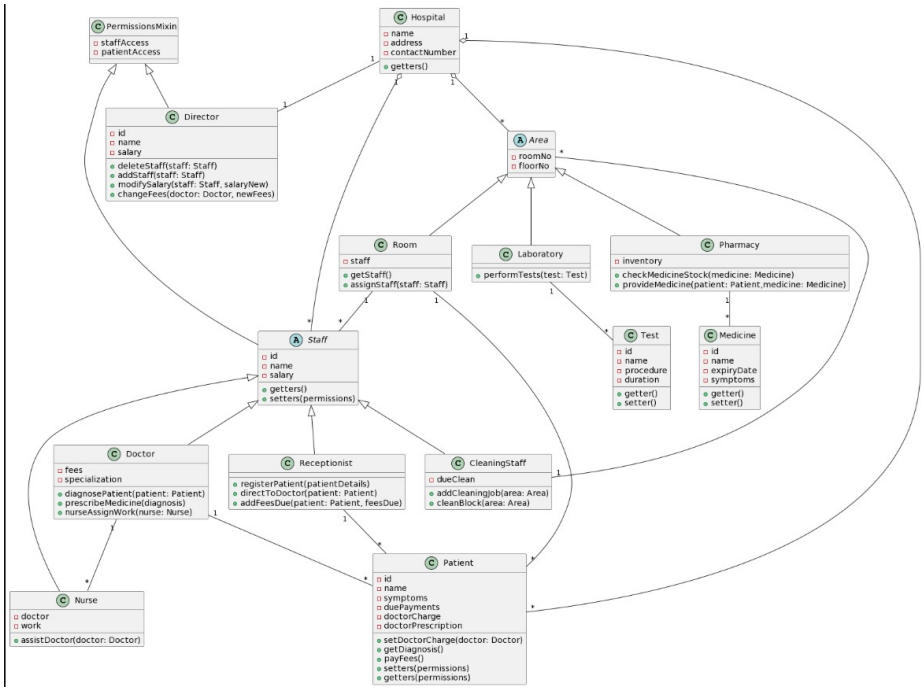
OOAD Assignment-3 Group-1

Elements of the system

```
class Hospital {
- name
- address
- contactNumber
+ getters()
}

abstract class Area {
- roomNo
- floorNo
}

class Laboratory {
+ performTests(test: Test)
}

class Test {
- id
- name
- procedure
- duration
+ getter()
+ setter()
}

class Medicine {
- id
- name
- expiryDate
- symptoms
+ getter()
+ setter()
}

class Pharmacy {
- inventory
+ checkMedicineStock(medicine: Medicine)
+ provideMedicine(patient: Patient, medicine: Medicine)
}

class Room {
```

```
- staff
+ getStaff()
+ assignStaff(staff: Staff)
}

class PermissionsMixin {
- staffAccess
- patientAccess
}

class Director {
- id
- name
- salary
+ deleteStaff(staff: Staff)
+ addStaff(staff: Staff)
+ modifySalary(staff: Staff, salaryNew)
+ changeFees(doctor: Doctor, newFees)
}

abstract class Staff {
- id
- name
- salary
+ getters()
+ setters(permissions)
}

class Doctor {
- fees
- specialization
+ diagnosePatient(patient: Patient)
+ prescribeMedicine(diagnosis)
+ nurseAssignWork(nurse: Nurse)
}

class Nurse {
- doctor
- work
+ assistDoctor(doctor: Doctor)
}

class CleaningStaff {
- dueClean
+ addCleaningJob(area: Area)
+ cleanBlock(area: Area)
```

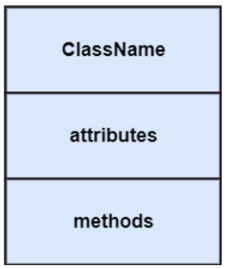
```
}

class Receptionist {
+ registerPatient(patientDetails)
+ directToDoctor(patient: Patient)
+ addFeesDue(patient: Patient, feesDue)
}

class Patient {
- id
- name
- symptoms
- duePayments
- doctorCharge
- doctorPrescription
+ setDoctorCharge(doctor: Doctor)
+ getDiagnosis()
+ payFees()
+ setters(permissions)
+ getters(permissions)
}
```



Symbols used in the class diagram

Class:

Symbol: Class Box - A rectangle with three compartments (name, attributes, methods)
Description: Represents a class in the system. It contains the class name, its attributes and methods.



Private Attributes:

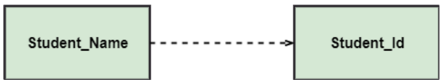
Symbol: - (minus sign)
Description: Represents methods or attributes accessible only from within the class.

Public Attributes:

Symbol: + (plus sign)
Description: Represents methods or attributes accessible to all classes.

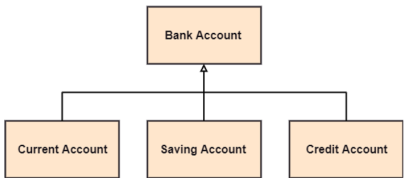
Dependency:

Symbol: Dashed arrow
Description: It is a semantic relationship between two or more classes where a change in one class cause changes in another class. It forms a weaker relationship.



Inheritance:

Symbol: Solid arrow head
Description: Refers to relationship between a parent class (superclass) and a child class (subclass). In this, the child class inherits attributes and methods from the parent class.



Association:

Symbol: Solid Line
Description: Association is a common type of relation among classes. When two classes are associated, they can take each other's help (i.e., invoke each other's methods) to serve user requests. More technically, we can say that if one class is associated with another bidirectionally, then the corresponding objects of the two classes know each other's ids (identities). As a result, it becomes possible for the object of one class to invoke the methods of the corresponding object of the other class.

Aggregation:

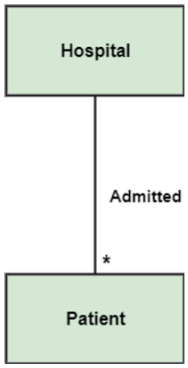
Symbol: Solid line with unfilled diamond head
Description: An aggregation is a subset of association, which represents 'has a' relationship. It is more specific than association. It defines a part-whole or part-of relationship. In this kind of relationship, the child class can exist independently of its parent class.

Composition:

Symbol: Solid line with filled diamond head
Description: Composition is a subset of aggregation. It portrays the dependency between the parent and its child, which means if one part is deleted, then the other part also gets discarded. It represents a whole-part relationship.

Multiplicity:

Symbol: Numbers over arrows and *
Description: Multiplicity defines a specific range of allowable instances of attributes. In case if a range is not
specified, one is considered as a default multiplicity



Flow of events

1. Patient Registration and Information Gathering:

Upon arrival, the patient's details, including their personal information and symptoms, are registered by the receptionist.
The patient is informed about the consultant medical practitioner and associated fees for the services.

2. Medical Diagnosis and Treatment:

The patient is directed to the appropriate doctor by the receptionist.
The doctor conducts a thorough examination, diagnoses the patient's condition, and prescribes necessary tests or medicines.
The doctor may assign specific tasks to the nurse for patient care and assistance.

3. Medical Tests and Procedures:

Diagnostic tests and minor surgical procedures are performed in the laboratory. These tests can include blood tests, X-rays, and other necessary medical examinations.

4. Medicine Provision and Inventory Management:

The pharmacy monitors the availability of medicines and provides necessary medications to the patients based on doctor prescriptions. Regular checks are conducted to ensure that the medicine stock is maintained at appropriate levels.

5. Administrative Oversight:

The directors oversee the overall functioning of the hospital, managing staff, modifying salaries, and fees for medical services.
The receptionist assists in managing patient flow and updates the patient fee details in the system.

6. Maintenance and Cleanliness:

The cleaning staff is responsible for maintaining the cleanliness of various areas within the hospital, ensuring a hygienic environment for patients and staff.