

Smart Attendance System – Official Project Documentation

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Project Overview

The **Smart Attendance System** is a modern, secure, and user-friendly web application built with Flask, MySQL (or PostgreSQL), HTML/CSS/JS. It is designed to automate lecture attendance tracking for students and teachers.

Key Stakeholders

- Students:** Mark attendance using daily codes.
- Teachers:** Generate daily codes, manage subjects, view attendance.
- Admin (optional):** Manages system integrity and database maintenance.

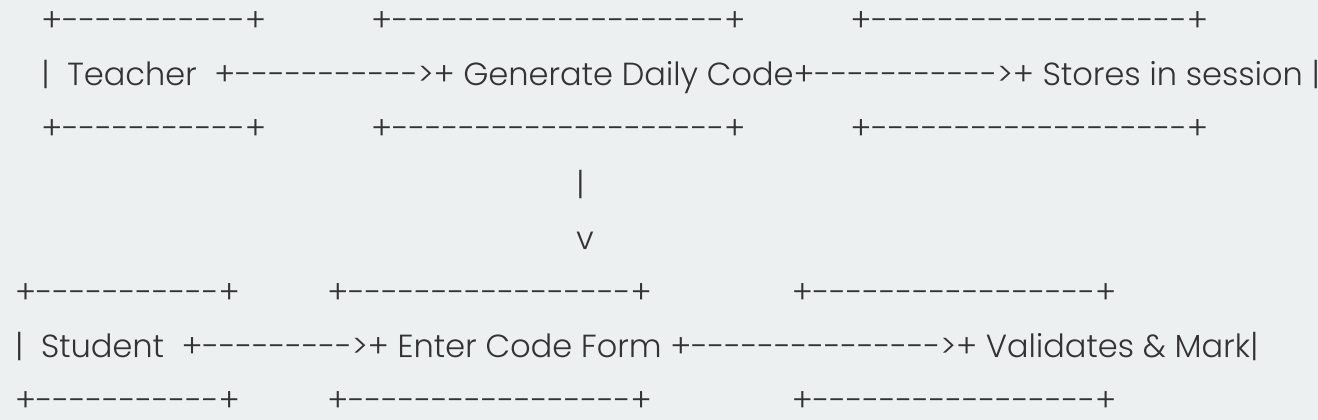
Key Features

- Login System for Teachers and Students with secure authentication
- 6-digit OTP/email-based verification during registration
- Teacher generates a unique daily attendance code
- Students submit code to mark attendance
- Attendance is tracked by subject, date, and student
- Teachers view all records, filter by date, or by student roll no
- Students see attendance summaries
- Real-time attendance counter for monitoring
- Weekly schedule with day-wise navigation
- Fake attendance prevention via live monitoring

Project Folder Structure

```
attendance_system/
├── templates/
│   ├── home.html
│   ├── register.html
│   ├── forgot_password.html
│   ├── login.html
│   ├── teacher_dashboard.html
│   ├── student_dashboard.html
│   ├── view_attendance.html
│   └── submit_attendance.html
├── static/
│   ├── css/
│   └── js/
├── app.py
├── database/
│   └── attendance_system.sql
├── screenshots/
│   └── *.png (Live usage screenshots)
```

Flow Chart



Database Structure

- `login_student` – Stores student registration data
- `teachers` – Stores teacher registration data
- `attendance` – Stores present student entries

Core Logic

Teachers generate a unique 6-digit code for each lecture. Students enter this code during the lecture to mark attendance. To prevent proxy attendance, teachers monitor live counts by date/lecture. The system is optimized for fast and secure usage through structured dashboards and real-time updates.

Technologies Used

Stack	Tech
Backend	Python (Flask)
Frontend	HTML, CSS, JavaScript
Database	MySQL / PostgreSQL
Deployment	Render / Heroku
Email System	SMTP (Gmail)

Security

- Passwords hashed using `werkzeug.security`
- Session-based user management
- Email OTP verification for registration & password reset
- Code verification with timeout

Deployment Notes

- Cloude based service for Mysql on Aiven (Provide free Mysql service for hosting)
- Use `requirements.txt` for dependencies
- Ensure database schema is uploaded via SQL file

Future Enhancements

- SMS OTP (via Twilio)
- Admin panel
- Multi-college support
- Lecture reminders via email

Open Source & Author Info

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- License:** Open Source (MIT preferred)

Footer for All Emails

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We'd love to hear your feedback and suggestions to improve this system.
Thank you for taking the time to explore our project documentation.
"Great projects begin with clear vision and end with shared understanding."