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 – 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

```
create database library;
use library;
create table Branch(Branch_no int PRIMARY KEY, Manager_Id int, Branch_address varchar(100), Contact_no bigint);
create table Employee(Emp_Id  int PRIMARY KEY, Emp_name varchar(25), Position varchar(25),
Salary int,Branch_no int, foreign key(Branch_no) references Branch(Branch_no));
create table Books(ISBN int primary key,Book_title varchar(50),Category varchar(50),Rental_Price int, Status varchar(3),
Author varchar(50), Publisher varchar(50));
create table Customer(Customer_Id int PRIMARY KEY, Customer_name varchar(50), Customer_address varchar(100), Reg_date date);
create table IssueStatus(Issue_Id int PRIMARY KEY,Issued_cust int, FOREIGN KEY(Issued_cust) references Customer(Customer_id),
Issue_date date, Isbn_book int, FOREIGN KEY(Isbn_book) references Books(ISBN));
create table ReturnStatus(Return_Id int PRIMARY KEY, Return_cust varchar(50), Return_book_name varchar(50), Return_date date,
Isbn_book2 int, FOREIGN KEY(Isbn_book2) references Books(ISBN));
```

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

```
insert into Branch values(1,10,"oijaf,dffon,fsdud",999999999),(2,8,"spdcko,cfcda,gbfgf",999999888),
(3,5,"sfvfs,hbbhf,jngngnj",999999777),(4,9,"acccd,vgdv,vdsc",999999666),(5,2,"wxzre,rvvr,rvvrbb",999999555),
(6,3,"edssf,eseff,rgdgdr",999999444),(7,1,"ezce,vfgrve,vrvrv",999999333),(8,7,"cbdhc,tcbhbt,bhyvteg",999999222),
(9,6,"efve,bchrbh,tbcbt",999999111),(10,4,"vsss,vrvrg,tbhhtb",999999999);
select * from Branch;
```

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

Branch_no	Manager_Id	Branch_address	Contact_no
1	10	oijaf,dffon,fsdud	999999999
2	8	spdcko,cfcda,gbfgf	999999888
3	5	sfvfs,hbbhf,jngngnj	999999777
4	9	acccd,vgdv,vdsc	999999666
5	2	wxzre,rvvr,rvvrbb	999999555
6	3	edssf,eseff,rgdgdr	999999444
7	1	ezce,vfgrve,vrvrv	999999333
8	7	cbdhc,tcbhbt,bhyvteg	999999222
9	6	efve,bchrbh,tbcbt	999999111
10	4	vsss,vrvrg,tbhhtb	999999999
NULL	NULL	NULL	NULL

Branch 1

```
insert into Employee values(1,'John','Junior Manager', 30000,7),(2,'Michael','Senior Manager', 60000,2),
(3,'Olivia','Manager', 35000,6),(4,'Sophia','Senior Manager', 54000,3),(5,'Jane','Manager', 34000,1),
(6,'Benjamin','Junior Manager', 31000,5),(7,'Charlotte','Manager',50000,4),(8,'James','Senior Manager', 48000,9),
(9,'Mathew','Sweeper', 35000,10),(10,'Isabella','Senior Manager', 47000,8);
select * from Employee;
```

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

Emp_Id	Emp_name	Position	Salary	Branch_no
1	John	Junior Manager	30000	7
2	Michael	Senior Manager	60000	2
3	Olivia	Manager	35000	6
4	Sophia	Senior Manager	54000	3
5	Jane	Manager	34000	1
6	Benjamin	Junior Manager	31000	5
7	Charlotte	Manager	50000	4
8	James	Senior Manager	48000	9
9	Mathew	Sweeper	35000	10
10	Isabella	Senior Manager	47000	8
NULL	NULL	NULL	NULL	NULL

Employee 2

```
insert into Books values
(915,'LOTR','Fiction',50,'Yes','RR Tolkein','Allen and Unwin'),
(918,'JJK','Manga',25,'No','Gege Akutami','Viz Media'),
(916,'Naruto','Manga',20,'No','Kishimoto','Viz Media'),
(920,'Dune','Science Fiction',50,'Yes','Frank Herbert','Chilton Books'),
(921,'Moneyball','History',50,'Yes','Michael Lewis','W. W. Norton & Company'),
(924,'Wings Of Fire','Autobiography',50,'No','APJ Abdul Kalam and Arun Tiwari','Universities Press'),
(919,'Waiting for a Visa','Autobiography',50,'No','BR Ambedkar','Lector House'),
(917,'Gandhi Before India (M K Gandhi)','Biography',40,'Yes','Ramachandra Guha','Penguin Books'),
(922,'To Kill a Mockingbird','Novel',50,'Yes','Harper Lee','Bibliomania'),
(923,'The Black Swan','Novel',50,'No','Nassim Nicholas Taleb','Penguin Books');
select * from books;
```

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

ISBN	Book_title	Category	Rental_Price	Status	Author	Publisher
915	LOTR	Fiction	50	Yes	RR Tolkein	Allen and Unwin
916	Naruto	Manga	20	No	Kishimoto	Viz Media
917	Gandhi Before India (M K Gandhi)	Biography	40	Yes	Ramachandra Guha	Penguin Books
918	JJK	Manga	25	No	Gege Akutami	Viz Media
919	Waiting for a Visa	Autobiography	50	No	BR Ambedkar	Lector House
920	Dune	Science Fiction	50	Yes	Frank Herbert	Chilton Books
921	Moneyball	History	50	Yes	Michael Lewis	W. W. Norton & Company
922	To Kill a Mockingbird	Novel	50	Yes	Harper Lee	Bibliomania
923	The Black Swan	Novel	50	No	Nassim Nicholas Taleb	Penguin Books
924	Wings Of Fire	Autobiography	50	No	APJ Abdul Kalam and Arun Tiwari	Universities Press
NULL	NULL	NULL	NULL	NULL	NULL	NULL

books 3

```sql
insert into Customer values
(1,'Adam','cau cwjokw kmevk', '2000-07-20'),(2,'Anil','wrge rhhyr hreh', '1998-11-12'),
(3,'Aswathy','ijda adpiac sfvso', '2020-01-01'),(4,'Athira','adiph vsuhsv svougsdv', '2020-01-01'),
(5,'Askar','dwcw vwvw rwvw', '2005-03-12'),(6,'Anil','wrge rhhyr hreh', '1990-02-25'),
(7,'Abdullah','rgbf dbdf bgdbdg', '2022-12-23'),(8,'Asur','adiph vsuhsv svougsdv', '2023-03-01'),
(9,'Akhil','accv dvsvad advdv', '1995-10-11'),(10,'Azeez','ereth yjryr theeht', '1999-06-29');
select * from Customer;
```

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

Customer_Id	Customer_name	Customer_address	Reg_date
1	Adam	cau cwjokw kmevk	2000-07-20
2	Anil	wrge rhhyr hreh	1998-11-12
3	Aswathy	ijda adpiac sfvso	2020-01-01
4	Athira	adiph vsuhsv svougsdv	2020-01-01
5	Askar	dwcw vwvw rwvw	2005-03-12
6	Anil	wrge rhhyr hreh	1990-02-25
7	Abdullah	rgbf dbdf bgdbdg	2022-12-23
8	Asur	adiph vsuhsv svougsdv	2023-03-01
9	Akhil	accv dvsvad advdv	1995-10-11
10	Azeez	ereth yjryr theeht	1999-06-29
NULL	NULL	NULL	NULL

Customer 4

```sql
insert into IssueStatus values
(1,3,'2023-06-19',924),(2,10,'2024-01-30',922),(3,4,'2024-02-22',919),(4,8,'2024-02-22',916),
(5,2,'2024-02-24',917),(6,5,'2024-02-26',924),(7,3,'2024-03-25',920),(8,3,'2024-03-15',923),
(9,7,'2024-03-19',915),(10,8,'2024-03-19',918);
select * from IssueStatus;
```

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

Issue_Id	Issued_cust	Issue_date	Isbn_book
1	3	2023-06-19	924
2	10	2024-01-30	922
3	4	2024-02-22	919
4	8	2024-02-22	916
5	2	2024-02-24	917
6	5	2024-02-26	924
7	3	2024-03-25	920
8	3	2024-03-15	923
9	7	2024-03-19	915
10	8	2024-03-19	918
NULL	NULL	NULL	NULL

IssueStatus 5

```sql
insert into ReturnStatus values
(1,1,'Moneyball','2024-01-15',921),(2,3,'Wings Of Fire','2024-02-25',924),
(3,2,'Gandhi Before India (M K Gandhi)','2024-02-28',917),(4,9,'LOTR','2024-03-02',915),
(5,7,'LOTR','2024-02-25',915),(6,3,'Dune','2024-03-29',920),(7,3,'The Black Swan','2024-03-30',923),
(8,7,'Wings Of Fire','2024-03-30',924),(9,10,'To Kill a Mockingbird','2024-04-01',922),(10,8,'JJK','2024-04-15',918);
select * from ReturnStatus;
```

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

Return_Id	Return_cust	Return_book_name	Return_date	Isbn_book2
1	1	Moneyball	2024-01-15	921
2	3	Wings Of Fire	2024-02-25	924
3	2	Gandhi Before India (M K Gandhi)	2024-02-28	917
4	9	LOTR	2024-03-02	915
5	7	LOTR	2024-02-25	915
6	3	Dune	2024-03-29	920
7	3	The Black Swan	2024-03-30	923
8	7	Wings Of Fire	2024-03-30	924
9	10	To Kill a Mockingbird	2024-04-01	922
10	8	JJK	2024-04-15	918
NULL	NULL	NULL	NULL	NULL

ReturnStatus 6

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

```
54 •  select Book_title,Category,Rental_Price from Books where Status='Yes';
```

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

Book_title	Category	Rental_Price
LOTR	Fiction	50
Gandhi Before India (M K Gandhi)	Biography	40
Dune	Science Fiction	50
Moneyball	History	50
To Kill a Mockingbird	Novel	50

Books 7

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

```
54 •  select Book_title,Category,Rental_Price from Books where Status='Yes';
```

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

Emp_name	Salary
Michael	60000
Sophia	54000
Charlotte	50000
James	48000
Isabella	47000
Olivia	35000
Mathew	35000
Jane	34000
Benjamin	31000
John	30000

Employee 8

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

```
56 •  select Book_title,Customer.Customer_name from Books right join IssueStatus on Books.ISBN=IssueStatus.Isbn_book
57    left join Customer on IssueStatus.Issued_cust=Customer.Customer_id;
```

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

Book_title	Customer_name
Wings Of Fire	Aswathy
To Kill a Mockingbird	Azeez
Waiting for a Visa	Athira
Naruto	Asur
Gandhi Before India (M K Gandhi)	Anil
Wings Of Fire	Askar
Dune	Aswathy
The Black Swan	Aswathy
LOTR	Abdullah
JJK	Asur

Result 9

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

```
select Category,count(*) as number from Books group by Category;
```

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

Category	number
Fiction	1
Manga	2
Biography	1
Autobiography	2
Science Fiction	1
History	1
Novel	2

Result 10

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

```
Select Emp_name, Position from employee where Salary>50000;
```

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

Emp_name	Position
Michael	Senior Manager
Sophia	Senior Manager

employee 11

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

```
select Customer_name,Reg_date from Customer where Reg_date < '2022-01-01' and
Customer_Id not in (select Issued_cust from issuestatus);
```

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

Customer_name	Reg_date
Adam	2000-07-20
Anil	1990-02-25
Akhil	1995-10-11

Customer 12

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

```
select Branch_no,Count(*) from employee group by Branch_no;
```

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

Branch_no	Count(*)
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1

Result 13

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

```
select Customer_name from customer where Customer_id in
(Select Issued_cust from issuestatus where MONTH(Issue_date)=6);
```

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

Customer_name
Aswathy

customer 15

9. Retrieve book_title from book table containing history.

```
select Book_title from books where Category='History';
```

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

Book_title
Moneyball

books 16

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

```
select Branch_no,Count(*) as greater_than_5 from employee group by Branch_no having Count(*)>5;
```

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

Branch_no	greater_than_5

Result 17

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

```
select Emp_name,employee.Branch_no,branch.Branch_address from employee left join
branch on branch.Branch_no=employee.Branch_no where employee.Position like '%manager%';
```

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

Emp_name	Branch_no	Branch_address
John	7	ezce,vfgrve,vrvrv
Michael	2	spdcko,cfcda,gbfgf
Olivia	6	edssf,eseff,rgdgdr
Sophia	3	sfvfs,hbbhf,jngngnj
Jane	1	oijaf,dffon,fsdud
Benjamin	5	wxzre,rvvr,rvvrbb
Charlotte	4	acccd,vgdv,vdsc
James	9	efve,bchrbh,tbcbt
Isabella	8	cbdhc,tcbhbt,bhyvteg

Result 18

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

```
select Customer_name from customer where Customer_Id in
(Select Issued_cust from issuestatus where Isbn_book in
(Select ISBN from books where Rental_Price>25));
```

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

Customer_name
Abdullah
Anil
Athira
Aswathy
Azeez
Askar

customer 19

COMPLETE QUERY:

```
create database library;
use library;
create table Branch(Branch_no int PRIMARY KEY, Manager_Id int, Branch_address varchar(100), Contact_no
bigint);
create table Employee(Emp_Id  int PRIMARY KEY, Emp_name varchar(25), Position varchar(25),
Salary int,Branch_no int, foreign key(Branch_no) references Branch(Branch_no));
create table Books(ISBN int primary key,Book_title varchar(50),Category varchar(50),Rental_Price int, Status
varchar(3),
Author varchar(50), Publisher varchar(50));
create table Customer(Customer_Id int PRIMARY KEY, Customer_name varchar(50), Customer_address
varchar(100), Reg_date date);
create table IssueStatus(Issue_Id int PRIMARY KEY,Issued_cust int, FOREIGN KEY(Issued_cust) references
Customer(Customer_id),
Issue_date date, Isbn_book int, FOREIGN KEY(Isbn_book) references Books(ISBN));
create table ReturnStatus(Return_Id int PRIMARY KEY, Return_cust varchar(50), Return_book_name varchar(50),
Return_date date,
Isbn_book2 int, FOREIGN KEY(Isbn_book2) references Books(ISBN));

insert into Branch values(1,10,"oijaf,dffon,fsdud",999999999),(2,8,"spdcko,cfcda,gbfgf",999999888),
(3,5,"sfvfs,hbbhf,jngngnj",999999777),(4,9,"acccd,vgdv,vdsc",999999666),(5,2,"wxzre,rvvr,rvvrbb",999999555),
(6,3,"edssf,eseff,rgdgdr",999999444),(7,1,"ezce,vfgrve,vrvrv",999999333),(8,7,"cbdhc,tcbhbt,bhyvteg",999999222),
(9,6,"efve,bchrbh,tbcbt",999999111),(10,4,"vsss,vrvrg,tbhhtb",999999999);
select * from Branch;
insert into Employee values(1,'John','Junior Manager', 30000,7),(2,'Michael','Senior Manager', 60000,2),
(3,'Olivia','Manager', 35000,6),(4,'Sophia','Senior Manager', 54000,3),(5,'Jane','Manager', 34000,1),
(6,'Benjamin','Junior Manager', 31000,5),(7,'Charlotte','Manager',50000,4),(8,'James','Senior Manager', 48000,9),
(9,'Mathew','Sweeper', 35000,10),(10,'Isabella','Senior Manager', 47000,8);
select * from Employee;
insert into Books values
(915,'LOTR','Fiction',50,'Yes','RR Tolkein','Allen and Unwin'),
(918,'JJK','Manga',25,'No','Gege Akutami','Viz Media'),
(916,'Naruto','Manga',20,'No','Kishimoto','Viz Media'),
(920,'Dune','Science Fiction',50,'Yes','Frank Herbert','Chilton Books'),
(921,'Moneyball','History',50,'Yes','Michael Lewis','W. W. Norton & Company'),
(924,'Wings Of Fire','Autobiography',50,'No','APJ Abdul Kalam and Arun Tiwari','Universities Press'),
(919,'Waiting for a Visa','Autobiography',50,'No','BR Ambedkar','Lector House'),
(917,'Gandhi Before India (M K Gandhi)','Biography',40,'Yes','Ramachandra Guha','Penguin Books'),
(922,'To Kill a Mockingbird','Novel',50,'Yes','Harper Lee','Bibliomania'),
(923,'The Black Swan','Novel',50,'No','Nassim Nicholas Taleb','Penguin Books');
select * from books;
insert into Customer values
(1,'Adam','cau cwjokw kmevk', '2000-07-20'),(2,'Anil','wrge rhhyr hreh', '1998-11-12'),
(3,'Aswathy','ijda adpiac sfvso', '2020-01-01'),(4,'Athira','adiph vsuhsv svougsdv', '2020-01-01'),
(5,'Askar','dwcw vwvw rwvw', '2005-03-12'),(6,'Anil','wrge rhhyr hreh', '1990-02-25'),
(7,'Abdullah','rgbf dbdf bgdbdg', '2022-12-23'),(8,'Asur','adiph vsuhsv svougsdv', '2023-03-01'),
(9,'Akhil','accv dvsvad advdv', '1995-10-11'),(10,'Azeez','ereth yjryr theeht', '1999-06-29');
select * from Customer;
insert into IssueStatus values
(1,3,'2023-06-19',924),(2,10,'2024-01-30',922),(3,4,'2024-02-22',919),(4,8,'2024-02-22',916),
(5,2,'2024-02-24',917),(6,5,'2024-02-26',924),(7,3,'2024-03-25',920),(8,3,'2024-03-15',923),
```

```
(9,7,'2024-03-19',915),(10,8,'2024-03-19',918);
select * from IssueStatus;
insert into ReturnStatus values
(1,1,'Moneyball','2024-01-15',921),(2,3,'Wings Of Fire','2024-02-25',924),
(3,2,'Gandhi Before India (M K Gandhi)','2024-02-28',917),(4,9,'LOTR','2024-03-02',915),
(5,7,'LOTR','2024-02-25',915),(6,3,'Dune','2024-03-29',920),(7,3,'The Black Swan','2024-03-30',923),
(8,7,'Wings Of Fire','2024-03-30',924),(9,10,'To Kill a Mockingbird','2024-04-01',922),(10,8,'JJK','2024-04-15',918);
select * from ReturnStatus;
select Book_title,Category,Rental_Price from Books where Status='Yes';
select Emp_name, Salary from Employee order by Salary desc;
select Book_title,Customer.Customer_name from Books right join IssueStatus on
Books.ISBN=IssueStatus.Isbn_book
left join Customer on IssueStatus.Issued_cust=Customer.Customer_id;
select Category,count(*) as number from Books group by Category;
Select Emp_name, Position from employee where Salary>50000;
select Customer_name,Reg_date from Customer where Reg_date < '2022-01-01' and
Customer_Id not in (select Issued_cust from issuestatus);
select Branch_no,Count(*) from employee group by Branch_no;
select Customer_name from customer where Customer_id in
(Select Issued_cust from issuestatus where MONTH(Issue_date)=6);
select Book_title from books where Category='History';
select Branch_no,Count(*) as greater_than_5 from employee group by Branch_no having Count(*)>5;
select Emp_name,employee.Branch_no,branch.Branch_address from employee left join
branch on branch.Branch_no=employee.Branch_no where employee.Position like '%manager%';
select Customer_name from customer where Customer_Id in
(Select Issued_cust from issuestatus where Isbn_book in
(Select ISBN from books where Rental_Price>25));
```