⬇ Download PDF

📘 Smart Attendance System – Official Project Documentation

📚 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

```
  +-----------+      +--------------------+      +--------------------+
  | Teacher  +------------>+ Generate Daily Code+----------->+ Stores in session |
  +-----------+      +--------------------+      +--------------------+
                                  |
                                  v
+-----------+      +-----------------+         +-----------------+
| Student  +--------->+ Enter Code Form +--------------->+ Validates & Mark|
+-----------+      +-----------------+         +-----------------+
```

🗃️ 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

1. Cloude based service for Mysql on Aiven (Provide free Mysql service for hosting)
2. Use `requirements.txt` for dependencies
3. 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

Developed with ❤️ by **Deepak**, Shaheed Bhagat Singh University

- **Support Email:** imdeep2810@gmail.com
- **Contact:** +91-7986851245
- **License:** Open Source (MIT preferred)

🎓 Footer for All Emails

> ***Shaheed Bhagat Singh University***
> *Smart Attendance System - Digital Solution for Transparent Education*
> *Support: imdeep2810@gmail.com | +91-7986851245*
> *© 2025 Deepak | SBSSTC Smart Software Services*

💬 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."