

SQL PROJECT: Library Management System

We are going to build a project based on Library Management System. It keeps track all information about books in the library, their rental cost, status and total number of books available in the library.

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' panel with a tree view showing the 'library' database and its tables: books, branch, customer, employee, issuestatus, and returnstatus. The main editor window shows a SQL script for creating the database and tables. The script includes comments and SQL commands for creating the 'library' database, using it, creating the 'Branch' table, and creating the 'Employee' table. The 'Output' panel at the bottom shows the execution results for the 'USE library' command, indicating that 0 rows were affected.

Step-01
Creating Database for our project

```
1  # Create a Database called 'Library'
2  CREATE DATABASE library;
3  USE library;
4
5  # create table "Branch"
6  CREATE TABLE Branch
7  (
8    Branch_no VARCHAR(10) PRIMARY KEY,
9    Manager_id VARCHAR(10),
10   Branch_address VARCHAR(30),
11   Contact_no VARCHAR(15)
12  );
13  DESC branch;
14
15  # Create table "Employee"
16  CREATE TABLE Employee
17  (
18    Emp_id VARCHAR(10) PRIMARY KEY,
19    Emp_name VARCHAR(30),
20    Emp_salary VARCHAR(30)
```

#	Time	Action	Message	Duration / Fetch
1	19:40:41	USE library	0 row(s) affected	0.000 sec

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

7 (

8 Branch_no VARCHAR(10) PRIMARY KEY,

9 Manager_id VARCHAR(10),

10 Branch_address VARCHAR(30),

11 Contact_no VARCHAR(15)

12);

13 DESC branch;

14

Step-02
Creating the table "Branch"

Result Grid

Field	Type	Null	Key	Default	Extra
Branch_no	varchar(10)	NO	PRI	NULL	
Manager_id	varchar(10)	YES		NULL	
Branch_address	varchar(30)	YES		NULL	
Contact_no	varchar(15)	YES		NULL	

Result 38

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	19:40:41	USE library	0 row(s) affected	0.000 sec
2	19:43:47	DESC branch	4 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

25°C Cloudy 7:43 PM 6/12/2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

Step-03
Creating the table "Employee"

```
17 (
18   Emp_id VARCHAR(10) PRIMARY KEY,
19   Emp_name VARCHAR(30),
20   Position VARCHAR(30),
21   Salary DECIMAL(10,2)
22 );
23 DESC employee;
24
```

Result Grid

Field	Type	Null	Key	Default	Extra
Emp_id	varchar(10)	NO	PRI	NULL	
Emp_name	varchar(30)	YES		NULL	
Position	varchar(30)	YES		NULL	
Salary	decimal(10,2)	YES		NULL	
branch_no	varchar(10)	YES	MUL	NULL	

Result 39

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 1	19:40:41	USE library	0 row(s) affected	0.000 sec
✓ 2	19:43:47	DESC branch	4 row(s) returned	0.000 sec / 0.000 sec
✓ 3	19:44:25	DESC employee	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

25°C Cloudy 7:44 PM 6/12/2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

27 (

28 Customer_Id VARCHAR(10) PRIMARY KEY,

29 Customer_name VARCHAR(30),

30 Customer_address VARCHAR(30),

31 Reg_date DATE

32);

33 DESC customer;

34

Step-04
Creating the table "Customer"

Result Grid

Field	Type	Null	Key	Default	Extra
Customer_Id	varchar(10)	NO	PRI	NULL	
Customer_name	varchar(30)	YES		NULL	
Customer_address	varchar(30)	YES		NULL	
Reg_date	date	YES		NULL	

Result 40

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 2	19:43:47	DESC branch	4 row(s) returned	0.000 sec / 0.000 sec
✓ 3	19:44:25	DESC employee	5 row(s) returned	0.000 sec / 0.000 sec
✓ 4	19:44:50	DESC customer	4 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

25°C Cloudy 7:44 PM 6/12/2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

Step-05
Creating the table "Issue Status"

```
40 Issued_book_name VARCHAR(50),
41 Issue_date DATE,
42 isbn_book VARCHAR(15),
43 FOREIGN KEY (Issued_cust) REFERENCES customer(Customer_id) on DELETE CASCADE,
44 FOREIGN KEY (isbn_book) REFERENCES books(ISBN) on DELETE CASCADE
45 );
46 DESC issuestatus;
47 ALTER TABLE issuestatus MODIFY COLUMN Issued book name VARCHAR(80);
```

Result Grid

Field	Type	Null	Key	Default	Extra
Issue_Id	varchar(10)	NO	PRI	NULL	
Issued_cust	varchar(30)	YES	MUL	NULL	
Issued_book_name	varchar(80)	YES		NULL	
Issue_date	date	YES		NULL	
Isbn_book	varchar(25)	YES	MUL	NULL	

Result 41

Output

Action Output

#	Time	Action	Message	Duration / Fetch
3	19:44:25	DESC employee	5 row(s) returned	0.000 sec / 0.000 sec
4	19:44:50	DESC customer	4 row(s) returned	0.000 sec / 0.000 sec
5	19:45:53	DESC issuestatus	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

25°C Cloudy 7:45 PM 6/12/2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

Step-06
Creating the table "Return Status"

```
54 Return_cust VARCHAR(30),
55 Return_book_name VARCHAR(50),
56 Return_date DATE,
57 isbn_book2 VARCHAR(15),
58 FOREIGN KEY (isbn_book2) REFERENCES books(ISBN) on DELETE CASCADE
59 );
60 DESC returnstatus;
61 ALTER TABLE returnstatus MODIFY COLUMN Return book name VARCHAR(80);
```

Result Grid

Field	Type	Null	Key	Default	Extra
Return_id	varchar(10)	NO	PRI	NULL	
Return_cust	varchar(30)	YES		NULL	
Return_book_name	varchar(80)	YES		NULL	
Return_date	date	YES		NULL	
isbn_book2	varchar(25)	YES	MUL	NULL	

Result 42

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 4	19:44:50	DESC customer	4 row(s) returned	0.000 sec / 0.000 sec
✓ 5	19:45:53	DESC issuestatus	5 row(s) returned	0.000 sec / 0.000 sec
✓ 6	19:46:27	DESC returnstatus	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

25°C Cloudy 7:46 PM 6/12/2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

Step-07
Creating the table "Books"

```
69 Category VARCHAR(30),
70 Rental_Price DECIMAL(10,2),
71 Status ENUM('Yes','No'),
72 Author VARCHAR(30),
73 Publisher VARCHAR(30)
74 );
75 DESC Books;
76 alter TABLE books MODIFY COLUMN ISBN VARCHAR(25);
```

Result Grid

Field	Type	Null	Key	Default	Extra
ISBN	varchar(25)	NO	PRI	NULL	
Book_title	varchar(80)	YES		NULL	
Category	varchar(30)	YES		NULL	
Rental_Price	decimal(10,2)	YES		NULL	
Status	enum('Yes','No')	YES		NULL	
Author	varchar(30)	YES		NULL	
Publisher	varchar(30)	YES		NULL	

Result 43

Output

Action Output

#	Time	Action	Message	Duration / Fetch
5	19:45:53	DESC issuestatus	5 row(s) returned	0.000 sec / 0.000 sec
6	19:46:27	DESC returnstatus	5 row(s) returned	0.000 sec / 0.000 sec
7	19:47:01	DESC Books	7 row(s) returned	0.016 sec / 0.000 sec

Object Info Session

25°C Cloudy 7:47 PM 6/12/2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus
- Views
- Stored Procedures
- Functions
- organisation
- product

Administration Schemas

Information

No object selected

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
69 Category VARCHAR(30),
70 Rental_Price DECIMAL(10,2),
71 Status ENUM('Yes','No'),
72 Author VARCHAR(30),
73 Publisher VARCHAR(30)
74 );
75 DESC Books;
76 alter TABLE books MODIFY COLUMN ISBN VARCHAR(25);
```

Result Grid

Field	Type	Null	Key	Default	Extra
ISBN	varchar(25)	NO	PRI	NULL	
Book_title	varchar(80)	YES		NULL	
Category	varchar(30)	YES		NULL	
Rental_Price	decimal(10,2)	YES		NULL	
Status	enum('Yes','No')	YES		NULL	
Author	varchar(30)	YES		NULL	
Publisher	varchar(30)	YES		NULL	

Result 43

Output

Action Output

#	Time	Action	Message	Duration / Fetch
5	19:45:53	DESC issuestatus	5 row(s) returned	0.000 sec / 0.000 sec
6	19:46:27	DESC returnstatus	5 row(s) returned	0.000 sec / 0.000 sec
7	19:47:01	DESC Books	7 row(s) returned	0.016 sec / 0.000 sec

Object Info Session

Type here to search

25°C Cloudy 7:47 PM 6/12/2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
73 Publisher VARCHAR(30)
74 );
75 DESC Books;
76 alter TABLE books MODIFY COLUMN ISBN VARCHAR(25);
77 alter TABLE books MODIFY COLUMN Book_title VARCHAR(80);
78
79 SHOW TABLES;
80
```

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

Tables_in_library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus

#Show all tables

Result 44

Output

Action Output

#	Time	Action	Message	Duration / Fetch
6	19:46:27	DESC returnstatus	5 row(s) returned	0.000 sec / 0.000 sec
7	19:47:01	DESC Books	7 row(s) returned	0.016 sec / 0.000 sec
8	19:48:53	SHOW TABLES	6 row(s) returned	0.016 sec / 0.000 sec

Object Info Session

7:48 PM 6/12/2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

82 • INSERT INTO branch VALUES

83 ('B001', 'M101', '123 Main St', '+919099988676'),

84 ('B002', 'M102', '456 Elm St', '+919099988677'),

85 ('B003', 'M103', '789 Oak St', '+919099988678'),

86 ('B004', 'M104', '567 Pine St', '+919099988679'),

87 ('B005', 'M105', '890 Maple St', '+919099988680');

88 • SELECT * FROM branch;

89

Result Grid

Branch_no	Manager_id	Branch_address	Contact_no
B001	M101	123 Main St	+919099988676
B002	M102	456 Elm St	+919099988677
B003	M103	789 Oak St	+919099988678
B004	M104	567 Pine St	+919099988679
B005	M105	890 Maple St	+919099988680
NULL	NULL	NULL	NULL

branch 45

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 7	19:47:01	DESC Books	7 row(s) returned	0.016 sec / 0.000 sec
✓ 8	19:48:53	SHOW TABLES	6 row(s) returned	0.016 sec / 0.000 sec
✓ 9	19:49:25	SELECT * FROM branch LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Step-08
Insert Values into each tables

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

SCHEMAS

Filter objects

library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus
- Views
- Stored Procedures
- Functions
- organisation
- product

Administration Schemas

Information

No object selected

```
95 ('E105', 'Sarah Brown', 'Assistant', 42000.00),
96 ('E106', 'Michelle Ramirez', 'Assistant', 43000.00),
97 ('E107', 'Michael Thompson', 'Manager', 62000.00),
98 ('E108', 'Jessica Taylor', 'Clerk', 46000.00),
99 ('E109', 'Daniel Anderson', 'Librarian', 57000.00),
100 ('E110', 'Laura Martinez', 'Assistant', 41000.00),
101 ('E111', 'Christopher Lee', 'Manager', 65000.00);
102 • SELECT * FROM employee;
```

Result Grid

	Emp_id	Emp_name	Position	Salary	branch_no
▶	E101	John Doe	Manager	60000.00	B001
	E102	Jane Smith	Clerk	45000.00	B001
	E103	Mike Johnson	Librarian	55000.00	B001
	E104	Emily Davis	Assistant	40000.00	B001
	E105	Sarah Brown	Assistant	42000.00	B002
	E106	Michelle Ramirez	Assistant	43000.00	B003
	E107	Michael Thompson	Manager	62000.00	B002
	E108	Jessica Taylor	Clerk	46000.00	B002
	E109	Daniel Anderson	Librarian	57000.00	B002
	E110	Laura Martinez	Assistant	41000.00	B004
	E111	Christopher Lee	Manager	65000.00	B003

employee 46

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 8	19:48:53	SHOW TABLES	6 row(s) returned	0.016 sec / 0.000 sec
✓ 9	19:49:25	SELECT * FROM branch LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

25°C Cloudy 7:50 PM 6/12/2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

108 ('C104', 'Dave Wilson', '567 Pine St', '2021-08-05'),
109 ('C105', 'Eve Brown', '890 Maple St', '2021-09-25'),
110 ('C106', 'Frank Thomas', '234 Cedar St', '2021-10-15'),
111 ('C107', 'Grace Taylor', '345 Walnut St', '2021-11-20'),
112 ('C108', 'Henry Anderson', '456 Birch St', '2021-12-10'),
113 ('C109', 'Ivy Martinez', '567 Oak St', '2022-01-05'),
114 ('C110', 'Jack Wilson', '678 Pine St', '2022-02-25');
115 • SELECT * FROM customer;

Result Grid

	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	2022-01-05
	C110	Jack Wilson	678 Pine St	2022-02-25
•	NULL	NULL	NULL	NULL

customer 47

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 10	19:49:59	SELECT * FROM employee LIMIT 0, 1000	11 row(s) returned	0.000 sec / 0.000 sec
✓ 11	19:51:08	SELECT * FROM customer LIMIT 0, 1000	10 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

No object selected

Result Grid
Form Editor
Field Types

Apply Revert

Type here to search

25°C Cloudy 7:51 PM 6/12/2023

MySQL Workbench

Local instance MySQL80

FileEditViewQueryDatabaseServerToolsScriptingHelp

Navigator

SQL File 13LibraryManagementSystem

SCHEMAS

Filter objects

library

- Tables
 - books
 - branch
 - customer
 - employee
 - issuestatus
 - returnstatus
- Views
- Stored Procedures
- Functions
- organisation
- product

AdministrationSchemas

No object selected

127('978-0-393-05081-8', 'A People's History of the United States', 'History', 9.00, 'yes', 'Howard Zinn', 'Harper Perennial'),

128('978-0-19-280551-1', 'The Guns of August', 'History', 7.00, 'yes', 'Barbara W. Tuchman', 'Oxford University Press'),

129('978-0-307-58837-1', 'Sapiens: A Brief History of Humankind', 'History', 8.00, 'yes', 'Yuval Noah Harari', 'Harper Perennial'),

130('978-0-375-41398-8', 'The Diary of a Young Girl', 'History', 6.50, 'yes', 'Anne Frank', 'Bantam'),

131('978-0-14-044930-3', 'The Histories', 'History', 5.50, 'yes', 'Herodotus', 'Penguin Classics'),

132('978-0-393-91257-8', 'Guns, Germs, and Steel: The Fates of Human Societies', 'History', 7.00, 'yes', 'Jared Diamond', 'W. W. Norton & Company'),

133('978-0-7432-7357-1', '1491: New Revelations of the Americas Before Columbus', 'History', 6.50, 'yes', 'Charles C. Mann', 'Vintage Books');

134SELECT * FROM books;

Result Grid

Filter Rows:

EditExport/ImportWrap Cell Content:

	ISBN	Book_title	Category	Rental_Price	Status	Author	Publisher
▶	978-0-09-957807-9	A Game of Thrones	Fantasy	7.50	Yes	George R.R. Martin	Bantam
	978-0-14-044930-3	The Histories	History	5.50	Yes	Herodotus	Penguin Classics
	978-0-14-118776-1	One Hundred Years of Solitude	Literary Fiction	6.50	Yes	Gabriel Garcia Marquez	Penguin Books
	978-0-141-44171-6	Jane Eyre	Classic	4.00	No	Charlotte Bronte	Penguin Classics
	978-0-19-280551-1	The Guns of August	History	7.00	Yes	Barbara W. Tuchman	Oxford University Press
	978-0-307-37840-1	The Alchemist	Fiction	2.50	Yes	Paulo Coelho	HarperOne
	978-0-307-58837-1	Sapiens: A Brief History of Humankind	History	8.00	No	Yuval Noah Harari	Harper Perennial
	978-0-330-25864-8	Animal Farm	Classic	5.50	Yes	George Orwell	Penguin Books
	978-0-375-41398-8	The Diary of a Young Girl	History	6.50	Yes	Anne Frank	Bantam
	978-0-393-05081-8	A People's History of the United States	History	9.00	Yes	Howard Zinn	Harper Perennial
	978-0-393-91257-8	Guns, Germs, and Steel: The Fates of ...	History	7.00	Yes	Jared Diamond	W. W. Norton & Comp...

books 48

ApplyRevert

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 11	19:51:08	SELECT * FROM customer LIMIT 0, 1000	10 row(s) returned	0.000 sec / 0.000 sec
✓ 12	19:51:38	SELECT * FROM books LIMIT 0, 1000	16 row(s) returned	0.000 sec / 0.000 sec

Object InfoSession

Inserting book details

Type here to search

25°C Cloudy

7:51 PM6/12/2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus
- Views
- Stored Procedures
- Functions
- organisation
- product

Administration Schemas

Information

No object selected

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
137
138 • INSERT INTO IssueStatus VALUES
139 ('IS101', 'C101', 'The Catcher in the Rye', '2023-05-01', '978-0-553-29698-2'),
140 ('IS102', 'C102', 'The Da Vinci Code', '2023-05-02', '978-0-7432-4722-4'),
141 ('IS103', 'C103', '1491: New Revelations of the Americas Before Columbus', '2023-05-03', '978-0-7432-7357-1'),
142 ('IS104', 'C104', 'Sapiens: A Brief History of Humankind', '2023-05-04', '978-0-307-58837-1'),
143 ('IS105', 'C105', 'The Diary of a Young Girl', '2023-05-05', '978-0-375-41398-8');
144 • SELECT * FROM issuestatus;
```

Result Grid

	Issue_Id	Issued_cust	Issued_book_name	Issue_date	Isbn_book
▶	IS101	C101	The Catcher in the Rye	2023-05-01	978-0-553-29698-2
	IS102	C102	The Da Vinci Code	2023-05-02	978-0-7432-4722-4
	IS103	C103	1491: New Revelations of the Americas Before ...	2023-05-03	978-0-7432-7357-1
	IS104	C104	Sapiens: A Brief History of Humankind	2023-05-04	978-0-307-58837-1
	IS105	C105	The Diary of a Young Girl	2023-05-05	978-0-375-41398-8
•	NULL	NULL	NULL	NULL	NULL

issuestatus 49

Apply Revert

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 12	19:51:38	SELECT * FROM books LIMIT 0, 1000	16 row(s) returned	0.000 sec / 0.000 sec
✓ 13	19:52:14	SELECT * FROM issuestatus LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus
- Views
- Stored Procedures
- Functions
- organisation
- product

Administration Schemas

Information

No object selected

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
145
146 • INSERT INTO ReturnStatus VALUES
147 ('RS101', 'C101', 'The Catcher in the Rye', '2023-06-06', '978-0-553-29698-2'),
148 ('RS102', 'C102', 'The Da Vinci Code', '2023-06-07', '978-0-7432-4722-4'),
149 ('RS103', 'C105', 'The Diary of a Young Girl', '2023-06-08', '978-0-375-41398-8'),
150 ('RS104', 'C108', 'The Histories', '2023-06-09', '978-0-14-044930-3'),
151 ('RS105', 'C110', 'A Game of Thrones', '2023-06-10', '978-0-09-957807-9');
152 • SELECT * FROM returnstatus;
```

Result Grid

	Return_id	Return_cust	Return_book_name	Return_date	isbn_book2
▶	RS101	C101	The Catcher in the Rye	2023-06-06	978-0-553-29698-2
	RS102	C102	The Da Vinci Code	2023-06-07	978-0-7432-4722-4
	RS103	C105	The Diary of a Young Girl	2023-06-08	978-0-375-41398-8
	RS104	C108	The Histories	2023-06-09	978-0-14-044930-3
	RS105	C110	A Game of Thrones	2023-06-10	978-0-09-957807-9
•	NULL	NULL	NULL	NULL	NULL

returnstatus 50

Apply Revert

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 13	19:52:14	SELECT * FROM issuestatus LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
✓ 14	19:52:54	SELECT * FROM returnstatus LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

27°C Cloudy 7:52 PM 6/12/2023

****Queries****

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

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus

Views

Stored Procedures

Functions

organisation

product

Administration Schemas

Information

No object selected

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
154
155
156 /*Queries*/
157
158 # 1. Retrieve the book title, category, and rental price of all available books.
159 SELECT book_title, category, rental_price FROM books WHERE Status = 'Yes';
```

Result Grid

book_title	category	rental_price
A Game of Thrones	Fantasy	7.50
The Histories	History	5.50
One Hundred Years of Solitude	Literary Fiction	6.50
The Guns of August	History	7.00
The Alchemist	Fiction	2.50
Animal Farm	Classic	5.50
The Diary of a Young Girl	History	6.50
A People's History of the United States	History	9.00
Guns, Germs, and Steel: The Fates of Human S...	History	7.00
The Great Gatsby	Classic	8.00
The Catcher in the Rye	Classic	7.00
Harry Potter and the Sorcerer's Stone	Fantasy	7.00
The Da Vinci Code	Mystery	8.00

books 51

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 14	19:52:54	SELECT * FROM returnstatus LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
✓ 15	19:53:27	SELECT book_title, category, rental_price FROM books WHERE Status = 'Yes' LIMIT 0, 1000	13 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

27°C Cloudy

7:53 PM 6/12/2023

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

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus

Views

Stored Procedures

Functions

organisation

product

Administration Schemas

Information

No object selected

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
157
158 # 1. Retrieve the book title, category, and rental price of all available books.
159 • SELECT book_title, category, rental_price FROM books WHERE Status = 'Yes';
160
161 # 2. List the employee names and their respective salaries in descending order of salary.
162 • SELECT emp_name, salary FROM employee ORDER BY Salary DESC;
```

Result Grid

emp_name	salary
Christopher Lee	65000.00
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

employee 52

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 15	19:53:27	SELECT book_title, category, rental_price FROM books WHERE Status = 'Yes' LIMIT 0, 1000	13 row(s) returned	0.000 sec / 0.000 sec
✓ 16	19:54:26	SELECT emp_name, salary FROM employee ORDER BY Salary DESC LIMIT 0, 1000	11 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

27°C Cloudy 7:54 PM 6/12/2023

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

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

Tables

books

branch

customer

employee

issuestatus

returnstatus

Views

Stored Procedures

Functions

organisation

product

Administration

Schemas

SQL File 13

LibraryManagementSystem

Limit to 1000 rows

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

162 • SELECT emp_name, salary FROM employee ORDER BY Salary DESC;

163

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

165 • SELECT issuestatus.Issued_book_name, customer.Customer_name FROM issuestatus INNER JOIN

166 customer on issuestatus.Issued_cust = customer.Customer_Id;

167

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	Issued_book_name	Customer_name
▶	The Catcher in the Rye	Alice Johnson
	The Da Vinci Code	Bob Smith
	1491: New Revelations of the Americas Before ...	Carol Davis
	Sapiens: A Brief History of Humankind	Dave Wilson
	The Diary of a Young Girl	Eve Brown

Result 53

Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 16	19:54:26	SELECT emp_name, salary FROM employee ORDER BY Salary DESC LIMIT 0, 1000	11 row(s) returned	0.000 sec / 0.000 sec
✓ 17	19:55:04	SELECT issuestatus.Issued_book_name, customer.Customer_name FROM issuestatus INN...	5 row(s) returned	0.000 sec / 0.000 sec

Object Info

Session

No object selected

Type here to search

27°C Cloudy

7:55 PM 6/12/2023

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

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
164 # 3. Retrieve the book titles and the corresponding customers who have issued those books.
165 • SELECT issuestatus.Issued_book_name, customer.Customer_name FROM issuestatus INNER JOIN
166     customer ON issuestatus.Issued_cust = customer.Customer_Id;
167
168 # 4. Display the total count of books in each category.
169 • SELECT Category, COUNT(Book_title) FROM books GROUP BY Category;
```

Result Grid

Category	COUNT(Book_title)
Fantasy	2
History	7
Literary Fiction	1
Classic	4
Fiction	1
Mystery	1

Result 54

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 17	19:55:04	SELECT issuestatus.Issued_book_name, customer.Customer_name FROM issuestatus INN...	5 row(s) returned	0.000 sec / 0.000 sec
✓ 18	19:56:07	SELECT Category, COUNT(Book_title) FROM books GROUP BY Category LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Object Info Session

Type here to search

27°C Cloudy

7:56 PM 6/12/2023

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

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus

Views

Stored Procedures

Functions

organisation

product

Administration Schemas

Information

No object selected

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
167
168 # 4. Display the total count of books in each category.
169 • SELECT Category, COUNT(Book_title) FROM books GROUP BY Category;
170
171 # 5. Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.
172 • SELECT emp_name, position FROM employee WHERE Salary > 50000;
```

Result Grid

emp_name	position
John Doe	Manager
Mike Johnson	Librarian
Michael Thompson	Manager
Daniel Anderson	Librarian
Christopher Lee	Manager

employee 55

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 18	19:56:07	SELECT Category, COUNT(Book_title) FROM books GROUP BY Category LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
✓ 19	19:56:47	SELECT emp_name, position FROM employee WHERE Salary > 50000 LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

27°C Cloudy 7:56 PM 6/12/2023

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

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' panel with a tree view of the 'library' database, including tables like 'books', 'branch', 'customer', 'employee', 'issuestatus', and 'returnstatus'. The main editor window shows a SQL file named 'LibraryManagementSystem' with the following queries:

```
171 # 5. Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.
172 • SELECT emp_name, position FROM employee WHERE Salary > 50000;
173
174 # 6. List the customer names who registered before 2022-01-01 and have not issued any books yet.
175 • SELECT customer_name FROM customer WHERE Reg_date < '2022-01-01' AND Customer_Id NOT IN
176 (SELECT issued_cust FROM issuestatus);
```

The 'Result Grid' shows the results of the second query:

customer_name
Frank Thomas
Grace Taylor
Henry Anderson

The bottom panel shows the 'Output' tab with the 'Action Output' section. It displays the execution of the second query, showing that 3 row(s) were returned.

#	Time	Action	Message	Duration / Fetch
19	19:56:47	SELECT emp_name, position FROM employee WHERE Salary > 50000 LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
20	19:57:59	SELECT customer_name FROM customer WHERE Reg_date < '2022-01-01' AND Customer...	3 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- Tables
 - books
 - branch
 - customer
 - employee
 - issuestatus
 - returnstatus
- Views
- Stored Procedures
- Functions
- organisation
- product

Administration Schemas

No object selected

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

177

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

179 ALTER TABLE employee ADD COLUMN branch_no VARCHAR(10);

180 ALTER TABLE employee ADD CONSTRAINT FOREIGN KEY (branch_no)

181 REFERENCES branch(branch_no);

182 DESC employee;

183

184 UPDATE employee SET branch_no = 'B001' WHERE emp_id = 'E101';

185 UPDATE employee SET branch_no = 'B001' WHERE emp_id = 'E102';

186 UPDATE employee SET branch_no = 'B001' WHERE emp_id = 'E103';

187 UPDATE employee SET branch_no = 'B001' WHERE emp_id = 'E104';

188 UPDATE employee SET branch_no = 'B002' WHERE emp_id = 'E105';

189 UPDATE employee SET branch_no = 'B003' WHERE emp_id = 'E106';

190 UPDATE employee SET branch_no = 'B002' WHERE emp_id = 'E107';

191 UPDATE employee SET branch_no = 'B002' WHERE emp_id = 'E108';

192 UPDATE employee SET branch_no = 'B002' WHERE emp_id = 'E109';

193 UPDATE employee SET branch_no = 'B004' WHERE emp_id = 'E110';

194 UPDATE employee SET branch_no = 'B003' WHERE emp_id = 'E111';

195

196 SELECT * FROM employee;

197

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 19	19:56:47	SELECT emp_name, position FROM employee WHERE Salary > 50000 LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
✓ 20	19:57:59	SELECT customer_name FROM customer WHERE Reg_date < '2022-01-01' AND Customer...	3 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

27°C Cloudy

7:59 PM 6/12/2023

Add a new column, 'Branch_no', to the 'employee' table to store the branch number for each employee working at a specific branch

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

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus

Views

Stored Procedures

Functions

organisation

product

Administration Schemas

Information

No object selected

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
193 • UPDATE employee SET branch_no = 'B004' WHERE emp_id = 'E110';
194 • UPDATE employee SET branch_no = 'B003' WHERE emp_id = 'E111';
195
196 • SELECT * FROM employee;
197
198 • SELECT branch_no, COUNT(emp_id) FROM employee GROUP BY branch_no;
```

Result Grid

branch_no	COUNT(emp_id)
B001	4
B002	4
B003	2
B004	1

Result 57

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 20	19:57:59	SELECT customer_name FROM customer WHERE Reg_date < '2022-01-01' AND Customer...	3 row(s) returned	0.000 sec / 0.000 sec
✓ 21	20:00:00	SELECT branch_no, COUNT(emp_id) FROM employee GROUP BY branch_no LIMIT 0, 1000	4 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

27°C Cloudy

8:00 PM 6/12/2023

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

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' panel with a tree view of the 'library' database, including tables like 'books', 'branch', 'customer', 'employee', 'issuestatus', and 'returnstatus'. The main editor window shows a SQL file named 'LibraryManagementSystem' with the following query:

```
198 • SELECT branch_no, COUNT(emp_id) FROM employee GROUP BY branch_no;
199
200 # 8. Display the names of customers who have issued books in the month of June 2023.
201 • SELECT customer.Customer_name FROM customer INNER JOIN issuestatus ON
202 customer.Customer_Id = issuestatus.Issued_cust WHERE issuestatus.Issue_date >= '2023-06-01' AND
203 issuestatus.Issue_date <= '2023-06-30';
```

Below the query editor, the 'Result Grid' tab is active, showing a single column header 'Customer_name'. The 'Output' panel at the bottom displays the execution results for two queries:

#	Time	Action	Message	Duration / Fetch
21	20:00:00	SELECT branch_no, COUNT(emp_id) FROM employee GROUP BY branch_no LIMIT 0, 1000	4 row(s) returned	0.000 sec / 0.000 sec
22	20:00:50	SELECT customer.Customer_name FROM customer INNER JOIN issuestatus ON customer...	0 row(s) returned	0.000 sec / 0.000 sec

The bottom of the screen shows the Windows taskbar with the search bar and various application icons.

9. Retrieve book_title from book table containing history.

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus
- Views
- Stored Procedures
- Functions
- organisation
- product

Administration Schemas

Information

No object selected

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
201 • SELECT customer.Customer_name FROM customer INNER JOIN issuestatus ON
202 customer.Customer_Id = issuestatus.Issued_cust WHERE issuestatus.Issue_date >= '2023-06-01' AND
203 issuestatus.Issue_date <= '2023-06-30';
204
205 # 9. Retrieve book title from book table containing 'history'.
206 • SELECT book_title FROM books WHERE Category = 'history';
```

Result Grid

book_title
The Histories
The Guns of August
Sapiens: A Brief History of Humankind
The Diary of a Young Girl
A People's History of the United States
Guns, Germs, and Steel: The Fates of Human S...
1491: New Revelations of the Americas Before ...

books 59

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 22	20:00:50	SELECT customer.Customer_name FROM customer INNER JOIN issuestatus ON customer...	0 row(s) returned	0.000 sec / 0.000 sec
✓ 23	20:01:45	SELECT book_title FROM books WHERE Category = 'history' LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

27°C Cloudy 8:01 PM 6/12/2023

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

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- books
- branch
- customer
- employee
- issuestatus
- returnstatus

Views

Stored Procedures

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organisation

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Administration Schemas

Information

No object selected

SQL File 13 LibraryManagementSystem

Limit to 1000 rows

```
207
208 # 10.Retrieve the branch numbers along with the count of employees for branches having more than 5 employees.
209 SELECT branch_no, COUNT(emp_id) FROM employee GROUP BY branch_no HAVING COUNT(Emp_id) > 5;
210
211
212 # End
213
```

Result Grid

branch_no	COUNT(emp_id)
-----------	---------------

Result 60

Output

Action Output

#	Time	Action	Message	Duration / Fetch
23	20:01:45	SELECT book_title FROM books WHERE Category = 'history' LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
24	20:02:25	SELECT branch_no, COUNT(emp_id) FROM employee GROUP BY branch_no HAVING CO...	0 row(s) returned	0.000 sec / 0.000 sec

Object Info Session
