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# 📘 Project Name: eGyan Library System

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## 1. Project Overview Document (POD)

**Title**: Web-Based Digital Library for Educational Institutions

**Objective**:
To build a web-based content management system (CMS) for digital books and learning content, deployable on local endpoint servers in schools, with an integrated cloud-based analytics engine for tracking student engagement.

**Scope**:

- Offline-first digital content delivery via school servers
- Role-based access (Super Admin, Principal, Teacher, Student)
- Flipbook-style PDF eBooks, audiobooks, and video content support
- Cloud-integrated analytics for student performance

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## 2. Business Requirements Document (BRD)

**Stakeholders:**

- School Management
- Teachers
- Students
- Content Administrators
- Government/NGO (if involved in implementation)

**Requirements:**

- Schools must operate independently even without internet
- Students must only access assigned content
- Centralized reporting and analytics needed for each server

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## 3. Functional Requirements Document (FRD)

**CMS Features (Deployed Locally at School):**

- ✅ Role Management:
  - **Super Admin**: Full control
  - **Principal**: Manage teachers & students
  - **Teacher**: Manage students & assign content
  - **Student**: View assigned eBooks/audio/videos only
- ✅ Content Management:
  - Upload & assign PDF eBooks (flipbook-style), audiobooks, and video lectures
  - Content can be categorized by subject/class
- ✅ Access:
  - Intranet-based, no internet required
  - Responsive UI for desktops/tablets

**Analytics Engine (Deployed in Cloud):**

- 📊 Analytics Collected:
    - Time spent per student
    - Books accessed and completed
    - Student reading progress
- 🛰️ Sync Mechanism:
    - Offline analytics stored locally
    - Synced to cloud when internet is available
- 🔐 Unique ID:
    - Each endpoint server has a unique identifier

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## 4. Technical Architecture Document (TAD)

**System Components:**

- **Endpoint Server (On-Premises)**:
    - Linux/Windows-based mini PC
    - Local web server with CMS
    - SQLite/PostgreSQL local database
- **Central Cloud Analytics Server**:
    - Hosted on AWS/Azure/GCP
    - REST API to receive analytics data
    - Analytics Dashboard (Admin only)

**Network Flow:**

Student Device (via intranet) → School CMS → Local Analytics DB
↘ ↘
Content Viewing Analytics Stored Locally
↘ (Internet Available)
Analytics Pushed to Cloud Server

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## 5. Deployment Plan

**Phase 1:**

- Setup CMS with full role-based access
- Enable flipbook, audio & video content support
- Deploy endpoint server in pilot schools

**Phase 2:**

- Develop analytics tracking module
- Integrate cloud server for analytics
- Assign unique IDs to each server

**Phase 3:**

- Deploy in multiple institutions
- Real-time analytics and reporting dashboards for admin

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## 6. User Roles and Permissions

| Role | Permissions |
|---|---|
| Super Admin | Full access: create/manage schools, content, users |
| Principal | Manage teachers, assign content, view school-wide analytics |
| Teacher | Create classes, assign content to students, view assigned student analytics |
| Student | View assigned content only |

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## 7. Data Flow & Sync Strategy

**Offline Mode**:

- Content access and analytics collection happen offline

**Online Sync Mode**:

- When internet is available:
    - Endpoint server uploads analytics to cloud
    - Uses unique server ID for data segregation

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## 8. Security & Compliance

- SSL/TLS for data sync to cloud
- Access control via secure login
- All offline data is encrypted locally
- Complies with FERPA (if required) / Indian EdTech data privacy norms

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## 9. Risks and Mitigation

| Risk | Mitigation Strategy |
| --- | --- |
| Server damage/local failure | Local backups + periodic cloud sync |
| Internet unavailability | Offline-first architecture |
| Data misuse or breach | Strict role-based access + encryption |

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