COMSATS University, Islamabad

Department of Computer Science

Lab Mid

Deadline: 6/4/2025

All questions are mapped to CLO4

Develop a text-based Hospital Patient Management System in Java using OOP concepts. The system should allow users to manage departments, doctors, and patients through a menu-driven interface.

1. **Classes:**

   o Hospital (main class)
   o Department (e.g., Cardiology, Neurology)
   o Patient (inherits from Department)
   o Doctor (assigned to patients)

2. **Functionality:**

   o Add/remove departments.
   o Add doctors to a department.
   o Admit/discharge patients.
   o Assign a doctor to a patient.
   o Display all patients and their assigned doctors.

3. **OOP Concepts:**

   o Use composition (e.g., Hospital has Department, Department has Doctor, Patient has Doctor).
   o Use inheritance (e.g., CardiologyPatient extends Cardiology).
   o Use an array of objects to store departments, doctors, and patients.
   o Include static members (e.g., track total patients).
   o Implement a static method to check hospital capacity

4. **Menu System:**

   o The program should run in a loop with options to perform actions until the user exits.

```
=== Hospital Management System ===
1. Add Department
2. Add Doctor
3. Admit Patient
4. Display Patients
5. Exit
Enter choice: 5

Patients in Cardiology:
- Ahmed (Doctor: Ali)
- Asif (Doctor: Saad)
Total Patients: 2
```