

Mini Project – SQL

Domain: Library Management System

The concept behind this project is to create a library management system that is capable of issuing books and let consumers check different books and their titles categorically. It keeps track of all the details about the books in the library, their price, status, and the total number of books available in the Library. The user will find this automated system easy instead of using the manual writing system.

Query which we have to execute before solve the question :

```
create database Library_Management_System ;
```

```
create table publisher (Publiser_Name varchar(70) primary key ,Publiser_Address  
varchar(700),Publiser_Phoneno int)
```

```
SELECT * FROM publiser;
```

```
create table Borrower (Borrower_Name varchar(70) primary key ,Borrower_Address  
varchar(70),Borrower_Phoneno int);
```

```
select * from borrower;
```

```
create table Book (Book_title varchar(70),Publiser_name varchar(70));
```

```
select * from book;
```

```
create table Branch (Branch_name varchar(70), Branch_address varchar (70));
```

```
select * from Branch;
```

```
create table Loan (LoanID int Primary Key, BookID int , BranchID int,Date_out int ,Due_date int;
```

```
select * from loan;
```

```
create table Copies (CopiesID int Primary Key , BookID int ,No_of_Copies int);
```

```
select * from copies;
```

```
create table Author(AuthorID int Primary Key ,Author_name varchar(70));      select * from Author;
```

1. How many copies of the book titled "The Lost Tribe" are owned by the library branch whose name is "Sharpstown"?

Ans:-

```
SELECT COUNT(*) AS NoOfCopies FROM ((BOOK NATURAL JOIN COPIES)
NATURAL JOIN BRANCH)
WHERE Book_title='The Lost Tribe' AND Branch_Name='Sharpstown';
```

2. How many copies of the book titled "The Lost Tribe" are owned by each library branch?

Ans:-

```
SELECT BRANCH.Branch_Name,COUNT(*) AS NoOfCopies FROM
((BOOK NATURAL JOIN COPIES) NATURAL JOIN BRANCH)
WHERE Book_title='The Lost Tribe' group by Branch_Name;
```

3. Retrieve the names of all borrowers who do not have any books checked out.

Ans:-

```
SELECT Borrower_Name FROM BORROWER WHERE NOT EXISTS
(SELECT * FROM LOAN WHERE BORROWER.borrower_name =
LOAN.BookID );
```

4. For each book that is loaned out from the "Sharpstown" branch and whose DueDate is today, retrieve the book title, the borrower's name, and the borrower's address

Ans:-

```
SELECT BOOK.Book_Title, BORROWER.Borrower_Name,  
BORROWER.Borrower_Address, BRANCH.Branch_Name  
FROM BOOK JOIN LOAN ON BOOK.Book_title = LOAN.Due_date  
JOIN BORROWER ON LOAN.Due_date = BORROWER.Borrower_Name  
JOIN BRANCH ON LOAN.Due_date = BRANCH.Branch_name  
WHERE Branch.Branch_Name = 'Sharpstown' AND  
LOAN.Due_Date = CURRENT_DATE();
```

5. For each library branch, retrieve the branch name and the total number of books loaned out from that branch.

Ans:-

```
SELECT BRANCH.Branch_Name, COUNT(*) AS Total_Loaned_Books  
FROM LOAN JOIN BRANCH ON LOAN.BranchID =  
BRANCH.Branch_name join Copies on Loan.BookID = copies.BookID  
GROUP BY BRANCH.Branch_Name ;
```

6. Retrieve the names, addresses, and number of books checked out for all borrowers who have more than five books checked out.

Ans:-

```
SELECT BORROWER.Borrower_Name,  
BORROWER.Borrower_Address, COUNT(*) AS  
Num_Books_CheckedOut FROM LOAN  
JOIN BORROWER ON LOAN.BookID = BORROWER.Borrower_name  
GROUP BY BORROWER.Borrower_Name  
HAVING COUNT(*) > 5;
```

7. For each book authored by "Stephen King", retrieve the title and the number of copies owned by the library branch whose name is "Central".

Ans:-

```
SELECT book.Book_title, copies.no_of_copies,  
BRANCH.Branch_Name FROM book  
JOIN author ON book.Book_title= author.authorid  
JOIN copies ON book.book_title = copies.bookid  
JOIN branch ON copies.CopiesID = branch.branch_name  
WHERE author.author_name = 'Stephen King'  
or branch.branch_name = 'Central';
```