SQL-COMPREHENSIVE ASSESMENT

(Library Management System)

Topic: Library Management System

You are going to build a project based on Library Management System. It keeps track of all information about books in the library, their cost, status and total number of books available in the library.

Create a database named library and following TABLES in the database:

1. Branch
2. Employee
3. Books
4. Customer
5. IssueStatus
6. ReturnStatus

Attributes for the tables:

1. Branch

- Branch_no - Set as PRIMARY KEY
- Manager_Id
- Branch_address
- Contact_no

2. Employee

- Emp_Id – Set as PRIMARY KEY
- Emp_name
- Position
- Salary
- Branch_no - Set as FOREIGN KEY and it refer Branch_no in Branch table

3. Books

- ISBN - Set as PRIMARY KEY
- Book_title
- Category
- Rental_Price
- Status [Give yes if book available and no if book not available]
- Author
- Publisher

4. Customer

- Customer_Id - Set as PRIMARY KEY
- Customer_name
- Customer_address
- Reg_date

5. IssueStatus

- Issue_Id - Set as PRIMARY KEY
- Issued_cust_id – Set as FOREIGN KEY and it refer customer_id in CUSTOMER table
- Issued_book_name
- Issue_date
- Isbn_book – Set as FOREIGN KEY and it should refer isbn in BOOKS table

6. ReturnStatus

- Return_Id - Set as PRIMARY KEY
- Return_cust
- Return_book_name
- Return_date
- Isbn_book2 - Set as FOREIGN KEY and it should refer isbn in BOOKS table

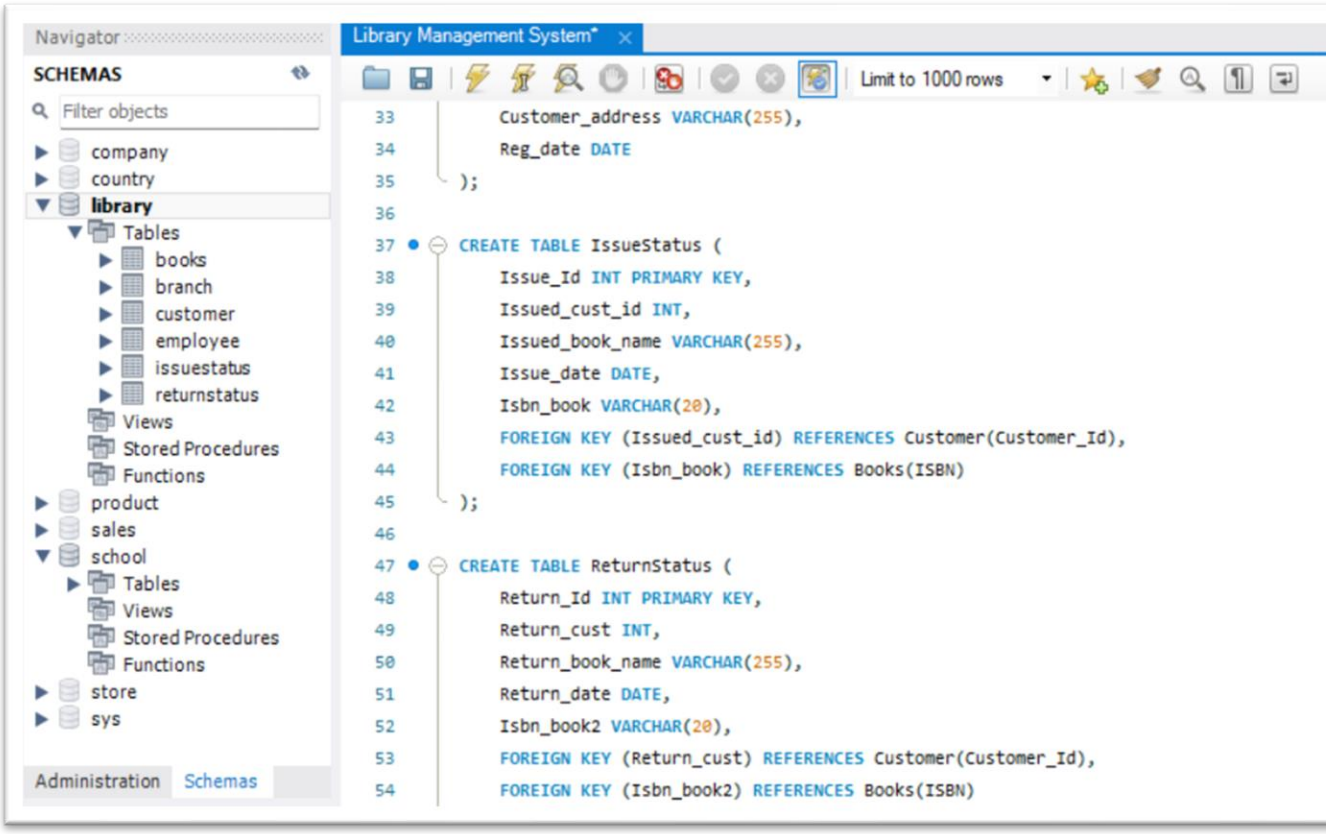
Display all the tables and write the queries for the following:

1. Retrieve the book title, category, and rental price of all available books.
2. List the employee names and their respective salaries in descending order of salary.
3. Retrieve the book titles and the corresponding customers who have issued those books.
4. Display the total count of books in each category.
5. Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.
6. List the customer names who registered before 2022-01-01 and have not issued any books yet.
7. Display the branch numbers and the total count of employees in each branch.
8. Display the names of customers who have issued books in the month of June 2023.
9. Retrieve book_title from book table containing history.
10.Retrieve the branch numbers along with the count of employees for branches having more than 5 employees
11. Retrieve the names of employees who manage branches and their respective branch addresses.
12. Display the names of customers who have issued books with a rental price higher than Rs. 25.

Create a database named library and TABLES in the database:

```
CREATE DATABASE library;
USE library;

CREATE TABLE Branch (
    Branch_no INT PRIMARY KEY,
    Manager_Id INT,
    Branch_address VARCHAR(255),
    Contact_no VARCHAR(15)
);

CREATE TABLE Employee (
    Emp_Id INT PRIMARY KEY,
    Emp_name VARCHAR(50),
    Position VARCHAR(50),
    Salary INT,
    Branch_no INT,
    FOREIGN KEY (Branch_no) REFERENCES Branch(Branch_no)
);

CREATE TABLE Books (
    ISBN VARCHAR(20) PRIMARY KEY,
    Book_title VARCHAR(255),
    Category VARCHAR(50),
    Rental_Price DECIMAL(10, 2),
    Status VARCHAR(3), -- 'yes' for available, 'no' for not available
    Author VARCHAR(100),
    Publisher VARCHAR(100)
);

CREATE TABLE Customer (
    Customer_Id INT PRIMARY KEY,
    Customer_name VARCHAR(50),
    Customer_address VARCHAR(255),
    Reg_date DATE
);
```

```
CREATE TABLE IssueStatus (
    Issue_Id INT PRIMARY KEY,
    Issued_cust_id INT,
    Issued_book_name VARCHAR(255),
    Issue_date DATE,
    Isbn_book VARCHAR(20),
    FOREIGN KEY (Issued_cust_id) REFERENCES Customer(Customer_Id),
    FOREIGN KEY (Isbn_book) REFERENCES Books(ISBN)
);

CREATE TABLE ReturnStatus (
    Return_Id INT PRIMARY KEY,
    Return_cust INT,
    Return_book_name VARCHAR(255),
    Return_date DATE,
    Isbn_book2 VARCHAR(20),
    FOREIGN KEY (Return_cust) REFERENCES Customer(Customer_Id),
    FOREIGN KEY (Isbn_book2) REFERENCES Books(ISBN)
);
```



1.Retrieve the book title, category, and rental price of all available books.

```
86 •  SELECT Book_title, Category, Rental_Price
87    FROM Books
88    WHERE Status = 'yes';
89
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Book_title	Category	Rental_Price
The Da Vinci Code	Thriller	25.00
To Kill a Mockingbird	Fiction	18.00
The Great Gatsby	Fiction	15.50

2. List the employee names and their respective salaries in descending order of salary.

```
89
90 •  SELECT Emp_name, Salary
91    FROM Employee
92    ORDER BY Salary DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Book_title	Category	Rental_Price
The Da Vinci Code	Thriller	25.00
To Kill a Mockingbird	Fiction	18.00
The Great Gatsby	Fiction	15.50

3. Retrieve the book titles and the corresponding customers who have issued those books.

```
94 •  SELECT B.Book_title, C.Customer_name
95    FROM Books B
96    JOIN IssueStatus I ON B.ISBN = I.Isbn_book
97    JOIN Customer C ON I.Issued_cust_id = C.Customer_Id;
98
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Book_title	Customer_name
The Great Gatsby	Alice Johnson
To Kill a Mockingbird	Bob Martin

4. Display the total count of books in each category.

```
99 •  SELECT Category, COUNT(*) AS TotalBooks
100   FROM Books
101   GROUP BY Category;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Category	TotalBooks
Science	1
Thriller	1
Fiction	2

5. Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.

```
103 •  SELECT Emp_name, Position
104    FROM Employee
105    WHERE Salary > 50000;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Emp_name	Position
John Doe	Librarian
Jim Brown	Manager
Jake White	Librarian

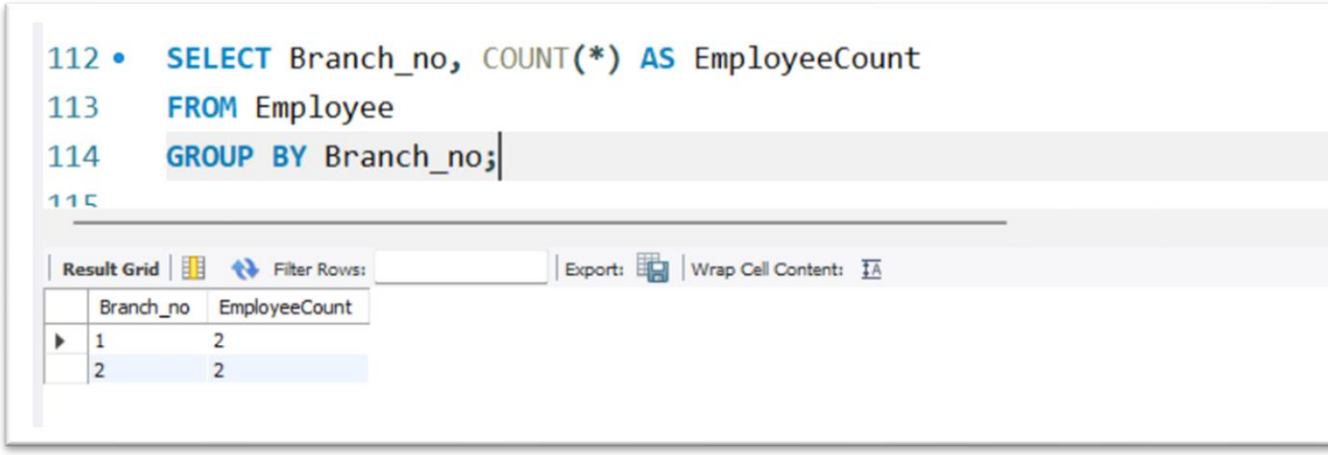
6. List the customer names who registered before 2022-01-01 and have not issued any books yet.

```
106
107 •  SELECT Customer_name
108    FROM Customer C
109    LEFT JOIN IssueStatus I ON C.Customer_Id = I.Issued_cust_id
110    WHERE C.Reg_date < '2022-01-01' AND I.Issue_Id IS NULL;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Customer_name

7. Display the branch numbers and the total count of employees in each branch.

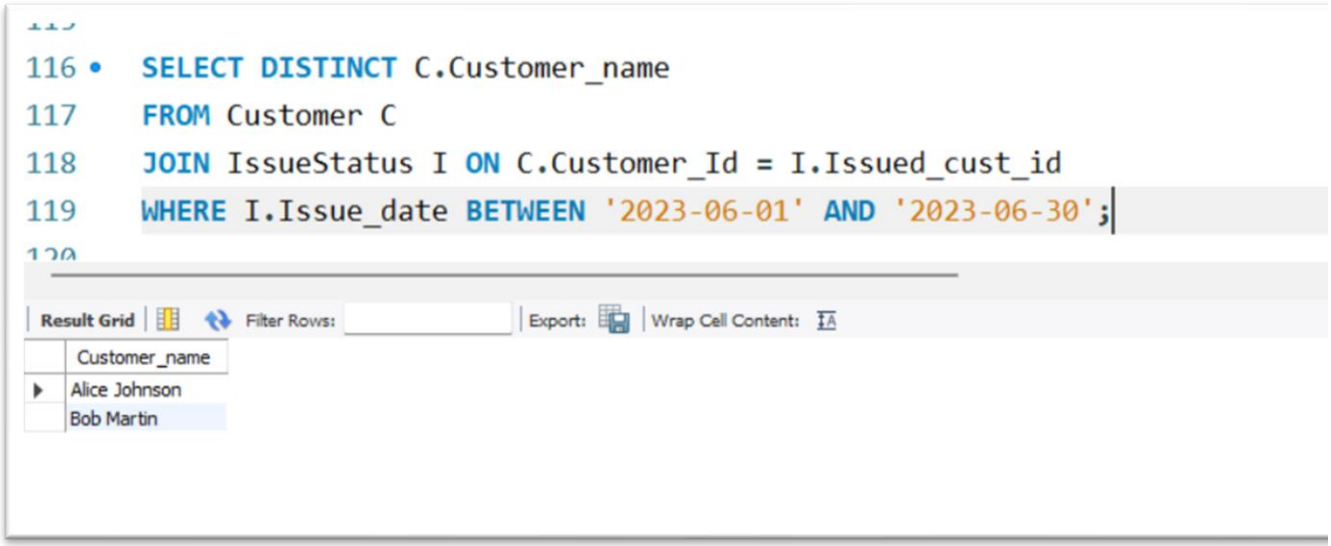


```
112 •  SELECT Branch_no, COUNT(*) AS EmployeeCount
113    FROM Employee
114    GROUP BY Branch_no;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Branch_no	EmployeeCount
1	2
2	2

8. Display the names of customers who have issued books in the month of June 2023.



```
116 •  SELECT DISTINCT C.Customer_name
117    FROM Customer C
118    JOIN IssueStatus I ON C.Customer_Id = I.Issued_cust_id
119    WHERE I.Issue_date BETWEEN '2023-06-01' AND '2023-06-30';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Customer_name
Alice Johnson
Bob Martin

9. Retrieve book_title from book table containing history.

```
121 •  SELECT Book_title
122    FROM Books
123    WHERE Book_title LIKE '%history%';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Book_title
A Brief History of Time

10.Retrieve the branch numbers along with the count of employees for branches having more than 5 employees

```
125 •  SELECT Branch_no, COUNT(*) AS EmployeeCount
126    FROM Employee
127    GROUP BY Branch_no
128    HAVING COUNT(*) > 5;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Branch_no	EmployeeCount

11. Retrieve the names of employees who manage branches and their respective branch addresses.

```
129
130 •  SELECT E.Emp_name, B.Branch_address
131    FROM Employee E
132    JOIN Branch B ON E.Emp_Id = B.Manager_Id;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Emp_name	Branch_address
John Doe	123 Library St, City A
Jim Brown	456 Book Rd, City B

12. Display the names of customers who have issued books with a rental price higher than Rs. 25.

```
134 •  SELECT DISTINCT C.Customer_name
135    FROM Customer C
136    JOIN IssueStatus I ON C.Customer_Id = I.Issued_cust_id
137    JOIN Books B ON I.Isbn_book = B.ISBN
138    WHERE B.Rental_Price > 25;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Customer_name