SQL 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.

1)Create a database named library and following TABLES in the database:

*1. Branch 2. Employee 3. Books 4. Customer 5. IssueStatus 6. ReturnStatus */*

```
 8  create database library;
 9  use library;
10  /* Table -1 :Branch ,
11     Attributes:
12     Branch_no - Set as PRIMARY KEY
13     Manager_Id
14     Branch_address
15     Contact_no
16  */
17  create table Branch(
18                      Branch_no int primary key,
19                      Manager_Id varchar(5),
20                      Branch_address varchar(25),
21                      Contact_no int
22                      );
23  insert into Branch values
24                          (101, 'M101', '123 Main St', 90999),
25                          (102, 'M102', '456 Elm St', 98867),
26                          (103, 'M103', '789 Oak St', 88678),
27                          (104, 'M104', '567 Pine St', 99886),
28                          (105, 'M105', '890 Maple St', 98868);
29
```

```
30  select * from Branch;
31
```

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

Branch_no	Manager_Id	Branch_address	Contact_no
101	M101	123 Main St	90999
102	M102	456 Elm St	98867
103	M103	789 Oak St	88678
104	M104	567 Pine St	99886
105	M105	890 Maple St	98868
NULL	NULL	NULL	NULL

```
/*Table 2- Employee,
Attributes:
 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(25) not null,
                    Position varchar(25) not null,
                    Salary decimal(10,2) not null
                    );
insert into Employee values
                (01, 'John Doe', 'Manager', 60000.00),
                (02, 'Jane Smith', 'Clerk', 45000.00),
                (03, 'Mike Johnson', 'Librarian', 55000.00),
                (04, 'Emily Davis', 'Assistant', 40000.00),
                (05, 'Sarah Brown', 'Assistant', 42000.00),
                (06, 'Michelle Ramirez', 'Assistant', 43000.00),
                (07, 'Michael Thompson', 'Manager', 62000.00),
                (08, 'Jessica Taylor', 'Clerk', 46000.00),
                (09, 'Daniel Anderson', 'Librarian', 57000.00),
                (10, 'Laura Martinez', 'Assistant', 41000.00);
alter table Employee add column Branch_no int;
alter table Employee add foreign key (Branch_no) references Branch(Branch_no);
select * from Employee;

 UPDATE employee SET Branch_no = 101 WHERE Emp_Id =1;
 UPDATE employee SET Branch_no = 101 WHERE Emp_Id =2;
 UPDATE employee SET Branch_no = 101 WHERE Emp_Id =3;
 UPDATE employee SET Branch_no = 101 WHERE Emp_Id =4;
 UPDATE employee SET Branch_no = 102 WHERE Emp_Id =5;
 UPDATE employee SET Branch_no = 103 WHERE Emp_Id =6;
 UPDATE employee SET Branch_no = 102 WHERE Emp_Id =7;
 UPDATE employee SET Branch_no = 102 WHERE Emp_Id=8;
 UPDATE employee SET Branch_no = 102 WHERE Emp_Id =9;
 UPDATE employee SET Branch_no = 104 WHERE Emp_Id =10;
```

```
213 •  select * from employee;
214
```

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

Emp_Id	Emp_name	Position	Salary	Branch_no
1	John Doe	Manager	60000.00	101
2	Jane Smith	Clerk	45000.00	101
3	Mike Johnson	Librarian	55000.00	101
4	Emily Davis	Assistant	40000.00	101
5	Sarah Brown	Assistant	42000.00	102
6	Michelle Ramirez	Assistant	43000.00	103
7	Michael Thompson	Manager	62000.00	102
8	Jessica Taylor	Clerk	46000.00	102
9	Daniel Anderson	Librarian	57000.00	102
10	Laura Martinez	Assistant	41000.00	104
NULL	NULL	NULL	NULL	NULL

employee 20 ×

/Table 3-Books

Attributes :

ISBN - Set as PRIMARY KEY ,

Book_title ,

Category ,

Rental_Price ,

Status [Give yes if book available and no if book not available]

Author ,

Publisher

**/*

```
73 •  create table Books
74            (
75            ISBN VARCHAR(10) PRIMARY KEY,
76            Book_title VARCHAR(50),
77            Category VARCHAR(30),
78            Rental_Price DECIMAL(10,2),
79            Status ENUM('Yes','No'),
80            Author VARCHAR(30),
81            Publisher VARCHAR(30)
82            );
83 •  insert into Books values
84            ('ISBN101', 'Aadujeevitham', 'Fiction', 170, 'Yes', 'Benyamin', 'DC Books'),
85            ('ISBN102', 'The Alchemist', 'Fiction', 250, 'Yes', 'Paulo Coelho', 'HarperOne'),
86            ('ISBN103', 'India A History', 'History', 235, 'Yes', 'John Keay', 'Okhla Books'),
87            ('ISBN104', 'Five point someone', 'Fiction', 170, 'Yes', 'Chetan Bhagat', 'Rupa'),
88            ('ISBN105', 'Think and Grow Rich','Finance', 200, 'No', 'Napoleon Hill', 'Fingerprint'),
89            ('ISBN106', 'The Rise of Ancient Egypt', 'History', 350, 'Yes', 'Toby Wilkinson', 'Olympia Press'),
90            ('ISBN107', 'Wings of Fire', 'Autobiography', 350, 'Yes', 'A P J Abdul Kalam', 'Universities Press');
91 •  select * from Books;
92
```

```
91 •  select * from Books;
92
```

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

ISBN	Book_title	Category	Rental_Price	Status	Author	Publisher
ISBN101	Aadujeevitham	Fiction	170.00	Yes	Benyamin	DC Books
ISBN102	The Alchemist	Fiction	250.00	Yes	Paulo Coelho	HarperOne
ISBN103	India A History	History	235.00	Yes	John Keay	Okhla Books
ISBN104	Five point someone	Fiction	170.00	Yes	Chetan Bhagat	Rupa
ISBN105	Think and Grow Rich	Finance	200.00	No	Napoleon Hill	Fingerprint
ISBN106	The Rise of Ancient Egypt	History	350.00	Yes	Toby Wilkinson	Olympia Press
ISBN107	Wings of Fire	Autobiography	350.00	Yes	A P J Abdul Kalam	Universities Press
NULL	NULL	NULL	NULL	NULL	NULL	NULL

/ Table 4- Customer

Attributes : Customer_Id - Set as PRIMARY KEY

Customer_name

Customer_address

Reg_date

/

```sql
CREATE TABLE Customer
(
Customer_Id varchar(10) primary key,
Customer_name varchar(30),
Customer_address varchar(30),
Reg_date date
);
insert into Customer values
('C101', 'Alice Johnson', '123 Main St', '2021-05-15'),
('C102', 'Bob Smith', '456 Elm St', '2021-06-20'),
('C103', 'Carol Davis', '789 Oak St', '2021-07-10'),
('C104', 'Dave Wilson', '567 Pine St', '2021-08-05'),
('C105', 'Eve Brown', '890 Maple St', '2021-09-25'),
('C106', 'Frank Thomas', '234 Cedar St', '2021-10-15'),
('C107', 'Grace Taylor', '345 Walnut St', '2021-11-20'),
('C108', 'Henry Anderson', '456 Birch St', '2021-12-10'),
('C109', 'Ivy Martinez', '567 Oak St', '2022-01-05'),
('C110', 'Jack Wilson', '678 Pine St', '2022-02-25');
select * from Customer;
```

```sql
select * from Customer;
```

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

Customer_Id	Customer_name	Customer_address	Reg_date
C101	Alice Johnson	123 Main St	2021-05-15
C102	Bob Smith	456 Elm St	2021-06-20
C103	Carol Davis	789 Oak St	2021-07-10
C104	Dave Wilson	567 Pine St	2021-08-05
C105	Eve Brown	890 Maple St	2021-09-25
C106	Frank Thomas	234 Cedar St	2021-10-15
C107	Grace Taylor	345 Walnut St	2021-11-20
C108	Henry Anderson	456 Birch St	2021-12-10
C109	Ivy Martinez	567 Oak St	2022
C110	Jack Wilson	678 Pine St	2022-02-25
NULL	NULL	NULL	NULL

*/*Table 5 -IssueStatus*

Attributes: 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

```
*/
 CREATE TABLE IssueStatus
(
    Issue_Id varchar(10) primary key,
    Issued_cust varchar(30),
    Issued_book_name varchar(50),
    Issue_date date,
    Isbn_book varchar(15),
    foreign key (Issued_cust) references Customer(Customer_Id),
    foreign key (Isbn_book) references Books(ISBN)
    );
insert into IssueStatus values
    ('I101','C101','Aadujeevitham','2023-05-01','ISBN101'),
    ('I102','C102','The Alchemist','2023-06-05','ISBN102'),
    ('I103','C103','India A History','023-04-28','ISBN103'),
    ('I104','C104','Five point someone','2023-02-25','ISBN104'),
    ('I105','C105','Think and Grow Rich','2023-01-30','ISBN105'),
    ('I106','C106','The Rise of Ancient Egypt','2023-05-10','ISBN106'),
    ('I107','C107','Wings of Fire','2023-04-10','ISBN107');
    select * from IssueStatus;
```

```
    select * from IssueStatus;
```

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

Issue_Id	Issued_cust	Issued_book_name	Issue_date	Isbn_book
I101	C101	Aadujeevitham	2023-05-01	ISBN101
I102	C102	The Alchemist	2023-06-05	ISBN102
I103	C103	India A History	0023-04-28	ISBN103
I104	C104	Five point someone	2023-02-25	ISBN104
I105	C105	Think and Grow Rich	2023-01-30	ISBN105
I106	C106	The Rise of Ancient Egypt	2023-05-10	ISBN106
I107	C107	Wings of Fire	2023-04-10	ISBN107
NULL	NULL	NULL	NULL	NULL

*/*Table 6-ReturnStatus*

Attributes: 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

/

```
153 •  CREATE TABLE ReturnStatus
154    (
155    Return_id varchar(10) primary key,
156    Return_cust varchar(30),
157    Return_book_name varchar(50),
158    Return_date date,
159    ISBN_book2 varchar(25),
160    FOREIGN KEY (isbn_book2) REFERENCES Books(ISBN)
161    );
162
163 •  insert into ReturnStatus values
164                ('R101','C1','Aadujeevitham','2023-05-20','ISBN101'),
165                ('R102','C2','The Alchemist','2023-07-05','ISBN102'),
166                ('R103','C3','India A History','2023-05-18','ISBN103'),
167                ('R104','C4','Five point someone','2023-03-23','ISBN104'),
168                ('R105','C5','Think and Grow Rich','2023-03-20','ISBN105'),
169                ('R106','C6','The Rise of Ancient Egypt','2023-06-10','ISBN106'),
170                ('R107','C7','Wings of Fire','2023-05-05','ISBN107');
171 •  select * from ReturnStatus;
```

```
171 •  select * from ReturnStatus;
172
```

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

Return_id	Return_cust	Return_book_name	Return_date	ISBN_book2
R101	C1	Aadujeevitham	2023-05-20	ISBN101
R102	C2	The Alchemist	2023-07-05	ISBN102
R103	C3	India A History	2023-05-18	ISBN103
R104	C4	Five point someone	2023-03-23	ISBN104
R105	C5	Think and Grow Rich	2023-03-20	ISBN105
R106	C6	The Rise of Ancient Egypt	2023-06-10	ISBN106
R107	C7	Wings of Fire	2023-05-05	ISBN107
NULL	NULL	NULL	NULL	NULL

/ *Write the queries for the following :* */*

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

```
177 •   select Book_title,Category,Rental_Price from Books where Status = 'Yes' ;
178
```

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

Book_title	Category	Rental_Price
Aadujeevitham	Fiction	170.00
The Alchemist	Fiction	250.00
India A History	History	235.00
Five point someone	Fiction	170.00
The Rise of Ancient Egypt	History	350.00
Wings of Fire	Autobiography	350.00

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

```
180
181 •   select Emp_name, Salary from employee order by Salary desc;
182
```

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

Emp_name	Salary
Michael Thompson	62000.00
John Doe	60000.00
Daniel Anderson	57000.00
Mike Johnson	55000.00
Jessica Taylor	46000.00
Jane Smith	45000.00
Michelle Ramirez	43000.00
Sarah Brown	42000.00
Laura Martinez	41000.00
Emily Davis	40000.00

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

```
185 •  SELECT issuestatus.Issued_book_name, customer.Customer_name FROM issuestatus INNER JOIN
186    customer on issuestatus.Issued_cust = customer.Customer_Id;
187
```

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

Issued_book_name	Customer_name
Aadujeevitham	Alice Johnson
The Alchemist	Bob Smith
India A History	Carol Davis
Five point someone	Dave Wilson
Think and Grow Rich	Eve Brown
The Rise of Ancient Egypt	Frank Thomas
Wings of Fire	Grace Taylor

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

```
190 •  select Category, count(Book_title) from Books group by Category;
191
```

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

Category	count(Book_title)
Fiction	3
History	2
Finance	1
Autobiography	1

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

```
194 •  select Emp_name, Position from Employee where Salary > 50000;
195
```

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

Emp_name	Position
John Doe	Manager
Mike Johnson	Librarian
Michael Thompson	Manager
Daniel Anderson	Librarian

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

```
198 •  select customer_name from customer where Reg_date < '2022-01-01' and Customer_Id not in
199    (select issued_cust from issuestatus);
200
```

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

customer_name
Henry Anderson

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

```
215 •  select Branch_no,count(Emp_Id) from Employee group by Branch_no ;
216
```

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

Branch_no	count(Emp_Id)
101	4
102	4
103	1
104	1

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

```
218
219 •  select customer.Customer_name from customer inner join issuestatus on
220    customer.Customer_Id = issuestatus.Issued_cust where issuestatus.Issue_date >= '2023-06-01' and
221    issuestatus.Issue_date <= '2023-06-30';
```

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

Customer_name
Bob Smith

9. Retrieve book_title from book table containing history.

```
225 •  select Book_title from Books where Book_title like '%History%' ;
```

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

Book_title
India A History

10 .Retrieve the branch numbers along with the count of employees for branches having more than 3 employees

```
228
229 •  select Branch_no, COUNT(Emp_Id) from employee group by Branch_no having COUNT(Emp_Id) > 3
```

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

Branch_no	COUNT(Emp_Id)
101	4
102	4

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

```
232
233 •  select employee.Emp_name, branch.Branch_address  from employee inner join Branch on
234    employee.Branch_no = Branch.Branch_no where Position = 'Manager';
```

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

Emp_name	Branch_address
John Doe	123 Main St
Michael Thompson	456 Elm St

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

```
237
238 •  select Customer.Customer_name, books.Rental_Price from Customer inner join IssueStatus on
239    IssueStatus.Issued_cust = Customer.Customer_Id inner join Books on
240    Books.ISBN = IssueStatus.Isbn_book where Rental_Price > 25 ;
```

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

Customer_name	Rental_Price
Alice Johnson	170.00
Bob Smith	250.00
Carol Davis	235.00
Dave Wilson	170.00
Eve Brown	200.00
Frank Thomas	350.00
Grace Taylor	350.00

End.