

Problem

Small healthcare clinics often rely on spreadsheets or paper-based systems to manage patient information. The Health Information Management System is designed to provide small clinics with a simple, structured, and secure way to manage patient information. This system can help reduce errors, improve efficiency, and centralize healthcare recordkeeping for clinics that currently rely on inefficient practices.

Current System

Most clinics still use paper forms or basic spreadsheets for patient reservations and scheduling. These methods are slow, error prone, and make it difficult to access accurate appointment and service information.

Requirements

- Authentication & Roles via login portal
- SHa-256 password hashing for Patient self-registration and self-scheduling
- SQLite 3 relational database with foreign key constraints
- Session-based access control on all routes
- Responsive single-serve deployment via Flask
- Automated QA via pytest
- Structured application logging with rotating log files

System Design

The system design follows an MVC architecture. Flask handles the routing and business logic of the python application, jinja2 templates allows for role-specific HTML views, and SQLite stores the database locally. Leaving no need for an external database server. The system has automated tests and deployment via bat files.

Object Design

patients PK patient_id username, password name, dob, gender email, phone insurance_provider is_active	appointments PK appointment_id FK patient_id FK doctor_id FK service_id appointment_datetime status, reason	doctors PK doctor_id username, password name, specialization FK department_id joining_date
visit_summaries PK summary_id FK appointment_id diagnosis treatment prescriptions follow_up_date	receptionists PK receptionist_id username, password name, email gender, hire_date	services / archive PK service_id name, duration_min PK archive_id original data snapshot archived_at timestamp

Summary

This project is used to demonstrate a easily designed medical appointment system that is a unified platform for users and staff. It is a streamlined appointment scheduling, communication, and patient data application to support everyday use in a clinic or doctors office.

Future Plans

- Functional UI across multiple platforms
- Ensuring consistent design and structures for login portals
- Upgrade security from SHA-256 to a stronger security for credentials
- PDF exports for summary visits
- Email/SMS reminders

