Module End Project
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

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

- **Query to create database library and tables branch ,employee, books,customer, issuestatus,returnstatus**

```
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(50),
8    ⌐ Contact_no int);
9
10 •   create table Employee
11  ⊖ (Emp_Id int PRIMARY KEY ,
12     Emp_name varchar(50), Positon varchar(30),
13   ⌐ Salary int);
14
```

```sql
alter table Employee
modify column salary decimal(10,3);

create table Books
(ISBN int PRIMARY KEY ,
Book_title varchar(50),
Category varchar(20),
Rental_Price decimal(10,3),
Stats varchar(3),
Author varchar(30),
Publisher varchar(30));

SELECT CONSTRAINT_NAME, CONSTRAINT_TYPE
FROM INFORMATION_SCHEMA.TABLE_CONSTRAINTS
WHERE TABLE_NAME = 'Books';
alter table BOOKS
modify column Isbn varchar(30);
alter table BOOKS
modify column Publisher varchar(100);
```

```sql
27   SELECT CONSTRAINT_NAME, CONSTRAINT_TYPE
28   FROM INFORMATION_SCHEMA.TABLE_CONSTRAINTS
29   WHERE TABLE_NAME = 'Books';
30   alter table BOOKS
31   modify column Isbn varchar(30);
32   alter table BOOKS
33   modify column Publisher varchar(100);
34   alter table BOOKS
35   modify column Book_Title varchar(100);
36   alter table BOOKS
37   modify column category varchar(100);
38   alter table BOOKS
39   modify column author varchar(100);
40
41
42   create table Customer
43   (Customer_Id int PRIMARY KEY ,
44   Customer_name varchar(30),
45   Customer_address varchar(50),
46   Reg_date date);
```

```sql
create table IssueStatus
(Issue_Id int PRIMARY KEY ,
Issued_cust INT,
FOREIGN KEY (Issued_cust) REFERENCES customer(Customer_Id),
Issued_book_name varchar(50),
Issue_date date,
Isbn_book int,
FOREIGN KEY (Isbn_book) references BOOKS(isbn));


SELECT CONSTRAINT_NAME, CONSTRAINT_TYPE
FROM INFORMATION_SCHEMA.TABLE_CONSTRAINTS
WHERE TABLE_NAME = 'IssueStatus';
alter table IssueStatus drop constraint Isbn_book;
alter table IssueStatus
modify column Isbn_book varchar(30);
alter table Issuestatus
ADD CONSTRAINT Isbn_book
FOREIGN KEY (Isbn_book)
REFERENCES BOOKS(isbn);
```

```sql
create table ReturnStatus
(Return_Id int PRIMARY KEY ,
Return_cust int,
Return_book_name varchar(30),
Return_date date,
Isbn_book2 int , FOREIGN KEY (Isbn_book2) references Books(isbn));

SELECT CONSTRAINT_NAME, CONSTRAINT_TYPE
FROM INFORMATION_SCHEMA.TABLE_CONSTRAINTS
WHERE TABLE_NAME = 'ReturnStatus';
alter table ReturnStatus drop constraint returnstatus_ibfk_1;
alter table ReturnStatus
modify column Isbn_book2 varchar(30);
alter table ReturnStatus
ADD CONSTRAINT Isbn_book2
FOREIGN KEY (Isbn_book2)
REFERENCES BOOKS(isbn);
```

- **Inserting values to Branch, Employees, Books, Customer, ReturnStatus, Issuestatus**

```sql
insert into Branch values
(100,1,"ABC street , Kochi, Kerala ,India",9999),
(101,2,"CDE street , Kannur, Kerala ,India",9998),
(102,3,"EFG street , Kollam, Kerala ,India",9997),
(103,4,"GHI street , Trivandum, Kerala ,India",9996),
(104,5,"IJK street , Palakkad, Kerala ,India",9995);


insert into employee values(200,"Abi","Librarian",30000),
(201,"Jibi","Library Assistant",23000),
(202,"Ebi","Library Director",50000),
(203,"Sibi","Technical Services Librarian",32000),
(204,"Sini","Information Specialist",32000),
(205,"Rini","Administrative Assistant",40000),
(206,"George","Cleaner",20000);
```

```sql
insert into books values ("978-93-8067-432-2","Client Server Computing","Computer Science",70,"Yes","Lalit Kumar",
"Sun India Publications, New Delhi"),
("978-93-5163-389-1","Data Structure Using C","Computer Science",70,"Yes","Sharad Kumar Verma",
"Thakur Publications Lucknow"),
("978-93-8067-439-2","Client Server Computing","Computer Science",75,"Yes","Sharad Kumar Verma",
"Sun India Publications, New Delhi"),
("978-81-933904-9-8","An Eco-Critical Appraisal of the Selected
Novels of Amitav Ghosh","English",75,"Yes","Rabia Mukhtar",
"KY Publications, New Delhi"),
("978-81-933904-8-1","ACCIDENTS DO NOT HAPPEN","Business and Economics",60,"Yes",
"Dr. Sankar Rajeev","KY Publications, New Delhi"),
("978-81-933904-7-4","Human Rights Challenges: Strategies for Achieving Global Peace and Prosperity",
"General",60,"Yes"," Dr T Johnson Sampathkumar
& Dr B Madhana Rekha","KY Publications, New Delhi"),
("978-81-933904-6-7","PROPAGATION OF GLORY LILY
(Gloriosa superba L.)","Science",90,"Yes","Dr. S. ANANDHI","KY Publications, New Delhi"),
(" 978-81-933904-1-2","Faulkner's Treatment of Women","General",50,"No","Dr.Vibha Manoj Sharma","KY Publications, New Delhi"),
("978-81-933904-0-5","SANSRITI","English",60,"Yes"," Dr.Vibha Manoj Sharma","KY Publications, New Delhi")
;
```

```sql
insert into customer values (301,"Tina","111 St, Kochi,Kerala","2024-01-01"),
(302,"Febi","112 St, Kochi,Kerala","2023-12-01"),
(303,"Jinu","114 St, Kochi,Kerala","2023-07-08"),
(304,"Jeena","114 St, Kochi,Kerala","2024-06-01"),
(305,"Mary","111 St, Kochi,Kerala","2023-07-01"),
(306,"Reeja","117 St, Kochi,Kerala","2022-01-12"),
(307,"Bini","119 St, Kochi,Kerala","2021-09-01"),
(308,"Mathew","112 St, Kochi,Kerala","2020-01-01"),
(309,"Lini","111 St, Kochi,Kerala","2022-04-01"),
(310,"Kim","111 St, Kochi,Kerala","2020-08-01");
```

```sql
insert into issuestatus values (401,301,"Client Server Computing","2024-03-12","978-93-8067-432-2")
,(402,304,"ACCIDENTS DO NOT HAPPEN","2024-03-10","978-81-933904-8-1"),
(403,308,"Data Structure Using C","2024-03-10","978-93-5163-389-1"),
(404,302,"SANSRITI","2024-03-10","978-81-933904-0-5"),
(405,309,"Faulkner's Treatment of Women","2024-03-10","978-81-933904-1-2"),
(406,303,"Client Server Computing","2024-03-10","978-93-8067-439-2"),
(407,306,"PROPAGATION OF GLORY LILY(Gloriosa superba L.)","2024-03-10","978-81-933904-6-7");
```

- **Decription of tables and table contents**

156 •   desc books;

Field	Type	Null	Key	Default	Extra
Isbn	varchar(30)	NO	PRI	NULL	
Book_Title	varchar(100)	YES		NULL	
category	varchar(100)	YES		NULL	
Rental_Price	decimal(10,3)	YES		NULL	
Stats	varchar(3)	YES		NULL	
author	varchar(100)	YES		NULL	
Publisher	varchar(100)	YES		NULL	

157

158 •   desc branch;

Field	Type	Null	Key	Default	Extra
Branch_no	int	NO	PRI	NULL	
Manager_Id	int	YES		NULL	
Branch_address	varchar(50)	YES		NULL	
Contact_no	int	YES		NULL	

```
159
160 •    desc customer;
```

Field	Type	Null	Key	Default	Extra
Customer_Id	int	NO	PRI	NULL	
Customer_name	varchar(30)	YES		NULL	
Customer_address	varchar(50)	YES		NULL	
Reg_date	date	YES		NULL	

```
101
162 •    desc issuestatus;
```

Field	Type	Null	Key	Default	Extra
Issue_Id	int	NO	PRI	NULL	
Issued_cust	int	YES	MUL	NULL	
Issued_book_name	varchar(50)	YES		NULL	
Issue_date	date	YES		NULL	
Isbn_book	varchar(30)	YES	MUL	NULL	

```
165
166 •   select*from books;
167
```

Isbn	Book_Title	category	Rental_Price	Stats	author	Publisher
978-81-933904-1-2	Faulkner's Treatment of Women	General	50.000	No	Dr.Vibha Manoj Sharma	KY Publications, New Delhi
978-81-933904-0-5	SANSRITI	English	60.000	Yes	Dr.Vibha Manoj Sharma	KY Publications, New Delhi
978-81-933904-6-7	PROPAGATION OF GLORY LILY (Gloriosa superb...	Science	90.000	Yes	Dr. S. ANANDHI	KY Publications, New Delhi
978-81-933904-7-4	Human Rights Challenges: Strategies for Achiev...	General	60.000	Yes	Dr T Johnson Sampathkuma...	KY Publications, New Delhi
978-81-933904-8-1	ACCIDENTS DO NOT HAPPEN	Business and Economics	60.000	Yes	Dr. Sankar Rajeev	KY Publications, New Delhi
978-81-933904-9-8	An Eco-Critical Appraisal of the Selected Novels ...	English	75.000	Yes	Rabia Mukhtar	KY Publications, New Delhi
978-93-5019-561-1	Junior Level Books Introduction to Computer	Computer Science	100.000	Yes	Amit Garg	Reader's Zone
978-93-5163-389-1	Data Structure Using C	Computer Science	70.000	Yes	Sharad Kumar Verma	Thakur Publications Lucknow
978-93-8067-432-2	Client Server Computing	Computer Science	70.000	Yes	Lalit Kumar	Sun India Publications, New Delhi
978-93-8067-439-2	Client Server Computing	Computer Science	75.000	Yes	Sharad Kumar Verma	Sun India Publications, New Delhi
NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
167
168 •   select*from branch;
169
```

Branch_no	Manager_Id	Branch_address	Contact_no
100	1	ABC street , Kochi, Kerala ,India	9999
101	2	CDE street , Kannur, Kerala ,India	9998
102	3	EFG street , Kollam, Kerala ,India	9997
103	4	GHI street , Trivandum, Kerala ,India	9996
104	5	IJK street , Palakkad, Kerala ,India	9995
NULL	NULL	NULL	NULL

```
169
170 •   select*from customer;
171
```

Customer_Id	Customer_name	Customer_address	Reg_date
301	Tina	111 St, Kochi,Kerala	2024-01-01
302	Febi	112 St, Kochi,Kerala	2023-12-01
303	Jinu	114 St, Kochi,Kerala	2023-07-08
304	Jeena	114 St, Kochi,Kerala	2024-06-01
305	Mary	111 St, Kochi,Kerala	2023-07-01
306	Reeja	117 St, Kochi,Kerala	2022-01-12
307	Bini	119 St, Kochi,Kerala	2021-09-01
308	Mathew	112 St, Kochi,Kerala	2020-01-01
309	Lini	111 St, Kochi,Kerala	2022-04-01
310	Kim	111 St, Kochi,Kerala	2020-08-01
NULL	NULL	NULL	NULL

```
171
172 •     select*from employee;
173
```

Result Grid | Filter Rows: | Edit:

Emp_Id	Emp_name	Positon	salary
200	Abi	Librarian	30000.000
201	Jibi	Library Assistant	23000.000
202	Ebi	Library Director	50000.000
203	Sibi	Technical Services Librarian	32000.000
204	Sini	Information Specialist	32000.000
205	Rini	Administrative Assistant	40000.000
206	George	Cleaner	20000.000
NULL	NULL	NULL	NULL

```
173
174 •     select*from issuestatus;
175
```

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

Issue_Id	Issued_cust	Issued_book_name	Issue_date	Isbn_book
401	301	Client Server Computing	2024-03-12	978-93-8067-432-2
402	304	ACCIDENTS DO NOT HAPPEN	2024-03-10	978-81-933904-8-1
403	308	Data Structure Using C	2024-03-10	978-93-5163-389-1
404	302	SANSRITI	2024-03-10	978-81-933904-0-5
405	309	Faulkner's Treatment of Women	2024-03-10	978-81-933904-1-2
406	303	Client Server Computing	2024-03-10	978-93-8067-439-2
407	306	PROPAGATION OF GLORY LILY(Gloriosa superb...	2024-03-10	978-81-933904-6-7
NULL	NULL	NULL	NULL	NULL

```
175
176 •     select*from returnstatus;
177
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wra

Return_Id	Return_cust	Return_book_name	Return_date	Isbn_book2
501	302	SANSRITI	2024-03-14	978-81-933904-0-5
502	309	Faulkner's Treatment of Women	2024-03-15	978-81-933904-1-2
503	308	Data Structure Using C	2024-03-13	978-93-5163-389-1
504	304	ACCIDENTS DO NOT HAPPEN	2024-03-12	978-81-933904-8-1
NULL	NULL	NULL	NULL	NULL

Display all the tables and Write the queries for the following :
1. Retrieve the book title, category, and rental price of all available books.

```
177
178 •      select book_title,category,rental_price from books;
179
```

book_title	category	rental_price
Faulkner's Treatment of Women	General	50.000
SANSRITI	English	60.000
PROPAGATION OF GLORY LILY (Gloriosa superb...	Science	90.000
Human Rights Challenges: Strategies for Achiev...	General	60.000
ACCIDENTS DO NOT HAPPEN	Business and Economics	60.000
An Eco-Critical Appraisal of the Selected Novels ...	English	75.000
Junior Level Books Introduction to Computer	Computer Science	100.000
Data Structure Using C	Computer Science	70.000
Client Server Computing	Computer Science	70.000
Client Server Computing	Computer Science	75.000

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

```
180 •      select emp_name,salary from employee order by salary desc ;
181
```

emp_name	salary
Ebi	50000.000
Rini	40000.000
Sibi	32000.000
Sini	32000.000
Abi	30000.000
Jibi	23000.000
George	20000.000

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

```
182  •    select i.issued_cust,customer.customer_name,i.issued_book_name from issuestatus i join customer where customer.customer_id=i.issued_cust;
```

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

issued_cust	customer_name	issued_book_name
301	Tina	Client Server Computing
304	Jeena	ACCIDENTS DO NOT HAPPEN
308	Mathew	Data Structure Using C
302	Febi	SANSRITI
309	Lini	Faulkner's Treatment of Women
303	Jinu	Client Server Computing
306	Reeja	PROPAGATION OF GLORY LILY(Gloriosa superb...

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

```
184  •    select category,count(category) from books group by category;
185
```

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

category	count(category)
General	2
English	2
Science	1
Business and Economics	1
Computer Science	4

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

```
186  •    select Emp_name,Positon,salary from employee where salary>50000;
187
```

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

Emp_name	Positon	salary

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

```
189
190 •   select customer_name from customer where reg_date<"2022-01-01" and customer_id not in(select issued_cust from issuestatus);
191
```

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

customer_name
Bini
Kim

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

```
191
192 •   select branch_no , count(branch_no) as "No.of employees" from branch group by branch_no;
193
```

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

branch_no	No.of employees
100	1
101	1
102	1
103	1
104	1

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

```
193
194 •   select customer_name from customer where customer_id in (select Issued_cust from issuestatus where issue_date>="2023-06-01" and issue_date<="2023-06-30");
```

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

Issued_cust

9. Retrieve book_title from book table containing history.

```
195
196 •    select book_title from books where category="History";
```

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

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

```
197
198 •    select branch_no , count(branch_no) as "No.of employees" from branch group by branch_no having count(branch_no)>5;
```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
branch_no	No.of employees