SCHOOLOFCOMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE	DEPARTMENTOFCOMPUTER SCIENCE ENGINEERING		
ProgramName:B. Tech	**AssignmentType: Lab**		**AcademicYear:**2025-2026
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CourseCode	24CS002PC215	**CourseTitle**	AI Assisted Coding
Year/Sem	II/I	**Regulation**	R24
DateandDay of Assignment	Week8 - WednesDay	**Time(s)**	
Duration	2 Hours	**Applicableto Batches**	

AssignmentNumber:16.3(Presentassignmentnumber)/**24**(Totalnumberofassignments)

Q.No.	Question	*ExpectedTime to complete*
1	**Lab 16 – Database Design and Queries: Schema Design and SQL Generation** **Lab Objectives** • To practice basic SQL query generation with AI assistance. • To analyze AI-suggested queries for correctness and efficiency.	Week5 - Monday

- To understand how AI can help in documenting and improving database logic.

Learning Outcomes

After completing this lab, students will be able to:

1. Use AI tools to design a simple ER diagram / schema for a given scenario.
2. Generate CREATE TABLE statements using AI.
3. Write and refine basic SQL queries (SELECT, INSERT, UPDATE, DELETE).
4. Validate correctness and efficiency of AI-generated SQL.
5. Compare AI-generated vs manually written queries.

Task Description #1 – Schema Generation

Task: Ask AI to design a schema for a Library Management System (Tables: Books, Members, Loans).

SQL Code

```sql
CREATE TABLE Members (
    member_id INT PRIMARY KEY,
    name VARCHAR(100),
    email VARCHAR(100) UNIQUE,
    join_date DATE
);

CREATE TABLE Books (
    book_id INT PRIMARY KEY,
    title VARCHAR(200),
    author VARCHAR(100),
    available BOOLEAN
);

CREATE TABLE Loans (
    loan_id INT PRIMARY KEY,
    member_id INT,
    book_id INT,
    loan_date DATE,
    return_date DATE,
    FOREIGN KEY (member_id) REFERENCES Members(member_id),
    FOREIGN KEY (book_id) REFERENCES Books(book_id)
);
```

Task Description #2 – Error Insert Data
Task: Ask AI to generate INSERT INTO queries for the schema above
(3 sample records per table).

Task Description #3 – Basic Queries
Task: Use AI to generate a query to list all books borrowed by a specific
member

Task Description #4 – Update and Delete Queries
Task: Generate queries with AI for:
- Updating a book's availability to FALSE when borrowed.
- Deleting a member record safely.

CODE:

```sql
Task1 16.3.sql
    ▷Run on active connection | ≡Select block
1    CREATE DATABASE IF NOT EXISTS LibraryDB;
2    USE LibraryDB;
3
4    DROP TABLE IF EXISTS Loans;
5    DROP TABLE IF EXISTS Books;
6    DROP TABLE IF EXISTS Members;
7
8
9    CREATE TABLE Members (
10       member_id INT PRIMARY KEY,
11       name VARCHAR(100),
12       email VARCHAR(100) UNIQUE,
13       join_date DATE
14   );
15
16   CREATE TABLE Books (
17       book_id INT PRIMARY KEY,
18       title VARCHAR(200),
19       author VARCHAR(100),
20       available BOOLEAN
21   );
22
23   CREATE TABLE Loans (
24       loan_id INT PRIMARY KEY,
25       member_id INT,
26       book_id INT,
27       loan_date DATE NOT NULL,
```

```sql
        loan_date DATE NOT NULL,
        return_date DATE,
        FOREIGN KEY (member_id) REFERENCES Members(member_id),
        FOREIGN KEY (book_id) REFERENCES Books(book_id)
);

INSERT INTO Members (member_id, name, email, join_date) VALUES
(1, 'Alice Smith', 'alice@library.org', '2024-01-01');

INSERT INTO Members (member_id, name, email, join_date) VALUES
(2, 'Bob Johnson', 'bob@library.org', '2024-02-15');

INSERT INTO Members (member_id, name, email, join_date) VALUES
(3, 'Charlie Brown', 'charlie@library.org', '2024-03-20');

INSERT INTO Books (book_id, title, author, available) VALUES
(101, 'The Sun Also Rises', 'Ernest Hemingway', TRUE);

INSERT INTO Books (book_id, title, author, available) VALUES
(102, 'Pride and Prejudice', 'Jane Austen', FALSE);

INSERT INTO Books (book_id, title, author, available) VALUES
(103, '1984', 'George Orwell', TRUE);

INSERT INTO Loans (loan_id, member_id, book_id, loan_date, return_
(1, 1, 101, '2025-10-20', NULL);

INSERT INTO Loans (loan_id, member_id, book_id, loan_date, return_date) VALUES
(2, 2, 102, '2025-10-21', '2025-10-28');

INSERT INTO Loans (loan_id, member_id, book_id, loan_date, return_date) VALUES
(3, 3, 103, '2025-10-22', NULL);


SELECT * FROM Members;
SELECT * FROM Books;
SELECT * FROM Loans;

SELECT
    B.title,
    B.author,
    L.loan_date
FROM
    Members M
JOIN
    Loans L ON M.member_id = L.member_id
JOIN
    Books B ON L.book_id = B.book_id
WHERE
    M.member_id = 3
    AND L.return_date IS NULL;

UPDATE Books
SET available = FALSE
```

```
    WHERE book_id = 102;


    DELETE FROM Loans
    WHERE member_id = 3;


    SELECT * FROM Members;
    SELECT * FROM Books;
    SELECT * FROM Loans;
    DESC Members;
    DESC Books;
    DESC Loans;
```

OUTPUT:

Field	Type	Null	Key	Default	Extra
member_id	int	NO	PRI	NULL	
name	varchar(100)	YES		NULL	
email	varchar(100)	YES	UNI	NULL	
join_date	date	YES		NULL	

Field	Type	Null	Key	Default	Extra
book_id	int	NO	PRI	NULL	
title	varchar(200)	YES		NULL	
author	varchar(100)	YES		NULL	
available	tinyint(1)	YES		NULL	

Field	Type	Null	Key	Default	Extra
loan_id	int	NO	PRI	NULL	
member_id	int	YES	MUL	NULL	
book_id	int	YES	MUL	NULL	
loan_date	date	NO		NULL	
return_date	date	YES		NULL	

member_id	name	email	join_date
1	Alice Smith	alice@library.org	2024-01-01T00:00:00.000Z
2	Bob Johnson	bob@library.org	2024-02-15T00:00:00.000Z
3	Charlie Brown	charlie@library.org	2024-03-20T00:00:00.000Z

book_id	title	author	available
101	The Sun Also Rises	Ernest Hemingway	1
102	Pride and Prejudice	Jane Austen	0
103	1984	George Orwell	1

loan_id	member_id	book_id	loan_date	return_date
1	1	101	1760918400000	NULL
2	2	102	1761004800000	2025-10-28T00:00:00.000Z
3	3	103	1761091200000	NULL

‹ | SELECT B.title, B.author, L.loan_date FRO... | UPDATE Books SET available = FALSE WH... | DELETE FROM Loans WHERE member_id =...

title	author	loan_date	
1984	George Orwell	1761091200000	