Product Requirements Document (PRD)

1. Product Overview

Product Name (Working Title)

The HomeSkool ERP - AI (White-label ERP + LMS Platform)

Vision

To build a **holistic, AI-powered ERP + LMS platform** that digitizes and intelligently optimizes **end-to-end academic, administrative, and learning workflows** for schools/institutions etc. **deep customization and white-labeling**.

Mission

Enable institutions to **operate smarter**, **teach better**, and **learn more effectively** through automation predominptive AI-driven insights, automation, and personalized learning.

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2. Target Customers & Users

Primary Customers (Buyers)

- K-12 Schools
- Chain of Schools / Education Groups
- Coaching Centers & EdTech Institutes

End Users

- **Students** – learners consuming content and receiving personalized guidance
- **Teachers** – content creators, evaluators, mentors
- **Parents** – progress monitoring, communication
- **Administrative Staff** – operations, finance, HR
- **School Management / Principals** – reporting, compliance, decision-making

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3. Problem Statement

Educational institutions today face:

1. **Fragmented systems** (separate ERP, LMS, finance tools)
2. **High manual workload** for teachers and administrators
3. **Limited personalization** in student learning
4. **Poor data utilization** for insights and decision-making
5. **Lack of scalable AI adoption** tailored to education
6. **Low customization** in existing off-the-shelf platforms

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4. Goals & Success Metrics

Business Goals

- Become a **single system of record** for institutions
- Enable **AI-assisted teaching and learning**
- Support **white-label SaaS adoption** at scale

Product Success Metrics

- 90%+ ERP workflow digitization per institution
- 30–50% reduction in teacher & admin workload
- Improved student performance & engagement metrics
- AI feature adoption rate (content creation, reports)
- Institution retention & expansion rate

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5. Core Modules – ERP (K-12 Focused)

5.1 Student & Academic Structure (Core)

Student Master Data - Unique student profile (academic + demographic) - Academic year-wise enrollment history - Grade, section, roll number mapping

Academic Hierarchy - School → Grade → Section → Subject - Subject types: Core, Elective, Co-curricular - Academic calendars & terms

Teacher Mapping - Teacher → Class → Section → Subject mapping - Multiple teachers per subject support - Substitute / assistant teacher support

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5.2 Attendance & Session Logging (Critical MVP Requirement)

Session-First Academic Model (Balanced Logging)

Sessions are the atomic unit of teaching activity and academic traceability.

A. Course & Curriculum Structure (Indian K-12 Aligned)

- Board → Grade → Subject → Chapters → Topics
- Boards supported (configurable): CBSE, ICSE, State Boards
- Course structure is **pre-defined by institution** and reused across years
- Teachers map sessions to:
    - Chapter
    - Topic(s)

This ensures **standardization + reporting consistency**.

B. Session Creation

- Sessions can be:
    - **Pre-defined** (auto-created from timetable)
    - **Manually created** (extra class, remedial, activity, test)

Mandatory fields: - Date & time - Class, section, subject - Teacher(s)

C. Balanced Post-Session Logging (2–3 minutes)

Structured Inputs (Checkbox / Dropdown / Short Text)

- Topics covered (from curriculum)
- Teaching method: - Lecture - Discussion - Activity-based - Assessment - In-class activity conducted (checkbox + short note)
- Homework assigned (yes/no) - Homework description (short text)
- Optional teacher remarks

Depth where it matters:

- Session-level data is rich
- Student-level data remains lightweight

D. Session-Based Attendance

- Attendance captured **per session**
- States:
    - Present
    - Absent
    - Late / Partial
- Bulk mark + quick edit
- Attendance auto-linked to:
    - Student profile
    - Parent dashboard

E. Personalization Signals (ERP-Level)

- Simple student markers per session (sample):
    - Needs support
    - Actively participated
    - Follow-up required

These are **checkbox-driven**, not free text, to ensure consistency.

5.3 Parent–Student Relationship Management

One Parent → Many Children - Single parent account linked to multiple students - Each child maintains **independent academic & activity data**

Multi-Parent Model - Multiple guardians per student (father, mother, guardian) - Configurable permissions: - View-only - Academic + attendance - Fees & communication

Parent Dashboard - Child switcher - Attendance & session summaries - Teacher remarks & announcements

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5.4 Assessments & Performance (ERP-level)
- Exam & test scheduling
- Marks & grade entry
- Skill / outcome tagging per assessment
- Report card generation (non-AI in MVP) [Template for the report and test will be user provided]

5.5 Fees & Finance (MVP)
- Fee structure per grade
- Installments & concessions
- Invoices & receipts
- Parent payment tracking

5.6 Communication & Notifications
- Announcements (school / class / section)
- Parent–teacher messaging
- Automated alerts:
    - Absence
    - Fee due
    - Important notices

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6. Core Modules – LMS (Deferred – Data Hooks Only)
LMS delivery is **out of scope for ERP MVP,** but ERP must capture all learning signals.

ERP → LMS Data Hooks (MVP) - Session logs - Attendance per session - Homework & activity metadata - Teacher remarks

These datasets will power: - AI teacher copilots - Student personalization - Behavioral & skill reports

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7. AI Capabilities

7.1 AI for Teachers

Content Creation - Auto-generate lesson plans - Slide decks, quizzes, worksheets - Multi-difficulty versions - Multilingual content

Teaching Assistance - Suggested teaching strategies - Class performance insights - Question difficulty analysis

7.2 AI for Students

Personalized Learning - Adaptive content recommendations - Strength & weakness detection - Personalized study plans

AI Tutor - Concept explanations - Practice questions - Doubt resolution

7.3 AI-Generated Reports (Key Differentiator)

Template-based + Data-driven reports:

- **English Language Reports** (CEFR-aligned)
- **Mathematics Skill Analysis**
- **Subject-wise Cognitive Skills**
- **Behavioral & Learning Patterns**
- **Custom Institution-Defined Reports**

Inputs: - Test scores - Activity data - Engagement metrics - Teacher inputs

Outputs: - Natural language reports - Visual summaries - Actionable recommendations

8. White-Label & Customization

Branding

- Custom domain
- Logo, colors, themes
- Institution-specific terminology

Functional Customization

- Module enable/disable
- Custom workflows
- Custom fields & reports

Multi-Tenant Architecture

- Central admin for school chains

- Independent data isolation

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9. User Roles & Permissions (Access Control)

Core Roles

- **Super Admin (Platform Owner)**
- **Institution Admin**
- **Principal / Academic Head**
- **Teacher**
- **Student**
- **Parent / Guardian**
- **Non-teaching Staff**

Role-Based Access Control (RBAC)

Institution Admin - Configure courses & curriculum - Create classes, sections, subjects - Assign teachers - Access all reports

Principal / Academic Head - View all session logs - Monitor syllabus coverage - Teacher performance insights (non-AI in MVP)

Teacher - View assigned classes & subjects only - Create & log sessions - Mark attendance - Assign homework

Parent - View own child(ren) only - Session summaries - Attendance & homework

Student - View own attendance & homework

Data Visibility Rules

- Session logs editable only by session teacher (time-bound)
- Attendance edits require approval after lock period
- Parents cannot see other students' data
- Multi-parent access is permission-based

Audit logs maintained for all critical actions.

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10. Non-Functional Requirements

Security

- Data encryption (at rest & transit)
- Role-based access control
- GDPR / FERPA-ready

Performance & Scalability

- Cloud-native architecture
- Supports 10K+ concurrent users (Initially, 100k+ later)

Availability

- 99.9% uptime SLA
- Automated backups

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11. Technology Stack (Suggested)

- Frontend: Web + Mobile (iOS/Android)
- Backend: Microservices architecture
- Database: Relational + Analytics DB
- AI: LLMs, Recommendation Engines
- Hosting: Cloud (AWS/GCP/Azure)

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12. MVP Scope (Phase 1 – K-12 ERP First)

Must-Have Modules

1. Student Master & Academic Structure
2. Teacher → Class → Subject Mapping
3. Attendance (Student & Teacher)
4. **Class Session Logging (Per teacher, per subject, per class)**
5. Parent–Student Relationship (One-to-many & Multi-parent)
6. Basic Assessments & Marks
7. Fees & Parent Payments
8. Communication & Notifications
9. White-label Branding (Basic)

Explicitly Out of MVP

- Full LMS content delivery
- AI content generation
- Advanced analytics

MVP goal: **Operational ERP + rich academic activity data capture**

Phase 2

- Advanced AI personalization
- AI behavioral reports
- School chain management

Phase 3

- Marketplace & integrations
- Advanced analytics & benchmarking

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13. Key Risks & Mitigations

Risk	Mitigation
AI accuracy	Human-in-loop validation
Adoption resistance	Training & onboarding
Data privacy	Strong compliance framework

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14. Open Questions (Next Steps)

- Regional curriculum standards to support first?
- Target pricing model (per student / per institution)?
- Initial geography & compliance needs?

Status: PRD – K-12 ERP MVP Locked & Ready for Delivery Planning

15. Delivery Timeline (Indicative – ERP MVP)

Assumes a single product team (PM + Design + Engineering) working in parallel. Architecture & task breakdown handled by tech team.

Phase 0 – Discovery & Setup

- Finalize PRD & scope freeze
- Curriculum & board structure validation (CBSE / ICSE / State)
- UX wireframes for core flows

Phase 1 – Core ERP Foundation

- Student master & academic hierarchy
- Teacher → Class → Subject mapping
- Parent–student relationship model
- RBAC & access control

Phase 2 – Academic Operations

- Session creation & session logs
- Session-based attendance
- Homework & activity logging
- Parent & teacher dashboards

Phase 3 – Assessments, Fees & Communication

- Basic assessments & marks
- Fees & payment tracking
- Notifications & messaging
- White-label branding (basic)

Phase 4 – UAT & Pilot Rollout

- School pilot onboarding
- Feedback & iteration
- Production readiness

Total ERP MVP Timeline: ~ xx weeks

16. Product Epics (ERP MVP)

Epic 1: Academic Structure & Curriculum

- Configure boards, grades, subjects
- Chapter & topic hierarchy

Epic 2: User & Access Management

- Roles & permissions
- Multi-parent & multi-child access

Epic 3: Session Management

- Session creation (pre-defined & manual)
- Post-session logging

Epic 4: Attendance & Participation

- Session-based attendance
- Student participation markers

Epic 5: Assessments & Performance

- Exams & marks entry
- Report card generation

Epic 6: Fees & Finance

- Fee setup
- Parent payment tracking

Epic 7: Communication & Notifications

- Announcements
- Alerts & messaging

Epic 8: Branding & Configuration

- White-label settings
- Institution preferences

17. Sample User Stories (Tech-Ready)

Epic: Session Management

As a Teacher I want to log a class session after teaching so that the school and parents know what was covered.

Acceptance Criteria - Teacher can select class, subject, date - Teacher can tag chapter & topics - Teacher can add homework & remarks

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Epic: Attendance

As a Teacher I want to mark attendance per session so that attendance reflects actual classes conducted.

Acceptance Criteria - Attendance linked to session - Bulk mark present - Save & submit

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Epic: Parent Dashboard

As a Parent I want to view session summaries for each child so that I can track what my child learned.

Acceptance Criteria - Parent can switch between children - Parent sees date-wise session logs

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Epic: Access Control

As an Admin I want to control who can view or edit academic data so that data privacy is maintained.

Acceptance Criteria - Role-based permissions enforced - Audit logs available

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18. Developer Handoff Notes

- This PRD is **scope-frozen for ERP MVP**
- LMS & AI are intentionally deferred
- Engineering to:
    - Propose architecture
    - Break epics into tasks
    - Define APIs & data models