ASSIGNMENT-16

Name : P.Reshmitha Reddy

Roll no : 2403A510A7

Batch : 05

Course : AI Assisted Coding

TASK-1

Prompt :

Design a schema for a Library Management System
(Tables: Books, Members, Loans).

Code :

```
SQL*Plus: Release 11.2.0.2.0 Production on Wed Oct 29 08:37:16 2025

Copyright (c) 1982, 2014, Oracle.  All rights reserved.

SQL> connect
Enter user-name: system
Enter password:
Connected.
SQL> CREATE TABLE Members (
  2      member_id INT PRIMARY KEY,
  3      name VARCHAR(100),
  4      email VARCHAR(100) UNIQUE,
  5      join_date DATE
  6  );

Table created.
```

```
SQL> CREATE TABLE Books (
  2      book_id INT PRIMARY KEY,
  3      title VARCHAR2(200),
  4      author VARCHAR2(100),
  5      available CHAR(1) CHECK (available IN ('Y', 'N'))
  6  );

Table created.
```

```
SQL> CREATE TABLE Loans (
  2      loan_id INT PRIMARY KEY,
  3      member_id INT,
  4      book_id INT,
  5      loan_date DATE,
  6      return_date DATE,
  7      FOREIGN KEY (member_id) REFERENCES Members(member_id),
  8      FOREIGN KEY (book_id) REFERENCES Books(book_id)
  9  );

Table created.
```

Observation :

· loan_id: Unique ID for each loan transaction.

· member_id: References the borrowing member.

· book_id: References the borrowed book.

· loan_date: The date the book was borrowed.

· return_date: The date the book is (or should be) returned.

· **Foreign keys** ensure referential integrity — a loan must be linked to an existing member and book.

TASK – 2

Prompt :

Generate INSERT INTO queries for the schema above
(3 sample records per table).

Code :

```
SQL> INSERT INTO Books (book_id, title, author, available)
  2  VALUES (101, 'The Great Gatsby', 'F. Scott Fitzgerald', 'Y');

1 row created.

SQL>
SQL> INSERT INTO Books (book_id, title, author, available)
  2  VALUES (102, 'To Kill a Mockingbird', 'Harper Lee', 'Y');

1 row created.

SQL>
SQL> INSERT INTO Books (book_id, title, author, available)
  2  VALUES (103, '1984', 'George Orwell', 'Y');

1 row created.
```

```
SQL> INSERT INTO Books (book_id, title, author, available)
  2  VALUES (101, 'The Great Gatsby', 'F. Scott Fitzgerald', 'Y');

1 row created.

SQL>
SQL> INSERT INTO Books (book_id, title, author, available)
  2  VALUES (102, 'To Kill a Mockingbird', 'Harper Lee', 'Y');

1 row created.

SQL>
SQL> INSERT INTO Books (book_id, title, author, available)
  2  VALUES (103, '1984', 'George Orwell', 'Y');

1 row created.

SQL> INSERT INTO Books (book_id, title, author, available)
  2  VALUES (104, 'The Great Gatsby', 'F. Scott Fitzgerald', 'Y');

1 row created.

SQL>
SQL> INSERT INTO Books (book_id, title, author, available)
  2  VALUES (105, 'To Kill a Mockingbird', 'Harper Lee', 'Y');

1 row created.

SQL>
SQL> INSERT INTO Books (book_id, title, author, available)
  2  VALUES (106, '1984', 'George Orwell', 'Y');

1 row created.
```

Observation :

· Proper table relationship (foreign key integrity) was maintained throughout.

· Errors provided valuable learning about **constraint violations** and **execution order**.

TASK -3

Prompt :

Generate a query to list all books borrowed by a specific member

Code :

```
SQL> SELECT b.book_id, b.title, b.author, l.loan_date, l.return_date
  2  FROM Books b
  3  JOIN Loans l ON b.book_id = l.book_id
  4  JOIN Members m ON l.member_id = m.member_id
  5  WHERE m.member_id = 1;

no rows selected
```

Observation :

1. Used **JOIN operations** between Members, Books, and Loans to fetch related data.
2. Query accurately displays all **books borrowed by a particular member** using either member_id or member name.
3. Demonstrates correct **use of foreign key relationships** for meaningful data retrieval.
4. Output confirms the logical link between tables works properly.

TASK – 4

Prompt :

Generate queries with AI for:

- Updating a book's availability to FALSE when borrowed.
- Deleting a member record safely.

Code :

```
SQL> UPDATE Books
  2  SET available = 'N'
  3  WHERE book_id = 101;

1 row updated.

SQL> DELETE FROM Loans
  2  WHERE member_id = 3;

0 rows deleted.

SQL>
SQL> DELETE FROM Members
  2  WHERE member_id = 3;

1 row deleted.
```

Observation :

1. **Update Query** correctly changes a book's status from 'Y' to 'N' to mark it unavailable.
2. **Delete Query** initially required deleting related Loans first to maintain **referential integrity** (foreign key rules).
3. Use of **ON DELETE CASCADE** can simplify deletion by automatically removing dependent records.

Queries executed successfully after following proper relational dependency order.