

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>