

Attendify: A Smart Android-Based Attendance Management System using Java, PHP and Mysql

Author Details

Sourabh Patel¹, Shubham Chakraborty², Shivam Agrawal³, Somil Sen⁴, Mrs. Sweta Kriplani⁵


¹²³⁴Department of Computer Science & Engineering, Shri Ram Institute of Technology, RGPV, Jabalpur, Madhya Pradesh, India

⁵ Professor, Department of Computer Science & Engineering, Shri Ram Institute of Technology, RGPV, Jabalpur, Madhya Pradesh, India Corresponding Author: sourabh patel Email: sp824768@gmail.com



<https://doi.org/10.55041/ijstmt.v2i5.324>

Cite this Article: Patel, S., Chakraborty, S., Agrawal, S. & Sen, S. (2026). Attendify: A Smart Android-Based Attendance Management System using Java, PHP and Mysql. International Journal of Science, Strategic Management and Technology, 02(05). <https://doi.org/10.55041/ijstmt.v2i5.324>

License:  This article is published under the Creative Commons Attribution 4.0 International License (CC BY 4.0), permitting use, distribution, and reproduction in any medium, provided the original author(s) and source are properly credited.

Abstract—

Attendance management is an important part of educational institutions for monitoring student participation and academic performance.

Traditional attendance systems are generally paper-based and require significant manual effort, making them time-consuming, inefficient, and prone to human errors. To overcome these limitations, this research presents “Attendify,” an Android-based attendance management system developed using Java, PHP, and MySQL.

The proposed system digitizes the attendance process by providing a centralized platform where administrators, Heads of Departments (HODs), teachers, and students can interact securely. The system uses API integration for real-time communication between the Android application and the backend database. Different user roles are implemented to ensure proper access control and secure management of data.

Attendify improves efficiency by reducing paperwork, minimizing attendance manipulation, and enabling quick access to records. The application also provides a modern user interface with dynamic RecyclerView integration and real-time updates. The system is scalable, secure, and suitable for implementation in colleges and universities.

Keywords: Attendance Management System, Android Application, API Integration, Java, PHP, MySQL, Student Management System.



ATTENDIFY

1. INTRODUCTION

In modern educational institutions, attendance plays a significant role in evaluating student discipline, participation, and academic performance. Most colleges and universities still rely on traditional attendance methods such as paper registers and manual entries. These methods consume time, increase paperwork, and create difficulties in managing large amounts of student data.

Manual attendance systems are also vulnerable to human errors, data duplication, fake attendance marking, and inefficient record maintenance.

Furthermore, accessing attendance records in traditional systems becomes difficult for students, teachers, and administrators.

To solve these issues, the Attendify system has been developed as a smart Android-based attendance management platform. The system automates attendance-related tasks and enables efficient management of student records through a centralized digital solution.

Attendify is developed using Android Studio with Java for frontend application development, PHP for backend API handling, and MySQL for database management. The system provides multiple user roles such as Admin, HOD, and Student, where each role has specific functionalities and access permissions.

The application uses Retrofit API integration for real-time communication between the Android application and the server. RecyclerView is used to dynamically display user data such as HOD lists and student records.

The main objective of Attendify is to reduce manual effort, improve accuracy, provide secure role-based management, and create a scalable attendance solution for educational institutions.

2. Problem Statement

Traditional attendance systems face several problems in educational institutions:

- Manual attendance marking consumes classroom time.
- Paper-based systems increase the chances of data loss.
- Managing attendance records manually is difficult for large institutions.
- There is no centralized digital system for attendance tracking.
- Fake attendance and human errors reduce system reliability.
- Students cannot easily access their attendance information.
- Generating reports manually is time-consuming.

These problems create inefficiency in attendance management and increase administrative workload. Therefore, a digital attendance system is required to automate and simplify the process.

4. Existing System

The existing attendance system in many institutions is based on manual register entries. In this method, teachers mark attendance using paper sheets or registers during lectures.

Limitations of Existing System

- Time-consuming process.
- Difficult to manage records.
- 3. High possibility of human errors.
- 4. Objectives of the System

The major objectives of the Attendify system are:

- To automate the traditional attendance management process.
- To reduce paperwork and manual effort.
- To provide role-based secure login functionality.
- To manage attendance records efficiently.
- To provide real-time data communication using APIs.
- To improve data accuracy and reduce errors.
- To allow easy management of HOD and student data.
- To provide a user-friendly and attractive Android interface.
- To create a scalable system for educational institutions
- No real-time accessibility.
- Increased paperwork.
- Difficult report generation.

Due to these limitations, traditional systems are inefficient for modern educational requirements.

5. Proposed System

The proposed system, Attendify, is an Android-based attendance management application that digitizes attendance operations.

The system provides:

- Admin Dashboard

- HOD Management
- Student Login System
- API Integration
- Database Connectivity
- Real-time Data Fetching
- RecyclerView-based Dynamic UI

The Admin can add or remove HODs from the database. Students can securely log in using their credentials. APIs are used for communication between the application and the server.

The proposed system minimizes manual work and improves operational efficiency.

6. Technologies Used

Frontend Technologies

- Android Studio
- Java
- XML

Backend Technologies

- PHP
- REST API

Database

- MySQL

Networking

- Retrofit Library

UI Components

- RecyclerView
- CardView
- Material Design Components

7. Methodology

The Attendify system follows a client-server architecture.

Step 1: User Interaction

Users interact with the Android application through login pages and dashboards.

Step 2: API Request

The Android application sends requests to PHP APIs using Retrofit.

Step 3: Backend Processing

PHP scripts process the request and perform database operations.

Step 4: Database Communication

The backend communicates with the MySQL database to fetch or store data.

Step 5: JSON Response

The server sends JSON responses back to the Android application.

Step 6: UI Update

RecyclerView dynamically updates the data on the application interface.

8. System Architecture

The system architecture consists of four major components:

1. Android Application
2. Retrofit API Layer
3. PHP Backend Server
4. MySQL Database Flow of Architecture:
Android App → Retrofit API → PHP Backend → MySQL Database

The Android application acts as the client, while PHP and MySQL handle server-side operations and data storage.

9. Database Design

The main database table used in the system is the users table.

Users Table Structure

| Field Name | Description |
|------------|----------------------|
| email | Unique Email Address |
| department | Department Name |
| branch | Branch Name |
| section | Section |
| user_type | Admin/HOD/Student |
| created_by | Creator ID |

The database is designed to support multiple user roles efficiently.

| Field Name | Description |
|------------|---------------------|
| id | Primary Key |
| roll_no | Student Roll Number |
| name | User Name |

10. Modules of Attendify

10.1 Admin Module

The Admin module is responsible for managing the system.

Features:

- Add HOD
- Delete HOD
- Manage Users
- View Records

10.2 HOD Module

The HOD module manages department-related operations.

Features:

- Manage Students
- View Attendance
- Department

10.3 TEACHER Module**10.4 Student Module**

The Student module provides attendance-related access to students.

Features:

- Login Access
- Attendance Viewing
- Student Profile Access

The TEACHER module manages student-related operations.

Features:

- Manage Students
- View Attendance
- mark attendance
- Student Monitoring



Used

Add HOD API

Used to insert HOD details into the database.

Get HOD API

Used to fetch all HOD records.

APIs

Delete HOD API

Used to delete HOD records using email.

Data Format

JSON format is used for request and response communication.

Example JSON Response:

```
{ "status": "success", "message": "HOD added successfully" }
```

12. User Interface Design

The Attendify application is designed with a modern Android UI.

UI Features

- Gradient Background
- Glass Effect Design
- RecyclerView Dynamic Layout
- Material Design Components
- Smooth Navigation

The user interface focuses on simplicity, accessibility, and professional appearance.

13. Results and Discussion

The Attendify system successfully automates attendance management operations.

Observed Results

- Reduced manual attendance work.
- Faster record management.
- Improved data accuracy.
- Efficient RecyclerView performance.
- Real-time data synchronization.
- Better user experience.

The application demonstrated smooth communication between Android frontend and backend APIs.

Advantages of Attendify

- Easy to use
- Reduces paperwork
- Improves efficiency
- Real-time data access
- Secure role-based management
- Scalable architecture
- Fast API communication
- User-friendly interface

14. Future Scope

The Attendify system can be enhanced in the future by implementing:

- QR Code Attendance
- Face Recognition Attendance
- Biometric Integration
- Push Notifications
- Cloud Database Integration
- AI-Based Attendance Analytics
- Parent Notification System

These improvements can make the system more intelligent and secure.

Admin Login

Sign in using your registered admin email to receive a one-time verification code.

Admin Email

e.g. xxxxxxx68@gmail.com

Send Verification Code

Verification Code

Enter the 6-digit code

Verify and Login

Didn't receive the code? Resend

15. Conclusion

Attendify is a smart Android-based attendance management system developed to overcome the limitations of traditional attendance methods.

The system provides efficient, secure, and centralized attendance management using Java, PHP, and MySQL.

The application automates attendance-related operations, minimizes manual effort, reduces human errors, and improves accessibility of records. The integration of APIs enables real-time communication between the Android application and the database.

The proposed system is scalable, user-friendly, and suitable for educational institutions seeking digital transformation in attendance management.

16. References

1. Android Developer Documentation – <https://developer.android.com>
2. Retrofit Official Documentation – <https://square.github.io/retrofit/>
3. PHP Official Documentation – <https://www.php.net/docs.php>
4. MySQL Documentation – <https://dev.mysql.com/doc/>
5. Material Design Guidelines – <https://material.io/design>
6. Research papers on attendance management systems.