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
5. ReturnStatus

Attributes for the tables:

1. Branch

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

```sql
create database library;
use library;

create table Branch(
Branch_no int PRIMARY KEY,
Manager_Id int,
Branch_address varchar(20),
Contact_no varchar(20)
);

insert into branch values(01,101,'Kochi','9212345678'),
(02,102,'Chennai','8187654321'),
(03,103,'Bangalore','8098765432'),
(04,104,'Kolkata','7387654321'),
(05,105,'New Delhi','8198768137');

select * from branch;
```

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

Branch_no	Manager_Id	Branch_address	Contact_no
1	101	Kochi	9212345678
2	102	Chennai	8187654321
3	103	Bangalore	8098765432
4	104	Kolkata	7387654321
5	105	New Delhi	8198768137
NULL	NULL	NULL	NULL

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

```sql
create table Employee(
Emp_Id int PRIMARY KEY,
Emp_name varchar(20),
Position varchar(20),
Salary int,
Branch_no int,
foreign key (Branch_no) references branch(Branch_no) on delete cascade
);

insert into employee values(501,'Riyas Shahul','Manager',60000,1),
(502, 'Alex X', 'Librarian', 45000,2),
(503, 'Saahil Rizvin', 'Assistant Librarian',40000,1),
(504, 'Jaseela Jasim','Clerk',35000,5),
(505, 'Thasleema','Manager',60000,3),
(506, 'Suchithra','Librarian',45000,1),
(507, 'Visal S','Assistant Librarian',40000,2),
```

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

Emp_Id	Emp_name	Position	Salary	Branch_no
501	Riyas Shahul	Manager	60000	1
502	Alex X	Librarian	45000	2
503	Saahil Rizvin	Assistant Librarian	40000	1
504	Jaseela Jasim	Clerk	35000	5
505	Thasleema	Manager	60000	3
506	Suchithra	Librarian	45000	1
507	Visal S	Assistant Librarian	40000	2
508	Sharukh Khan	Clerk	35000	1
509	Vijay Joseph	Clerk	60000	1
510	Tovino Thomas	Librarian	45000	5
511	Daniel	Clerk	42000	1
512	Emily	Manager	48000	4
NULL	NULL	NULL	NULL	NULL

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Output

```
28
29 •  insert into employee values(501,'Riyas Shahul','Manager',60000,1),
30     (502, 'Alex X', 'Librarian', 45000,2),
31     (503, 'Saahil Rizvin', 'Assistant Librarian',40000,1),
32     (504, 'Jaseela Jasim','Clerk',35000,5),
33     (505, 'Thasleema','Manager',60000,3),
34     (506, 'Suchithra','Librarian',45000,1),
35     (507, 'Visal S','Assistant Librarian',40000,2),
36     (508, 'Sharukh Khan','Clerk',35000,1),
37     (509, 'Vijay Joseph','Clerk',60000,1),
38     (510, 'Tovino Thomas','Librarian',45000,5),
39     (511, 'Daniel', 'Clerk', 42000, 1),
40     (512, 'Emily', 'Manager', 48000, 4);
41
42 •  select * from employee;
43
44
```

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

Emp_Id	Emp_name	Position	Salary	Branch_no
501	Riyas Shahul	Manager	60000	1
502	Alex X	Librarian	45000	2
503	Saahil Rizvin	Assistant Librarian	40000	1
504	Jaseela Jasim	Clerk	35000	5
505	Thasleema	Manager	60000	3
506	Suchithra	Librarian	45000	1
507	Visal S	Assistant Librarian	40000	2
508	Sharukh Khan	Clerk	35000	1
509	Vijay Joseph	Clerk	60000	1
510	Tovino Thomas	Librarian	45000	5
511	Daniel	Clerk	42000	1
512	Emily	Manager	48000	4
NULL	NULL	NULL	NULL	NULL

employee 144 ×

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

```
44
45  create table Books(
46  ISBN varchar(20) PRIMARY KEY,
47  Book_title varchar(50),
48  Category varchar(50),
49  Rental_Price int,
50  Status varchar(20),
51  Author varchar(30),
52  Publisher varchar(30)
53  );
54
55  insert into books values('978-0-446-31078-6', 'To Kill a Mockingbird', 'Fiction', 120, 'yes', 'Harper Lee', 'HarperCollins'),
56  ('978-1-234-56789-0', '1984', 'Fiction', 140, 'yes', 'George Orwell', 'Penguin Books'),
57  ('978-0-7432-7356-5', 'The Great Gatsby', 'Classic', 110, 'no', 'F. Scott Fitzgerald', 'Scribner'),
58  ('978-0-06-097749-6', 'The God of Small Things', 'Fiction', 130, 'yes', 'Arundhati Roy', 'Random House India'),
59  ('978-93-8038-717-3', 'Aarachar', 'Fiction', 150, 'yes', 'K.R. Meera', 'DC Books'),
60  ('978-0-7475-3269-6', 'Harry Potter and the Sorcerer\'s Stone', 'Fantasy', 160, 'yes', 'J.K. Rowling', 'Bloomsbury'),
61  ('978-0-060838652-0', 'A Peoples History of the United States', 'History', 100, 'yes', 'J.D. Salinger', 'Little, Brown and Company'),
62  ('978-81-265-0978-7', 'Pathummayude Aadu', 'Fiction', 130, 'yes', 'Vaikom Muhammad Basheer', 'DC Books');
```

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

ISBN	Book_title	Category	Rental_Price	Status	Author	Publisher
978-0-06-097749-6	The God of Small Things	Fiction	130	yes	Arundhati Roy	Random House India
978-0-060838652-0	A Peoples History of the United States	History	100	yes	J.D. Salinger	Little, Brown and Company
978-0-09-928223-3	Oru Desathinte Katha	Novel	140	yes	S.K. Pottekkatt	D.C. Books
978-0-14-119907-3	Pride and Prejudice	Romance	110	no	Jane Austen	Penguin Classics
978-0-446-31078-6	To Kill a Mockingbird	Fiction	120	yes	Harper Lee	HarperCollins
978-0-7432-7356-5	The Great Gatsby	Classic	110	no	F. Scott Fitzgerald	Scribner
978-0-7475-3269-6	Harry Potter and the Sorcerer's Stone	Fantasy	160	yes	J.K. Rowling	Bloomsbury
978-1-234-56789-0	1984	Fiction	140	yes	George Orwell	Penguin Books
978-81-265-0978-7	Pathummayude Aadu	Fiction	130	yes	Vaikom Muhammad Basheer	DC Books
978-93-8038-717-3	Aarachar	Fiction	150	yes	K.R. Meera	DC Books
NULL	NULL	NULL	NULL	NULL	NULL	NULL

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4. Customer

Customer_Id - Set as PRIMARY KEY
Customer_name
Customer_address
Reg_date

```sql
create table Customer(
Customer_Id int PRIMARY KEY,
Customer_name varchar(20),
Customer_address varchar(30),
Reg_date date
);

insert into customer values(1, 'Ayesha','Kochi,Kerala','2022-03-20'),
(2, 'Farhan','Coimbatore,Tamil Nadu','2022-05-08'),
(3, 'Fathima','Kozhikode,Kerala','2022-05-17'),
(4, 'Imran','Bengaluru,Karnataka','2021-08-25'),
(5, 'Zainab','Mysuru,Karnataka','2022-01-05'),
(6, 'Salman','Kollam,Kerala','2022-10-18'),
(7, 'Nazia','Salem,Tamil Nadu','2022-05-13'),
(8, 'Amir','Agra,New Delhi','2021-11-20'),
(9, 'Irfan','Kannur,Kerala','2023-12-27'),
(10, 'Rahman','Kolkata,West Bengal','2021-04-19');
select * from customer;
```

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

Customer_Id	Customer_name	Customer_address	Reg_date
1	Ayesha	Kochi,Kerala	2022-03-20
2	Farhan	Coimbatore,Tamil Nadu	2022-05-08
3	Fathima	Kozhikode,Kerala	2022-05-17
4	Imran	Bengaluru,Karnataka	2021-08-25
5	Zainab	Mysuru,Karnataka	2022-01-05
6	Salman	Kollam,Kerala	2022-10-18
7	Nazia	Salem,Tamil Nadu	2022-05-13
8	Amir	Agra,New Delhi	2021-11-20
9	Irfan	Kannur,Kerala	2023-12-27
10	Rahman	Kolkata,West Bengal	2021-04-19
NULL	NULL	NULL	NULL

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5. IssueStatus

Issue_Id - Set as PRIMARY KEY
Issued_cust – 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

```
89
90  create table IssueStatus(
91  Issue_Id int PRIMARY KEY ,
92  issued_cust int,
93  foreign key (issued_cust) references customer(customer_id) on delete cascade,
94  issued_book_name varchar (50),
95  Issue_date date,
96  isbn_book varchar(30),
97  foreign key (isbn_book) references books(isbn) on delete cascade
98  );
99
100 insert into IssueStatus values(11,1,'To Kill a Mockingbird','2010-01-20','978-0-446-31078-6'),
101 (22,2,'1984','2002-04-02','978-1-234-56789-0'),
102 (33,3,'The Great Gatsby', '2009-03-10','978-0-7432-7356-5'),
103 (44, 4,'The God of Small Things','2004-04-18', '978-0-06-097749-6'),
104 (55, 5,'Aarachar', '2002-05-05','978-93-8038-717-3'),
105 (66, 6,'Harry Potter and the Sorcerer\'s Stone', '2004-05-12','978-0-7475-3269-6'),
106 (77, 7,'A Peoples History of the United States','2006-05-20','978-0-060838652-0'),
107 (88, 8,'Pathummayude Aadu','2007-06-02','978-81-265-0978-7');
```

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

Issue_Id	issued_cust	issued_book_name	Issue_date	isbn_book
11	1	To Kill a Mockingbird	2010-01-20	978-0-446-31078-6
22	2	1984	2002-04-02	978-1-234-56789-0
33	3	The Great Gatsby	2009-03-10	978-0-7432-7356-5
44	4	The God of Small Things	2004-04-18	978-0-06-097749-6
55	5	Aarachar	2002-05-05	978-93-8038-717-3
66	6	Harry Potter and the Sorcerer's Stone	2004-05-12	978-0-7475-3269-6
77	7	A Peoples History of the United States	2006-05-20	978-0-060838652-0
88	8	Pathummayude Aadu	2007-06-02	978-81-265-0978-7
99	9	Pride and Prejudice	2023-06-15	978-0-14-119907-3
100	2	Oru Desathinte Katha	2010-06-28	978-0-09-928223-3
NULL	NULL	NULL	NULL	NULL

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```
95    Issue_date date,
96    isbn_book varchar(30),
97    foreign key (isbn_book) references books(isbn) on delete cascade
98    );
99
100   insert into IssueStatus values(11,1,'To Kill a Mockingbird','2010-01-20','978-0-446-31078-6'),
101   (22,2,'1984','2002-04-02','978-1-234-56789-0'),
102   (33,3,'The Great Gatsby', '2009-03-10','978-0-7432-7356-5'),
103   (44, 4,'The God of Small Things','2004-04-18', '978-0-06-097749-6'),
104   (55, 5,'Aarachar', '2002-05-05','978-93-8038-717-3'),
105   (66, 6,'Harry Potter and the Sorcerer\'s Stone', '2004-05-12','978-0-7475-3269-6'),
106   (77, 7,'A Peoples History of the United States','2006-05-20','978-0-060838652-0'),
107   (88, 8,'Pathummayude Aadu','2007-06-02','978-81-265-0978-7'),
108   (99, 9,'Pride and Prejudice','2023-06-15','978-0-14-119907-3'),
109   (100, 2,'Oru Desathinte Katha','2010-06-28','978-0-09-928223-3');
110
111   select * from IssueStatus;
112
113
```

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

Issue_Id	issued_cust	issued_book_name	Issue_date	isbn_book
11	1	To Kill a Mockingbird	2010-01-20	978-0-446-31078-6
22	2	1984	2002-04-02	978-1-234-56789-0
33	3	The Great Gatsby	2009-03-10	978-0-7432-7356-5
44	4	The God of Small Things	2004-04-18	978-0-06-097749-6
55	5	Aarachar	2002-05-05	978-93-8038-717-3
66	6	Harry Potter and the Sorcerer's Stone	2004-05-12	978-0-7475-3269-6
77	7	A Peoples History of the United States	2006-05-20	978-0-060838652-0
88	8	Pathummayude Aadu	2007-06-02	978-81-265-0978-7
99	9	Pride and Prejudice	2023-06-15	978-0-14-119907-3
100	2	Oru Desathinte Katha	2010-06-28	978-0-09-928223-3
NULL	NULL	NULL	NULL	NULL

IssueStatus 147 ×

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

```
113
114
115 create table ReturnStatus(
116 Return_Id int PRIMARY KEY ,
117 Return_cust varchar(30),
118 Return_book_name varchar(50),
119 Return_date date,
120 isbn_book2 varchar(20),
121 foreign key (isbn_book2) references books(isbn) on delete cascade
122 );
123
124 insert into ReturnStatus values(1001, 'Ayesha','To Kill a Mockingbird','2023-04-02','978-0-446-31078-6'),
125 (1002, 'Farhan','1984','2023-04-05','978-1-234-56789-0'),
126 (1003, 'Fathima','The Great Gatsby','2023-04-10','978-0-7432-7356-5'),
127 (1004, 'Rahman','Oru Desathinte Katha', '2023-04-15','978-0-09-928223-3');
128
129 select * from ReturnStatus;
130
131
```

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

Return_Id	Return_cust	Return_book_name	Return_date	isbn_book2
1001	Ayesha	To Kill a Mockingbird	2023-04-02	978-0-446-31078-6
1002	Farhan	1984	2023-04-05	978-1-234-56789-0
1003	Fathima	The Great Gatsby	2023-04-10	978-0-7432-7356-5
1004	Rahman	Oru Desathinte Katha	2023-04-15	978-0-09-928223-3
NULL	NULL	NULL	NULL	NULL

ReturnStatus 148 ×

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

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

```
132
133
134
135
136
137
138
139     #Retrieve the book title, category, and rental price of all available books.
140 •   select book_title,category,rental_price from books where status = 'YES';
141
142
143
144
145
146
147
148
149
150
```

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

book_title	category	rental_price
The God of Small Things	Fiction	130
A Peoples History of the United States	History	100
Oru Desathinte Katha	Novel	140
To Kill a Mockingbird	Fiction	120
Harry Potter and the Sorcerer's Stone	Fantasy	160
1984	Fiction	140
Pathummayude Aadu	Fiction	130
Aarachar	Fiction	150

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Output

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

```
151
152
153
154
155
156
157     #List the employee names and their respective salaries in descending order of salary.
158 •   select emp_name,salary from employee order by salary desc;
159
160
161
162
163
164
165
166
167
```

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

emp_name	salary
Riyas Shahul	60000
Thasleema	60000
Vijay Joseph	60000
Emily	48000
Alex X	45000
Suchithra	45000
Tovino Thomas	45000
Daniel	42000
Saahil Rizvin	40000
Visal S	40000
Jaseela Jasim	35000
Sharukh Khan	35000

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

```
165
166
167
168
169
170
171
172     #Retrieve the book titles and the corresponding customers who have issued those books.
173     select i.issued_book_name, c.Customer_name from issueStatus i
174     JOIN Customer c ON i.issued_cust = c.Customer_Id;
175
176
177
178
179
180
181
```

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

issued_book_name	Customer_name
To Kill a Mockingbird	Ayesha
1984	Farhan
The Great Gatsby	Fathima
The God of Small Things	Imran
Aarachar	Zainab
Harry Potter and the Sorcerer's Stone	Salman
A Peoples History of the United States	Nazia
Pathummayude Aadu	Amir
Pride and Prejudice	Irfan
Oru Desathinte Katha	Farhan

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

```
177
178
179
180
181
182
183
184
185     #Display the total count of books in each category.
186     select category, count(category) as count from books group by category;
187
188
189
190
191
192
193
```

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

category	count
Fiction	5
History	1
Novel	1
Romance	1
Classic	1
Fantasy	1

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

```
192
193
194
195
196
197
198
199
200
201     #Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.
202     select emp_name,position,salary from employee where salary > 50000;
203
204
205
206
207
208
```

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

emp_name	position	salary
Riyas Shahul	Manager	60000
Thasleema	Manager	60000
Vijay Joseph	Clerk	60000

employee 153

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

```
210
211
212
213
214
215     #List the customer names who registered before 2022-01-01 and have not issued any books yet.
216 •   select c.customer_name,c.reg_date from customer c left join issuestatus i on c.customer_id = i.issued_cust
217     where c.reg_date < '2022-01-01' and i.issued_cust is null;
218
219
220
221
222
223
224
225
226
```

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

customer_name	reg_date
Rahman	2021-04-19

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

```
222
223
224
225
226
227
228
229
230     #Display the branch numbers and the total count of employees in each branch.
231 •   SELECT Branch_no, COUNT(emp_id) AS Total_Employees FROM Employee GROUP BY Branch_no;
232
233
234
235
236
237
238
```

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

Branch_no	Total_Employees
1	6
2	2
3	1
4	1
5	2

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

```
235
236
237
238
239
240
241
242     #Display the names of customers who have issued books in the month of June 2023.
243 •   select c.customer_name,i.issue_date from customer c left join issuestatus i on c.customer_id=i.issued_cust
244     WHERE YEAR(i.Issue_date) = 2023 AND month(i.issue_date)=6;
245
246
247
248
249
250
251
```

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

customer_name	issue_date
Irfan	2023-06-15

9. Retrieve book_title from book table containing history.

```
251
252
253
254
255
256
257     #Retrieve book_title from book table containing history.
258     select book_title from books where category ='history';
259
260
261
262
263
264
265
266
267
```

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

book_title
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

```
262
263
264
265
266
267
268
269     #Retrieve the branch numbers along with the count of employees for branches having more than 5 employees
270 •   select b.branch_no, count(e.emp_id) as Total_Employees
271     from branch b left join employee e on b.branch_no = e.branch_no
272     group by b.branch_no having count(e.emp_id) > 5;
273
274
275
276
277
278
```

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

branch_no	Total_Employees
1	6