🔷 Step 1: Define Vision & Scope

- **Clarify target users**: Private schools? Colleges? Coaching centers?

- **Decide product depth**: Will you be "lightweight & affordable" (like Teachmint) or "enterprise-grade" (like Fedena, PowerSchool)?

- **Prioritize core modules** (ERP vs LMS). Industry leaders don't build everything at once—they phase it.

📌 **Deliverable**: Product Requirement Document (PRD) listing all modules, features, and scope.

🔷 Step 2: Plan Architecture

- **Stack**: MEAN (MongoDB + Express + Angular + Node).

- **App split**:

  - **Backend** (API + Socket server) → Authentication, RBAC, Business logic.

  - **Frontend** (Angular SPA) → Role-based dashboards.

  - **Mobile (later)** → React Native/Flutter.

- **Database design**: Start with **Users, Classes, Subjects, Timetable, Attendance, Exams, Fees** collections.

- **Micro-modules**: Each feature as its own service/module so scaling is easier.

- **Integrations**: Stripe/Razorpay for fees, Twilio/MSG91 for SMS, Firebase/OneSignal for push.

📌 **Deliverable**: ERD + API contract + modular folder structure.

🔷 Step 3: Build MVP (Core ERP)

1. **Authentication & Roles** (Admin, Teacher, Parent, Student).

2. **Users & Classes** → CRUD, linking, parent ↔ student relationship.

3. **Attendance** → daily marking, reports.

4. **Exams & Gradebook** → marks entry, automated results.

5. **Fees** → invoices, dues, receipts.

6. **Notices & Calendar** → announcements + events.

7. **Dashboard** → role-specific KPIs.

📌 **Timeline**: 3–4 months for a small dev team.

📌 **Goal**: First working product for demo/pilot.

🔷 **Step 4: Add LMS Layer**

1. **Courses & Content**: Upload PDFs, videos, links.

2. **Assignments & Submissions**: Teacher upload → student submit → teacher grade.

3. **Quizzes**: MCQs, subjective questions, auto-grading.

4. **Progress Tracking**: completion %, badges, parent view.

5. **Discussion/Q&A**: per class thread, teacher-student engagement.

📌 **Timeline**: 2–3 months.

📌 **Goal**: Blend ERP (operations) with LMS (learning).

🔷 **Step 5: Expand ERP Operations**

- **Admissions & Enrollment** (student applications, approvals).

- **HR & Payroll** (staff salary, attendance, payslips).

- **Library & Inventory** (catalogs, stock).

- **Transport & Hostel** (optional for schools that need it).

- **Certificates/Documents** (auto-generate TC, ID, bonafide).

📌 **Timeline**: 3–4 months.

📌 **Goal**: Full school operations handled digitally.

🔷 **Step 6: Polish for Industry Standard**

- **Reports & Analytics**: learning gaps, fee forecasting, student ranking.

- **Role-based permissions**: fine-grained access (who can create, edit, view).

- **Integrations**: Payment gateways, SMS, Google/Microsoft SSO.

- **Audit Logs & Compliance**: data protection, GDPR-like.

- **Scalability**: caching (Redis), async jobs (Bull/Agenda).

📌 **Timeline**: ongoing.

📌 **Goal**: Compete with enterprise ERPs.

🔷 **Step 7: UI/UX & Branding**

- **Modern UI**: Angular + Tailwind (role-based dashboards).

- **Mobile responsive**.

- **White-label option** (schools want their branding).

- **Accessibility** (WCAG compliance).

📌 **Deliverable**: Polished, professional UI that feels like an enterprise SaaS.

🔷 **Step 8: Deployment & Scale**

- **Cloud hosting**: AWS Lightsail/EC2 or DigitalOcean.

- **CI/CD**: GitHub Actions, Docker containers.

- **Monitoring**: PM2, Nginx logs, Sentry (errors), Grafana (metrics).

- **Multi-tenant support** (phase 2 if needed).

🔷 **Step 9: Pilot & Feedback**

- Roll out to **1–2 schools** for free/pilot.

- Collect feedback from **principals, teachers, parents, students**.

- Iterate fast → add missing workflows.

🔷 **Step 10: Go to Market**

- **Pricing model**: Per student/month or flat yearly license.

- **Sales channels**: Direct B2B sales, partnerships, resellers.

- **Support system**: Helpdesk, knowledge base, training videos.

- **Marketing**: Website, demos, case studies, webinars.

✅ By following this **10-step roadmap**, CampusFlow won't just be another school ERP/LMS—it will be **competitive with Freshdesk-like ERPs and Google Classroom-like LMSs combined**.

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ampusFlow ERP + LMS — Role-Wise Side Menu

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1. Principal / Admin Menu

Main Menus

- **Dashboard**

- **Users & Classes**

  - Manage Teachers

  - Manage Students

  - Assign Classes

  - Parent ↔ Student Linking

- **Attendance**

  - Daily Attendance

  - Monthly Reports

  - Class-Wise Summary

- **Exams & Gradebook**

  - Exam Scheduling

  - Marks Entry

  - Automated Results

  - Performance Reports

- **Fees Management**

  - Fee Structures

  - Collect Fees

  - Pending Dues

  - Receipts & Invoices

- **Notices & Calendar**
  - Create Notices
  - Publish Announcements
  - Event Calendar

- **LMS (Learning Management System)**
  - Courses & Materials
  - Assignments
  - Quizzes
  - Progress Reports

- **Settings**
  - Role Management
  - System Configurations
  - Audit Logs

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2. Teacher Menu

Main Menus

- **Dashboard**

- **My Classes**
  - View Assigned Classes
  - Manage Students
  - Upload Study Material

- **Attendance**
  - Mark Daily Attendance
  - Class Attendance Reports

- **Exams & Gradebook**
  - Create Exam Papers
  - Enter Marks
  - Generate Grade Reports

- **Assignments & Submissions**
  - Upload Assignments
  - View Student Submissions
  - Grade Assignments
- **Quizzes**
  - Create Quizzes
  - Auto-Grading
  - Review Results
- **LMS**
  - Manage Courses
  - Upload Materials
  - Track Student Progress
- **Notices**
  - View Notices
  - Post Class Announcements

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3. Student Menu

Main Menus

- **Dashboard**
- **My Profile**
  - Personal Information
  - Update Details
  - Parent Details
- **My Classes**
  - View Enrolled Classes
  - Class Timetable
  - Teachers & Subjects
- **Attendance**

- o   My Attendance Report

- o   Monthly Summary

- **Exams & Gradebook**

  - o   View Marks

  - o   Download Report Cards

  - o   Upcoming Exams

- **Assignments**

  - o   View Assignments

  - o   Submit Work

  - o   Check Grades

- **LMS**

  - o   View Courses

  - o   Access Videos, PDFs, Links

  - o   Track Learning Progress

- **Notices & Calendar**

  - o   School Announcements

  - o   Exam Schedules

  - o   Upcoming Events

Got it 👍 — here's a **detailed breakdown of each role's menu**, expanding on the points you shared. This will help you (or your dev team) understand the *purpose, workflows, and value* of each item.

📌 1. Principal / Admin Menu

The Principal/Admin has the highest level of access, with full control over system data, users, classes, and financials.

Dashboard

- High-level overview of school operations (KPIs, graphs, student strength, fee collections, upcoming exams/events, attendance rates, etc.).
- Quick shortcuts to important actions.

Users & Classes

- **Manage Teachers**: Add/edit teachers, assign subjects, manage workload, view performance.
- **Manage Students**: Enroll new students, update profiles, promote to next class.
- **Assign Classes**: Allocate subjects and teachers to classes.
- **Parent ↔ Student Linking**: Link parent accounts to student profiles for fee/payment and academic tracking.

Attendance

- **Daily Attendance**: View and monitor class-level attendance for any given day.
- **Monthly Reports**: Generate monthly attendance trends (per student/class).
- **Class-Wise Summary**: Compare attendance percentages across classes.

Exams & Gradebook

- **Exam Scheduling**: Define exam timetables and notify students.
- **Marks Entry**: Allow/monitor marks entry by teachers.
- **Automated Results**: Auto-generate results/grades based on set rules.
- **Performance Reports**: Analytics on class performance, toppers, weak students.

Fees Management

- **Fee Structures**: Define fee plans per class/course.
- **Collect Fees**: Record cash/online payments.
- **Pending Dues**: Track unpaid fees by student.
- **Receipts & Invoices**: Generate digital receipts and invoices for parents.

Notices & Calendar

- **Create Notices**: Write announcements (holidays, policies).
- **Publish Announcements**: Push notices to students/parents/teachers.
- **Event Calendar**: Centralized view of all school events, exams, holidays.

LMS

- **Courses & Materials**: Upload core teaching content (videos, docs, slides).
- **Assignments**: Manage assignment lifecycle for teachers and students.
- **Quizzes**: Create/manage quizzes with auto-grading.
- **Progress Reports**: Monitor student learning progress in the LMS.

Settings

- **Role Management**: Define permissions for admins, teachers, students.
- **System Configurations**: Set grading scales, academic years, fee due dates.
- **Audit Logs**: Track who made what changes (security & compliance).

📌 2. Teacher Menu

Teachers focus on classroom-level operations: teaching, assessments, and student tracking.

Dashboard

- Teacher-specific overview: assigned classes, today's timetable, pending grading, new submissions.

My Classes

- **View Assigned Classes**: See subjects/classes allocated.
- **Manage Students**: Update attendance, track academic performance.
- **Upload Study Material**: Share PDFs, PPTs, lecture notes.

Attendance

- **Mark Daily Attendance**: Record attendance for each session.
- **Class Attendance Reports**: Generate attendance stats per class.

Exams & Gradebook

- **Create Exam Papers**: Upload or design exam question papers.
- **Enter Marks**: Input student marks.
- **Generate Grade Reports**: Auto-generate grade cards for review.

Assignments & Submissions

- **Upload Assignments**: Assign homework/projects.
- **View Student Submissions**: See uploaded student work.
- **Grade Assignments**: Provide marks/feedback.

Quizzes

- **Create Quizzes**: Design MCQs/subjective quizzes.
- **Auto-Grading**: Automatic results for objective questions.
- **Review Results**: Evaluate subjective answers and release final scores.

LMS

- **Manage Courses**: Update subjects, course materials.
- **Upload Materials**: Provide reference videos, lecture notes.
- **Track Student Progress**: Identify students lagging behind.

Notices

- **View Notices**: School-wide announcements.
- **Post Class Announcements**: Teacher → class-specific updates.

📌 3. Student Menu

Students have a simplified learning and progress-tracking view.

Dashboard

- Overview of timetable, upcoming exams, pending assignments, attendance percentage.

My Profile

- **Personal Information**: View/update own details.
- **Update Details**: Edit email/phone/address (with approval).
- **Parent Details**: See linked parent/guardian info.

My Classes

- **View Enrolled Classes**: Subjects + allocated teachers.
- **Class Timetable**: Daily/weekly schedule.
- **Teachers & Subjects**: Know which teacher is teaching which subject.

Attendance

- **My Attendance Report**: Student-specific daily attendance.
- **Monthly Summary**: Percentage breakdown.

Exams & Gradebook

- **View Marks**: Access past marks.
- **Download Report Cards**: Printable PDF report card.
- **Upcoming Exams**: View exam schedule.

Assignments

- **View Assignments**: Homework/project list.
- **Submit Work**: Upload completed assignments.
- **Check Grades**: See feedback and scores.

LMS

- **View Courses**: Access enrolled learning modules.
- **Access Videos, PDFs, Links**: Study materials.
- **Track Learning Progress**: Completion percentages, achievements.

Notices & Calendar

- **School Announcements**: Notices from principal/admin.
- **Exam Schedules**: Centralized calendar for tests.
- **Upcoming Events**: Extra-curricular activities, holidays.

✅ This structure ensures:

- **Admins** manage the *entire school system*.
- **Teachers** focus on *academic delivery and student evaluation*.
- **Students** concentrate on *learning, progress, and communication*.

Would you like me to **convert this into a visual sitemap diagram** (tree structure / flowchart) so you can use it in planning your ERP UI?