1. Project Proposal/Report

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1. Executive Summary

The Student Attendance Management System is a cloud-based web application developed to automate and digitize attendance management in educational institutions. The system provides role-based dashboards for students, teachers, and administrators, enabling real-time attendance tracking, reporting, and automated alerts.

By leveraging AWS serverless services, the application ensures high scalability, security, high availability, and cost efficiency. This system addresses inefficiencies of manual attendance methods while improving accuracy, transparency, and operational efficiency for all stakeholders.

2. Introduction / Background

Traditional attendance systems in educational institutions rely on manual processes, which are time-consuming, prone to errors, and inefficient. Students cannot monitor their attendance in real-time, while administrators spend excessive time generating reports and verifying data accuracy. Cloud computing offers a scalable, reliable, and secure solution, enabling centralized data storage and role-based access. Implementing a cloud-based attendance management system reduces manual workload, ensures data integrity, provides instant visibility for students and teachers, and supports timely interventions to improve academic performance.

The adoption of AWS serverless architecture allows the system to automatically scale based on user demand, reduce infrastructure costs, and maintain high availability without complex server management.

3. Problem Statement

The current manual attendance management system presents several challenges:

- Manual attendance marking wastes valuable classroom time.
- Attendance records are prone to errors and manipulation, reducing reliability.
- Students have no real-time visibility of their attendance status.
- Administrators face difficulty generating accurate and timely reports.
- Lack of automated notifications leads to missed alerts about attendance shortages or academic risks.

A secure, automated, cloud-based attendance management system is required to address these challenges efficiently while providing real-time access and reporting for all stakeholders.

4. Aim & Objectives

Aim:

To design and implement a secure, scalable, and serverless student attendance management system using AWS that enhances efficiency, transparency, and reliability in attendance management.

Objectives:

1. Provide role-based access for students, teachers, and administrators.

2. Enable real-time storage and retrieval of attendance data.

3. Automate attendance alerts and notifications for students and teachers.

4. Ensure data security using AWS IAM and authentication services.

5. Achieve high availability and scalability using serverless AWS architecture.

6. Generate accurate attendance reports for administrative monitoring and decision-making.