

## Hospital Management System

A hospital management system is a web-based medical management platform that collects and integrates data from all departments in order to automate internal processes. At its core, hospital management system aims to simplify the workflow for clinicians, reduce administrative costs, diminish errors, and provide a better patient experience. Since the system handles every part of the hospital, it encompasses a vast range of functions. It accumulates hospitals, doctors, patients, nurses, medical records, appointments and payment.

### Entities:

**Hospital** has ID(char),name(string), address(string), department(string). ID is the primary key.

**Doctors** has ID(char), name(string), age(int), department(string), email(string), username(string), password(char), salary(int), appointments. ID is the primary key.

**Patients** has ID, name(string), age(int), gender(char), date of examination, record ID, hospital ID. ID is the primary key.

**Receptionist** has ID(char), name(string), communicating with doctor, give receipt, get payment.

**Medical Record** has Record ID, problem, date of examination, and patient ID. ID is the primary key.

**Nurse** has ID(char),name(string), salary(int), assigned surgery(char). ID is the primary key.

**Appointment** has ID(char), appointment reason(string), appointment patient ID, appointment doctor ID, date. ID is the primary key.

**Medicines** has ID, name(string), company(string), cost(int), type(string), dose(string), description(string). ID is the primary key.

**Payment** has ID, method(char), amount(int), date. ID is the primary key.

**Assistant** has ID(char),name(string), salary(int), assigned doctor(char). ID is the primary key.

Hospitals has their unique ID, name, and address. Hospital contains departments but departments has only one hospital that has their relationship with. Departments contain doctors. Every department has different doctors. According to doctors' profession, a department is assigned to them. Hospitals has strong relationship with doctors. Hospitals can't work without doctors.

Doctors have their unique ID in order to keep their track in the systems database. Patients can contact them by their email addresses. Doctors have different salaries. Due to their performance their salary can increase or decrease. If their age is above 70, they will have higher salary income, but they won't be able to perform a surgery. They can enter to the system by entering their username and password. Then they can schedule their appointments. They can give specific dates for appointments. Appointments can be for medical examination or surgery. If an appointment is canceled by patients, doctors look at their schedules and recreate an appointment for the patients if they want to make another appointment. Doctors will receive an email sent by the system one day before the surgeries; to remind them the surgery. After an examination doctors will create a medical record and give medicines if needed.

Nurses have their unique ID and name. Salaries will change according to their experience. They will check their assigned surgery and be there on time. They will take part on surgeries assigned to them. They will help the assigned surgery doctor. Nurses have strong relationships with doctors.

Assistants have their own assigned doctors. All assistants have the same income. They are able to enter the information written by the doctor to the database. Such as medical records, given medicines, appointment dates. System will create a receipt and it will send it to the receptionist. Assistants have strong relationships with doctors and receptionist.

Medical records contain the date of examination, the record ID and the patients ID. Records are stored in the database. They are accessible only by the doctors.

Receptionists are responsible for giving the patients their receipts from them. They will ask the payment method and get the payment from the patient. The payment will be uploaded automatically by the system to the hospitals bank account every midnight. They are the bridge between the patients and the doctors. Patients call the receptionists to create an appointment, receptionist directs the call to the assistant of the doctor. Assistant checks the system for the date of appointment for the patient. Then creates the appointment and adds it to the system.

Patients will give their name, age, gender in order to make an appointment with the doctor. They will also give a reason for their appointment. According to the reason a doctor will be chosen, and their assistant will be directed to the patient. If they want, they can cancel or postpone the examination date to a further time. After their examination their medical record will be created and assigned to their patient ID in their hospitals database. The payment is mandatory after the examination. Patients are free to choose the payment type. The receipt will be given by the doctor's assistant to the patient. Receipt includes medicines given by the doctor.

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