Library Management System
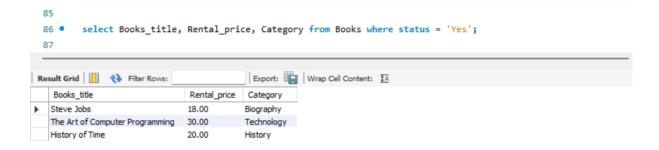
Database and Table creation

```sql
1   create database Library;
2   use Library;
3
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
11  create table Employee(
12      Emp_id int primary key,
13      Emp_name varchar(50),
14      Position varchar(50),
15      salary decimal(10, 2),
16      Branch_no int,
17      foreign key(Branch_no) references Branch(Branch_no)
18      );
19
20  create table Books(
21      ISBN varchar(20) primary key,
22      Books_title varchar(255),
23      Category varchar(100),
24      Rental_price decimal(10, 2),
25      Status varchar(3) check(status in('Yes', 'No')) ,
26      Author varchar(100),
27      Publisher varchar(255)
28      );
29  create table Customer(
30      Customer_id int primary key,
31      Customer_name varchar(100),
32      Customer_address varchar(255),
33      Reg_date date
34      );
35
36  create table IssueStatus(
37      Issue_id int primary key,
38      Issued_cust int,
39      Issued_book_name varchar(255),
40      Issue_date date,
41      ISBN_book varchar(20),
42      foreign key (Issued_cust) references Customer(Customer_id),
43      foreign key (ISBN_book) references Books(ISBN)
44      );
```

```
46  ⊖ create table ReturnStatus(
47        Return_id int primary key,
48        Return_cust int,
49        Return_book_name varchar(255),
50        Return_date date,
51        ISBN_book2 varchar(20),
52        foreign key (Return_cust) references Customer(Customer_id),
53        foreign key (ISBN_book2) references Books(ISBN)
54        );
55
56  ● insert into Branch (Branch_no, Manager_id, Branch_address, Contact_no) values
57        (1, 101, '123 Main St, City A', '123-456-7890'),
58        (2, 102, '456 Maple Ave, City B', '987-654-3210');
59
60  ● insert into Employee (Emp_id, Emp_name, Position, Salary, Branch_no) values
61        (101, 'John Doe', 'Manager', 60000.00, 1),
62        (102, 'Jane Smith', 'Manager', 65000.00, 2),
63        (103, 'Alice Johnson', 'Assistant', 45000.00, 1),
64        (104, 'Bob Brown', 'Clerk', 40000.00, 2);
65
66  ● insert into Books (ISBN, Books_title, Category, Rental_price, Status, Author, Publisher) values
67        ('978-3-16-148410-0', 'History of Time', 'History', 20.00, 'yes', 'Stephen Hawking', 'Penguin'),
68        ('978-0-14-044913-6', 'Crime and Punishment', 'Fiction', 25.00, 'no', 'Fyodor Dostoevsky', 'Penguin'),
69        ('978-1-56619-909-4', 'The Art of Computer Programming', 'Technology', 30.00, 'yes', 'Donald Knuth', 'Addison-Wesley'),
70        ('978-0-307-94764-3', 'Steve Jobs', 'Biography', 18.00, 'yes', 'Walter Isaacson', 'Simon & Schuster');
71

71
72  ● insert into Customer (Customer_id, Customer_name, Customer_address, Reg_date) values
73        (1, 'Michael Scott', '1725 Slough Ave, Scranton', '2021-06-15'),
74        (2, 'Jim Halpert', '42 Oak St, Scranton', '2021-08-22'),
75        (3, 'Pam Beesly', '394 Maple St, Scranton', '2022-03-18'),
76        (4, 'Dwight Schrute', '10 Schrute Farms, Scranton', '2022-01-05');
77
78  ● insert into IssueStatus (Issue_id, Issued_cust, Issued_book_name, Issue_date, ISBN_book) values
79        (1, 1, 'History of Time', '2023-06-05', '978-3-16-148410-0'),
80        (2, 2, 'The Art of Computer Programming', '2023-06-10', '978-1-56619-909-4');
81
82  ● insert into ReturnStatus (Return_id, Return_cust, Return_book_name, Return_date, ISBN_book2) values
83        (1, 1, 'History of Time', '2023-06-20', '978-3-16-148410-0'),
84        (2, 2, 'The Art of Computer Programming', '2023-06-25', '978-1-56619-909-4');
```

Queries and outputs

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

```
85
86  ●    select Books_title, Rental_price, Category from Books where status = 'Yes';
87
```

Books_title	Rental_price	Category
Steve Jobs	18.00	Biography
The Art of Computer Programming	30.00	Technology
History of Time	20.00	History

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

```
87
88 •    select Emp_name, salary from Employee order by salary desc;
```

Result Grid		Filter Rows:		Export:	Wrap Cell Content:

	Emp_name	salary
▶	Jane Smith	65000.00
	John Doe	60000.00
	Alice Johnson	45000.00
	Bob Brown	40000.00

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

```
90 •    select Books_title, customer_name from books
91      join IssueStatus on books.ISBN = IssueStatus.ISBN_book
92      join customer on IssueStatus.Issued_cust = Customer.customer_id;
```

Result Grid		Filter Rows:		Export:	Wrap Cell Content:

	Books_title	customer_name
▶	History of Time	Michael Scott
	The Art of Computer Programming	Jim Halpert

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

```
93
94 •    select category, count(*) as Total_Books from Books group by category;
95
```

Result Grid		Filter Rows:		Export:	Wrap Cell Content:

	category	Total_Books
▶	Fiction	1
	Biography	1
	Technology	1
	History	1

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

```
95
96 •    select Emp_name, Position from Employee where salary > 50000;
```

	Emp_name	Position
▶	John Doe	Manager
	Jane Smith	Manager

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

```
97
98 •    select Customer_name from Customer
99      left join IssueStatus on Customer.Customer_id = IssueStatus.Issued_cust
100     where Customer.Reg_date < '2022-01-01' and IssueStatus.Issue_id is not null;
101
```

	Customer_name
▶	Michael Scott
	Jim Halpert

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

```
101
102 •   select Branch_no, count(*) as Total_employees from Employee group by Branch_no;
```

	Branch_no	Total_employees
▶	1	2
	2	2

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

```
104 •    select Customer_name from Customer
105      left join IssueStatus on Customer.Customer_id = IssueStatus.Issued_cust
106      where IssueStatus.Issue_date between '2023-06-01' and '2023-06-30';
```

Result Grid | 🔢 ↔ Filter Rows: [   ] | Export: 🖫 | Wrap Cell Content: 🄰

Customer_name
▶ Michael Scott
Jim Halpert

9. Retrieve book_title from book table containing history.

```
107
108 •    select Books_title from Books where Books_title like '%History%';
109
```

Result Grid | 🔢 ↔ Filter Rows: [   ] | Export: 🖫 | Wrap Cell Content: 🄰

Books_title
▶ History of Time

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

```
109
110 •    select Branch_no, count(*) as Total_employees
111      from Employee group by Branch_no having count(*) > 5;
```

Result Grid | 🔢 ↔ Filter Rows: [   ] | Export: 🖫 | Wrap Cell Content: 🄰

Branch_no	Total_employees

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

```
112
113 •    select Employee.Emp_name, Branch.Branch_address from Employee
114      join Branch on Employee.Emp_id = Branch.Manager_id;
```

Emp_name	Branch_address
John Doe	123 Main St, City A
Jane Smith	456 Maple Ave, City B

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

```
115
116 •    select distinct Customer_name from Customer
117      join IssueStatus on Customer.Customer_id = IssueStatus.Issued_cust
118      join Books on IssueStatus.ISBN_book = Books.ISBN
119      where books.Rental_price > 25;
```

Customer_name
Jim Halpert