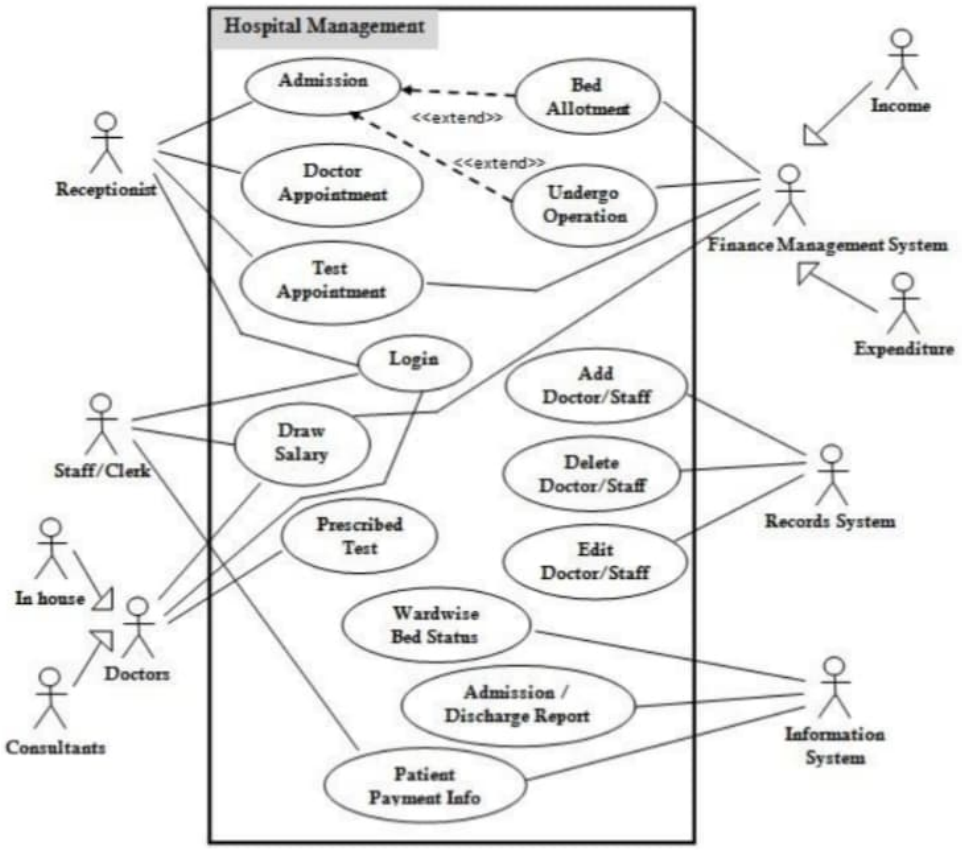
8. Design Activity and Class Diagram for Hospital management system to demonstrate the Activities which will be carried out in Hospital.

Use Case Diagram



A use case diagram provides a high-level overview of the functionalities and interactions of a system from the perspective of its users. In the context of a Hospital Management System, the use case diagram outlines the various actions or tasks that different users (actors) can perform within the system. Here's a description of the main components and interactions in a Hospital Management System use case diagram:

Actors:

- **Patient:** Represents individuals who seek medical assistance or treatment from the hospital.
- **Doctor:** Refers to the healthcare professionals responsible for diagnosing and treating patients.
- **Nurse:** Represents the nursing staff responsible for patient care and support.
- **Administrator:** Manages the overall functioning of the hospital system, including user

roles, permissions, and system configurations.

Use Cases:

Register/Login:

Actors: Patient, Doctor, Nurse, Administrator

Users should be able to register or log in to the system based on their roles to access personalized features.

Schedule Appointment:

Actors: Patient, Doctor

Patients can request appointments, and doctors can schedule or reschedule appointments.

Admit/Discharge Patient:

Actors: Administrator, Nurse

The administrator and nursing staff can admit or discharge patients from the hospital.

View Medical Records:

Actors: Patient, Doctor

Patients can view their medical records, while doctors can access and update patient records.

Prescribe Medication:

Actors: Doctor

Doctors can prescribe medications and treatments for patients.

Update Patient Status:

Actors: Nurse, Doctor

The nursing staff and doctors can update the status of patients based on their condition.

Generate Reports:

Actors: Doctor, Administrator

Doctors can generate medical reports for patients, and administrators can generate system-wide reports.

Manage Inventory:

Actors: Administrator

The administrator can manage the inventory of medical supplies and equipment.

Associations:

- Relationships between actors and use cases are represented by lines connecting them.
- For example, there will be associations between the Patient actor and use cases like Schedule Appointment, View Medical Records, and Register/Login.

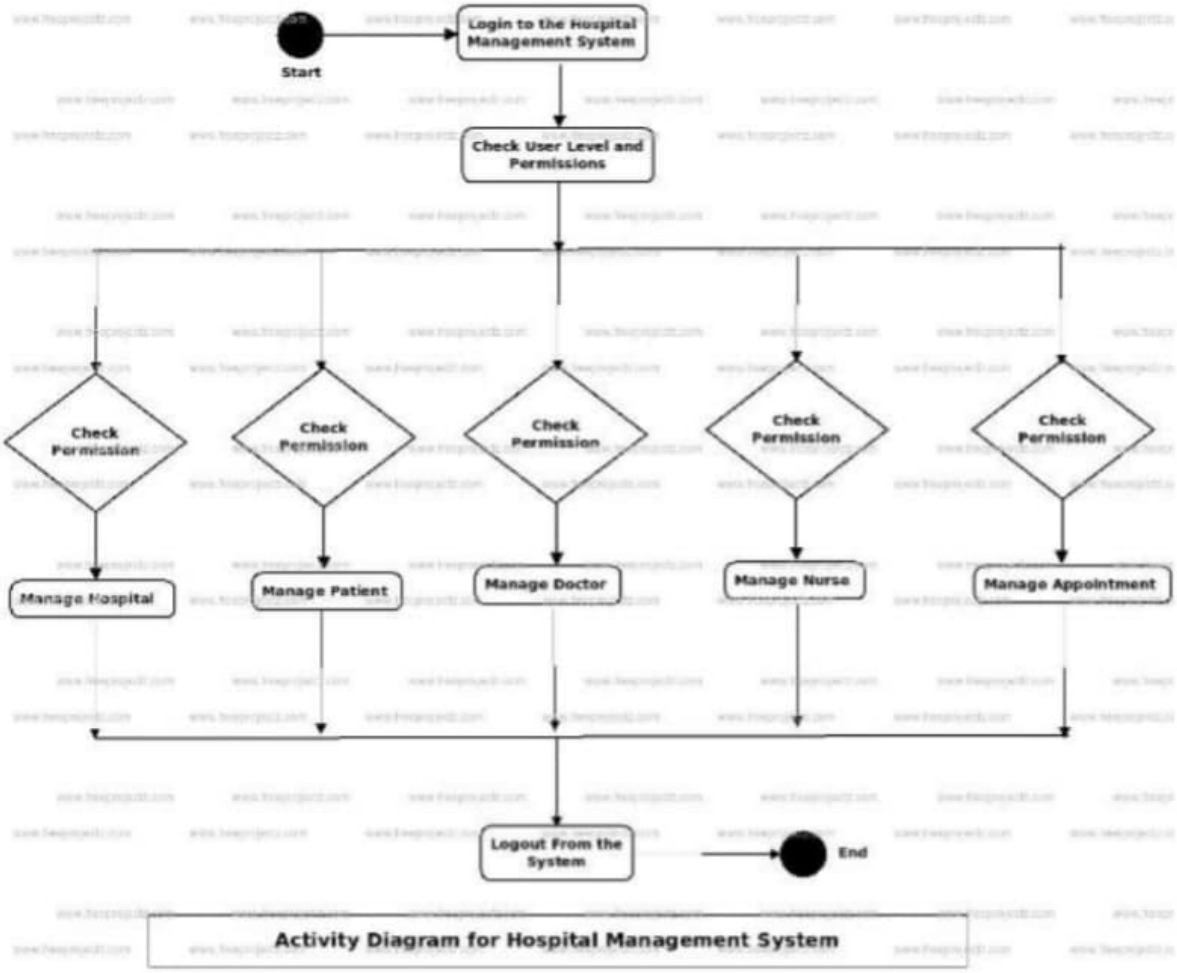
System Boundary:

- The boundary of the use case diagram represents the scope of the Hospital Management

System.

- This use case diagram provides a visual representation of the key functionalities and interactions within a Hospital Management System, offering a clear understanding of how different users interact with the system to perform specific tasks.

Activity Diagram:



An activity diagram for a Hospital Management System illustrates the flow of activities and actions within the system to achieve specific goals. Below is a description of the main components and activities in an activity diagram for a Hospital Management System:

Patient Registration Process:

Activities:

- Input patient information
- Verify patient details
- Create a patient record

Flow:

- Starts when a patient arrives at the hospital.
- Ends when the patient registration is complete, and a patient record is created.

Appointment Scheduling Process:

Activities:

- Request appointment
- Check doctor's availability
- Schedule appointment

Flow:

- by a patient requesting an appointment.
- Involves checking the availability of the requested doctor.
- Ends when the appointment is successfully scheduled.

Patient Admission Process:

Activities:

- Admit patient
- Assign room
- Record admission details

Flow:

- Triggered when a patient arrives for admission.
- Includes assigning a room and recording admission details.
- Ends when the patient is successfully admitted.

Medical Treatment Process:

Activities:

- Consultation
- Diagnosis
- Treatment

Flow:

- Started by a doctor conducting a consultation with a patient.
- Involves diagnosing the medical condition and prescribing treatment.
- Ends when the treatment is complete or ongoing.

Nursing Care Process:

Activities:

- Patient monitoring
- Medication administration
- Record patient status

Flow:

- Initiated by nursing staff responsible for patient care.
- Involves monitoring the patient, administering medications, and updating patient records.
- Ends when the nursing care tasks are complete.

Billing and Payment Process:

Activities:

- Generate bill
- Verify insurance details
- Process payment

Flow:

- Started when the patient's treatment is completed.
- Involves generating a bill, verifying insurance information, and processing the payment.
- Ends when the payment is successfully processed.

Inventory Management Process:

Activities:

- Monitor inventory levels
- Reorder supplies
- Update inventory records

Flow:

- Initiated by the administrator responsible for managing inventory.
- Involves monitoring levels, reordering supplies, and updating inventory records.
- Ends when the inventory management tasks are complete.

System Maintenance Process:

Activities:

- Regular updates
- Security checks
- Backup procedures

Flow:

- Represents routine maintenance tasks carried out by the system administrator.
- Involves activities such as software updates, security checks, and data backups.
- Ends when the system maintenance tasks are completed.

These activity diagrams provide a visual representation of the sequential and parallel activities within the Hospital Management System, showcasing the flow of actions from the initiation of various processes to their completion.