Final Project Report

Project Title: Smart Hospital Management System
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Programming Language: Python

1. Introduction

The **Smart Hospital Management System** is a basic python application that helps hospitals manage doctor-patient appointments.

It runs through a text-based interface where users can register doctors and patients, schedule appointments, view them, or cancel them. All data is saved in text files, so nothing is lost when the program closes. The system keeps everything well-organized and avoids scheduling two appointments at the same time for the same doctor.

2. Project Goals

- create a simple hospital appointment system using Python.
- practice object-oriented programming (OOP) and file handling in Python.
- safely store and manage doctor, patient, and appointment data.
- prevent double-booking of doctors at the same time.

3. Tools and Technologies Used

- **Language:** Python
- **Development Platform:** Google Colab
- **Data Storage:** Text files (`doctors.txt`, `patients.txt`, `appointments.txt`)
- **Libraries Used:** `os`, `datetime`

4. Key Features

- add and store doctor details like name, ID, and specialization.
- register patients with their name and age.
- view available doctors for appointment scheduling.
- book appointments only if the time slot is free.
- avoid double bookings for doctors.
- display all existing appointments.
- cancel any appointment using its ID.
- all records are saved in text files and are not lost after closing the program.

5. System Overview

This project follows object-oriented programming to keep the structure simple and manageable. It includes several parts:

a. Doctor Class
Stores doctor data such as ID, name, and area of expertise.

b. Patient Class
Handles patient information including ID, name, and age.

c. Appointment Class
Takes care of appointment booking, checks if the time is already booked, allows cancellation, and displays appointment details.

d. File Handling
Doctor, patient, and appointment details are stored in separate text files using Python's file handling methods. This helps save the data permanently.

e. Menu System
A simple menu in the command line lets the user choose actions.

6. Conclusion

The Smart Hospital Management System is a helpful beginner-level python project that shows how appointment systems work in hospitals. i improved my knowledge of object-oriented programming, file handling, and creating menu-driven applications which i have learned from the internship. This project shows how Python can be used to build practical and real-world software solutions.