

CERTIFICATE IN MOBILE APPLICATION DEVELOPMENT (CMAD)

Assignments

(January, 2026 & July, 2026 sessions)

BCS-091, BCS-092, BCS-093, BCS-094, BCSL-091

Assignments



**SCHOOL OF COMPUTER AND INFORMATION SCIENCES
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Important Notes

1. Submit your assignments to the Coordinator of your Study Centre on or before the due date. Please refer to <http://www.ignou.ac.in> for latest updates
2. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations. For further details, please refer to CMAD Programme Guide.
3. To become eligible for appearing the Term End Practical Examination for the lab courses, it is essential to fulfill the minimum attendance requirements as well as submission of assignments (on or before the due date). For further details, please refer to the CMAD Programme Guide.

Course Code	:	BCS-092
Course Title	:	Introduction to Databases
Assignment Number	:	CMAD/092/Assignment /2026
Maximum Marks	:	25
Last Dates for Submission	:	30th April, 2026 (for January session) 31st October 2026 (for July session)

This assignment consists of four questions carrying a total of 25 marks. Answer all questions. You may use illustrations and diagrams to enhance your explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the presentation format. The answer to each part of the question should be confined to about 300 words.

Question 1: **(5 Marks)**

Design an ER diagram for a Pharmacy. The pharmacy stocks various medicines. Each medicine is uniquely identified by a Batch Number. The system maintains information about the medicine's name, price, quantity in stock, date of manufacture, and date of expiry. The pharmacy sells these medicines only to the patients who are registered with it. It stores the Patient ID, Name, Address and Phone Number for each the patients. All sales transactions are duly recorded along with the date of the transaction. A single transaction may consist of multiple medicines.

Design an ER diagram for the scenario above. You should clearly list the following:

- i) Entities and Attributes.
- ii) Relationships and their Cardinality
- iii) Key Constraints (Primary/Foreign Keys).

Make and state suitable assumptions, if any.

Question 2: **(8 Marks)**

Design a Relational Schema based on the ER diagram of *Question 1*. The relations must be at least in 3NF.

Perform the following tasks for these relations:

- a) Identify the Primary key of every relation.
- b) Identify the Foreign keys and referential integrity constraints in the relations.
- c) Write SQL commands to create the tables with keys and constraints
- d) Write SQL commands to enter about five sets of meaningful data in each relation.

Question 3: **(10 Marks)**

Answer the following queries using SQL for the database created in *Question 2*.

- (i) List the names of all patients whose names begin with the letter "S".
- (ii) List the MedicineName for all medicines whose Price is greater than ₹200.
- (iii) Find the list of medicines for which the Stock Quantity is very low (less than 10 units).
- (iv) List all the transaction details made by the Patient whose ID is "1001".
- (v) Calculate the total amount spent by the patient with ID "1001"
- (vi) List the names of patients who have made at least one purchase.
- (vii) Count the number of separate transactions made by each patient.
- (viii) Find the count of different medicines available in the pharmacy.

- (ix) Identify the medicine that has been sold in the largest quantity.
- (x) Find the total number of registered patients in the system.

Note: Make suitable assumptions, if any.

Question 4:

(2 Marks)

What is the need for logical design in the Database Development Life Cycle (DDLC)? Explain the steps for the implementation of a database design.