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SDA Assignment 1
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Requirement Elicitation

User Roles and Access Control:

- Identify different user roles: Patients, Doctors, Nurses, Receptionists, Lab Assistants, . . Pharmacists, and Cashiers.
- Define access levels and permissions for each role to ensure proper security and data confidentiality.
- Patients have limited access until they register, while other roles have specific functionalities within the system.

Registration and Authentication:

- Patients can register using a registration module by providing necessary details such as name, email, and gender.
- Authentication mechanism for registered users to login using a username and password.
- Unregistered users can access limited functionalities like viewing hospital timings.

Appointment Management:

- Patients can view available appointments and book appointments with doctors.
- Receptionists have the authority to create patient accounts and book appointments for unregistered patients based on doctors' schedules.
- Doctors and nurses can view and manage appointments, allot patients to doctors, and update patient accounts accordingly.

Patient Consultation Flow:

- Upon arrival, receptionists issue clinic numbers to patients.
- Patients consult with nurses for pre-assessment examinations and are then redirected to concerned doctors or clinics.
- Doctors diagnose patients, prescribe medications, and may request further examinations or tests.
- Nurses collect specimens if needed, and lab assistants process and analyze specimens, entering test results into the system.

- Patients can be redirected to lab assistants for specific examinations like X-Rays, CT scans, or MRIs.

Medication Management:

- Pharmacists prepare prescribed medicines and enter dosage and guidelines into the system.
- Patients can access medication details through their accounts for reference.
- Options for patients to inquire directly from pharmacists about medication dosages and guidelines.

Billing and Payment:

- Cashiers manage invoicing and payment through the billing module.
- Patients visit the cashier to pay for their visit, and cashiers can view patients' payment history.

Data Management and Integration:

- The system should maintain a centralized database to store patient information, appointments, prescriptions, test results, and billing details.
- Integration with other hospital systems like laboratory equipment for seamless data flow.

User Interface and Usability:

- The web application should have an intuitive and user-friendly interface accessible via both mobile and computer browsers.
- Clear navigation and instructions for users to easily perform tasks and access information.

Security and Compliance:

- Implement security measures such as encryption, access controls, and regular backups to ensure data confidentiality and integrity.
- Compliance with healthcare regulations and standards regarding patient data protection and privacy (e.g., HIPAA).

Reporting and Analytics:

Capability to generate reports and analytics for hospital administrators to monitor system performance, patient trends, and resource utilization.

Requirement Analysis

Use-cases:

Register as a Patient:

- **Actors:** Patient
- **Description:** Allows a patient to register by providing necessary details such as name, email, gender, etc.
- **Preconditions**: Patient accesses the registration module.
- **Main Flow:**
1. Patient accesses the registration form.
2. Patient fills in required details.
3. Patient submits the registration form.
- **Postconditions:** Patient account is created, allowing access to additional functionalities.

Book an Appointment:

- **Actors:** Patient, Receptionist
- **Description:** Enables patients to book appointments with doctors.
- **Preconditions:** Patient is registered and logged in, Receptionist has access to appointment scheduling.
- **Main Flow:**
1. Patient selects preferred doctor and appointment slot.
2. Patient confirms appointment booking.
3. Receptionist verifies availability and confirms appointment.
- **Postconditions:** Appointment is booked and reflected in the system.

Manage Patient Profile:

- **Actors:** Patient
- **Description:** Allows patients to manage their profile information.
- **Preconditions:** Patient is logged in.
- **Main Flow:**
1. Patient accesses the profile management section.
2. Patient updates personal information if necessary.
3. Patient saves changes to the profile.
- **Postconditions:** Patient's profile is updated in the system.

Consult with Nurse:
- **Actors:** Patient, Nurse
- **Description:** Patient consults with a nurse for pre-assessment examinations.
- **Preconditions:** Patient arrives at the hospital.
- **Main Flow:**
1. Patient presents at the hospital reception.
2. Receptionist assigns a clinic number to the patient.
3. Nurse calls the patient for consultation.
4. Nurse conducts pre-assessment examinations.
- **Postconditions:** Nurse updates patient records and may redirect the patient to a doctor or perform further tests.

Prescription Management:

- **Actors:** Doctor, Pharmacist
- **Description:** Doctor prescribes medication, and pharmacist prepares and dispenses medicines.
- **Preconditions:** Patient consults with a doctor and receives a prescription.
- **Main Flow:**
1. Doctor diagnoses patient and prescribes medication.
2. Prescription details are entered into the system.
3. Pharmacist prepares medications and enters dosage and guidelines.
- **Postconditions:** Patient receives prescribed medications.

Billing and Payment:

- **Actors:** Patient, Cashier
- **Description:** Patient pays for the visit at the hospital.
- **Preconditions:** Patient completes consultation and medication pickup.
- **Main Flow:**
1. Patient presents at the cashier.
2. Cashier generates an invoice based on services provided.
3. Patient makes payment.
- **Postconditions:** Payment is processed, and patient's payment history is updated.