Attendance Management System Project Report

Project Domain: Cloud Computing

Project Name: Attendance Management System

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GitHub Link: clickhere

Website Link: clickhere

1. Introduction

The Attendance Management System is a web-based application designed to streamline the process of recording and managing attendance in schools.

The system allows school administrators to register their school, add classes, sections, students, and teachers, and manage their attendance records efficiently.

Teachers can log in to mark attendance, view attendance reports, and access student data.

This project leverages various technologies, including HTML, CSS, SQL, PHP, phpMyAdmin, and is deployed on AWS using services S3, IAM, and EC2.

2. Project Overview

The main objective of the Attendance Management System is to automate the attendance process, reduce paperwork, and provide an easy-to-use interface for both administrators and teachers. The system is designed to handle multiple schools, each with its own set of classes, sections, students, and teachers. The key features of the system include:

- Administrator registration and login
- Class, section, student, and teacher management
- Teacher login and attendance marking
- Attendance reports and student data access
- Secure cloud storage and deployment on AWS


WELCOME TO ATTENDENCE MANANGEMENT SYSTEM

Attendance Management that Empowers Your School Community

Say goodbye to cumbersome paper records and traditional excel sheets, and welcome a smarter way to manage school attendance. Generate insightful reports, streamline attendance tracking, and enable teachers to take attendance effortlessly.
Our cloud-based attendance management system is designed specifically for schools, offering distinct administrative control for each school and hands-on features for teachers.

Signup for free
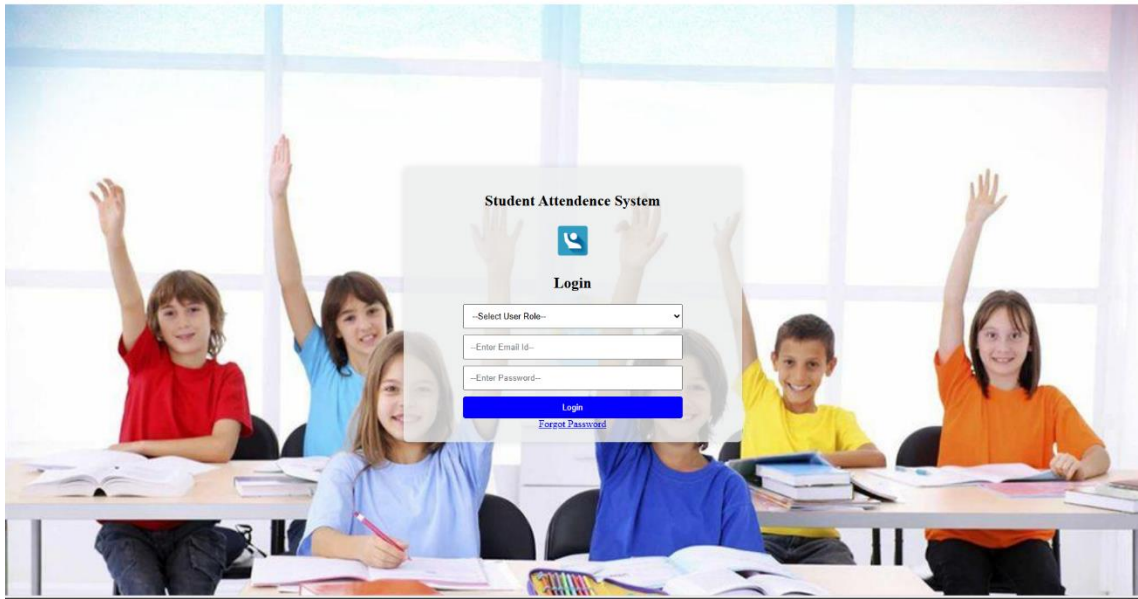
3. System Architecture

The system architecture consists of the following components:

- **Frontend:** The user interface is developed using **HTML** and **CSS**
- **Backend:** The server-side logic is implemented using **PHP** to handle data processing, business logic, and interactions with the database.
- **Database: SQL** is used to design and manage the database, which stores information about schools, classes, sections, students, teachers, and attendance records.
- **Cloud Infrastructure: AWS** services such as **S3**, **IAM**, and **EC2** are utilized to host the application, manage access control, and ensure data storage and security.

4. Technologies Used

Frontend

- **HTML:** For structuring the web pages.
- **CSS:** For styling the web pages and ensuring a responsive design.

Backend

- **PHP:** For server-side scripting and handling business logic.
- **phpMyAdmin:** For database management and interactions.

Database

- **SQL:** For designing and managing the relational database.

Cloud Infrastructure

- **AWS S3:** For storing static assets and backups.
- **AWS IAM:** For managing user access and permissions.
- **AWS EC2:** For hosting the web application.

4. Features and Functionalities

Administrator Features

- **Sign Up and Login:** Administrators can sign up with their credentials and register their school.
- **Class Management:** Administrators can create and manage classes and sections.
- **Student Management:** Administrators can add students along with their details.
- **Teacher Management:** Administrators can add teachers, assign them sections, sessions, and terms, and provide login credentials.
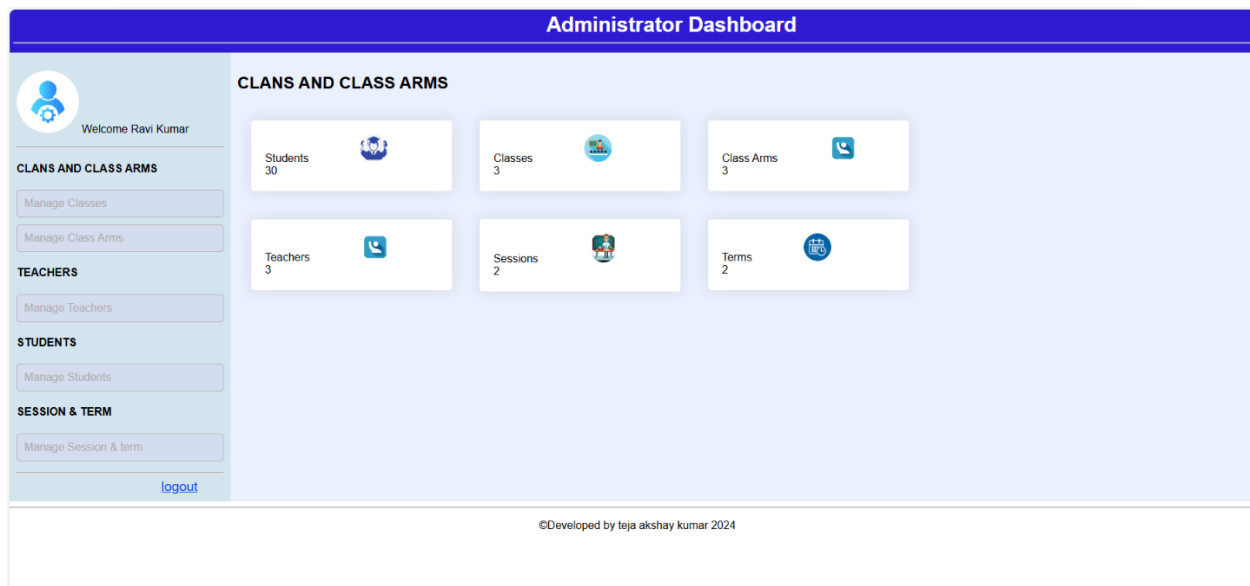
Teacher Features

- **Login:** Teachers can log in using their credentials.
- **View Students:** Teachers can view the list of students in their assigned section.
- **Mark Attendance:** Teachers can mark attendance for students (1 for present, 0 for absent).
- **Attendance Reports:** Teachers can view the attendance report for the day, including total presents and absentees.
- **Student Search:** Teachers can search for a student by roll number to view detailed attendance records.

Class Teacher Dashboard

Welcome Anita Sharma

Class:Nursery
Section:A

STUDENTS
- All Students

ATTENDANCE
- Take Attendance
- View Class Attendance
- view Students Attendance
- Today's Report

logout

STUDENTS
10

S.NO	RollNo	First Name	Last Name	Class Arm Name	Class Name
1	NR-A-001	Aarav	Singh	A	Nursery
2	NR-A-002	Saanvi	Sharma	A	Nursery
3	NR-A-003	Aryan	Khan	A	Nursery
4	NR-A-004	Diya	Patel	A	Nursery
5	NR-A-005	Ishaan	Mehta	A	Nursery
6	NR-A-006	Kabir	Malhotra	A	Nursery
7	NR-A-007	Maya	Iyer	A	Nursery
8	NR-A-008	Krishna	Nair	A	Nursery
9	NR-A-009	Ananya	Pandey	A	Nursery
10	NR-A-010	Riya	Chopra	A	Nursery

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logout

Date:*
mm/dd/yyyy

| S.NO	RollNo	First Name	Last Name	Class Arm Name	Class Name	Status (1/0)*
1	NR-A-001	Aarav	Singh	A	Nursery	--Status--
2	NR-A-002	Saanvi	Sharma	A	Nursery	--Status--
3	NR-A-003	Aryan	Khan	A	Nursery	--Status--
4	NR-A-004	Diya	Patel	A	Nursery	--Status--
5	NR-A-005	Ishaan	Mehta	A	Nursery	--Status--
6	NR-A-006	Kabir	Malhotra	A	Nursery	--Status--
7	NR-A-007	Maya	Iyer	A	Nursery	--Status--
8	NR-A-008	Krishna	Nair	A	Nursery	--Status--
9	NR-A-009	Ananya	Pandey	A	Nursery	--Status--
10	NR-A-010	Riya	Chopra	A	Nursery	--Status--

6. AWS Integration

Amazon S3 (Simple Storage Service)

Amazon S3 is used to store static assets such as PHP files, images, CSS files, and backups. S3 provides scalable storage with high durability and availability.
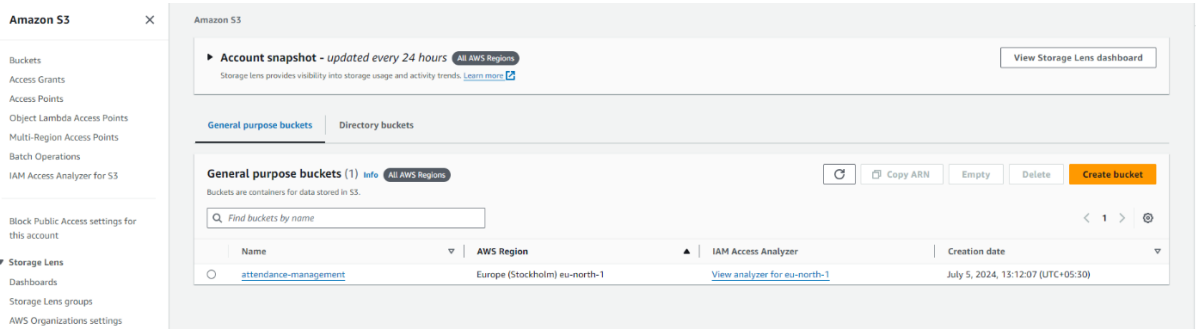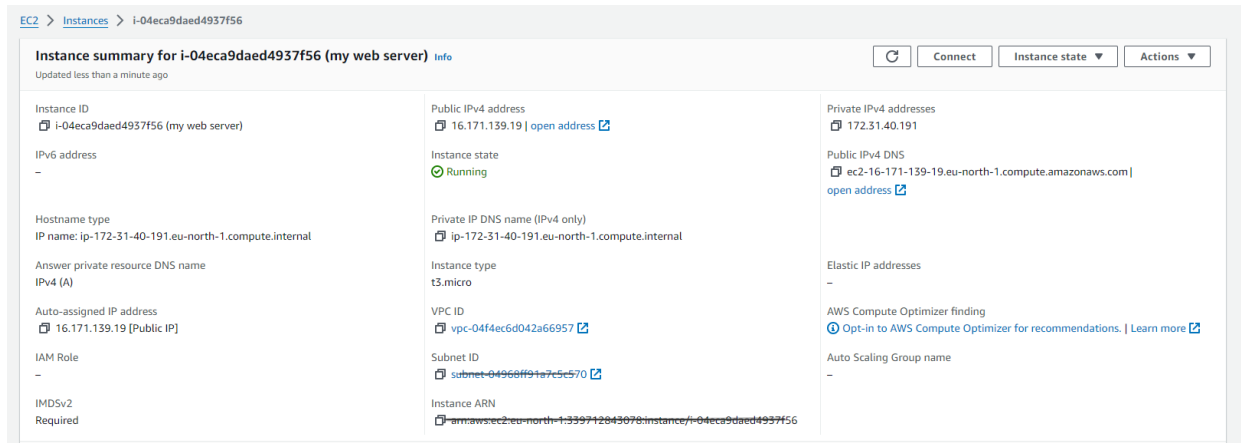

Amazon IAM (Identity and Access Management)

IAM is used to manage access to AWS services and resources securely. IAM policies are created to grant specific permissions to different users and roles, ensuring that only authorized users can access sensitive data and perform critical operations.
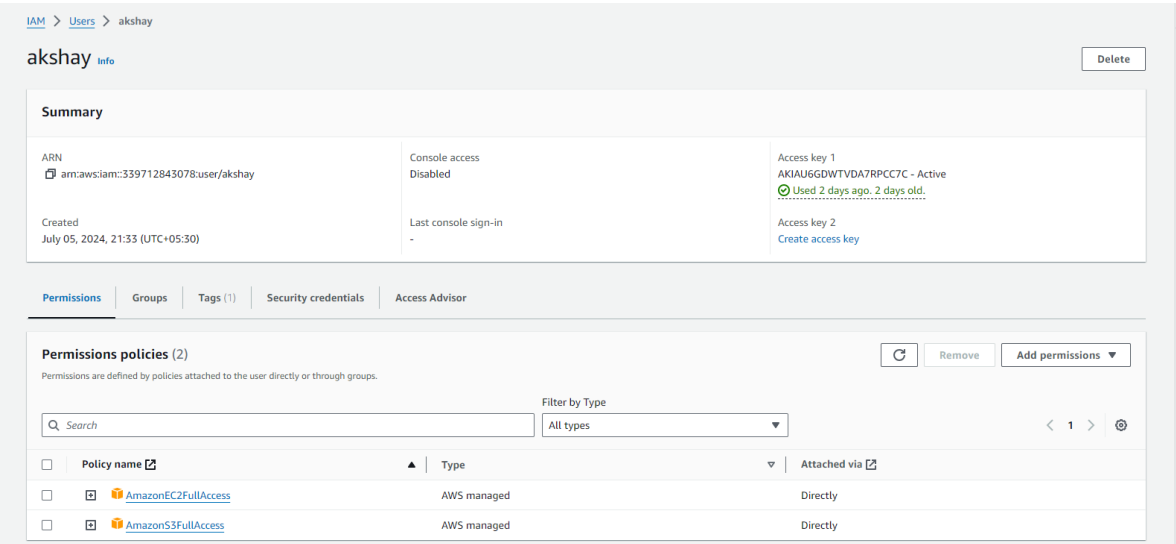
Amazon EC2 (Elastic Compute Cloud)

EC2 provides resizable compute capacity in the cloud. The web application is hosted on an EC2 instance, which provides the necessary computational resources to run the server-side scripts and handle user requests efficiently.


EC2 Console

The EC2 console is used to manage EC2 instances, including starting, stopping, and monitoring instances. It also allows for configuring security groups, key pairs, and other settings to ensure secure and efficient operation of the application.
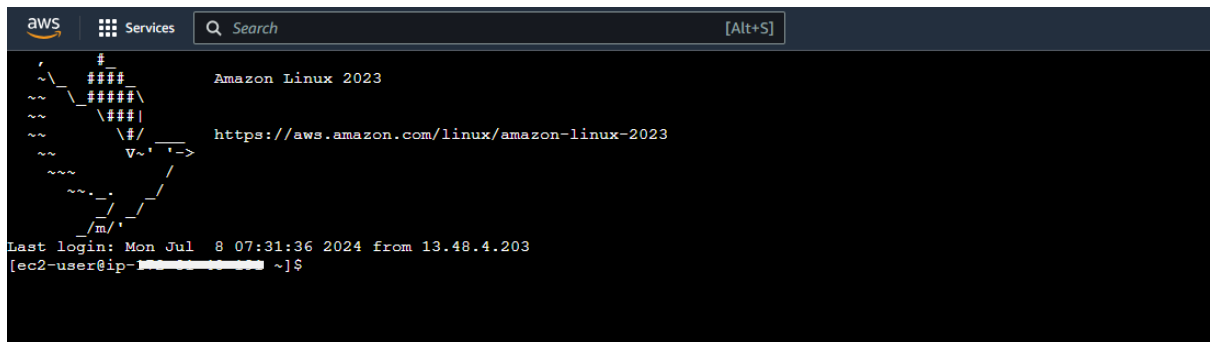
7. Database Design

The database design includes the following tables:

- **Admin:** Stores information about each Admin of registered school.
- **Class:** Stores information about classes in each school.
- **ClassArm:** Stores information about sections within classes.
- **Student:** Stores details of each student, including their class and section.
- **Teacher:** Stores details of each teacher, including their assigned sections and login credentials.
- **Attendance:** Stores attendance records, including student ID, date, and attendance status.
- **User:** Stores login credentials of users.
- **Session**: Stores the sessions of every academic year.
- **Term**: Stores Terms of academic year.
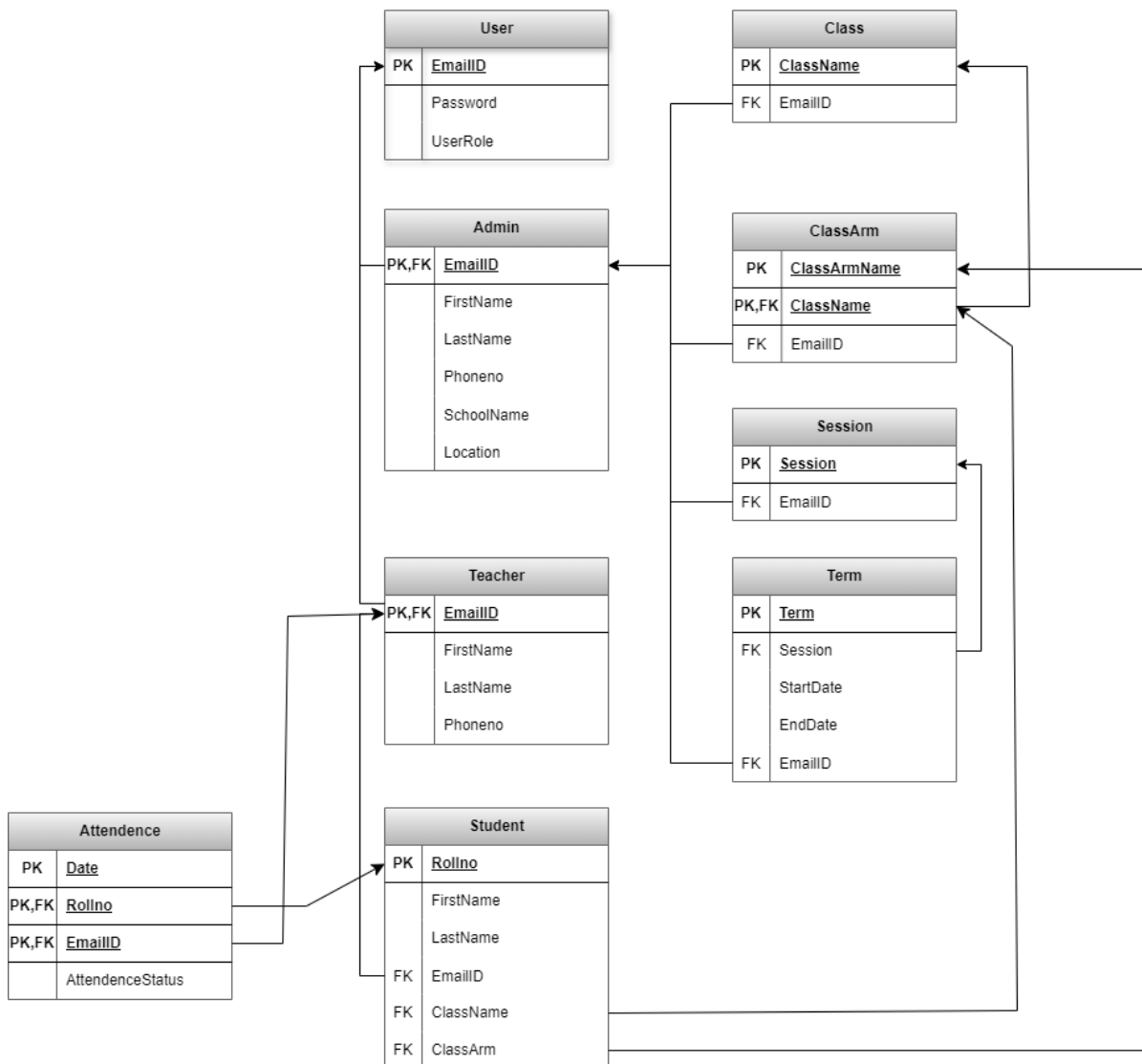
8. User Interface Design

The user interface is designed to be intuitive and user-friendly, with the following key elements:

- **Navigation Bar:** Provides links to different sections of the application, such as dashboard, class management, and attendance.
- **Forms:** Simple and clean forms for adding and managing classes, students, and teachers.
- **Tables:** Tabular displays for viewing lists of students and attendance records.
- **Reports:** Detailed attendance reports with graphical representations for better visualization.

Class Teacher Dashboard

Welcome Anita Sharma

STUDENTS

All Students

ATTENDANCE

Take Attendance

View Class Attendance

View Students Attendance

Today's Report

Logout

TODAY's ATTENDENCE REPORT

S.NO	RollNo	First Name	Last Name	Class Arm Name	Class Name	Date	Status (1/0)
1	NR-A-001	Aarav	Singh	A	Nursery	2024-07-08	1
2	NR-A-002	Saanvi	Sharma	A	Nursery	2024-07-08	1
3	NR-A-003	Aryan	Khan	A	Nursery	2024-07-08	1
4	NR-A-004	Diya	Patel	A	Nursery	2024-07-08	1
5	NR-A-005	Ishaan	Mehta	A	Nursery	2024-07-08	0
6	NR-A-006	Kabir	Malhotra	A	Nursery	2024-07-08	1
7	NR-A-007	Maya	Iyer	A	Nursery	2024-07-08	1
8	NR-A-008	Krishna	Nair	A	Nursery	2024-07-08	0
9	NR-A-009	Ananya	Pandey	A	Nursery	2024-07-08	1
10	NR-A-010	Riya	Chopra	A	Nursery	2024-07-08	1

TOTAL STUDENTS:10

PRESENT:8

ABSENT:2

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9. Security Measures

Security is a critical aspect of the Attendance Management System. The following measures are implemented to ensure data security and user privacy:

- **Authentication:** Secure login mechanisms for administrators and teachers.
- **Authorization:** Role-based access control to restrict access to sensitive data and operations.

10. Deployment

The web application is deployed on AWS using EC2 instances. The deployment process includes:

- **Setting up EC2 Instance:** Launching an EC2 instance with the necessary configuration.
- **Installing Dependencies:** Installing PHP, MySQL, and other required software.
- **Deploying Application:** Uploading the application files and configuring the server.
- **Configuring Security Groups:** Setting up security groups to allow only necessary traffic.

11. Conclusion

The Attendance Management System provides an efficient and automated solution for managing school attendance. By leveraging modern web technologies and cloud infrastructure, the system offers a reliable and scalable platform for administrators and teachers to manage attendance records effortlessly. The integration with AWS ensures high availability, security, and performance.