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

```
2  CREATE DATABASE Library;
3  USE Library;
4  CREATE TABLE Branch (
5      Branch_no INT PRIMARY KEY,
6      Manager_Id INT,
7      Branch_address VARCHAR(255),
8      Contact_no VARCHAR(15)
9  );
10 CREATE TABLE Employee (
11     Emp_Id INT PRIMARY KEY,
12     Emp_name VARCHAR(255),
13     Position VARCHAR(100),
14     Salary DECIMAL(10, 2),
15     Branch_no INT,
16     FOREIGN KEY (Branch_no) REFERENCES Branch(Branch_no)
17 );
```

```sql
CREATE TABLE Books (
    ISBN VARCHAR(25) PRIMARY KEY,
    Book_title VARCHAR(255),
    Category VARCHAR(100),
    Rental_Price DECIMAL(10, 2),
    Status ENUM('yes', 'no'),
    Author VARCHAR(255),
    Publisher VARCHAR(255)
);
```

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

```sql
CREATE TABLE IssueStatus (
    Issue_Id INT PRIMARY KEY,
    Issued_cust_id INT,
    Issued_book_name VARCHAR(255),
    Issue_date DATE,
    Isbn_book VARCHAR(25),
    FOREIGN KEY (Issued_cust_id) REFERENCES Customer(Customer_Id),
    FOREIGN KEY (Isbn_book) REFERENCES Books(ISBN)
);
```

```sql
CREATE TABLE ReturnStatus (
    Return_Id INT PRIMARY KEY,
    Return_cust INT,
    Return_book_name VARCHAR(255),
    Return_date DATE,
    Isbn_book2 VARCHAR(25),
    FOREIGN KEY (Return_cust) REFERENCES Customer(Customer_Id),
    FOREIGN KEY (Isbn_book2) REFERENCES Books(ISBN)
);
```

```sql
INSERT INTO Branch (Branch_no, Manager_Id, Branch_address, Contact_no) VALUES
(1, 301, 'MG Road, Kochi, Kerala', '0484-1234567'),
(2, 302, 'Ponkunnam, Kottayam, Kerala', '0486-2345678'),
(3, 303, 'East Fort, Thiruvananthapuram, Kerala', '0471-3456789');

INSERT INTO Employee (Emp_Id, Emp_name, Position, Salary, Branch_no) VALUES
(1, 'Anupama Nair', 'Manager', 70000, 1),
(2, 'Rahul Thomas', 'Librarian', 45000, 2),
(3, 'Sreelakshmi Menon', 'Assistant', 32000, 2),
(4, 'Mathew George', 'Manager', 75000, 2),
(5, 'Deepika Raghavan', 'Librarian', 48000, 3),
(6, 'Thomas Stephen', 'Assistant', 20000, 2),
(7, 'Latha Mahesh', 'Manager', 65000, 3),
(8, 'Kurian George', 'Librarian', 55000, 2),
(9, 'Surya Nair', 'Staff', 25000, 2);
```

```sql
INSERT INTO Books (ISBN, Book_title, Category, Rental_Price, Status, Author, Publisher) VALUES
('978-93-86160-01-4', 'The God of Small Things', 'Fiction', 30.00, 'yes', 'Arundhati Roy', 'Penguin India'),
('978-81-7991-067-0', 'The White Tiger', 'Fiction', 40.00, 'yes', 'Aravind Adiga', 'HarperCollins India'),
('978-81-7223-651-4', 'The Village of the Sea', 'Children', 20.00, 'yes', 'J. K. Rowling', 'Scholastic India'),
('978-93-82767-50-2', 'Kerala: A Portrait', 'Travel', 40.00, 'yes', 'Vikram Sarabhai', 'HarperCollins India'),
('978-81-265-1792-8', 'Sapiens', 'Non-Fiction', 25.00, 'no', 'Yuval Noah Harari', 'Harvill Secker'),
('978-93-86229-10-2', 'The Immortal of the Himalayas', 'Biography', 45.00, 'no', 'Ravi Shukla', 'Juggernaut Books'),
('978-81-7824-117-0', 'In Search of Lost Time', 'Classic', 50.00, 'yes', 'Marcel Proust', 'Penguin Books India'),
('978-1-56619-909-4', 'A Brief History of Time', 'Non-Fiction', 20.00, 'yes', 'Stephen Hawking', 'Bantam'),
('978-89-87643-98-5','A Peoples History of the United States','History',40.00,'yes',' Howard Zinn','Harper Perennial Modern Classics');
```

```sql
INSERT INTO Customer (Customer_Id, Customer_name, Customer_address, Reg_date) VALUES
(1, 'Rahul Menon', 'Kochi, Kerala', '2021-06-10'),
(2, 'Cathy Joseph', 'Kochi, Kerala', '2020-02-15'),
(3, 'Akhil S Nair', 'Thiruvananthapuram, Kerala', '2023-04-20'),
(4, 'Sneha Iyer', 'Kottayam, Kerala', '2019-12-05'),
(5, 'Vivek Jacob', 'Kochi, Kerala', '2020-08-30'),
(6, 'Lakshmi Menon', 'Thiruvananthapuram, Kerala', '2022-06-19'),
(7, 'Anu Joseph', 'Kochi, Kerala', '2023-08-15'),
(8, 'Kashi Nair', 'Thiruvananthapuram, Kerala', '2021-09-21'),
(9, 'Ipe Abraham', 'Kottayam, Kerala', '2019-12-25'),
(10, 'Varun John', 'Kochi, Kerala', '2021-05-05');
```

```sql
INSERT INTO IssueStatus (Issue_Id, Issued_cust_id, Issued_book_name, Issue_date, Isbn_book) VALUES
(1, 1, 'The God of Small Things', '2023-05-01', '978-93-86160-01-4'),
(2, 2, 'The White Tiger', '2023-05-02', '978-81-7991-067-0'),
(3, 3, 'The Village of the Sea', '2023-06-05', '978-81-7223-651-4'),
(4, 4, 'Kerala: A Portrait', '2023-05-10', '978-93-82767-50-2'),
(5, 9, 'The Immortal of the Himalayas', '2023-06-10', '978-93-86229-10-2'),
(6, 7, 'A Brief History of Time', '2024-06-02', '978-1-56619-909-4');

INSERT INTO ReturnStatus (Return_Id, Return_cust, Return_book_name, Return_date, Isbn_book2) VALUES
(1, 1, 'The God of Small Things', '2023-05-15', '978-93-86160-01-4'),
(2, 2, 'The White Tiger', '2023-05-12', '978-81-7991-067-0'),
(3, 3, 'The Village of the Sea', '2023-05-20', '978-81-7223-651-4'),
(4, 9, 'The Immortal of the Himalayas', '2023-06-25', '978-93-86229-10-2');
```

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

```sql
SELECT * FROM Branch;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Branch_no	Manager_Id	Branch_address	Contact_no
1	301	MG Road, Kochi, Kerala	0484-1234567
2	302	Ponkunnam, Kottayam, Kerala	0486-2345678
3	303	East Fort, Thiruvananthapuram, Kerala	0471-3456789
NULL	NULL	NULL	NULL

```sql
SELECT * FROM Employee;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Emp_Id	Emp_name	Position	Salary	Branch_no
1	Anupama Nair	Manager	70000.00	1
2	Rahul Thomas	Librarian	45000.00	2
3	Sreelakshmi Menon	Assistant	32000.00	2
4	Mathew George	Manager	75000.00	2
5	Deepika Raghavan	Librarian	48000.00	3
6	Thomas Stephen	Assistant	20000.00	2
7	Latha Mahesh	Manager	65000.00	3
8	Kurian George	Librarian	55000.00	2
9	Surya Nair	Staff	25000.00	2
NULL	NULL	NULL	NULL	NULL

```
108 •  SELECT * FROM Books;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

ISBN	Book_title	Category	Rental_Price	Status	Author	Publisher
978-1-56619-909-4	A Brief History of Time	Non-Fiction	20.00	yes	Stephen Hawking	Bantam
978-81-265-1792-8	Sapiens	Non-Fiction	25.00	no	Yuval Noah Harari	Harvill Secker
978-81-7223-651-4	The Village of the Sea	Children	20.00	yes	J. K. Rowling	Scholastic India
978-81-7824-117-0	In Search of Lost Time	Classic	50.00	yes	Marcel Proust	Penguin Books India
978-81-7991-067-0	The White Tiger	Fiction	40.00	yes	Aravind Adiga	HarperCollins India
978-89-87643-98-5	A Peoples History of the United States	History	40.00	yes	Howard Zinn	Harper Perennial Modern Classics
978-93-82767-50-2	Kerala: A Portrait	Travel	40.00	yes	Vikram Sarabhai	HarperCollins India
978-93-86160-01-4	The God of Small Things	Fiction	30.00	yes	Arundhati Roy	Penguin India
978-93-86229-10-2	The Immortal of the Himalayas	Biography	45.00	no	Ravi Shukla	Juggernaut Books
NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
109 •  SELECT * FROM Customer;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Customer_Id	Customer_name	Customer_address	Reg_date
1	Rahul Menon	Kochi, Kerala	2021-06-10
2	Cathy Joseph	Kochi, Kerala	2020-02-15
3	Akhil S Nair	Thiruvananthapuram, Kerala	2023-04-20
4	Sneha Iyer	Kottayam, Kerala	2019-12-05
5	Vivek Jacob	Kochi, Kerala	2020-08-30
6	Lakshmi Menon	Thiruvananthapuram, Kerala	2022-06-19
7	Anu Joseph	Kochi, Kerala	2023-08-15
8	Kashi Nair	Thiruvananthapuram, Kerala	2021-09-21
9	Ipe Abraham	Kottayam, Kerala	2019-12-25
10	Varun John	Kochi, Kerala	2021-05-05
NULL	NULL	NULL	NULL

```
110 •  SELECT * FROM IssueStatus;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Issue_Id	Issued_cust_id	Issued_book_name	Issue_date	Isbn_book
1	1	The God of Small Things	2023-05-01	978-93-86160-01-4
2	2	The White Tiger	2023-05-02	978-81-7991-067-0
3	3	The Village of the Sea	2023-06-05	978-81-7223-651-4
4	4	Kerala: A Portrait	2023-05-10	978-93-82767-50-2
5	9	The Immortal of the Himalayas	2023-06-10	978-93-86229-10-2
6	7	A Brief History of Time	2024-06-02	978-1-56619-909-4
NULL	NULL	NULL	NULL	NULL

```
111 •   SELECT * FROM ReturnStatus;
112
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Return_Id	Return_cust	Return_book_name	Return_date	Isbn_book2
1	1	The God of Small Things	2023-05-15	978-93-86160-01-4
2	2	The White Tiger	2023-05-12	978-81-7991-067-0
3	3	The Village of the Sea	2023-05-20	978-81-7223-651-4
4	9	The Immortal of the Himalayas	2023-06-25	978-93-86229-10-2
NULL	NULL	NULL	NULL	NULL

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

```
113 •   SELECT Book_title, Category, Rental_Price FROM Books WHERE Status = 'yes';
```

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

Book_title	Category	Rental_Price
A Brief History of Time	Non-Fiction	20.00
The Village of the Sea	Children	20.00
In Search of Lost Time	Classic	50.00
The White Tiger	Fiction	40.00
A Peoples History of the United States	History	40.00
Kerala: A Portrait	Travel	40.00
The God of Small Things	Fiction	30.00

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

```
115 •   SELECT Emp_name, Salary FROM Employee ORDER BY Salary DESC;
116
```

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

Emp_name	Salary
Mathew George	75000.00
Anupama Nair	70000.00
Latha Mahesh	65000.00
Kurian George	55000.00
Deepika Raghavan	48000.00
Rahul Thomas	45000.00
Sreelakshmi Menon	32000.00
Surya Nair	25000.00
Thomas Stephen	20000.00

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

```
117 •   SELECT B.Book_title, C.Customer_name FROM IssueStatus i
118     JOIN Books B ON i.Isbn_book = B.ISBN
119     JOIN Customer C ON i.Issued_cust_id = C.Customer_Id;
120
```

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

Book_title	Customer_name
The God of Small Things	Rahul Menon
The White Tiger	Cathy Joseph
The Village of the Sea	Akhil S Nair
Kerala: A Portrait	Sneha Iyer
The Immortal of the Himalayas	Ipe Abraham
A Brief History of Time	Anu Joseph

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

```
121 •   SELECT Category, COUNT(*) AS Total_Books FROM Books GROUP BY Category;
122
```

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

Category	Total_Books
Non-Fiction	2
Children	1
Classic	1
Fiction	2
History	1
Travel	1
Biography	1

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

```
123 •   SELECT Emp_name, Position FROM Employee WHERE Salary > 50000;
124
```

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

Emp_name	Position
Anupama Nair	Manager
Mathew George	Manager
Latha Mahesh	Manager
Kurian George	Librarian

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

```
125 •   SELECT C.Customer_name FROM Customer C LEFT JOIN IssueStatus I ON C.Customer_Id = I.Issued_cust_id
126     WHERE C.Reg_date < '2022-01-01' AND I.Issued_cust_id IS NULL;
127
```

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

Customer_name
Vivek Jacob
Kashi Nair
Varun John

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

```
128 •   SELECT Branch_no, COUNT(*) AS Total_Employees FROM Employee GROUP BY Branch_no;
129
```

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

Branch_no	Total_Employees
1	1
2	6
3	2

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

```
130 •   SELECT DISTINCT C.Customer_name FROM IssueStatus I
131     JOIN Customer C ON I.Issued_cust_id = C.Customer_Id
132     WHERE I.Issue_date BETWEEN '2023-06-01' AND '2023-06-30';
133
```

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

Customer_name
Akhil S Nair
Ipe Abraham

9. Retrieve book_title from book table containing history.

```
134 •   SELECT Book_title FROM Books WHERE Book_title LIKE '%history%';
135
```

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

Book_title
A Brief History of Time
A Peoples History of the United States

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

```
136 •   SELECT Branch_no, COUNT(*) AS Employee_Count FROM Employee GROUP BY Branch_no
137     HAVING COUNT(*) > 5;
138
```

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

Branch_no	Employee_Count
2	6

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

```
139 •   SELECT E.Emp_name, B.Branch_address FROM Employee E
140     JOIN Branch B ON E.Branch_no = B.Branch_no
141     WHERE E.Position = 'Manager';
142
```

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

Emp_name	Branch_address
Anupama Nair	MG Road, Kochi, Kerala
Mathew George	Ponkunnam, Kottayam, Kerala
Latha Mahesh	East Fort, Thiruvananthapuram, Kerala

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

```
143 •   SELECT DISTINCT C.Customer_name FROM IssueStatus I
144     JOIN Books B ON I.Isbn_book = B.ISBN
145     JOIN Customer C ON I.Issued_cust_id = C.Customer_Id
146     WHERE B.Rental_Price > 25;
147
```

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

Customer_name
Cathy Joseph
Sneha Iyer
Rahul Menon
Ipe Abraham