LIBRARY MANAGEMENT SYSTEM

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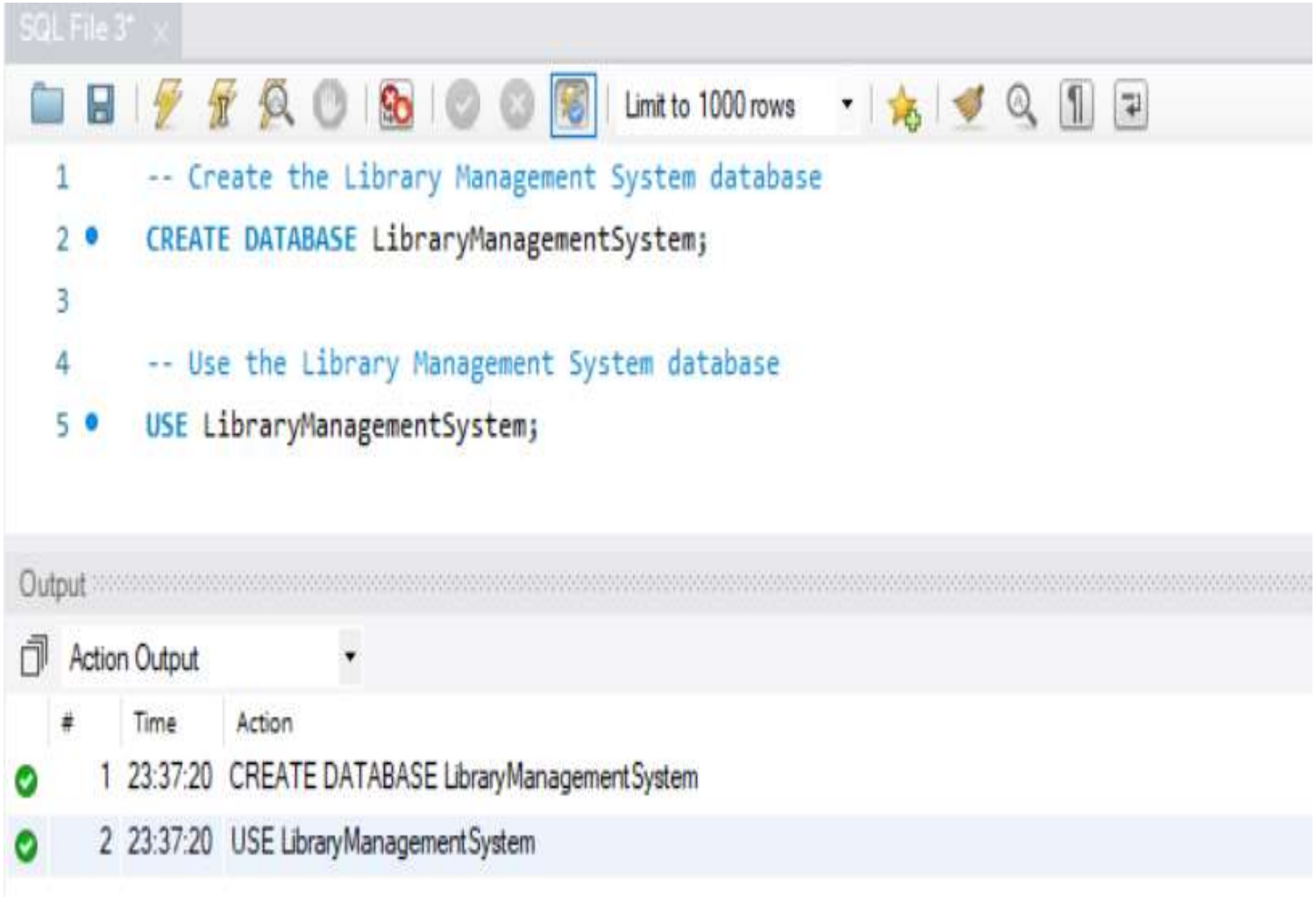
Creating a database named Library Management System.



Creating table Branch and setting Branch_no as primary key

```
7  CREATE TABLE Branch (
8      Branch_no INT PRIMARY KEY NOT NULL,
9      Manager_Id INT NOT NULL,
10     Branch_address VARCHAR(200),
11     Contact_no VARCHAR(20) UNIQUE
12 );
13
```

Context H

Output

Action Output

#	Time	Action	Message
1	23:46:08	CREATE TABLE Branch (Branch_no INT PRIMARY KEY NOT NULL, Manager_Id INT NOT NULL, Bra...	0 row(s) affected

Creating TABLE Employee and setting Employee_id as primary key

```
14  CREATE TABLE Employee (
15      Emp_Id INT PRIMARY KEY NOT NULL,
16      Emp_name VARCHAR(45),
17      Position VARCHAR(45),
18      Salary DECIMAL(10,2),
19      Branch_no INT,
20      FOREIGN KEY (Branch_no) REFERENCES Branch(Branch_no)
21  );
22
```

Context H

Output

Action Output

#	Time	Action	Message
1	23:47:41	CREATE TABLE Employee (Emp_Id INT PRIMARY KEY NOT NULL, Emp_name VARCHAR(45), Positio...	0 row(s) affected

Creating the TABLES Book and Customer

```sql
CREATE TABLE Book (
    ISBN VARCHAR(45) PRIMARY KEY,
    Book_title VARCHAR(45),
    Category VARCHAR(45),
    Rental_Price DECIMAL(10,2),
    Status ENUM('yes','no'),
    Author VARCHAR(45),
    Publisher VARCHAR(45)
);
-- Create the Customer table
CREATE TABLE Customer (
    Customer_Id INT PRIMARY KEY,
    Customer_name VARCHAR(45),
    Customer_address VARCHAR(200),
    Reg_date DATE
);
```

Output

Action Output

#	Time	Action	Message
1	23:50:41	drop table Book	0 row(s) affected
2	23:50:51	CREATE TABLE Book (ISBN VARCHAR(45) PRIMARY KEY, Book_title VARCHAR(45), Category VARC...	0 row(s) affected
3	23:50:51	CREATE TABLE Customer (Customer_Id INT PRIMARY KEY, Customer_name VARCHAR(45), Customer...	0 row(s) affected

Creating the TABLES IssueStatus and ReturnStatus

```
39      -- Create the IssueStatus table
40  •   CREATE TABLE IssueStatus (
41          Issue_Id INT PRIMARY KEY,
42          Issued_cust INT,
43          Issued_book_name VARCHAR(45),
44          Issue_date DATE,
45          Isbn_book VARCHAR(45),
46          FOREIGN KEY (Issued_cust) REFERENCES Customer(Customer_Id),
47          FOREIGN KEY (Isbn_book) REFERENCES Book(ISBN)
48      );
49
50      -- Create the ReturnStatus table
51  •   CREATE TABLE ReturnStatus (
52          Return_Id INT PRIMARY KEY,
53          Return_cust VARCHAR(20),
54          Return_book_name VARCHAR(45),
55          Return_date DATE,
56          Isbn_book2 VARCHAR(50),
57          FOREIGN KEY (Isbn_book2) REFERENCES Book(ISBN)
58      );
59
```

Output

Action Output

#	Time	Action	Message
4	23:52:04	CREATE TABLE IssueStatus (Issue_Id INT PRIMARY KEY, Issued_cust INT, Issued_book_name VAR...	0 row(s) affected
5	23:52:04	CREATE TABLE ReturnStatus (Return_Id INT PRIMARY KEY, Return_cust VARCHAR(20), Return_bo...	0 row(s) affected

Inserting Values into respective TABLES

```
60 •  INSERT INTO Branch VALUES
61    (9, 100, 'Mumbai', '777777'),
62    (20, 1012, 'Mumbai', '222222'),
63    (82, 10022, 'Mumbai', '33333'),
64    (81, 10067, 'Mumbai', '44444444');
65
66    -- Insert values into the Employee table
67 •  INSERT INTO Employee VALUES
68    (500, 'Fera', 'Librarian', 10000.00, 8),
69    (504, 'Ahana', 'Coordinator', 12000.00, 5);
70    -- Insert values into the Book table
71 •  INSERT INTO Book VALUES
72    ('ISBN13:978-04411', 'KAYAR', 'MALAYALAM NOVEL', 500, 'YES', 'THAKAZHI', 'DC BOOKS'),
73    ('ISBN13:978-006231', 'DRIVE', 'BUSINESS', 300, 'NO', 'DANIEL H.PINK', 'RIVERHEAD BOOKS'),
74    ('ISBN13:978-04415', 'NEUROMANCER', 'SCIENCE FICTION', 500, 'NO', 'WILLIAM GIBSON', 'ACE BOOKS'),
75    ('ISBN13:978-04156', 'BOSSYPANTS', 'BIOGRAPHY', 4500, 'NO', 'TINA FEY', 'BACK BAY BOOKS'),
76    ('ISBN13:978-81264', 'OZHICHUVIDUKA', 'FICTION', 450, 'NO', 'SARAH JOSEPH', 'DC BOOKS'),
77    ('ISBN13:978-8165', 'NALLAVANNAM', 'FICTION', 200, 'NO', 'C.RADHAKRISHNAN', 'DC BOOKS');
```

Output

Action Output

#	Time	Action	Message
3	00:32:57	INSERT INTO Book VALUES ('ISBN13:978-04411', 'KAYAR', 'MALAYALAM NOVEL', 500, 'YES', 'THAKAZHI', ...	6 row(s) affected Records: 6 Duplicates: 0 Warnings: 0
4	00:33:04	INSERT INTO Employee VALUES (500, 'Fera', 'Librarian', 10000.00, 8), (504, 'Ahana', 'Coordinator', 12000.00, 5)	2 row(s) affected Records: 2 Duplicates: 0 Warnings: 0

Inserting Values into respective TABLES

```
80 • INSERT INTO Customer VALUES
81   (1200, 'Anu', 'Kerala', '2021-05-11'),
82   (1201, 'ROHIT', 'Karnataka', '2021-10-22'),
83   (1202, 'Albi', 'kerala', '2021-04-22'),
84   (1203, 'Sanil', 'Karnataka', '2021-03-22'),
85   (1204, 'Swapna', 'kerala', '2021-12-22');
86
87   -- Insert values into the IssueStatus table
88 • INSERT INTO IssueStatus VALUES
89   (001, 1200, '2021-11-15', 'ISBN13:978-04411'),
90   (002, 1202, '2022-03-13', 'ISBN13:978-006231'),
91   (003, 1203, '2022-07-13', 'ISBN13:978-006231'),
92   (004, 1204, '2022-05-13', 'ISBN13:978-006231'),
93   (005, 1205, '2022-04-13', 'ISBN13:978-006231');
94
95   -- Insert values into the ReturnStatus table
96 • INSERT INTO ReturnStatus VALUES
97   (200, 'Anu', 'KAYAR', '2022-02-28', 'ISBN13:978-04411'),
98   (201, 'Mrdula', 'THE ALCHEMIST', '2022-12-30', 'ISBN13:978-006231');
```

Retrieve book Title,Category and rental price of available books

```
100     -- Retrieve book title, category, and rental price of available books
101 •   SELECT Book_title, Category, Rental_Price FROM Book WHERE Status = 'YES';
```

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

Book_title	Category	Rental_Price
KAYAR	MALAYALAM NOVEL	500.00

Book 1 x — Read Only

Output

Action Output

#	Time	Action	Message
7	00:40:15	INSERT INTO ReturnStatus VALUES (200, 'Anu', 'KAYAR', '2022-02-28', 'ISBN13:978-04411'), (201, 'Mridula', ...	2 row(s) affected Records: 2 Duplicates: 0 Warnings: 0

Listing Employee names and salaries in descending order of salary

```
103    -- List employee names and salaries in descending order of salary
104 •  SELECT Emp_name, Salary FROM Employee ORDER BY Salary DESC;
105
```

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

Emp_name	Salary
Ahana	12000.00
Fera	10000.00

Output

Action Output

#	Time	Action	Message
3	00:4	Select output pane ...cust, b.Book_title, c.Customer_name FROM IssueStatus i JOIN Book b ON i.Isbn_book = b.I...	0 row(s) returned

Retrieving book titles and corresponding customers who have issued those books

```
106    -- Retrieve book titles and corresponding customers who have issued those books
107 •  SELECT i.Issued_cust, b.Book_title, c.Customer_name
108    FROM IssueStatus i
109    JOIN Book b ON i.Isbn_book = b.ISBN
110    JOIN Customer c ON i.Issued_cust = c.Customer_Id;
```

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

Issued_cust	Book_title	Customer_name

Displaying the total count of books in each category

```
112     -- Display the total count of books in each category
113 •   SELECT Category, COUNT(*) AS Total_count_of_books FROM Book GROUP BY Category;
114
115
```

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

Category	Total_count_of_books
BUSINESS	1
BIOGRAPHY	1
MALAYALAM NOVEL	1
SCIENCE FICTION	1
FICTION	2

Retrieving employe name and positions for employees with salaries below Rs.20000

```
116     -- Retrieve employee names and positions for employees with salaries below Rs.20,000
117 •   SELECT Emp_name, Position FROM Employee WHERE Salary < 20000;
118
```

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

Emp_name	Position
Fera	Librarian
Ahana	Coordinator

Listing customer names who registered before January 1,2022 and have not issued any books yet

```
119    -- List customer names who registered before January 1, 2022, and have not issued any books yet
120 •  SELECT c.Customer_name, c.Reg_date
121    FROM Customer c
122    LEFT JOIN IssueStatus i ON c.Customer_Id = i.Issued_cust
123    WHERE c.Reg_date < '2022-01-01' AND i.Issue_Id IS NULL;
124
125    -- Display branch numbers and the total count of employees in each branch
```

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

Customer_name	Reg_date
Anu	2021-05-11
ROHIT	2021-10-22
Albi	2021-04-22
Sanil	2021-03-22
Swapna	2021-12-22

Displaying branch numbers and the total count of employees in each branch

```
125     -- Display branch numbers and the total count of employees in each branch
126 •   SELECT b.Branch_no, COUNT(e.Emp_Id) AS Total_count_employees
127     FROM Branch b
128     LEFT JOIN Employee e ON b.Branch_no = e.Branch_no
129     GROUP BY b.Branch_no;
130
```

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

Branch_no	Total_count_employees
1	0
2	0
3	0
4	0
5	1
8	1
9	0
20	0
81	0
82	0

Result 10

Output

Action Output

#	Time	Action	Message
8	00:56:03	SELECT c.Customer_name, c.Reg_date FROM Customer c LEFT JOIN IssueStatus i ON c.Customer_Id = i.Iss...	5 row(s) returned

Displaying names of customers who issued book in June 2023

```sql
-- Display names of customers who issued books in June 2023
SELECT c.Customer_name
FROM Customer c
JOIN IssueStatus i ON c.Customer_Id = i.Issued_cust
WHERE YEAR(i.Issue_date) = 2023 AND MONTH(i.Issue_date) = 6;
```

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

Customer_name

Result 11

Output

Action Output

#	Time	Action	Message
9	00:56:46	SELECT b.Branch_no, COUNT(e.Emp_Id) AS Total_count_employees FROM Branch b LEFT JOIN Employee ...	10 row(s) returned

Retrieving book titles containing history

```
137    -- Retrieve book titles containing "history"
138 •  SELECT Book_title
139    FROM Book
140    WHERE Category LIKE '%BUSINES%';
141
```

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

Book_title
DRIVE

Retrieving branch numbers along with employees for branches having more than 5 employees

```
142     -- Retrieve branch numbers along with the count of employees for branches having more than 5 employees
143 •   SELECT Branch_no, COUNT(*) AS Total_count_emp
144     FROM Employee
145     GROUP BY Branch_no
146     HAVING Total_count_emp > 5;
```

CONCLUSION

The Library Management System project provides an efficient way to analyze, organize, and manage library resources. By using MySQL queries, it effectively handles employee tracking, book status, customer records, and more. It facilitates extracting various information about the library environment, including book availability, customer preferences, and rental prices contributing to better library management.