**2. Database Schema for a Student Library scenario**

Student(**Stud\_no : integer,** Stud\_name: string)

Membership(**Mem\_no: integer**, **Stud\_no: integer**)

Book(**book\_no: integer**, book\_name:string, author: string)

Iss\_rec**(iss\_no:integer**, iss\_date: date, **Mem\_no: integer**, **book\_no: integer**)

**For the above schema, perform the following—**

1. **Create Tables**: Write the SQL statements to create the student, membership, book, and iss\_rec tables as described above.

|  |
| --- |
| CREATE TABLE student (  stud\_no int PRIMARY KEY,  stud\_name varchar(50)  );    CREATE TABLE membership(  mem\_no int PRIMARY KEY,  stud\_no int,  FOREIGN KEY(stud\_no)REFERENCES student(stud\_no)  );    CREATE TABLE book(  book\_no int PRIMARY KEY,  book\_name varchar(100),  author varchar(50)  );    CREATE TABLE iss\_rec(  iss\_no int PRIMARY KEY,  iss\_date date,  mem\_no int,  book\_no int ,  FOREIGN KEY(mem\_no)REFERENCES membership(mem\_no),  FOREIGN KEY(book\_no)REFERENCES book(book\_no)  ); |

**2. Insert Data**: Insert 5 records into each of the tables with the given data.

**student:**

|  |  |
| --- | --- |
| **stud\_no** | **stud\_name** |
| 1001 | John Doe |
| 1002 | Jane Smith |
| 1003 | Michael Johnson |
| 1004 | Emily Brown |
| 1005 | David Lee |

**membership:**

|  |  |
| --- | --- |
| **mem\_no** | **stud\_no** |
| 5001 | 1001 |
| 5002 | 1002 |
| 5003 | 1003 |
| 5004 | 1004 |
| 5005 | 1005 |

**book:**

|  |  |  |
| --- | --- | --- |
| **book\_no** | **book\_name** | **author** |
| 101 | The Great Gatsby | Scott Fitzgerald |
| 102 | Moby Dick | Herman Melville |
| 103 | Pride and Prejudice | Jane Austen |
| 104 | Jane Eyre | Charlotte Bronte |
| 105 | Animal Farm | George Orwell |

**iss\_rec:**

|  |  |  |  |
| --- | --- | --- | --- |
| **iss\_no** | **iss\_date** | **mem\_no** | **book\_no** |
| 1 | 2024-07-01 | 5001 | 101 |
| 2 | 2024-07-02 | 5002 | 102 |
| 3 | 2024-07-02 | 5003 | 103 |
| 4 | 2024-07-04 | 5004 | 104 |
| 5 | 2024-07-05 | 5005 | 105 |

|  |
| --- |
| INSERT INTO student VALUES(1001,'John Doe');  INSERT INTO student VALUES(1002,'Jane Smith');  INSERT INTO student VALUES(1003,'Michael Johnson');  INSERT INTO student VALUES(1004,'Emily Brown');  INSERT INTO student VALUES(1005,'David Lee');    INSERT INTO membership VALUES(5001,1001);  INSERT INTO membership VALUES(5002,1002);  INSERT INTO membership VALUES(5003,1003);  INSERT INTO membership VALUES(5004,1004);  INSERT INTO membership VALUES(5005,1005);    INSERT INTO book VALUES(101,'The Great Gatsby','Scott Fitzgerald');  INSERT INTO book VALUES(102,'Moby Dick','Herman Melville');  INSERT INTO book VALUES(103,'Pride and Prejudice','Jane Austen');  INSERT INTO book VALUES(104,'Jane Eyre','Charlotte Bronte');  INSERT INTO book VALUES(105,'Animal Farm','George Orwell');    INSERT INTO iss\_rec VALUES(1,'2024-07-01',5001,101);  INSERT INTO iss\_rec VALUES(2,'2024-07-02',5002,102);  INSERT INTO iss\_rec VALUES(3,'2024-07-02',5003,103);  INSERT INTO iss\_rec VALUES(4,'2024-07-04',5004,104);  INSERT INTO iss\_rec VALUES(5,'2024-07-05',5005,105); |

1. List all the student names along with their membership numbers. Ensure the column names are stud\_name and mem\_no.

|  |
| --- |
| SELECT stud\_name,mem\_no  FROM student s,membership m  WHERE s.stud\_no=m.stud\_no; |

1. List all the issue numbers for the date 2024-07-02 along with the student names and book names. Ensure the column names are iss\_no, stud\_name, and book\_name.

|  |
| --- |
| SELECT iss\_no,stud\_name,book\_name  FROM student s,book b,iss\_rec i,membership m  WHERE b.book\_no=i.book\_no AND m.mem\_no=i.mem\_no AND s.stud\_no=m.stud\_no AND iss\_date='2024-07-02'; |

1. List the student number and the name of the student who borrowed a book authored by George Orwell. Ensure the column names are stud\_no and stud\_name.

|  |
| --- |
| SELECT s.stud\_no,s.stud\_name  FROM student s,iss\_rec i,book b,membership m  WHERE i.book\_no=b.book\_no AND i.mem\_no=m.mem\_no AND m.stud\_no=s.stud\_no AND b.author='George Orwell'; |

1. Count the number of books each student borrowed. Group the results by the student number and name, and order the results by student number. Ensure the column names are stud\_no, stud\_name, and books\_borrowed.

|  |
| --- |
| SELECT s.stud\_no, s.stud\_name, COUNT(i.iss\_no)  AS books\_borrowed  FROM student s,membership m,iss\_rec i  WHERE s.stud\_no = m.stud\_no AND m.mem\_no = i.mem\_no  GROUP BY s.stud\_no, s.stud\_name  ORDER BY s.stud\_no; |

1. List the books borrowed by the student with stud\_no as 1005. Ensure the column name is book\_name.

|  |
| --- |
| SELECT b.book\_name  FROM student s,iss\_rec i,book b,membership m  WHERE i.book\_no=b.book\_no AND i.mem\_no=m.mem\_no AND m.stud\_no=s.stud\_no AND s.stud\_no=1005; |

1. List the book details (book number, book name, and author) for the books issued on 2024-07-04. Ensure the column names are book\_no, book\_name, and author.

|  |
| --- |
| SELECT b.book\_no,b.book\_name,b.author  FROM book b,iss\_rec i  WHERE i.book\_no=b.book\_no AND iss\_date='2024-07-04'; |

1. Create a view named iss\_rec\_view that lists the issue number, issue date, student name, and book name. Ensure the column names are iss\_no, iss\_date, stud\_name, and book\_name.

|  |
| --- |
| CREATE VIEW iss\_rec\_view  AS SELECT i.iss\_no,i.iss\_date,s.stud\_name,b.book\_name  FROM student s,book b,iss\_rec i,membership m  WHERE i.book\_no=b.book\_no AND i.mem\_no=m.mem\_no AND m.stud\_no=s.stud\_no;  SELECT \* FROM iss\_rec\_view; |

1. Create a view named daily\_issues\_view that lists daily issue details (issue number, issue date, student name, and book name) for the period from 2024-07-02 to 2024-07-04. Ensure the column names are iss\_no, iss\_date, stud\_name, and book\_name.

|  |
| --- |
| CREATE VIEW daily\_issues\_view  AS SELECT i.iss\_no, i.iss\_date, s.stud\_name, b.book\_name  FROM iss\_rec i,student s,book b, membership m  WHERE i.mem\_no = m.mem\_no AND m.stud\_no = s.stud\_no AND i.book\_no = b.book\_no AND i.iss\_date BETWEEN '2024-07-02' AND '2024-07-04';  SELECT \* FROM daily\_issues\_view; |