

DBMS Lab Assignment 4: Web Application Development

Deadline: March 6, 2023

To be done in groups of at most FIVE students.

System Description:

Design a web application for a hospital management system. The system registers patients, schedules appointment with doctors, maintains patient information about diagnostics tests and treatments administered, maintains information about doctors'/healthcare professionals, stores admit/discharge information about the patients.

You may use the schema designed in Assignment 1. You may use additional relations and attributes if required. The records inserted in Assignment 2 may be reused as test cases.

Intended users are:

Front Desk Operators: registers/admits/discharges patients

Data Entry Operators: enters patient data about tests and treatments

Doctors: query patient information

Database Administrators: add/delete users

Functional Requirements:

The system is required to support the following workflow:

1. Patient registration/discharge and doctor appointment/test scheduling – information about **new patients need to be registered**, **appointments** based on availability and priority should be **scheduled**, **doctor should be notified** about the **appointments in a dashboard**. For **admitted patients** a **room** should be assigned based on **available room capacity**. For discharged patients information should be preserved but room occupancy should be updated. The workflow should also **support scheduling tests and treatments** prescribed by doctors. (bonus point: using a calendar to schedule)
2. Patient data entry – All the **health information of a patient** including test results and treatments administered should be recorded. (bonus point: supporting storage and display of images e.g., x-ray)
3. Doctor dashboard – all the **records of the patients** treated by a doctor should be **displayed to her as a dashboard**. Doctor may also **query for any patient information**. Doctor should be able to **record drugs/treatments prescribed to a patient**. (bonus point: sending automated email reports to a doctor about the health information of patients treated by her on a weekly basis, high priority events may be emailed in an emergency manner)
4. Database administration – should be able to add/delete new users (bonus point: implement data security policy with suitable access control)

Technology Requirements:

1. Browser based web interface with front end form interfaces
2. Connectivity to back-end database
3. Triggers and procedures to support the workflow
4. Postgresql or MySQL may be used as backend database
5. Java/PHP/python or any other language may be used as frontend

Deliverables:

1. Report on the design
2. A demonstration of the application

Study Material:

1. Database Management Systems book: <https://www.db-book.com/slides-dir/PDF-dir/ch9.pdf>
2. <https://www.w3resource.com/>
3. <https://www.w3resource.com/PostgreSQL/PostgreSQL-with-php-a-through-introduction.php>
4. <https://www.w3resource.com/PostgreSQL/postgresql-triggers.php>