 Repeat for all subject-class-teacher combinations.

5.2 Academic Sessions (Years & Terms)

Navigate to: Sidebar > Academics > Sessions

Academic sessions define the school calendar and are critical for exams, promotions, and reports. All student data - attendance, fees, exams, roll numbers - is scoped to the active academic session. Use the Academic Year Switcher in the header to view data for any session.

Managing Academic Years

1 In the 'Years' tab, view all academic years.

2 Click 'Add Academic Year' to create a new one (Name, Start Date, End Date).

3 Click 'Set as Current' on the year you want to make active.

4 The year summary shows: number of terms, exams created, students enrolled.

> **Session-Scoped Data**
>
> When you switch the academic year in the header, all pages update to show data for that session: Students, Attendance, Fees, Exams, and more. Roll numbers are assigned per session, so the same class can have different students with roll number 1 in different academic years.

Managing Terms

5 Switch to the 'Terms' tab.

6 Filter by Academic Year if needed.

7 Click 'Add Term' and fill in: Name, Type (Term/Semester/Quarter), Order, Dates.

8 Terms define when exams happen and how report cards are structured.

5.3 Student Promotion

Navigate to: Sidebar > Academics > Promotion

1 Select the source academic year and source class.

2 Select the target academic year and target class.

3 Review the list of students eligible for promotion.

4 Optionally edit each student's new roll number for the target year.

5 Select students to promote (or select all).

6 Click 'Promote' to move them to the new class/year.

> **Important Note**
>
> Promotion is a bulk operation. Ensure the target academic year and classes exist before promoting.

> **Promotion & New Admissions**
>
> New admissions can happen in a future session before promotion is run for the current session. For example, you can admit students to Playgroup for 2026-27 while 2025-26 students are still in Playgroup. Roll numbers are independent per session, so there are no conflicts. When you promote the old students, they move to the next class.

5.4 AI Analytics

Navigate to: Sidebar > Academics > AI Analytics

The AI Analytics page provides intelligent insights about academic performance, subject workload balance, attendance correlation with grades, and more. Use it to identify struggling students and subjects that need attention.

6. Examinations Module

The Examinations module covers the complete exam lifecycle: defining grade scales, creating exam types, scheduling exams, entering marks, viewing results, and generating report cards.

6.1 Step 1: Define Grade Scale

Navigate to: Sidebar > Academics > Examinations > Grade Scale

1 Navigate to Grade Scale under Examinations.

2 Click 'Add Grade' and define each grade level.

3 For each grade, enter: Grade Name (A+, A, B+...), Min Marks, Max Marks, Grade Point (GPA).

4 Save all grades. This scale is used to auto-calculate student grades from marks.

Grade	Min %	Max %	Grade Point
A+	90	100	4.0
A	80	89	3.7
B+	70	79	3.3
B	60	69	3.0
C+	50	59	2.5
C	40	49	2.0
F	0	39	0.0

6.2 Step 2: Create Exam Types

Navigate to: Sidebar > Academics > Examinations > Exam Types

1 Click 'Add Exam Type'.

2 Enter: Type Name (e.g., 'Mid-Term Exam', 'Final Exam', 'Unit Test').

3 Set the weightage (how much this exam type counts toward the final grade).

4 Save. Exam types can be reused across terms and years.

6.3 Step 3: Create an Exam

Navigate to: Sidebar > Academics > Examinations > Exams

1 Click 'Create Exam'.

2 Select: Academic Year, Term, Class, Exam Type.

3 Enter: Exam Name, Start Date, End Date.

4 The exam status will be 'SCHEDULED' initially.

5 As the exam progresses, update status: SCHEDULED > IN_PROGRESS > MARKS_ENTRY > COMPLETED > PUBLISHED.

6.4 Step 4: Enter Marks

Navigate to: Sidebar > Academics > Examinations > Marks Entry

1 Select the Exam, Class, and Subject from the dropdowns.

2 The system loads all students in that class.

3 Enter marks for each student. The max marks are validated automatically.

4 Save marks. You can return and edit marks until the exam is published.

5 Bulk import from Excel is also available for large classes.

6.5 Step 5: View & Publish Results

Navigate to: Sidebar > Academics > Examinations > Results

1 Select the Exam and Class to view computed results.

2 Results show: Subject-wise marks, grades (auto-calculated from grade scale), GPA.

3 Review results for accuracy.

4 Click 'Generate AI Comments' to create personalized per-subject comments for all students.

5 Click on any student row to expand and view/edit their AI-generated comments.

6 Click 'Publish Results' to make them visible to students and parents.

6.6 Step 6: Generate Report Cards

Navigate to: Sidebar > Academics > Examinations > Report Cards

1 Select the Academic Year, Term, and Class.

2 Choose individual student or entire class.

3 Preview the report card with all exam results, grades, and GPA.

4 Click 'Download PDF' to generate a printable report card.

5 Report cards can also be shared with parents through the Parent Portal.

Complete Exam Workflow

Grade Scale > Exam Types > Create Exam > Enter Marks > View Results > Publish > Report Cards. Each step depends on the previous one.

7. Finance Module

The Finance module manages all monetary aspects of the school including fee collection, expenses, account management, discounts, and financial reporting.

7.1 Setting Up Finance Accounts

Navigate to: Sidebar > Settings > Accounts Tab

1. Navigate to Settings and click the 'Accounts' tab.

2. Click 'Add Account' to create finance accounts.

3. Account types: CASH (physical cash), BANK (bank accounts), PERSON (individual accounts).

4. Enter: Account Name, Type, Opening Balance.

5. Check 'Staff Visible' if staff members should see this account.

6. Create at least one CASH and one BANK account before collecting fees.

7.2 Finance Dashboard

Navigate to: Sidebar > Finance > Dashboard

The Finance Dashboard is the central hub for all financial data and reports. It combines real-time account overview with period-based financial analysis in a single page.

Period Selector

At the top of the page, use the period selector buttons (This Month, Last Month, This Quarter, This Year, or Custom date range) to filter the financial summary and expense breakdown data.

KPI Row

Five key metrics are displayed at a glance:

- Account Balance - Total balance across all accounts

- Total Income - Revenue for the selected period

- Total Expenses - Expenses for the selected period

- Net Balance - Income minus Expenses

- Fee Collection Rate - Percentage of fees collected for the current month

Dashboard Cards

- Fee Collection Summary - Total collected this month, pending amounts, collection rate

- Account Balances - Current balance of each cash, bank, and person account

- Expense Breakdown - Donut chart and detailed table showing expense categories, amounts, and percentages for the selected period

- Recent Transfers - Latest inter-account transfers with a quick-add button

- Monthly Trend Chart - 6-month bar chart showing income vs. expenses over time

- Recent Entries Table (Admin only) - Last 15 transactions across all types

- Quick Actions - Shortcut buttons to record fees, expenses, and transfers

Downloading PDF Reports

1 Select the desired period using the period selector buttons at the top of the dashboard.

2 Click the 'PDF' button in the top-right area of the page header.

3 A comprehensive PDF report is generated and downloaded automatically.

The PDF report includes: Financial Summary (income, expenses, net balance, fee collection rate), Account Balances table, Monthly Trend table (last 6 months), and Expense Breakdown by category. Each page includes the school name, period, generation date, and page numbers.

7.3 Setting Fee Structures

Navigate to: Sidebar > Finance > Fee Collection > Set Fee Structure

1 Click 'Set Fee Structure' to open the fee structure modal.

2 Use the fee type tabs (Monthly, Annual, Admission, Books, Fine) to switch between fee types.

3 Enter the fee amount for each class. Leave as 0 for classes that don't pay this fee.

4 Set the 'Effective From' date (when this fee amount takes effect).

5 Click 'Review Changes' to see a confirmation summary of all non-zero fees.

6 Confirm to save. Fee structures are used to auto-calculate amounts when generating fee records.

> **Fee Priority**
>
> Student-level fee overrides take precedence over class-level defaults. You can set a per-student override from the fee table by clicking the 'Fee' button on a student's row.

7.4 Generating Fee Records

Navigate to: Sidebar > Finance > Fee Collection > Generate Records

1 Click 'Generate Records' to open the generation modal.

2 For Monthly fees: select the month and year. The system shows a preview of how many records will be created, how many already exist (will be skipped), and the total amount.

3 For non-monthly fees (Annual, Admission, Books, Fine): select the class to preview. The system shows per-student amounts resolved from fee structures.

4 Review the preview, then click 'Generate' and confirm. Fee records are created for all eligible students. Students without a fee structure or with existing records are skipped.

> **Important Note**
>
> Fee generation requires fee structures to be set first. Students without a matching fee structure will be listed as 'no fee structure' in the preview and will not receive a record.

7.5 Creating Individual Fee Records

Navigate to: Sidebar > Finance > Fee Collection > Create Fee

1 Click 'Create Fee' to open the single fee creation modal.

2 Select a class, then search for a student using the searchable dropdown.

3 The fee amount auto-fills from the student's fee structure (class default or student override).

4 If the student has already paid, enter the paid amount. Payment fields (Account, Method, Date) appear automatically when a paid amount is entered.

5 The system warns if a duplicate fee record already exists for the same student/type/period.

6 Click 'Create' to save the fee record.

7.6 Fee Collection Page

Navigate to: Sidebar > Finance > Fee Collection

The fee collection page loads all fee records for the selected month/year in a single request. Switching class or status filters is instant (no loading delay) because filtering happens on your browser.

Summary Cards

Four KPI cards show month-wide totals: Total Payable, Received, Balance, and Collection Rate.

Analytics

Click 'Show Analytics' to reveal class-wise bar charts, payment status donut, and pending student breakdown.

Filters

Use the Fee Type, Month, Year, Class, and Status dropdowns to narrow the table view. Class and Status filters apply instantly without re-fetching data.

7.7 Recording Payments

Navigate to: Sidebar > Finance > Fee Collection

1 In the fee table, click the row's payment area or use the inline edit feature.

2 Enter: Amount Paid, select the receiving Account, Payment Method, and Date.

3 Click 'Save'. The student's status updates automatically (PAID, PARTIAL, UNPAID, ADVANCE).

7.8 Bulk Operations

1 Select multiple students using the checkboxes in the fee table.

2 The bulk action bar appears at the bottom with options to:

- Set paid amount, account, and payment method for all selected records at once
- Delete all selected records (with confirmation)

3 Confirm the bulk action. All selected records update simultaneously.

7.9 Managing Discounts & Scholarships

Navigate to: Sidebar > Finance > Discounts & Scholarships

1 Click 'Add Discount Rule'.

2 Define: Discount Name, Type (Percentage or Fixed Amount), Value.

3 Set eligibility criteria if applicable.

4 Apply discounts to individual students or in bulk.

5 Discounts automatically adjust the student's fee balance.

7.10 Recording Expenses

Navigate to: Sidebar > Finance > Expenses

1 Click 'Add Expense'.

2 Enter: Description, Category, Amount, Date, Account (which account pays).

3 Save. The expense is recorded and the account balance is updated.

4 Use category filters to view expenses by type.

5 Edit or delete expenses as needed.

7.11 Financial Reports

Navigate to: Sidebar > Finance > Dashboard

Financial reports are integrated directly into the Finance Dashboard. Use the period selector at the top to view data for different time ranges, and click the PDF button to download a report.

-   Income vs. Expenses summary - View totals and net balance for any period
-   Monthly Trend - 6-month bar chart comparing income and expenses
-   Expense Breakdown - Donut chart and table with category-wise amounts and percentages
-   Fee Collection Report - Available via the Fee Collection page's Export PDF button

> **Downloadable PDF**
>
> Click the PDF button on the dashboard header to generate a comprehensive finance report including summary, account balances, monthly trends, and expense breakdown.

7.12 Online Payment Collection

Navigate to: Sidebar > Finance > Payment Gateways

The system supports online fee payments through JazzCash, Easypaisa, and Manual bank transfers. Parents can pay fees directly from their portal once gateways are configured.

1 Navigate to Finance > Payment Gateways.

2 Configure at least one gateway (JazzCash, Easypaisa, or Manual) with valid credentials.

3 Click 'Test Connection' to verify credentials are correct.

4 Toggle the gateway to 'Active' and set one as the default.

5 Parents will now see a 'Pay Now' button on unpaid fees in their portal.

6 When a parent pays online, the system automatically records the payment and updates the fee balance.

7 Payment status is tracked: Initiated, Pending, Successful, or Failed.

8 View all online payments in the Payment History tab on the Payment Gateways page.

> **Payment Security**
>
> All payment transactions use cryptographic signatures (HMAC-SHA256 for JazzCash, SHA-256 for Easypaisa) to prevent tampering. Callback URLs are verified before updating payment status.

7.13 Inter-Account Transfers

1 On the Finance Dashboard, click 'Transfer'.

2 Select: Source Account, Destination Account, Amount, Description.

3 Click 'Transfer'. Both account balances update immediately.

7.14 Month Closing

Navigate to: Sidebar > Settings > Accounts Tab > Close Month

1 At the end of each month, click 'Close Month' in Settings > Accounts.

2 This finalizes the month's transactions and carries forward balances.

3 Closed months cannot be edited (prevents accidental changes to past records).

8. HR & Staff Management Module

The HR module manages the complete employee lifecycle from hiring to payroll. It includes staff directory, departments, salary structures, payroll processing, leave management, attendance tracking, performance appraisals, and document management.

8.1 Setting Up Departments

Navigate to: Sidebar > HR & Staff > Departments

1 Click 'Add Department'.

2 Enter: Department Name (e.g., 'Science', 'Administration', 'Sports').

3 Add designations within each department (e.g., 'Head of Department', 'Senior Teacher').

4 Save. Departments are used when adding staff members.

8.2 Adding Staff Members

Navigate to: Sidebar > HR & Staff > Staff Directory > Add Staff

1 Click 'Add Staff Member'.

2 Fill in Personal Information: First Name, Last Name, Email, Phone, Gender, Date of Birth.

3 Fill in Employment Details: Department, Designation, Employee ID, Employment Type (Full-time/Part-time/Contract), Date of Joining.

4 Add Address and Emergency Contact information.

5 Save. The staff member appears in the directory.

8.3 Staff Directory

Navigate to: Sidebar > HR & Staff > Staff Directory

The Staff Directory is the central hub for managing all staff information:

-   Search by name, email, or employee ID
-   Filter by department or employment status (Active, On Leave, Terminated)
-   Click on a staff member to view/edit their complete profile
-   Export directory as Excel or PDF

8.4 Salary Management

Navigate to: Sidebar > HR & Staff > Salary Management

1   Define salary structures per designation.

2   Set components: Basic Pay, HRA, DA, Allowances, Deductions.

3   Assign salary structures to staff members.

4   Salary structures feed directly into payroll generation.

8.5 Payroll Processing

Navigate to: Sidebar > HR & Staff > Payroll

1   Select the month and year for payroll.

2   Click 'Generate Payslips' to create payslips for all active staff.

3   Review generated payslips. Check amounts, deductions, and net pay.

4   Approve payslips individually or in bulk.

5   Mark approved payslips as 'Paid' once payment is disbursed.

8.6 Leave Management

Navigate to: Sidebar > HR & Staff > Leave Management

The leave system handles leave applications, approvals, and balance tracking:

1   Staff submit leave requests specifying: Leave Type, From Date, To Date, Reason.

2   HR Manager or Admin reviews the request.

3   Approve or reject the leave application with optional remarks.

4   Leave balances update automatically upon approval.

5   View leave history and balances for any staff member.

8.7 Staff Attendance

Navigate to: Sidebar > HR & Staff > Staff Attendance

1   Select the date to mark attendance.

2   Mark each staff member as Present, Absent, or On Leave.

3 Save. Staff attendance records feed into payroll calculations.

8.8 Performance Appraisals

Navigate to: Sidebar > HR & Staff > Performance Appraisals

1 Click 'Create Appraisal' and select the staff member.

2 Fill in performance criteria, ratings, and comments.

3 Submit the appraisal for review.

4 Appraisal history is maintained per staff member.

8.9 Staff Documents

Navigate to: Sidebar > HR & Staff > Documents

1 Select a staff member.

2 Upload documents: ID proofs, certificates, contracts, etc.

3 Documents are stored securely and accessible from the staff profile.

9. Admissions CRM Module

The Admissions CRM manages the complete student enrollment pipeline from initial enquiry to final enrollment. It tracks leads, followups, and conversion rates.

9.1 Admission Workflow Overview

Admissions uses the school's academic years (set up in Academics > Sessions). When converting enquiries to students, you select the target academic year and class. The system creates the student record and enrolls them in that session.

9.2 Creating Enquiries

Navigate to: Sidebar > Admissions > Enquiries

1 Click 'New Enquiry'.

2 Fill in: Student Name, Parent Name, Phone, Email, Target Grade.

3 Set Source: Walk-in, Phone, Website, Referral, Social Media, Advertisement, Other.

4 Set Priority: High, Medium, Low.

5 Add initial notes and save.

9.3 Admission Pipeline Stages

Each enquiry progresses through these stages:

Stage	Description
NEW	Initial enquiry received - lead captured
CONFIRMED	Admission confirmed - ready for conversion to student
CONVERTED	Converted to a student record with enrollment
CANCELLED	Enquiry cancelled or withdrawn

9.4 Managing Enquiries

1 View all enquiries in a searchable, filterable table.

2 Filter by: Status, Grade, Source.

3 The pipeline summary at the top shows counts for each stage (New, Confirmed, Converted, Cancelled).

4 Use the 'Edit' action to update enquiry details or 'Cancel' to mark as cancelled.

5 Move enquiries from New to Confirmed when admission is approved.

9.5 Followup Management

1 Open an enquiry's detail page.

2 Add followup notes and schedule next followup dates.

3 The dashboard shows today's and overdue followups for quick action.

9.6 Converting Enquiries to Students

Confirmed enquiries can be batch-converted into student records. Each converted student gets a Student record and a StudentEnrollment record linking them to the chosen academic year.

1 Select one or more enquiries with 'Confirmed' status using the checkboxes.

2 Click the 'Convert to Students' button that appears.

3 In the modal, select the target Academic Year and Class.

4 Click 'Convert'. Roll numbers are auto-assigned sequentially within that session and class.

5 Converted enquiries change status to 'Converted' and link to the created student.

> **Session-Scoped Admissions**
>
> You can admit students into any academic year, including a future session. Roll numbers start from 1 for each session-class combination, independent of other sessions. This means admissions work even before running promotion for the current year.

9.7 Admission Analytics

The enquiries page provides at-a-glance analytics:

- Pipeline Summary - Count of enquiries in each stage (New, Confirmed, Converted, Cancelled)
- Conversion Rate - Percentage of enquiries that become students
- Source Tracking - Which channels (Walk-in, Referral, etc.) bring the most enquiries

10. Transport Module

The Transport module manages school buses, routes, student-bus assignments, and daily transport attendance.

10.1 Setting Up Routes

Navigate to: Sidebar > Transport > Routes

1 Click 'Add Route'.

2 Enter: Route Name, Description, Start Location, End Location, Distance (km), Estimated Duration.

3 Save the route.

4 Click on the route to add Stops.

5 For each stop, enter: Stop Name, Address, Order, Pickup Time, Drop Time.

6 Save stops. They appear in the route's stop list in order.

10.2 Adding Vehicles

Navigate to: Sidebar > Transport > Vehicles

1 Click 'Add Vehicle'.

2 Enter: Registration Number, Vehicle Type (Bus/Van/Mini-Bus), Seating Capacity.

3 Enter Driver Details: Driver Name, Contact Number.

4 Assign the vehicle to a route.

5 Save. The vehicle is now linked to the route.

10.3 Assigning Students to Routes

Navigate to: Sidebar > Transport > Assignments

1 Click 'Assign Student'.

2 Select the student from the dropdown.

3 Select the route and pickup/drop stop.

4 Save. The student is now assigned to that bus route.

5   View all assignments in the list. Edit or remove as needed.

10.4 Transport Attendance

Navigate to: Sidebar > Transport > Attendance

1   Select the date and route.

2   Mark each student as: Picked Up, Not Picked Up, Absent.

3   Save attendance for the morning pickup.

4   Repeat for afternoon drop if needed.

10.5 Transport Dashboard

Navigate to: Sidebar > Transport > Dashboard

The Transport Dashboard shows:

- Total Routes - Number of active routes

- Total Vehicles - Fleet size

- Students Using Transport - Total students assigned to routes

- Today's Attendance - Today's pickup/drop statistics

11. Library Module

The Library module provides a complete book management system including cataloging, issuing/returning books, and tracking overdue items.

11.1 Setting Up Book Categories

Navigate to: Sidebar > Library > Catalog

1   On the Book Catalog page, click 'Manage Categories'.

2   Add categories: Fiction, Non-Fiction, Science, Mathematics, History, Reference, etc.

3   Categories help organize and filter the book catalog.

11.2 Adding Books to the Catalog

Navigate to: Sidebar > Library > Catalog

1   Click 'Add Book'.

2   Enter: Title, Author, ISBN, Publisher, Category, Total Copies, Shelf Location.

3   Save. The book appears in the catalog.

4   Use the search bar to find books by title, author, or ISBN.

5   Filter by category to browse specific sections.

11.3 Issuing Books

Navigate to: Sidebar > Library > Issue / Return

1   Click 'Issue Book'.

2   Select Borrower Type: Student or Staff.

3   Search and select the borrower (student name or staff name).

4   Search and select the book to issue.

5   Set the Due Date (typically 14 days from today).

6   Add optional notes and click 'Issue'.

7   The book's available copies count decreases by 1.

11.4 Returning Books

Navigate to: Sidebar > Library > Issue / Return

1   Find the issued book in the list (search by student name or book title).

2   Click 'Return' next to the entry.

3   Confirm the return. The book's available copies increase by 1.

4   If the book is overdue, any applicable fine is recorded.

11.5 Tracking Overdue Books

Navigate to: Sidebar > Library > Overdue Books

1   View all books that are past their due date.

2   See borrower details and number of days overdue.

3   Send reminders to borrowers.

4   Update due dates if an extension is granted.

11.6 Library Dashboard

Navigate to: Sidebar > Library > Dashboard

The Library Dashboard displays:

- Total Books - Total unique titles in the catalog
- Total Copies - Sum of all book copies
- Currently Issued - Books currently checked out
- Overdue Count - Books past their due date
- Categories - Number of book categories
- Most Issued Books - Popular titles chart

12. LMS - Learning Management System

The LMS module helps teachers create lesson plans, assign homework/projects, and track student submissions. It integrates with the Academics module.

12.1 Creating Lesson Plans

Navigate to: Sidebar > Academics > LMS > Lesson Plans

1 Click 'Create Lesson Plan'.

2 Select: Class, Subject (from assigned subjects).

3 Enter: Title, Description, Learning Objectives.

4 Set: Lesson Date, Duration (in minutes).

5 Add: Materials Needed, Teaching Methods.

6 Save as 'Draft' or 'Publish' immediately.

7 Published lesson plans are visible to other teachers for reference.

12.2 Creating Assignments

Navigate to: Sidebar > Academics > LMS > Assignments

1 Click 'Create Assignment'.

2 Select Class and Subject.

3 Enter: Title, Description, Instructions.

4 Set: Due Date, Maximum Marks.

5 Define submission criteria (file types, word count, etc.).

6 Save. The assignment appears in student portals immediately.

12.3 Reviewing Submissions

1 Click on an assignment to see student submissions.

2 For each submission, you can: View the submitted work, add comments, and assign a grade.

3 Use bulk grading to score multiple submissions quickly.

4 Grades feed into the student's academic performance record.

13. Notifications Module

The Notifications module enables school-wide communication with students, parents, and staff. Admins can create templates, send bulk notifications, and track delivery.

13.1 Viewing Notifications (All Users)

Navigate to: Sidebar > Notifications

1 Click the Notification Bell icon in the top bar for quick view.

2 Or navigate to 'Notifications' in the sidebar for the full Inbox.

3 Unread notifications are highlighted. Click to mark as read.

13.2 Creating Notification Templates (Admin)

Navigate to: Sidebar > Notifications > Templates Tab

1 Switch to the 'Templates' tab.

2 Click 'Create Template'.

3 Enter: Template Name, Subject, Body (supports variables like {student_name}).

4 Save. Templates can be reused when sending notifications.

13.3 Sending Notifications (Admin)

Navigate to: Sidebar > Notifications > Send Tab

1 Switch to the 'Send' tab.

2 Choose recipients: All Students, All Parents, All Staff, Specific Class, or Individual.

3 Select a template or compose a custom message.

4 Preview the notification.

5 Click 'Send'. Notifications are delivered to all selected recipients.

13.4 Notification Analytics (Admin)

Navigate to: Sidebar > Notifications > Analytics Tab

Track notification effectiveness:

- Delivery Rate - How many notifications were successfully delivered
- Read Rate - Percentage of notifications opened/read
- Breakdown by type and recipient group

13.5 Smart Notification Scheduling

The system can intelligently schedule non-urgent notifications for optimal delivery times. Instead of sending immediately, the AI analyzes when recipients are most likely to read messages and schedules delivery accordingly. In-app notifications are always immediate.

Navigate to: Sidebar > Notifications > Settings > Smart Scheduling Toggle

1 Navigate to Notification Settings (config page).

2 Toggle 'Enable AI-optimized send times' to ON.

3 The system learns from read patterns over 2-4 weeks for best results.

4 In-app notifications are always delivered immediately regardless of this setting.

> **How It Works**
>
> The AI analyzes historical notification read rates by channel (SMS, WhatsApp, Email) and recipient type (parent, teacher, staff). It identifies optimal hours and defers non-urgent messages to those windows. Scheduled notifications are dispatched every 5 minutes.

13.6 Automated Notifications (Scheduled)

The system automatically sends scheduled notifications without manual intervention. These are powered by Celery Beat, a background task scheduler.

Notification	Schedule	Recipients
Fee Reminders	5th of every month at 9 AM	Parents with pending fees
Overdue Fee Alerts	Every Monday at 10 AM	Parents with overdue fees
Daily Absence Summary	Every day at 5 PM	School administrators
Scheduled Notification Dispatch	Every 5 minutes	System (sends deferred notifications)
Failed Notification Retry	Every 5 minutes	System (auto-retries failed sends)
Old Upload Cleanup	Every Sunday at 2 AM	System (deletes uploads > 90 days)

Notification	Schedule	Recipients
Failed OCR Retry	Every 6 hours	System (retries failed OCR jobs)
Auto-Tune Thresholds	Every Sunday at 3 AM	System (adjusts AI thresholds)
Accuracy Drift Detection	Daily at 10 PM	System (checks for AI accuracy drops)
Anomaly Detection	Daily at 9:30 PM	System (detects attendance anomalies)

No Action Required

Automated notifications run on their own once the system is deployed. School administrators do not need to trigger them manually. They can be monitored in the Notification Analytics tab.

14. Parent Portal

Parents have a dedicated portal to monitor their children's school activities. Parents can view attendance, fees, timetable, exam results, and communicate with the school.

14.1 Parent Dashboard

Navigate to: Login as Parent > Dashboard

After logging in, parents see their dashboard with:

- List of linked children (if multiple children attend the school)
- Quick action cards for common tasks (Apply Leave, Messages)
- Recent notifications from the school

14.2 Viewing Child's Information

1 Click on a child's name to see their overview page.

2 The overview shows: Profile photo, class, roll number, quick stats.

Attendance

Navigate to: Parent Portal > Child > Attendance

3 Click 'Attendance' to view the child's attendance records.

4 See monthly and daily breakdowns with Present/Absent/Late counts.

5 View attendance percentage and trends.

Fees & Online Payments

Navigate to: Parent Portal > Child > Fees

6 View fee balance, payment history, and outstanding amounts.

7 See due amounts and upcoming fee deadlines.

8 Download fee receipts for past payments.

Paying Fees Online

Navigate to: Parent Portal > Child > Fees > Pay Now

9 If the school has configured online payment gateways, a 'Pay Now' button appears next to each unpaid fee.

10 Click 'Pay Now' on the fee you wish to pay.

11 A modal appears showing available payment methods (e.g., JazzCash, Easypaisa, Manual Transfer).

12 Select your preferred payment method and click 'Proceed to Pay'.

13 For JazzCash/Easypaisa: You will be redirected to the gateway's checkout page to complete payment.

14 For Manual Transfer: Bank account details are displayed. Make the transfer and inform the school office.

15 After payment, you are redirected to a Payment Result page showing the transaction status.

16 Payment statuses: Successful (green), Pending (yellow - being verified), Failed (red - try again).

17 Pending payments are automatically verified within a few minutes. The page auto-refreshes.

> **Online Payment Availability**
>
> Online payments are only available if your school's administration has configured payment gateways. If you don't see the Pay Now button, contact the school office.

Timetable

Navigate to: Parent Portal > Child > Timetable

18 View the child's class timetable.

19 See subjects, teachers, and period timings for each day.

Exam Results

Navigate to: Parent Portal > Child > Results

20 View exam marks and grades (once published by the school).

21 See subject-wise performance and GPA.

22 Download report cards as PDF.

14.3 Applying for Leave

Navigate to: Parent Portal > Leave Application

1 Click 'Apply for Leave' in the sidebar.

2 Select the child, enter: From Date, To Date, Reason.

3 Submit the application. Track its status (Pending, Approved, Rejected).

14.4 Messages

Navigate to: Parent Portal > Messages

Parents can send and receive messages from the school administration.

15. Student Portal

Students have their own portal to view attendance, timetable, assignments, fees, exam results, and manage their profile.

15.1 Student Dashboard

Navigate to: Login as Student > Dashboard

The Student Dashboard displays:

- Welcome card with student name and class
- Attendance rate (percentage)
- Assignment stats (pending, submitted, graded)
- Fee balance summary
- Today's timetable
- Upcoming assignment deadlines

15.2 My Attendance

Navigate to: Student Portal > Attendance

1 View your attendance history with monthly/daily breakdown.

2 See attendance percentage and trend over time.

15.3 My Timetable

Navigate to: Student Portal > Timetable

1 View your class timetable for each day of the week.

2 See subject names, teacher names, and period timings.

15.4 My Assignments

Navigate to: Student Portal > Assignments

1 View all assignments from your teachers.

2 See due dates and submission status.

3 Submit your work before the deadline.

4 View grades and teacher feedback after review.

15.5 My Fees

Navigate to: Student Portal > Fees

1 View your fee balance and payment history.

2 See upcoming due dates.

15.6 My Results

Navigate to: Student Portal > Results

1 View your exam marks and grades.

2 See subject-wise performance.

3 Download report cards as PDF.

15.7 My Profile

Navigate to: Student Portal > My Profile

1 View and update your profile information.

2 See contact details and class information.

15.8 AI Study Helper

Navigate to: Student Portal > AI Study Helper

The AI Study Helper is an intelligent chatbot that assists students with their studies. It is aware of the student's class, subjects, lesson plans, and assignments, allowing it to provide personalized, curriculum-aligned academic support.

1 Navigate to 'AI Study Helper' in the student sidebar.

2 Type your study question in the message box at the bottom of the screen.

3 Click Send or press Enter to submit your question.

4 The AI will respond with explanations, examples, and study tips tailored to your curriculum.

5 Your conversation history is saved and can be reviewed later.

6 Use the suggestion chips (e.g., 'Explain a concept', 'Help with homework') for quick prompts.

7   Click 'Clear History' to start a fresh conversation.

Daily Limit

Students can send up to 30 messages per day to the AI Study Helper. The counter resets every 24 hours. This ensures fair usage for all students.

Important Note

The AI Study Helper is designed for academic topics only. Questions about personal information, violence, or other inappropriate content will be blocked by the safety system.

16. Hostel Management

The Hostel Management module helps schools manage their boarding facilities. It covers hostel buildings, rooms, student allocations, and gate passes for students leaving and returning to the hostel.

16.1 Hostel Dashboard

Navigate to: Sidebar > Hostel > Dashboard

The Hostel Dashboard provides a quick overview of all hostel operations:

- Total hostels, rooms, and current occupancy
- Occupancy rate (percentage of beds filled)
- Active allocations count
- Pending gate pass requests
- Students currently out on gate passes
- Available beds count
- Quick action links to manage rooms, allocations, and gate passes

16.2 Managing Hostels & Rooms

Navigate to: Sidebar > Hostel > Rooms

Creating a Hostel

1. Navigate to Hostel > Rooms in the sidebar.
2. Switch to the 'Hostels' tab.
3. Click 'Add Hostel'.
4. Enter: Name, Hostel Type (Boys / Girls / Mixed), Capacity.
5. Optionally assign a Warden (from staff members).
6. Save. The hostel appears in the list.

Creating Rooms

7. Switch to the 'Rooms' tab.
8. Click 'Add Room'.

9 Select the Hostel this room belongs to.

10 Enter: Room Number, Floor, Room Type (Single / Double / Dormitory), Capacity.

11 Save. The room shows current occupancy vs. capacity.

Room Availability

Rooms are automatically marked as unavailable when they reach full capacity. The system prevents over-allocation by checking capacity before each new allocation.

16.3 Student Allocations

Navigate to: Sidebar > Hostel > Allocations

Allocations assign students to specific hostel rooms for an academic year.

Allocating a Student

1 Navigate to Hostel > Allocations.

2 Click 'Add Allocation'.

3 Select: Student, Room (from available rooms), Academic Year.

4 The system validates that the room has capacity and the student isn't already allocated.

5 Save. The student is now assigned to the room.

Vacating a Student

6 Find the active allocation in the list.

7 Click the 'Vacate' button.

8 The allocation is marked as inactive, and the room's occupancy count decreases.

Important Note

Each student can only have one active hostel allocation per academic year. Vacate the current allocation before assigning to a new room.

16.4 Gate Passes

Navigate to: Sidebar > Hostel > Gate Passes

Gate passes track students leaving and returning to the hostel. They follow a workflow: Request > Approve/Reject > Checkout > Return.

Creating a Gate Pass

1 Click 'New Gate Pass'.

2 Select: Student, Pass Type (Day Out / Weekend / Holiday / Emergency).

3 Enter: Departure Date, Expected Return Date/Time, Destination, Reason.

4 Submit. The pass is created with 'Pending' status.

Approving / Rejecting Gate Passes

5 Review pending gate passes in the list.

6 Click 'Approve' to authorize the student's departure.

7 Click 'Reject' with a reason to deny the request.

Checkout & Return

8 When the student physically leaves, click 'Checkout' to record departure time.

9 When the student returns, click 'Return' to record the actual return time.

Status	Meaning	Next Action
Pending	Pass requested, awaiting approval	Approve or Reject
Approved	Pass approved, student may leave	Checkout when departing
Rejected	Pass denied by admin	No further action
Checked Out	Student has left the hostel	Return when student comes back
Returned	Student has returned to hostel	Complete - no action needed
Cancelled	Pass was cancelled	No further action

17. Settings & Configuration

The Settings page allows School Admins to configure system behavior. Settings are divided into multiple tabs.

17.1 Attendance Mark Mappings

Navigate to: Sidebar > Settings > Mappings Tab

1 View the current mark-to-status mappings (e.g., P = Present, A = Absent).

2 Click 'Add Mapping' to add a new custom symbol.

3 Enter the symbol and select the status it maps to.

4 Use 'AI Suggestions' to get recommendations for common symbols.

5 Set a Default Status for unrecognized marks captured by AI.

17.2 Register Configuration

Navigate to: Sidebar > Settings > Register Config Tab

Configure how the AI reads attendance registers:

- Date Header Row - Which row contains the dates
- Student Name Column - Which column has student names
- Roll Number Column - Which column has roll numbers
- Data Start Row/Column - Where the attendance marks begin
- Orientation - Whether students are in rows or columns

17.3 Finance Accounts Management

See Chapter 6 (Finance Module) > Setting Up Finance Accounts for detailed instructions.

17.4 Payment Gateway Configuration

Navigate to: Sidebar > Finance > Payment Gateways

Configure online payment gateways to allow parents to pay fees directly from the Parent Portal. The system supports JazzCash, Easypaisa, and Manual (bank transfer) payment methods.

1 Navigate to Finance > Payment Gateways in the sidebar.

2 You will see gateway cards for each supported provider (JazzCash, Easypaisa, Stripe, Razorpay, Manual).

3 Click on a gateway card to configure it. Enter the required credentials.

JazzCash Configuration

4 Enter: Merchant ID (provided by JazzCash, e.g., MC12345).

5 Enter: Password (JazzCash merchant password).

6 Enter: Integrity Salt (used for HMAC-SHA256 signing of payment requests).

7 Select Environment: Sandbox (for testing) or Production (for live payments).

8 Return URL is auto-filled by the system.

Easypaisa Configuration

9 Enter: Store ID (provided by Easypaisa, e.g., 12345).

10 Enter: Merchant Hash Key (used for hash verification).

11 Select Environment: Sandbox or Production.

Manual/Bank Transfer Configuration

12 Enter: Bank Name, Account Title, Account Number, IBAN (optional), Branch.

13 Add Payment Instructions for parents (e.g., 'Deposit at any HBL branch').

14 Parents will see these bank details when choosing the Manual payment option.

Gateway Management

15 Click 'Test Connection' on a gateway card to verify your credentials are valid.

16 Toggle a gateway on/off using the active/inactive toggle button.

17 Click 'Set as Default' to make a gateway the pre-selected option for parents.

18 Only active gateways are shown to parents on the fee payment page.

> **Sensitive Data**
>
> Gateway credentials (passwords, salts, hash keys) are stored securely and masked in the UI (only the first 4 characters are visible). They are never exposed in API responses.

18. User Management

KoderEduAI uses a hierarchical role system for user management. Super Admins create School Admin accounts, while School Admins and Principals can create and manage users within their own schools.

18.1 User Roles & Hierarchy

The system has the following roles, listed from highest to lowest privilege:

Role	Can Create	Access Level
Super Admin	All roles	Platform-wide
School Admin	Principal, HR Manager, Accountant, Teacher, Staff	Full school access
Principal	HR Manager, Accountant, Teacher, Staff	Full school access
HR Manager	- (no user creation)	HR module full access
Accountant	- (no user creation)	Finance module access
Teacher	- (no user creation)	Academics & LMS access
Staff	- (no user creation)	Basic read-only access
Parent	- (self-registered via invite)	Child data only
Student	- (self-registered via invite)	Own data only

18.2 Managing Users (School Admin & Principal)

Navigate to: Sidebar > Settings > Users Tab

School Admins and Principals can create, edit, and deactivate user accounts for their school from the Users tab in Settings.

1. Navigate to Settings and click the 'Users' tab.

2. Click 'Add User' to open the user creation form.

3. Fill in Username (required), Email, Password, and select a Role from the dropdown.

4. The role dropdown only shows roles you are allowed to create based on your role.

5. Click 'Create User' to save. A school membership is automatically created.

6. To edit a user, click 'Edit' in the actions column. You can change name, email, role, and phone.

7 To deactivate a user, click 'Deactivate'. The user will no longer be able to log in.

8 To reactivate, click 'Activate' on an inactive user.

> **Role Restrictions**
>
> You can only edit or deactivate users whose role you are allowed to create. For example, a Principal cannot deactivate a School Admin.

18.3 Creating Student User Accounts

Navigate to: Sidebar > Students > Add Student

When adding a new student, you can optionally create a user account so the student can access the Student Portal.

1 Open the Add Student modal and fill in the student details (Class, Name, Roll Number).

2 Check the 'Create User Account (Student Portal)' checkbox at the bottom of the form.

3 Additional fields will appear: Username (auto-suggested from student name), Email, Password, and Confirm Password.

4 Fill in the login credentials. Password must be at least 8 characters.

5 Click 'Add Student'. Both the student record and user account will be created together.

6 The student can now log in to the Student Portal using these credentials.

18.4 Converting Existing Students to Users

Navigate to: Sidebar > Students

For students already in the system without user accounts, you can convert them individually or in bulk directly from the Students page.

Individual Conversion

1 Open the Students page. Each student row shows an 'Account' column - green badge for existing accounts, 'No Account' for students without one.

2 Click the 'Create Account' button in the Actions column next to any student without an account.

3 A modal will appear with Username (auto-suggested from the student's name), Email (pre-filled from guardian email if available), Password, and Confirm Password.

4 Fill in or adjust the credentials and click 'Create Account'.

5 The student will now have a user account linked to their student record.

Bulk Conversion

6   Use the checkboxes in the first column to select students without accounts. The 'Select All' checkbox in the header only selects students without accounts.

7   A purple floating bar will appear at the bottom showing the count of selected students.

8   Click 'Create Accounts' on the floating bar.

9   Enter a Default Password (minimum 8 characters) that will be used for all selected students.

10   Click 'Create N Account(s)'. Usernames are auto-generated from student names.

11   A results summary will show: accounts created, skipped (already have accounts), and any errors.

12   Students can change their password after first login.

> **Username Generation**
>
> Usernames are generated automatically: student name in lowercase with spaces replaced by underscores. If a duplicate exists, the roll number is appended. Example: 'Ahmed Khan' becomes 'ahmed_khan'.

18.5 Creating Staff User Accounts

Navigate to: Sidebar > HR & Staff > Add Staff Member

When adding a new staff member, you can optionally create a user account so they can log in to the system.

Full Staff Form

1   Navigate to HR & Staff > Staff Directory > Add Staff Member (full form).

2   Fill in the staff details (name, department, designation, etc.).

3   At the bottom, check the 'Create User Account' checkbox.

4   Enter Username, select User Role (Teacher, Staff, HR Manager, or Accountant), and set Password.

5   Click 'Add Staff Member'. Both the staff record and user account are created and linked.

Quick Add

6   From the Staff Directory, click 'Quick Add'.

7   Fill in first name, last name, and optionally phone/department/designation.

8   Check 'Create User Account' to expand the user credential fields.

9   Fill in Username, Role, Password, and Confirm Password.

10   Click 'Add Staff'. The staff member and user account are created together.

> **User Role vs Staff Record**
>
> The User Role determines what the staff member can access in the system. For example, a Teacher role gives access to lesson plans and mark entry, while an HR Manager role gives access to the full HR module.

18.6 Converting Existing Staff to Users

Navigate to: Sidebar > HR & Staff > Staff Directory

For staff members already in the system without user accounts, you can convert them individually or in bulk directly from the Staff Directory page.

Individual Conversion

1 Open the Staff Directory. Each row shows an 'Account' column - green badge with username for existing accounts, 'No Account' otherwise.

2 Click the 'Create Account' button next to any staff member without an account.

3 A modal will appear with Username (auto-suggested), Role dropdown (based on your hierarchy), Password, and Confirm Password.

4 Select the appropriate role and set credentials, then click 'Create Account'.

Bulk Conversion

5 Use the checkboxes to select staff members without accounts. 'Select All' only selects staff without accounts.

6 A purple floating bar will appear. Click 'Create Accounts'.

7 Choose a Default Role (e.g., Teacher) and Default Password for all selected staff.

8 Click 'Create N Account(s)'. Usernames are auto-generated from staff names.

9 Review the results summary showing created accounts, skipped, and errors.

> **Staff Username Generation**
>
> Usernames are generated as first_name_last_name in lowercase. If a duplicate exists, the employee ID is used instead. Example: 'Jane Doe' becomes 'jane_doe'.

> **Important Note**
>
> Passwords cannot be recovered. If a user forgets their password, a School Admin or Super Admin must reset it from the Users tab.

19. Module Dependencies - Quick Reference

This chapter provides a quick reference for how modules depend on each other. Understanding these dependencies helps you set up and use the system efficiently.

19.1 Dependency Map

Module / Feature	Depends On	Must Be Set Up First
Students	Classes	Create classes before adding students
Attendance	Classes, Students	Need classes with students enrolled
Face Attendance	Classes, Students, Enrolled Faces	Enroll student faces first
Subjects	Classes (for assignment)	Create classes first
Timetable	Subjects assigned to classes	Assign subjects to classes
Exam Types	None	Can be created independently
Exams	Academic Year, Terms, Classes	Set up sessions and classes
Marks Entry	Exams, Subject Assignments	Create exam and assign subjects
Results	Marks entered	Enter all marks for the exam
Report Cards	Results published	Publish exam results first
Grade Scale	None	Create before entering marks
Fee Structures	Classes, Students	Need students in classes
Fee Collection	Fee Structures, Accounts	Generate fees, set up accounts
Expenses	Finance Accounts	Create accounts first
Payroll	Staff, Salary Structures	Add staff and define salaries
Leave Mgmt	Staff Members	Add staff first
Admissions	Academic Years, Classes	Set up academic years and classes
Transport Assign.	Routes, Vehicles, Students	Set up routes and vehicles
Library Issues	Books in Catalog, Students	Add books and students
Hostel Allocation	Hostels, Rooms, Students	Create hostels and rooms first
Gate Passes	Hostel Allocations	Allocate students to rooms first
LMS Lessons	Subjects assigned to classes	Assign subjects first
Assignments	Classes, Subjects	Create classes and subjects
Notifications	Users exist	Create user accounts
Promotion	Academic Years, Classes	Need source and target setup

19.2 Recommended Setup Order (Complete)

Follow this complete order when setting up your school:

1 Create Academic Year and Terms

2 Create Classes (all grades and sections)

3 Add Students (individual or bulk import)

4 Create Subjects

5 Assign Subjects to Classes with Teachers

6 Create Timetable for each class

7 Define Grade Scale

8 Set up Finance Accounts (Cash, Bank)

9 Generate Fee Structures

10 Create HR Departments and Designations

11 Add Staff Members

12 Define Salary Structures

13 Set up Transport Routes and Vehicles

14 Set up Library Categories and Books

15 Set up Hostels and Rooms (if using Hostel module)

16 Enroll Student Faces for Face Attendance (if using camera-based attendance)

17 Configure Attendance Settings (Mappings)

18 Create Notification Templates

19 Set up Admission Sessions (if using Admissions CRM)

After Setup

Once the initial setup is complete, daily operations include: capturing attendance, collecting fees, recording expenses, entering marks, managing transport attendance, issuing library books, and processing admissions.

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20. Daily Operations Workflow

Once the system is fully set up, here is a guide to the typical daily, weekly, monthly, and term-based operations.

20.1 Daily Tasks

Task	Who	Module	Navigation
Mark student attendance	Teacher	Attendance	Attendance > Upload
Take face attendance photo	Teacher	Face Attend.	Face Attendance > Capture
Review AI-captured attendance	Admin	Attendance	Attendance > Review
Review face attendance	Admin	Face Attend.	Face Attendance > Sessions
Record fee payments	Admin/Staff	Finance	Finance > Fees
Mark staff attendance	HR	HR	HR > Attendance
Mark transport attendance	Transport	Transport	Transport > Attendance
Issue/Return library books	Librarian	Library	Library > Issues
Review gate pass requests	Hostel Warden	Hostel	Hostel > Gate Passes
Check notifications	All	Notifications	Bell icon / Inbox
Follow up on admissions	Admin	Admissions	Admissions > Enquiries

20.2 Weekly Tasks

- Review attendance analytics and identify students with low attendance
- Check overdue library books and send reminders
- Review hostel occupancy and pending gate passes
- Review and update admission pipeline
- Process leave applications

20.3 Monthly Tasks

- Generate and process staff payroll
- Close financial month in Settings
- Review Finance Dashboard with different period filters (monthly, quarterly, yearly)
- Generate fee reminders for unpaid balances
- Review staff performance (if applicable)

20.4 Term / Semester Tasks

- Create exams for the term

- Enter marks after exams are conducted

- Publish results

- Generate and distribute report cards

- Conduct student promotions (end of year)

- Set up the new academic year and terms

21. AI Intelligence Features

KoderEduAI includes a suite of AI-powered intelligence features that operate across modules to improve accuracy, surface insights, and automate routine analysis. These features learn from your school's data patterns and become more effective over time.

21.1 Auto-Adaptive Thresholds

The AI attendance pipeline uses configurable thresholds for name matching, confidence scoring, and table extraction. Instead of hard-coded values, each school can customize these thresholds and optionally enable auto-tuning based on correction patterns.

Navigate to: Sidebar > Attendance > Capture & Review > Accuracy Dashboard

1. Navigate to the Accuracy Dashboard section of the Capture & Review page.

2. Find the 'AI Threshold Configuration' card.

3. View current threshold values: Fuzzy Name Match, Rule Confidence, High Confidence, etc.

4. Toggle 'Auto-tune thresholds' to let the system adjust weekly based on your corrections.

5. The system needs at least 50 processed uploads before auto-tuning produces meaningful adjustments.

> **How Auto-Tuning Works**
>
> Every Sunday at 3 AM, the system analyzes the last 14 days of correction data. If name mismatches exceed 5%, fuzzy match threshold increases. If false positives are high, confidence thresholds increase. Changes are small (0.02-0.05) and capped at safe limits. Tune history is preserved for review.

21.2 Pipeline Fallback & Voting

If the primary OCR provider (Google Vision) fails, the system automatically tries alternative providers instead of failing completely. You can also enable multi-pipeline voting for maximum accuracy.

1. In the 'Pipeline Configuration' card, select your primary provider.

2. Arrange the fallback chain (other providers to try if primary fails).

3. Optionally enable 'Multi-pipeline voting' for critical uploads.

4. When voting is enabled, multiple providers process the same image and results are cross-validated using majority agreement.

Provider	Speed	Best For
Google Vision	Fast	Most register types (recommended primary)
Groq Vision	Fast	Good alternative with LLM reasoning
Tesseract	Medium	Fallback when cloud services unavailable

Pipeline Badge

After processing, each upload shows which pipeline was used: 'Google Vision' (green), 'Groq Vision (fallback)' (amber), or 'Multi-pipeline vote' (blue).

21.3 Accuracy Drift Detection

The system monitors AI accuracy daily and alerts administrators when performance degrades. Drift often indicates register format changes or new handwriting styles.

1 The 'Accuracy Drift Monitor' card shows a line chart of daily accuracy percentages.

2 Red dots on the chart indicate dates where significant drift was detected.

3 Drift is flagged when accuracy drops more than 10 percentage points from the 30-day baseline.

4 When drift is detected, an alert banner appears with recommended actions.

Important Note

Accuracy drift alerts are generated automatically every night at 10 PM. If you see a drift alert, review recent uploads for new register formats and consider adjusting thresholds or mark mappings.

21.4 Attendance Anomaly Detection

Navigate to: Sidebar > Attendance > Anomalies

The system automatically detects unusual attendance patterns every night and creates anomaly records for administrator review. Three types of anomalies are detected:

Type	Trigger	Severity
Bulk Class Absence	>60% of class absent on a day	HIGH
Student Streak	Student absent 3+ consecutive days	MEDIUM
Unusual School Day	School-wide absence >30%	HIGH

1 Navigate to Attendance > Anomalies to view detected anomalies.

2 Filter by type, severity, or resolved status.

3   Review each anomaly's details (affected class, date, absence counts).

4   Click 'Resolve' and add notes (e.g., 'School sports day', 'Weather event').

5   Resolved anomalies are archived but remain visible for historical reference.

> **Automated Alerts**
>
> When anomalies are detected, administrators receive an in-app notification with details. The anomaly detection runs daily at 9:30 PM.

21.5   AI Dashboard Insights

Navigate to: Dashboard (Admin view)

The admin dashboard features an AI Insights card that surfaces actionable items across all modules. The AI analyzes attendance, finance, academics, and HR data to highlight what needs your attention today.

Types of Insights

- Alert (red) - Urgent issues: accuracy drift, bulk absences, pipeline failures
- Warning (amber) - Important: low fee collection, pending reviews, leave backlogs
- Info (blue) - Informational: unassigned classes, timetable gaps, setup reminders

Each insight includes a title, explanation, recommended action, and a direct link to the relevant page. Insights are sorted by priority and refresh automatically.

> **Role-Specific Insights**
>
> Teachers see attendance-only insights for their classes. Accountants see finance-only insights. HR Managers see HR-only insights. Admin and Principal roles see insights from all modules.

21.6   OR-Tools Timetable Optimization

Navigate to: Sidebar > Academics > Timetable > Auto-Generate

The timetable auto-generation now supports two algorithms. The original greedy heuristic is fast but may not find the optimal arrangement. The new OR-Tools constraint programming solver produces higher quality schedules.

1   Navigate to Academics > Timetable and select a class.

2   Click 'Auto-Generate' to open the generation dialog.

3   Choose the algorithm: 'Quick (Greedy)' for fast results or 'Optimal (OR-Tools)' for better quality.

4   Click 'Generate'. OR-Tools takes up to 30 seconds; Greedy is near-instant.

5   After generation, review the score badge showing algorithm used and quality score.

Algorithm	Speed	Quality	Best For
Quick (Greedy)	< 1 second	Good	Initial drafts, simple schedules
Optimal (OR-Tools)	Up to 30 seconds	Excellent	Final schedules, complex constraints

Constraint Programming

OR-Tools enforces hard constraints (no teacher double-booking, exact periods per week) and optimizes soft objectives (spread subjects across days, morning slots for core subjects). If no optimal solution exists, it falls back to greedy.

21.7 AI Report Card Comments

Navigate to: Sidebar > Academics > Examinations > Results

The system can generate personalized, professional comments for each student's exam performance. Comments are based on marks, grade, pass/fail status, and attendance record. Teachers can review and edit comments before printing report cards.

1 Navigate to Results and select an exam.

2 Click 'Generate AI Comments' to generate comments for all students in the exam.

3 The system generates 2-3 sentence comments per subject per student.

4 Click on any student row to expand and view their per-subject AI comments.

5 Use 'Regenerate All' to force-regenerate comments (overwrites existing ones).

6 Comments appear on report cards automatically after generation.

Comment Examples

Strong performance: 'Outstanding performance in Mathematics with 92%. Demonstrates excellent understanding of the subject. Keep up the great work.' Weak with low attendance: 'Needs improvement in Science with 48%. Would benefit from additional practice. Attendance (65%) is a concern affecting learning outcomes.'

Important Note

AI comments require either a Groq API key (for LLM-generated comments) or fall back to rule-based comments. Rule-based comments are generated even without an API key. Teachers should always review AI-generated text before sharing with parents.

22. Tips & Best Practices

22.1 Data Entry Tips

- Use bulk import (Excel) for students when starting with a large number of records
- Use the search and filter features to quickly find records in any list
- Export data regularly as backups (Excel, PDF)

22.2 Attendance Tips (OCR)

- Take clear, well-lit photos of attendance registers for best AI OCR results
- Ensure the register is flat and not crumpled when photographing
- Use the crop tool to focus on the data area only
- Always review AI-extracted data before approving

22.3 Face Attendance Tips

- Enroll all students in a class before taking face attendance for that class
- Use clear, well-lit portrait photos for enrollment (one face per photo)
- Aim for enrollment quality scores above 70% for reliable matching
- When taking group photos, ensure good lighting and all students facing the camera
- Avoid backlighting (windows behind students) as it creates shadows on faces
- Students wearing sunglasses or face coverings will not be matched automatically
- Re-enroll students if their appearance changes significantly (new glasses, major haircut)
- Always review flagged (yellow) matches before confirming attendance
- Use 'Reprocess' if the photo quality was poor; retake and reprocess if needed

22.4 Finance Tips

- Set up accounts before the start of the academic year
- Close months regularly to maintain accurate records
- Use discounts/scholarships feature instead of manual fee adjustments
- Download PDF reports monthly from the Finance Dashboard for record-keeping
- Use the period selector to compare This Month vs Last Month or view yearly trends

22.5 Security Tips

- Use strong, unique passwords for each user account

- Log out when leaving the computer unattended

- Only School Admins should manage modules and user permissions

- Regularly review user access and deactivate unused accounts