COMSATS University Islamabad, Lahore Campus

Mid Term Examination – FALL 2024

Course Title:	Database Systems			**Course Code:**	**CSC301**	**Credit Hours:**	**3(2,1)**
Course Instructor/s:	**Faisal Mumtaz**			**Programme Name:**	**BCS**		
Semester:	**4rth**	**Batch:**	**Section:**	**A**	**Date:**	**21-10-2024**	
Time Allowed:	**1.5 hour**			**Maximum Marks:**		**25**	
Student Name:				**Reg. No.**			

Question 1 [clo-3]<Analyzing>[Marks = 25 marks]

In a hospital, various departments such as Surgery, Pediatrics, and Cardiology manage patients and their treatments. Doctors are assigned to different departments and are responsible for treating patients. Patients are admitted and can receive multiple treatments. The system also needs to store information about the doctors and their specialties, as well as patient history and the departments that provide care.

a- Create a database named `db_hospital`, then proceed to create the necessary tables and insert the corresponding data. **[8]**

The hospital database will include the following entities:

- **Patients**: Information about the patients.
- **Doctors**: Information about the doctors, their specialties, and departments.
- **Departments**: Different departments within the hospital.
- **Treatments**: Information about the treatments provided to patients.

1. Patients Table

Column Name	Data Type	Description
PatientID	INT	Primary Key, Unique ID for each patient
FirstName	VARCHAR(50)	First name of the patient
LastName	VARCHAR(50)	Last name of the patient
Gender	CHAR(1)	Gender of the patient ('M' or 'F')
BirthDate	DATE	Date of birth of the patient
Phone	VARCHAR(15)	Phone number of the patient
Email	VARCHAR(100)	Unique email address of the patient

(101, 'John', 'Doe', 'M', '1985-07-20', '555-1234', 'john.doe@example.com'), (102, 'Jane', 'Smith', 'F', '1990-02-14', '555-5678', 'jane.smith@example.com'), (103, 'Robert', 'Brown', 'M', '1978-09-30', '555-8765', 'robert.brown@example.com'), (104, 'Emily', 'White', 'F', '2000-01-05', '555-4321', 'emily.white@example.com'), (105, 'Michael', 'Green', 'M', '1995-12-18', '555-9876', 'michael.green@example.com');

2. Doctors Table

Column Name	Data Type	Description
DoctorID	INT	Primary Key, Unique ID for each doctor
FirstName	VARCHAR(50)	First name of the doctor
LastName	VARCHAR(50)	Last name of the doctor
Specialty	VARCHAR(100)	Medical specialty of the doctor
DepartmentID	INT	Foreign Key, References Departments table

(201, 'Alice', 'Johnson', 'Cardiology', 2), (202, 'Bob', 'Williams', 'Pediatrics', 3), (203, 'Charlie', 'Miller', 'Neurology', 5), (204, 'Diana', 'Clark', 'Orthopedics', 4), (205, 'Ethan', 'Taylor', 'Surgery', 1);

3. Departments Table

Column Name	Data Type	Description
DepartmentID	INT	Primary Key, Unique ID for each department
DepartmentName	VARCHAR(100)	Name of the department

(1, 'Surgery'), (2, 'Cardiology'), (3, 'Pediatrics'), (4, 'Orthopedics'), (5, 'Neurology');

4. Treatments Table

Column Name	Data Type	Description
TreatmentID	INT	Primary Key, Unique ID for each treatment
PatientID	INT	Foreign Key, References Patients table
DoctorID	INT	Foreign Key, References Doctors table
TreatmentDate	DATE	Date the treatment was given
Diagnosis	VARCHAR(255)	Diagnosis made by the doctor
Treatment	VARCHAR(255)	Treatment administered

(301, 101, 205, '2024-01-10', 'Appendicitis', 'Appendectomy'), (302, 102, 201, '2024-02-15', 'Heart Disease', 'Cardiac Surgery'), (303, 103, 202, '2024-03-12', 'Bronchitis', 'Antibiotics'), (304, 104, 203, '2024-04-20', 'Migraine', 'Medication'), (305, 105, 204, '2024-05-25', 'Fractured Leg', 'Surgery');

b- Retrieve the first and last names of all doctors. **[2]**

c- Find all patients who were treated by the 'Cardiology' department. **[6]**

d- Count the number of patients treated in each department. **[4]**

e- List all treatments in order of the most recent treatment date. **[5]**