Android-Based Attendance Management System using Cloud Storage

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ABSTRACT: In an educational institution, the mandatory processes with student details are - collection, management, and maintenance. Since the management and maintenance part of the data is cumbersome for any educational institution there are many built software and applications. Attend-Ease is an android application developed to enable ease of work in such managing and maintaining processes. The ethnic way of attendance is, recording manually in a log book and then converting into a desktop application which can be a tedious process and may often lead to errors while generation reports. The proposed system enhances the medium of marking and modifying attendance via smartphone and keep track of student’s record for academic purposes. The students are notified as soon as their attendance goes below the specified attendance threshold in the form of an SMS. The system enforces to develop a portable attendance system equipped with an online database, especially to prevent data loss as well as to promote paperless and a greener environment. Attend-Ease significantly reduces proxies and time of marking the attendance compared to usual methods. The process of marking attendance is very much similar to the traditional way of calling out the names of the students and marking their present status as necessary. The super admin has overall control of this project and maintaining the faculty and students information. The faculty has control over the student records, and the student can view their academic details via Attend-Ease via which the server updates instantly. Attend-Ease, an Android-based Student Management System application offers reliability, time savings and user-friendly. It can be used as a base for creating and enhancing applications for viewing results, tracking attendance notably for college arena. Also, students can be notified anywhere and anytime. Thus providing high security and a system that reduces the work and resources required in the traditional process.

KEYWORDS: Attend-Ease-Android Application Name (proposed system), SMS-Short Message Service

I. INTRODUCTION
Google’s Open Handset Alliance, a Linux-based operating system for mobile devices, developed android. In Android data SQLite, a lightweight relational database, accommodates storage purposes. Attendance management system are being carried out using various technologies such as RFID, NFC, Biometric, Face recognition and many other domains. In the proposed system, the student’s presence is being evident by the faculty and the attendance process is initiated. Thus, the system provides a reliable and convenient manner of managing and maintaining students’ record for both attendance and academic purpose. This document is structured with seven chapters with references and annexes. The first sections will explain some Android fundamentals such as fragments, services, the Google APIs used, and then we will make a summary of the work previously performed. In the next chapters, we analyze the features added such as the server, what are its properties and its functions in the developing of the project.

II. IDENTITY MANAGEMENT
Authentication is done passwords, popular federated identity providers like Google, Facebook, and Twitter, and more. The authentication credentials, which can be the user's email, address and password, or an OAuth token from a federated identity provider is passed to the firebase Firebase Authentication. These credentials
are passed to the Firebase authentication, which will then verify and return the response to the client. Open Authentication enables the application to access the information even without providing the appropriate password.

III. MARK OR MODIFY ATTENDANCE
This module displays the Student details such as their register number and name of the specified class. Radio buttons are provided through which teachers can scratch whether a student is present or absent as well as on duty to mark attendance. Modifications in the submitted attendance is possible with the concern of some attributes such as date, period and register number which directs to the respective record that has to be modified.

IV. VIEW ATTENDANCE OR INTERNALS
In this, one student can view either their overall attendance or attendance for one specific date. The attendance attributes are summed up to evaluate the overall attendance percentage of respective student In case of attendance shortage, the specific student is intimated regarding the following formalities.

V. GROUP NOTIFICATIONS
This module enables ease of announcements or notice passing among the faculties or students. The circular is passed with respect to role-based permissions within the faculties and also to the sight of students. This makes instant announcement with the help of a common console for the application users.

VI. NOTIFICATION
This module sends hourly SMS alert to the absentee's parents. This is done by retrieving absentees list from the database and sends SMS to those parents indicating the absent hour instantly.

VII. OAUTH 2.0 (OPEN AUTHENTICATION 2.0)
OAuth is an open standard for access delegation, commonly used for users to allow the application access to their information but without giving the passwords.

VIII. JWT (JSON WEB TOKENS)
JWT is a means to transfer asserts between two parties which are encoded as JSON object and digitally signed using JWS (JSON Web Signature).

IX. REST API (REPRESENTATIONAL STATE TRANSFER)
REST takes a resource based approach to web based interactions in order to locate the server and to either update the resource, delete it or get knowledge about it.

X. FIGURE:--

![Architecture Diagram](image)

Fig 1: Architecture Diagram
Fig 2: Identity Management

Fig 3: View Attendance or Internals

Fig 4: Group Notifications

Fig 5: Notification

Fig 6: Report Generation
XI. RESULT:

Login Page

Classes

Navigation Panel

Selecting Class and Date
Announcement

Firebase Backend
Firebase Backend

Firebase Backend
XII. REFERENCES