

Assignment: Designing a Medical Facility Booking System with Streamlit

Due Date: 8 October 2025

Objective

In this assignment, you will adapt the skills you've learned in creating a multipage Streamlit application using Google BigQuery as the backend database. This time, you will develop a booking system for a medical facility, where patients can book appointments with medical specialists. You will also practice project management by maintaining a detailed log/diary of your meetings and planning sessions.

Background

A local medical facility has identified a need among patients to easily find and book appointments with medical specialists. From general practitioners and dentists to cardiologists and dermatologists, these services are essential for maintaining the health and well-being of the community. To address this need, the facility's administration has requested the development of a web-based system that allows patients to book appointments with medical specialists directly through an online platform.

Project Overview

Application Requirements

- **Booking System:** Develop a system that allows patients to browse a list of available medical specialists, view their specialties and ratings, and book an appointment.
- **Specialist Profiles:** Each specialist should have a profile that includes their name, specialty, contact information, and a rating based on patient feedback.
- **Admin Panel:** Implement an admin interface that allows the facility administrator to view and analyze booking data, monitor specialist performance, and generate reports.
- **Secure Access:** Include a login/registration page for the admin, ensuring only authorized users can access the admin panel.
- **Data Analytics:** Provide data visualization tools in the admin panel that allow the administrator to analyze booking trends, identify peak appointment times, and evaluate the most popular specialists.
- **User-Friendly Interface:** Ensure the web app is easy to navigate, suitable for users of all ages.

Streamlit Application Requirements

- **Multipage Structure:** Your application should consist of multiple pages, each focusing on different aspects of the booking process and data analysis.
- **UI Elements:** Incorporate a variety of Streamlit UI elements (e.g., dropdowns, sliders, text inputs) to allow users to interact with the booking system.
- **Graphs and Visualizations:** Use Plotly to create at least three different types of visualizations (e.g., line charts, bar charts, scatter plots) to analyze booking data.

- **Data Querying:** Utilize Google BigQuery for querying the database. Each page should include at least one query to filter or manipulate the data.
- **Query Testing:** All SQL queries used in the Streamlit code must be tested and verified in Google BigQuery before being implemented in the application.

Project Management Requirements

- **Log/Diary:** Maintain a log or diary documenting all meetings and planning sessions. For each entry, include:
 - **Date/Time:** When the meeting or session took place.
 - **Attendees:** Who was present and who was absent.
 - **Discussion Points:** What was discussed during the meeting.
 - **Decisions Made:** What decisions were made, and who is responsible for specific tasks.
 - **Next Steps:** What the team plans to do next.

Presentation and Report

- **Presentation:** Prepare a 10-minute presentation to showcase your application. Highlight the key features, visualizations, and insights gained from the booking data.
- **Report:** Submit a written report (4-6 pages) that includes:
 - An introduction to the system and the purpose of your application.
 - A description of the Streamlit application, including the structure of each page and the functionalities provided.
 - Screenshots of the application and visualizations.
 - A summary of the project management log, including challenges faced and how they were overcome.

Policy Regarding the Use of Chatbots

You are allowed to use ChatGPT, Gemini, Google AI Studio, Grok or Claude as your coding assistant(s) and for data analysis. You must clearly indicate in your report where these chatbots assisted you.

Plagiarism and Citations

Avoid plagiarism by clearly citing all relevant sources in your report.

Assessment Criteria

- **Technical Implementation (20%):** Functionality, code quality, and how well the Streamlit app meets the requirements.
- **Data Analysis (30%):** Quality of the data analysis, insights gained, and how well the visualizations support the findings.
- **Oral Presentation (20%):** Effectiveness, clarity, and engagement during the presentation of the project.
- **Project Management (10%):** Completeness and detail of the log/diary, adherence to project timelines, and overall teamwork.
- **Written Report (20%):** Clarity, organization, and professionalism in the written report.

Submission Details

- **Due Date:** 8 October 2025
- **Submission Format:** Submit the Streamlit app code, the project management log/diary, and the written report via the course management system.

Tips for Success

- Begin by planning the structure of the medical facility booking system.
- Hold regular meetings and keep the log updated after each session.
- Test all SQL queries in Google BigQuery before implementing them in your Streamlit app.
- Assign tasks based on each team member's strengths but ensure collaboration throughout the project.
- Test your Streamlit app thoroughly to ensure all features work as expected.