

Hospital Database Management System

By:

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[Aryaman Video Link](#)

[Backup Drive Link](#)

[Github](#)

Devansh

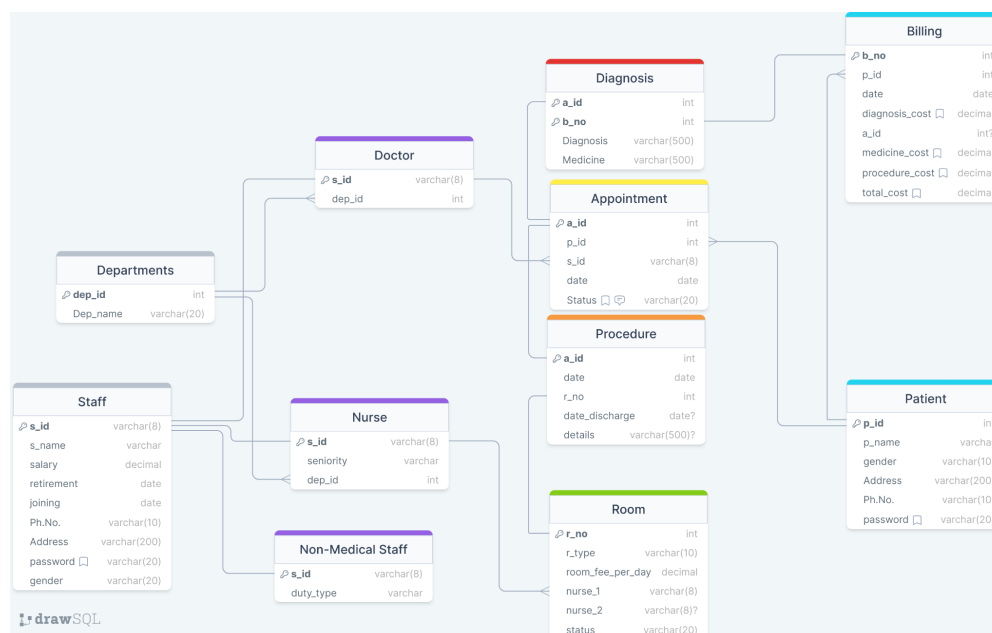
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[Devansh Video Link](#)

The system is designed to manage the day-to-day operations and processes of a hospital. The database schema of the system consists of different tables such as patient, doctor, appointment, medical history, diagnosis, and billing. Each of these tables holds relevant information that is required for hospital operations.

The system provides an interface that allows you to manage and view the data efficiently. One can access and update patient information, schedule appointments, and generate bills (using functions/procedures and triggers). The system provides a view feature that allows staff to quickly find patient data, medical histories, and diagnosis information.

ER Diagram:



Tables Featured:

- Staff(**s_id**, s_name, salary, retirement, joining, Ph.No., Address, Gender, password)
 - Department(**dep_id**, Dep_name)

- Doctor(**s_id**, dep_id)
- Nurse(**s_id**, seniority, dep_id)
- Non-Medical Staff(**s_id**, duty_type)
- Patient(**p_id**, p_name, gender, address, phone no., password)
 - Room(**r_no**, r_type, room_fee_per_day, *Nurse_1(s_id)*, *Nurse_2(s_id)*, status) //Here, s_id indicates nurse allotted to that patient
 - Billing(**b_no**, a_id, p_id, date, Diagnosis cost, Medicine Cost, Procedure cost, Total cost)
- Appointment(**a_id**, p_id, s_id, date, status)
 - Procedure(**a_id**, date_admit, *r_no*, *date_discharge*, details)
 - Diagnosis(**a_id**, **b_no**, diagnosis, medicine)

Functional Dependencies

- Staff{s_id -> s_name, salary, retirement, joining, Ph.No., Address, password, gender}
- Departments{dep_id -> dep_name}
- Doctor{s_id -> dep_id}
- Nurse{s_id -> seniority, dep_id}
- Non-Medical staff{s_id -> duty_type}
- Diagnosis{a_id, b_no -> Diagnosis, Medicine}
- Appointment{a_id -> p_id, s_id, date, status}
- Procedure{a_id, date -> date_discharge, r_no, details}
- Room{r_no -> r_type, room_fee_per_day, *nurse_1*, *nurse_2*, status}
- Billing{b_no -> a_id, p_id, date, diagnosis_cost, medicine_cost, procedure_cost, total_cost}
- Patient{p_id -> p_name, gender, Ph.No., Address, password}

1. The 1NF is guaranteed using nurse_1, nurse_2 in Room, which allows us to allot more than one nurse to a single room.
2. The 2NF is allowed by the fact that primary keys are chosen such that they're always unique, so this shows that there are no partial dependencies. This is further explained in the video.
3. The 3NF is maintained as there are no transitive dependencies. The primary key alone can determine the row table selected.

Some Definitions:

- We distinguish between the nurse, doctors, and Non_medical members allotting s_id such that it begins with keyword DOC for doctors, NUR for nurses, and NMS for Non medical staff.
- We can say that the Doctor with ID DOC0000 will be deemed administrator with total control over the database.
- Some tables such as Staff, Patient, Patient History, Billings, cannot be deleted, and can only be updated with new data.
- Bold signifies Primary Key, whereas italics signify NULL allowed.

Instruction

First, run the dump file, whose link is shared in the pdf file. This will make database and also enter some dummy data into database

In our hospital management there are 5 type of user who interact with database

- 1) Admin (DOC0000) - This user have access to all the data and can edit or remove other user from database. The admin section of our GUI have following functionality
The Admin need to enter ID and password on the login page to access these functions

- Change password - change admin password
- Add staff - used to add new doctor, nurse and non medical staff in hospital database
- Observe staff - used to print details about all the staff present in hospital (nurse, doctor, non medical staff)
- Observe patient - print details of all patients registered in hospital
- Change salary - use to change salary of staff members of hospital
- Retire staff - retire someo5from hospital database along with retirement date option
- Change Phone No. - change contact details for admin
- Add room - add now room in hospital, there are several types of room available in hospital, the room number are automatically generated
- Add Department - use to add new medical department in hospital
- Logout - logout admin from server

- 2) Doctor (DOCxxxx) - The task of this user is self explanatory, the doctor has following functionality available.
The doctor need to enter ID and password on the login page to access these functions

- Change password - change given doctor password
- Change Phone No. - change contact details for given doctor
- Check personal details - see all the details stored in database for doctor itself

- Upcoming appointment - Shows the upcoming appointment with the patients who are assigned to a doctor
- Search Patients by name - see details of any patients registered in hospital database by just typing.
- Search Patients by ID - see details of any patients registered in hospital database by using patient ID
- Ongoing procedure - This shows all the details of ongoing procedure done by doctor.
- Update diagnosis - update the medicine and diagnosis of a patient
- Update procedure - update details of ongoing procedure by doctor
- Patient history - shows details of all the patients operated by doctor
- Logout

3) Nurse (NURxxxx) - The task of this user is self explanatory, the nurse has following functionality available.

The Nurse need to enter ID and password on the login page to access these functions

- Change password - change given nurse password
- Change Phone No. - change contact details for given nurse
- Check personal details - see all the details stored in database for nurse itself
- Check allotted room - shows the room number which are allotted to nurse
- See patient details - see the details of patients which are allotted to nurse
- Logout

4) Patient (xxx) - The patient first need to fill his details in the registration form or if already a new used, enter old id and password. The patient have following functionality

- Check details - show the personal details of registration
- Change password - change given patient password
- Change Phone No. - change contact details for given patient
- Make appointment - make a new appointment in hospital
- Delete appointment - cancel an appointment in "pending" status from hospital
- Confirm appointment - accept an appointment in "pending" status from hospital and proceed to "diagnosis" stage/status.
- Show diagnosis, medicine - show details about the diagnosis and medicine done by assigned doctor of patient
- Accept procedure - This is the next stage of treatment after "diagnosis", here the patients are in extensive care of hospital staff. This is called "procedure" stage.
- Show procedure - shows details about the intuition and next steps of doctor
- Show bill - print details of all the expenses of patient
- Show history - print all the past and present appointment of patient in hospital
- Logout

- 5) Non- medical staff(NMSxxxx) - They are responsible for updating billing or assign patient to hospital room, analogous to staff greeting on reception.They need to enter ID and password to login. The NMS have following functionality
- Change password - change given NMS password
 - Change Phone No. - change contact details for given nms
 - Check personal details - see all the details stored in database for nms itself
 - Show unassigned patient - This option print details of all patients who are not yet assigned any room in hospital and are in "procedure" stage
- Rooms are only assigned to those patients who are in "procedure" stage of treatment

The hospital have 4 stage/status of appointment - pending, diagnosis, procedure, cancelled, completed

- Assign free room - The nms here assign rooms to patient, only those rooms can be assigned which are completely empty
- Set billing - update billing status of all the patients in hospital, the "completed", "cancelled" appointment billing cant be updated