

Day: _____

Date: _____

National University of Computer and Emerging Sciences
Lahore Campus

0488

**Software Design & Analysis
(CS3004)**

Date: Sep 23, 2025
Course Instructor(s)
AR, MK, ZN, LK

Sessional-I Exam

Total Time (Hrs): 1
Total Marks: 30
Total Questions: 2

Roll No 231-0886

Section 5J

Signature myaem

CLO 3: Use different UML notations for software design

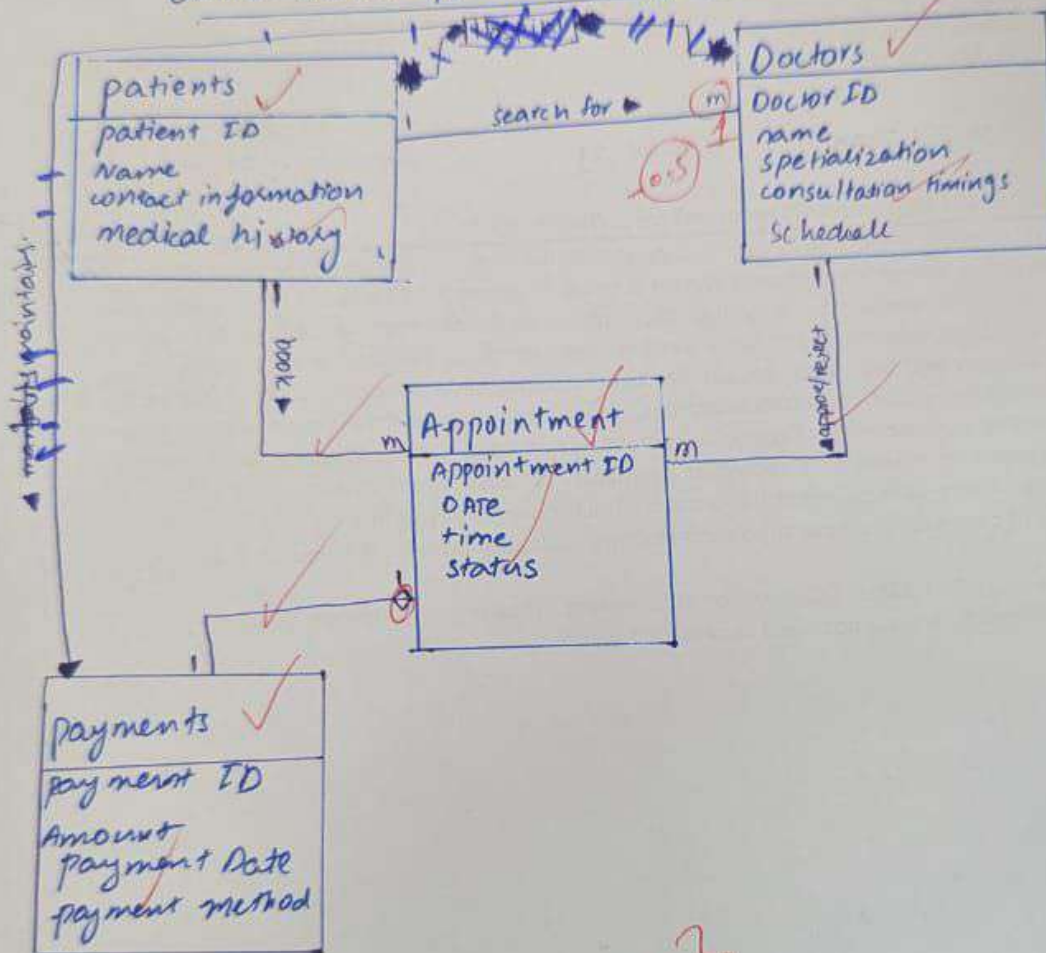
[20 marks]

Q1: Consider the following information system for an online doctor appointment:
An online doctor appointment system is to be designed for a hospital. The system should allow patients to register by providing their personal details such as patient ID, name, contact information, and medical history. Patients can search for doctors based on specialization and availability and then book an appointment. Doctors have attributes such as doctor ID, name, specialization, and consultation timings, and they can manage their schedules by approving or rejecting appointments. Each appointment has an appointment ID, date, time, and status. The hospital also maintains a record of payments, for each appointment, exactly one payment is made, where each payment has a payment ID, amount, payment date, and payment method. A patient can make multiple appointments, and each appointment is linked to exactly one doctor.

Draw a (UML) Class Diagram for this system, showing appropriate classes, attributes and relationships. You do not need to provide functions.

[Use this page for answering Question 1]

Online doctor appointment system



10+3+3+3=19

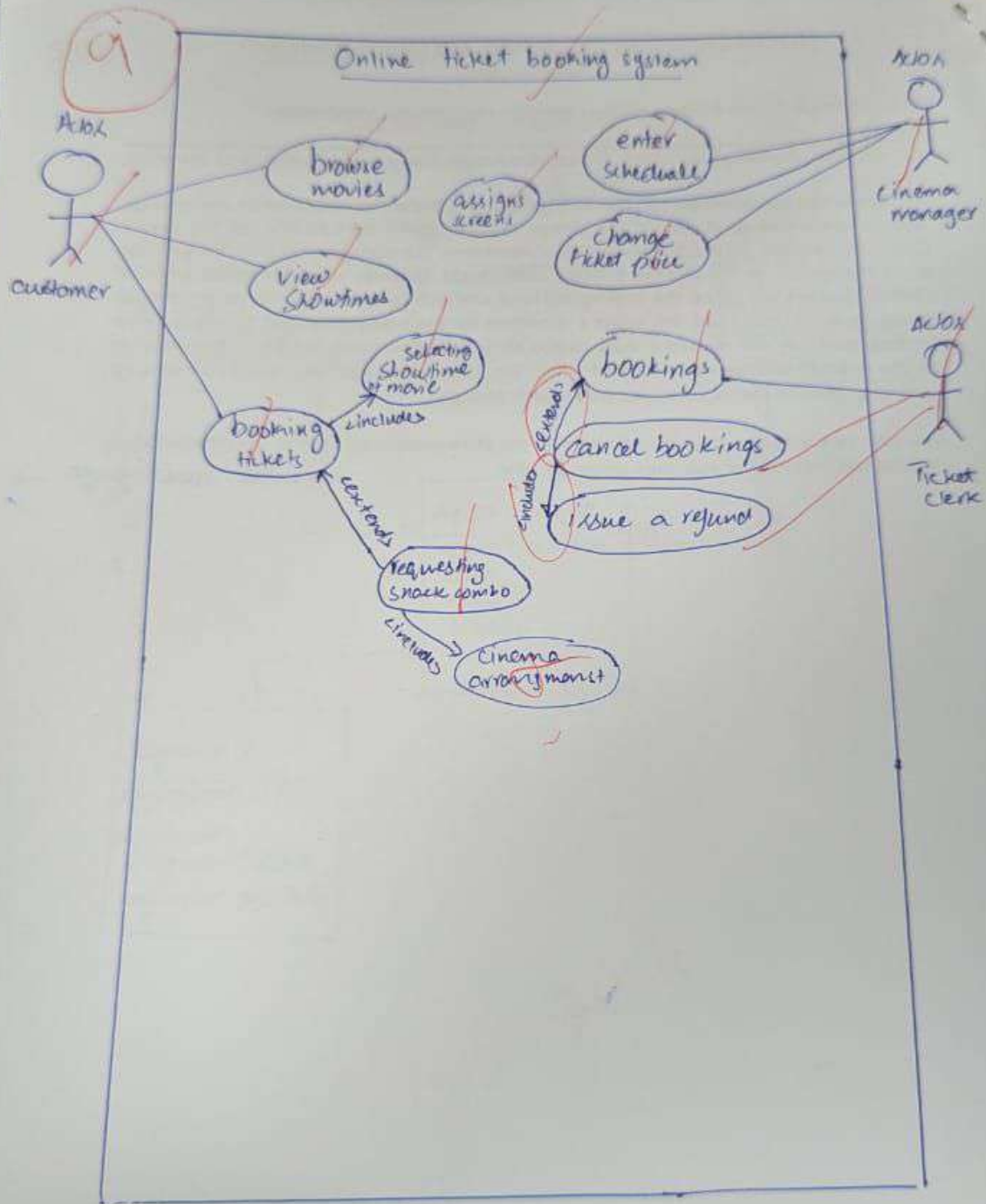
CLO 4: Develop software design artifacts based on requirements specifications
[10 marks]

Q2: Consider the following system for an online shop that manages orders, and maintains inventory:

A cinema chain has developed an Online Ticket Booking System to handle movie reservations. When a new movie is announced, the Cinema Manager enters the schedule into the system. Customers can then browse movies and view showtimes. The manager may also change ticket prices if required. At the cinema, a Ticket Clerk checks bookings when customers arrive. If needed, the clerk can cancel the booking and issue a refund. Customers use the system to book tickets. To do so, they must first select a showtime for the movie they want to watch. While booking, they may also request a snack combo along with their ticket, but this option depends on the cinema's arrangements for that show. The Cinema Manager also assigns screens for upcoming shows to ensure schedules are properly arranged.

Now your task is to give a use case diagram for the afore-mentioned system. Use generalization (inheritance), inclusion or extension where possible.

answer next page →



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