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Software Requirements Specification (SRS)

For: Early Childhood Education Management System

1. Introduction
1.1 Purpose

The purpose of this document is to define the functional requirements for the Early Childhood Education Management System. The system aims to streamline administrative tasks, automate attendance tracking, facilitate communication between stakeholders, and enhance record management for students and staff.

1.2 Scope

The system provides modules for user registration, attendance tracking, activity scheduling, performance reporting, internal communication, and security. It supports role-based access control and ensures efficient information handling through automatic reporting and data export capabilities.

2. Overall Description

The platform will serve as a centralized management system that supports CRUD operations, automated attendance, internal messaging, and data analytics. It will be accessible by administrators, teachers, and parents according to predefined permissions.

3. Functional Requirements and Features

3.1 CRUD Operations

	Requirement	Description
FR-1	Create Records	The system shall allow registration of new students, teachers, and user accounts.
FR-2	Read Records	The system shall allow viewing of student records, attendance reports, and activities.

FR-3	Update Records	The system shall allow modification of activity schedules, student details, and reports.
FR-4	Delete Records (Logical)	The system shall perform logical deletion of inactive users or students without physical removal.

3.2 Attendance Management

	Requirement	Description
FR-5	Automatic Time Capture	The system shall automatically record the exact arrival and departure times of each child.
FR-6	Late Detection	The system shall automatically detect late arrivals and send alerts to parents.
FR-7	Daily Attendance Reports	The system shall automatically generate daily attendance reports.
FR-8	Periodic Attendance Summaries	The system shall provide weekly or monthly attendance summaries accessible to the principal.

3.3 Activity and Performance Management

	Requirement	Description
FR-9	Editable Activity Calendar	The system shall provide an interactive activity calendar editable by teachers (Monday–Friday).
FR-10	Performance Observations	The system shall allow daily entry of performance and behavior observations for each child.
FR-11	Student Progress Reports	The system shall automatically generate personalized progress reports for each student.

3.4 Communication and Notifications

	Requirement	Description
FR-12	Internal Messaging	The system shall include an internal messaging feature between principal, teachers, and parents.
FR-13	Notification Center	The system shall provide a notification center for alerts, messages, and payment reminders.

3.5 Security and Access Control

	Requirement	Description
FR-14	Role-Based Access Control	The system shall enforce role-based access control to ensure different permissions for each user type.
FR-15	Audit Log	The system shall maintain an audit log that records all user actions within the system.
FR-16	Automatic Logout	The system shall automatically log out users after a period of inactivity to enhance security.

3.6 Reporting and Data Export

	Requirement	Description
FR-17	Export Reports	The system shall allow exporting reports in PDF, Excel, or print formats.
FR-18	Advanced Search and Filtering	The system shall provide advanced search and filtering options to locate students, dates, or activities.
FR-19	Staff Performance Monitoring	The system shall monitor staff performance based on attendance and task completion metrics.

5. Non-Functional Requirements (Summary)

- **Performance:** Attendance updates must occur within 2 seconds after record entry.
- **Security:** All user data shall be encrypted using industry-standard protocols.
- **Usability:** The system shall have an intuitive user interface for teachers with minimal training.
- **Availability:** The system shall maintain 99% uptime except during scheduled maintenance.

Product Backlog – Early Childhood Education Management System

Epic 1: CRUD Operations

ID	User Story	Acceptance Criteria	Priority

US-1	As an administrator, I want to register new students, teachers, and user accounts so that all users can access the platform.	The system allows form-based input and validation for new records. Data is stored successfully in the database.	High
US-2	As an administrator or teacher, I want to view student records, attendance, and activities so I can track their progress.	The system displays data in a readable table or dashboard format with filters.	High
US-3	As a teacher, I want to update activity schedules and student details so that information remains current.	The system supports editable fields and confirms successful updates.	High
US-4	As an administrator, I want to deactivate (logically delete) inactive students or users instead of removing them permanently.	The system sets an "inactive" status rather than deleting the record physically.	Medium

Epic 2: Attendance Management

ID	User Story	Acceptance Criteria	Priority
US-5	As a teacher, I want the system to automatically record the exact arrival and departure times of each child.	The system logs timestamps accurately upon check-in/out.	High
US-6	As a parent, I want to receive alerts when my child arrives late so I can be informed promptly.	Notifications are automatically sent based on defined lateness thresholds.	High
US-7	As an administrator, I want automatic daily attendance reports so I can monitor attendance easily.	The system generates daily attendance summaries automatically.	High

US-8	As a principal, I want to view weekly or monthly summaries of attendance.	Reports are accessible in dashboard or downloadable formats.	Medium

Epic 3: Activity and Performance Management

ID	User Story	Acceptance Criteria	Priority
US-9	As a teacher, I want an interactive calendar to plan and manage weekly activities.	Teachers can add, edit, and delete activities for each weekday.	High
US-10	As a teacher, I want to record daily observations about student behavior and performance.	Each record is linked to a student and a specific date.	High
US-11	As a principal or parent, I want automatic progress reports generated for each student.	Reports include performance, attendance, and behavior details.	Medium

Epic 4: Communication and Notifications

ID	User Story	Acceptance Criteria	Priority
US-12	As a teacher or parent, I want to send and receive messages within the system.	Messages are sent, stored, and received within the internal inbox.	Medium
US-13	As a user, I want a notification center that alerts me about messages, attendance issues, or payments.	Notifications appear instantly and remain visible until acknowledged.	Medium

Epic 5: Security and Access Control

ID	User Story	Acceptance Criteria	Priority
US-14	As an administrator, I want to manage access roles so each user has appropriate permissions.	Roles define access to features based on user type (admin, teacher, parent).	High
US-15	As an auditor, I want a record of all user actions for accountability.	All CRUD and communication actions are logged in an audit table.	High
US-16	As a user, I want to be logged out automatically after inactivity for security reasons.	Session timeout triggers automatic logout after a set period.	Medium

Epic 6: Reporting and Data Export

ID	User Story	Acceptance Criteria	Priority
US-17	As an administrator, I want to export reports in PDF, Excel, or printable formats.	Exports preserve formatting and data integrity.	Medium
US-18	As a teacher, I want to search and filter students, dates, or activities easily.	Advanced filtering works by name, date range, or activity type.	High
US-19	As a principal, I want to monitor staff performance based on attendance and completed tasks.	Reports summarize staff punctuality and task completion rates.	Medium

Sprints

Sprint	Focus	Features (User Stories)	Goal
Sprint 1	Basic CRUD & Authentication	US-1 to US-4	Enable core data management and login system
Sprint 2	Attendance Module	US-5 to US-8	Automate attendance tracking and alerts
Sprint 3	Activity & Performance	US-9 to US-11	Implement calendars and performance reports
Sprint 4	Messaging & Notifications	US-12 to US-13	Enable internal communication and notifications
Sprint 5	Security & Access	US-14 to US-16	Enforce access control and user logging
Sprint 6	Reporting & Optimization	US-17 to US-19	Add export, search, and performance monitoring

Tabla 1. Priorización de Features

#	Epic / Módulo	Feature (User Stories)	Descripción breve	Prioridad	Dependencias
1	**CRUD Básico y Autenticación**	US-1 a US-4	Permite registrar, ver, actualizar y desactivar usuarios (estudiantes, docentes, padres). Base del sistema.	Crítica	—
2	**Gestión de Asistencia**	US-5 a US-8	Automatiza la entrada/salida, genera alertas por retrasos y reportes diarios/semanales.	Crítica	CRUD

3	**Actividades y Rendimiento**	US-9 a US-11	Permite a los docentes planificar actividades, registrar observaciones y generar reportes de progreso.	Alta	CRUD, Asistencia
4	**Seguridad y Control de Acceso**	US-14 a US-16	Define roles, registra acciones y gestiona cierres automáticos de sesión.	Alta	CRUD
5	**Comunicación y Notificaciones**	US-12 a US-13	Mensajería interna entre usuarios y alertas del sistema (mensajes, pagos, asistencia).	Media-Alta	CRUD, Roles
6	**Reportes y Exportación de Datos**	US-17 a US-19	Exporta reportes (PDF/Excel), permite búsqueda avanzada y monitoreo de desempeño del personal.	Media	CRUD, Asistencia, Actividades, Roles

Tabla 2. Orden de Desarrollo y Sprints Recomendados

Sprint	Foco Principal	Features Incluidos	Objetivo del Sprint	Prioridad Global
Sprint 1	CRUD y Autenticación	US-1, US-2, US-3, US-4	Habilitar gestión básica de usuarios y login seguro.	Crítica
Sprint 2	Módulo de Asistencia	US-5, US-6, US-7, US-8	Automatizar registro de asistencia y alertas por tardanza.	Crítica
Sprint 3	Actividades y Rendimiento	US-9, US-10, US-11	Implementar calendarios, observaciones y reportes de progreso.	Alta
Sprint 4	Seguridad y Roles	US-14, US-15, US-16	Aplicar control de accesos, logs y seguridad de sesión.	Alta

Sprint 5	Comunicación y Notificaciones	US-12, US-13	Habilitar mensajería interna y notificaciones del sistema.	Media-Alta
Sprint 6	Reportes y Optimización	US-17, US-18, US-19	Añadir exportaciones, búsquedas avanzadas y reportes de personal.	Media

Tabla 3. Justificación General de Priorización

Criterio	Descripción	Impacto en Prioridad
Dependencias Técnicas	Los módulos CRUD y de autenticación deben existir antes que cualquier otro.	Muy alto
Valor para el Usuario	Asistencia y rendimiento entregan el mayor valor inmediato a administradores y padres.	Alto
Complejidad Técnica	Módulos de exportación, notificaciones y seguridad requieren desarrollo posterior.	Medio
Riesgo / Mantenibilidad	Seguridad y auditoría se ubican luego del núcleo funcional para reforzar protección.	Medio
Impacto en la Experiencia del Usuario	Comunicación y reportes mejoran usabilidad, pero dependen de la base de datos estable.	Medio-Bajo