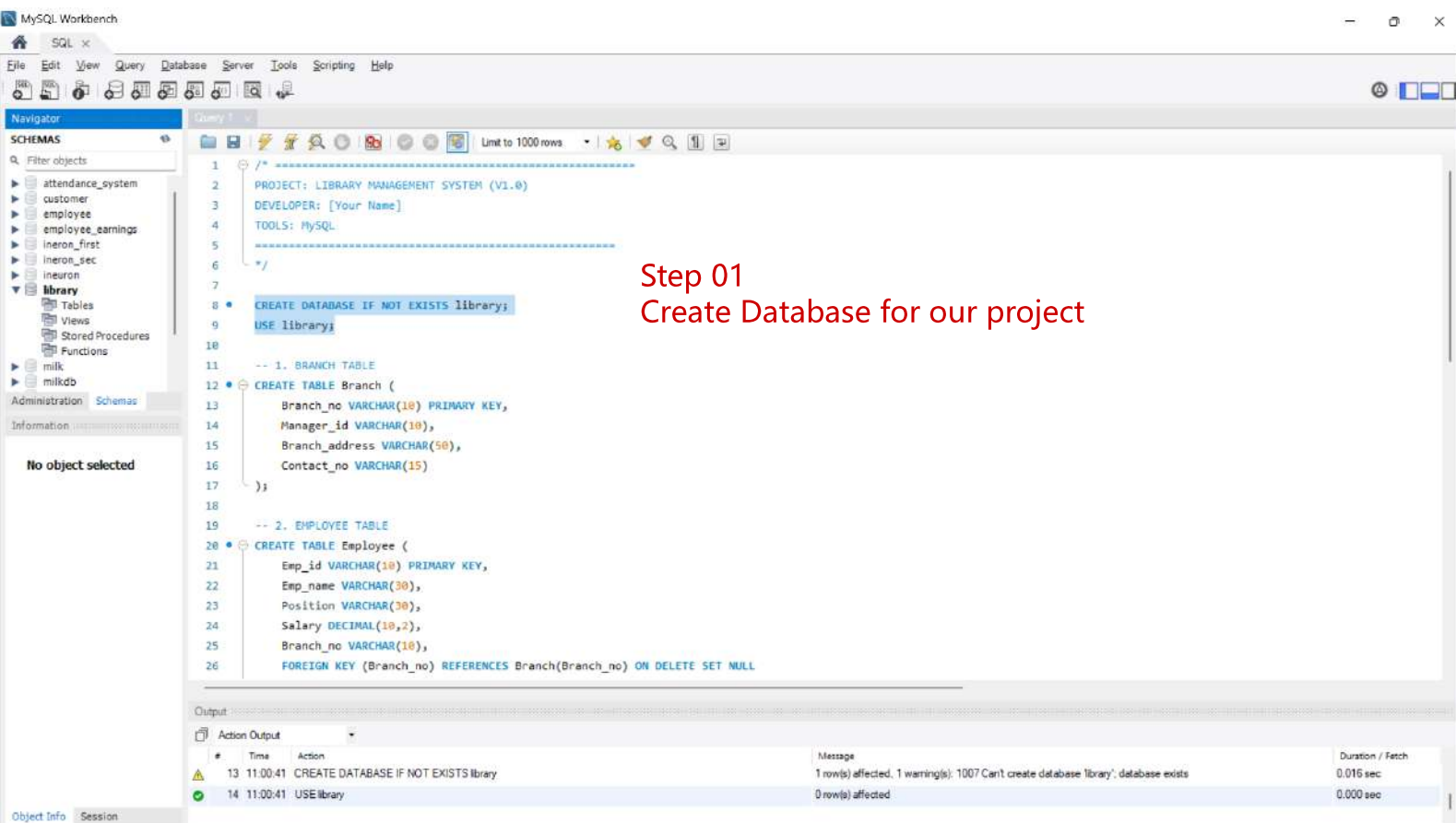


Library Management System

We are going to create a project based on Library Management System. It keeps track of 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 of databases including 'attendance_system', 'customer', 'employee', 'employee_earnings', 'ineron_first', 'ineron_sec', 'inuron', 'library', 'milk', and 'milkdb'. The 'library' database is selected. The main editor window shows the following SQL code:

```
1  /*
2  PROJECT: LIBRARY MANAGEMENT SYSTEM (V1.0)
3  DEVELOPER: [Your Name]
4  TOOLS: MySQL
5  */
6
7
8  CREATE DATABASE IF NOT EXISTS library;
9  USE library;
10
11  -- 1. BRANCH TABLE
12  CREATE TABLE Branch (
13      Branch_no VARCHAR(10) PRIMARY KEY,
14      Manager_id VARCHAR(10),
15      Branch_address VARCHAR(50),
16      Contact_no VARCHAR(15)
17  );
18
19  -- 2. EMPLOYEE TABLE
20  CREATE TABLE Employee (
21      Emp_id VARCHAR(10) PRIMARY KEY,
22      Emp_name VARCHAR(30),
23      Position VARCHAR(30),
24      Salary DECIMAL(10,2),
25      Branch_no VARCHAR(10),
26      FOREIGN KEY (Branch_no) REFERENCES Branch(Branch_no) ON DELETE SET NULL
```

Below the code editor, the 'Output' panel shows the execution results:

#	Time	Action	Message	Duration / Fetch
13	11:00:41	CREATE DATABASE IF NOT EXISTS library	1 row(s) affected, 1 warning(s): 1007 Can't create database 'library'; database exists	0.016 sec
14	11:00:41	USE library	0 row(s) affected	0.000 sec

Step 01
Create Database for our project

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

attendance_system
customer
employee
employee_earnings
ineron_first
ineron_sec
inuron
library
Tables
branch
Views
Stored Procedures
Functions
milk
Administration Schemas

Information

No object selected

Query 1

Limit to 1000 rows

```
10
11 -- 1. BRANCH TABLE
12 CREATE TABLE Branch (
13     Branch_no VARCHAR(10) PRIMARY KEY,
14     Manager_id VARCHAR(10),
15     Branch_address VARCHAR(50),
16     Contact_no VARCHAR(15)
17 );
18 DESC Branch;
```

Result Grid

Field	Type	Null	Key	Default	Extra
Branch_no	varchar(10)	NO	PRI		
Manager_id	varchar(10)	YES			
Branch_address	varchar(50)	YES			
Contact_no	varchar(15)	YES			

Result 4

Output

Action Output

#	Time	Action	Message	Duration / Fetch
15	11:01:39	CREATE TABLE Branch (Branch_no VARCHAR(10) PRIMARY KEY, Manager_id VARCHAR(10)...	0 row(s) affected	0.047 sec
16	11:01:39	DESC Branch	4 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Step 02
Create table 'Branch'

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- attendance_system
- customer
- employee
- employee_earnings
- ineron_first
- ineron_sec
- ineuron
- library
 - Tables
 - branch
 - employee
 - Views
 - Stored Procedures
 - Functions

Administration Schemas

Information

No object selected

Query 1

```
19
20 -- 2. EMPLOYEE TABLE
21 CREATE TABLE Employee (
22     Emp_id VARCHAR(10) PRIMARY KEY,
23     Emp_name VARCHAR(30),
24     Position VARCHAR(30),
25     Salary DECIMAL(10,2),
26     Branch_no VARCHAR(10),
27     FOREIGN KEY (Branch_no) REFERENCES Branch(Branch_no) ON DELETE SET NULL
28 );
29 DESC Employee;
```

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 5

Output

Action Output

#	Time	Action	Message	Duration / Fetch
17	11.03.29	CREATE TABLE Employee (Emp_id VARCHAR(10) PRIMARY KEY, Emp_name VARCHAR(30), Postio...	0 row(s) affected	0.109 sec
18	11.03.29	DESC Employee	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Step 03
Create table 'Employee'

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

attendance_system
customer
employee
employee_earnings
ineron_first
ineron_sec
inuron
library
Tables
books
branch
employee
Views
Stored Procedures
Administration Schemas

Information

Query 1

Limit to 1000 rows

```
29 * DESC Employee;  
30  
31 -- 3. BOOKS TABLE  
32 * CREATE TABLE Books (  
33     ISBN VARCHAR(25) PRIMARY KEY,  
34     Book_title VARCHAR(80),  
35     Category VARCHAR(30),  
36     Rental_Price DECIMAL(10,2),  
37     Status ENUM('Yes','No') DEFAULT 'Yes',  
38     Author VARCHAR(30),  
39     Publisher VARCHAR(30)  
40 );  
41 * DESC Books;
```

Step 04
Create table 'Books'

No object selected

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

Result 6 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
19	11:04:40	CREATE TABLE Books (ISBN VARCHAR(25) PRIMARY KEY, Book_title VARCHAR(80), Category VA...	0 row(s) affected	0.063 sec
20	11:04:40	DESC Books	7 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- attendance_system
- customer
- employee
- employee_earnings
- ineron_first
- ineron_sec
- inuron
- library
 - Tables
 - books
 - branch
 - customer
 - employee
 - Views

Administration Schemas

Information

No object selected

Query 1

Limit to 1000 rows

```
41 * DESC Books;
42
43 -- 4. CUSTOMER TABLE
44 * CREATE TABLE Customer (
45     Customer_Id VARCHAR(10) PRIMARY KEY,
46     Customer_name VARCHAR(30),
47     Customer_address VARCHAR(50),
48     Reg_date DATE
49 );
50 * DESC Customer;
```

Result Grid

Field	Type	Null	Key	Default	Extra
Customer_Id	varchar(10)	NO	PRI		
Customer_name	varchar(30)	YES			
Customer_address	varchar(50)	YES			
Reg_date	date	YES			

Result 7

Output

Action Output

#	Time	Action	Message	Duration / Fetch
21	11.06.03	CREATE TABLE Customer (Customer_Id VARCHAR(10) PRIMARY KEY, Customer_name VARCHAR(30), ...	0 row(s) affected	0.063 sec
22	11.06.03	DESC Customer	4 row(s) returned	0.016 sec / 0.000 sec

Object Info Session

Step 05
Create table 'Customer'

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- employee_earnings
- inerson_first
- inerson_sec
- inerson
- library
 - Tables
 - books
 - branch
 - customer
 - employee
 - issuestatus
 - Views
 - Stored Procedures
 - Functions

Administration Schemas

Information

Query 1

Limit to 1000 rows

```
51
52 -- 5. ISSUE STATUS (Transactions)
53 CREATE TABLE IssueStatus (
54     Issue_Id VARCHAR(10) PRIMARY KEY,
55     Issued_cust VARCHAR(10),
56     Issued_book_name VARCHAR(80),
57     Issue_date DATE,
58     isbn_book VARCHAR(25),
59     FOREIGN KEY (Issued_cust) REFERENCES Customer(Customer_Id) ON DELETE CASCADE,
60     FOREIGN KEY (isbn_book) REFERENCES Books(ISBN) ON DELETE CASCADE
61 );
62 DESC IssueStatus;
63 # ISBN stands for International Standard Book Number;
```

Step 06
Create table 'IssueStatus'

Result Grid

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

Result 8 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
23	11:10:52	CREATE TABLE IssueStatus (Issue_Id VARCHAR(10) PRIMARY KEY; Issued_cust VARCHAR(10); Iss...	0 row(s) affected	0.093 sec
24	11:10:52	DESC IssueStatus	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- employee_earnings
- ineron_first
- ineron_sec
- inuron
- library
 - Tables
 - books
 - branch
 - customer
 - employee
 - issuestatus
 - returnstatus
 - Views
 - Stored Procedures

Administration Schemas

Information

Query 1

Limit to 1000 rows

```
62 • DESC IssueStatus;
63 # ISBN stands for International Standard Book Number.
64
65 -- 6. RETURN STATUS (Logs)
66 • CREATE TABLE ReturnStatus (
67     Return_id VARCHAR(10) PRIMARY KEY,
68     Return_cust VARCHAR(30),
69     Return_book_name VARCHAR(80),
70     Return_date DATE,
71     isbn_book2 VARCHAR(25),
72     FOREIGN KEY (isbn_book2) REFERENCES Books(ISBN) ON DELETE CASCADE
73 );
74 • DESC ReturnStatus;
```

Step 07
Create table 'ReturnStatus'

No object selected

Result Grid

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

Result 9 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
25	11:15:24	CREATE TABLE ReturnStatus (Return_id VARCHAR(10) PRIMARY KEY, Return_cust VARCHAR(30), ...	0 row(s) affected	0.109 sec
26	11:15:25	DESC ReturnStatus	5 row(s) returned	0.016 sec / 0.000 sec

Object Info Session

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- employee_earnings
- ineron_first
- ineron_sec
- ineuron
- library
 - Tables
 - books
 - branch
 - Columns
 - Indexes
 - Foreign Keys
 - Triggers
 - customer
 - employee

Administration Schemas

Information

Query 1

Limit to 1000 rows

```
76 -- =====
77 -- 2. INSERT VALUES (The Data)
78 -- =====
81 INSERT INTO branch VALUES
82 ('B001', 'M101', '123 Main St', '+919099988676'),
83 ('B002', 'M102', '456 Elm St', '+919099988677'),
84 ('B003', 'M103', '789 Oak St', '+919099988678'),
85 ('B004', 'M104', '567 Pine St', '+919099988679'),
86 ('B005', 'M105', '890 Maple St', '+919099988680');
87 SELECT * FROM branch;
88
```

Step 08
Insert Values into each tables
and show data in it

Table: branch

Columns:

- Branch_no varchar(10) PK
- Manager_id varchar(10)
- Branch_address varchar(50)
- Contact_no varchar(15)

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

branch 10 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
27	11:19:08	INSERT INTO branch VALUES ('B001', 'M101', '123 Main St', '+919099988676'), ('B002', 'M102', '456 Elm St', '...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.062 sec
28	11:19:08	SELECT * FROM branch LIMIT 0, 1000	5 row(s) returned	0.016 sec / 0.000 sec

Object Info Session

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

employee

- Columns
 - Emp_id
 - Emp_name
 - Position
 - Salary
 - Branch_no
- Indexes
- Foreign Keys
- Triggers
- Issues
- Issues status
- Views

Administration Schemas

Information

Query 1

Limit to 1000 rows

```
89
90 INSERT INTO employee VALUES
91 ('E101', 'John Doe', 'Manager', 60000.00, 'B001'),
92 ('E102', 'Jane Smith', 'Clerk', 45000.00, 'B002'),
93 ('E103', 'Mike Johnson', 'Librarian', 55000.00, 'B003'),
94 ('E104', 'Emily Davis', 'Assistant', 40000.00, 'B004'),
95 ('E105', 'Sarah Brown', 'Assistant', 42000.00, 'B005');
96 SELECT * FROM employee;
97
98
99
100
101
```

Result Grid

Emp_id	Emp_name	Position	Salary	Branch_no
E101	John Doe	Manager	60000.00	B001
E102	Jane Smith	Clerk	45000.00	B002
E103	Mike Johnson	Librarian	55000.00	B003
E104	Emily Davis	Assistant	40000.00	B004
E105	Sarah Brown	Assistant	42000.00	B005

Table: employee

Columns:

- Emp_id varchar(10) PK
- Emp_name varchar(30)
- Position varchar(30)
- Salary decimal(10)
- Branch_no varchar(10)

employee 11 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
31	11:24:09	INSERT INTO employee VALUES ('E101', 'John Doe', 'Manager', 60000.00, 'B001'), ('E102', 'Jane Smith', 'Clerk', 45000.00, 'B002'), ('E103', 'Mike Johnson', 'Librarian', 55000.00, 'B003'), ('E104', 'Emily Davis', 'Assistant', 40000.00, 'B004'), ('E105', 'Sarah Brown', 'Assistant', 42000.00, 'B005');	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.031 sec
32	11:24:09	SELECT * FROM employee LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

Tables

books

Columns

ISBN

Book_title

Category

Rental_Pri

Status

Author

Publisher

Indexes

Foreign Keys

Administration Schemas

Information

Table: books

Columns:

ISBN varchar(25)

Book_title varchar(80)

Category varchar(30)

Rental_Pri decimal(10,2)

Status enum('Yes', 'No')

Author varchar(30)

Publisher varchar(30)

Query 1

Limit to 1000 rows

```
97
98
99 INSERT INTO books VALUES
100 ('978-0-553-29698-2', 'The Catcher in the Rye', 'Classic', 7.00, 'yes', 'J.D. Salinger', 'Little, Brown and Company'),
101 ('978-0-330-25864-8', 'Animal Farm', 'Classic', 5.50, 'yes', 'George Orwell', 'Penguin Books'),
102 ('978-0-14-118776-1', 'One Hundred Years of Solitude', 'Literary Fiction', 6.50, 'yes', 'Gabriel Garcia Marquez', 'Penguin Books'),
103 ('978-0-525-47535-5', 'The Great Gatsby', 'Classic', 8.00, 'yes', 'F. Scott Fitzgerald', 'Scribner'),
104 ('978-0-141-44171-6', 'Jane Eyre', 'Classic', 4.00, 'yes', 'Charlotte Bronte', 'Penguin Classics'),
105 ('978-0-307-37848-1', 'The Alchemist', 'Fiction', 2.50, 'yes', 'Paulo Coelho', 'HarperOne'),
106 ('978-0-679-76489-8', 'Harry Potter and the Sorcerer's Stone', 'Fantasy', 7.00, 'yes', 'J.K. Rowling', 'Scholastic'),
107 ('978-0-7432-4722-4', 'The Da Vinci Code', 'Mystery', 8.00, 'yes', 'Dan Brown', 'Doubleday'),
108 ('978-0-09-957807-9', 'A Game of Thrones', 'Fantasy', 7.50, 'yes', 'George R.R. Martin', 'Bantam'),
109 ('978-0-393-05081-0', 'A People's History of the United States', 'History', 9.00, 'yes', 'Howard Zinn', 'Harper Perennial'),
110 ('978-0-19-280551-1', 'The Guns of August', 'History', 7.00, 'yes', 'Barbara W. Tuchman', 'Oxford University Press'),
111 ('978-0-307-58837-1', 'Sapiens: A Brief History of Humankind', 'History', 8.00, 'yes', 'Yuval Noah Harari', 'Harper Perennial'),
112 ('978-0-375-41398-8', 'The Diary of a Young Girl', 'History', 6.50, 'yes', 'Anne Frank', 'Bantam'),
113 ('978-0-14-044930-3', 'The Histories', 'History', 5.50, 'yes', 'Herodotus', 'Penguin Classics'),
114 ('978-0-393-91257-8', 'Guns, Germs, and Steel: The Fates of Human Societies', 'History', 7.00, 'yes', 'Jared Diamond', 'W. W. Norton & Company'),
115 ('978-0-7432-7357-1', '1491: New Revelations of the Americas Before Columbus', 'History', 6.50, 'yes', 'Charles C. Mann', 'Vintage Books');
116 SELECT * FROM books;
117
```

Result Grid

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	Yes	Charlotte Bronte	Penguin Classics
978-0-19-280551-1	The Guns of August	History	7.00	Yes	Barbara W. Tuchman	Oxford University Press

books 13 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
34	11:25:44	SELECT * FROM books LIMIT 0, 1000	16 row(s) returned	0.015 sec / 0.000 sec

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- Tables
 - books
 - branch
 - customer
 - Columns
 - Indexes
 - Foreign Keys
 - Triggers
- employee
- issuestatus
- returnstatus
- Views
- Stored Procedures

Administration Schemas

Information

Table: customer

Columns:

- Customer_id varchar(10) PK
- Customer_name varchar(30)
- Customer_address varchar(50)
- Reg_date date

Query 1 x

Limit to 1000 rows

```
109 ('978-0-393-05081-0', 'A People's History of the United States', 'History', 9.00, 'yes', 'Howard Zinn', 'Harper Perennial'),
110 ('978-0-19-280551-1', 'The Guns of August', 'History', 7.00, 'yes', 'Barbara W. Tuchman', 'Oxford University Press'),
111 ('978-0-307-58837-1', 'Sapiens: A Brief History of Humankind', 'History', 6.00, 'yes', 'Yuval Noah Harari', 'Harper Perennial'),
112 ('978-0-375-41398-8', 'The Diary of a Young Girl', 'History', 6.50, 'yes', 'Anne Frank', 'Bantam'),
113 ('978-0-14-044930-3', 'The Histories', 'History', 5.50, 'yes', 'Herodotus', 'Penguin Classics'),
114 ('978-0-393-91257-8', 'Guns, Germs, and Steel: The Fates of Human Societies', 'History', 7.00, 'yes', 'Jared Diamond', 'W. W. Norton & Company'),
115 ('978-0-7432-7357-1', '1491: New Revelations of the Americas Before Columbus', 'History', 6.50, 'yes', 'Charles C. Mann', 'Vintage Books');
116 • SELECT * FROM books;
117
118
119 • INSERT INTO customer VALUES
120 ('C101', 'Alice Johnson', '123 Main St', '2021-05-15'),
121 ('C102', 'Bob Smith', '456 Elm St', '2021-06-20'),
122 ('C103', 'Carol Davis', '789 Oak St', '2021-07-10'),
123 ('C104', 'Dave Wilson', '567 Pine St', '2021-08-05'),
124 ('C105', 'Eve Brown', '890 Maple St', '2021-09-25');
125 • SELECT * FROM CUSTOMER;
126
127
128
```

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

CUSTOMER 14 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
36	11:29:27	INSERT INTO customer VALUES ('C101', 'Alice Johnson', '123 Main St', '2021-05-15'), ('C102', 'Bob Smith', '4...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.047 sec

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- Tables
 - books
 - branch
 - customer
 - employee
 - issuestatus
- Columns
- Indexes
- Foreign Keys
- Triggers
- returnstatus
- Views
- Stored Procedures

Administration Schemas

Information

Table: **issuestatus**

Columns:

- Issue_Id varchar(10) PK
- Issued_cust varchar(10)
- Issued_book_name varchar(60)
- Issue_date date
- Isbn_book varchar(25)

Query 1 x

Limit to 1000 rows

```
126
127
128
129 • INSERT INTO IssueStatus VALUES
130 ('IS101', 'C101', 'The Catcher in the Rye', '2023-05-01', '978-0-553-29698-2'),
131 ('IS102', 'C102', 'The Da Vinci Code', '2023-05-02', '978-0-7432-4722-4'),
132 ('IS103', 'C103', '1491: New Revelations of the Americas Before Columbus', '2023-05-03', '978-0-7432-7357-1'),
133 ('IS104', 'C104', 'Sapiens: A Brief History of Humankind', '2023-05-04', '978-0-307-58837-1'),
134 ('IS105', 'C105', 'The Diary of a Young Girl', '2023-05-05', '978-0-375-41398-8');
135 • SELECT * FROM issuestatus;
136
137
138
139
140
141
142
143
144
145
146
```

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

issuestatus 15 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
38	11:31:23	INSERT INTO IssueStatus VALUES ('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 Columbus', '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');	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.032 sec

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

Tables

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

Columns

- Return_id
- Return_cust
- Return_book_n
- Return_date

Administration Schemas

Information

Table: returnstatus

Columns:

- Return_id varchar(10) PK
- Return_cust varchar(30)
- Return_book_name varchar(80)
- Return_date date
- isbn_book2 varchar(20)

Query 1 x

Limit to 1000 rows

```
137
138
139
140 • INSERT INTO ReturnStatus VALUES
141 ('RS101', 'C101', 'The Catcher in the Rye', '2023-06-06', '978-0-553-29698-2'),
142 ('RS102', 'C102', 'The Da Vinci Code', '2023-06-07', '978-0-7432-4722-4'),
143 ('RS103', 'C105', 'The Diary of a Young Girl', '2023-06-08', '978-0-375-41398-8'),
144 ('RS104', 'C108', 'The Histories', '2023-06-09', '978-0-14-044930-3'),
145 ('RS105', 'C110', 'A Game of Thrones', '2023-06-10', '978-0-09-957807-9');
146 • SELECT * FROM returnstatus;
147
148
149
150
151
152
153
154
155
156
157
```

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

returnstatus 16 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
40	11:32:50	INSERT INTO ReturnStatus VALUES (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');	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.015 sec

Queries

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

The screenshot displays the MySQL Workbench interface. On the left, the 'SCHEMAS' pane shows a tree view with 'library' expanded, containing tables like 'books', 'branch', 'customer', etc. The main editor shows a SQL query in 'Query 1' window:

```
149
150
151
152 /*Queries*/
153
154 # 1. Retrieve the book title, category, and rental price of all available books.
155
156 SELECT
157     Book_title, Category, Rental_Price
158 FROM
159     Books
160 WHERE
161     Status = 'YES';
162
```

Below the query editor, the 'Result Grid' shows the output of the query. It has columns 'Book_title', 'Category', and 'Rental_Price'. The results list various books and their rental prices, such as 'A Game of Thrones' (Fantasy, 7.50), 'The Histories' (History, 5.50), and 'One Hundred Years of Solitude' (Literary Fiction, 6.50).

At the bottom, the 'Output' pane shows the 'Action Output' for the query execution, indicating that 1 row(s) were returned in 0.016 seconds.

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
Jane Eyre	Classic	4.00
The Guns of August	History	7.00
The Alchemist	Fiction	2.50
Sapiens: A Brief History of Humankind	History	8.00
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...	History	7.00
The Great Gatsby	Classic	8.00
The Catcher in the Rye	Classic	7.00
Wines, Politics and the President's Choice	Express	7.00

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

The screenshot displays the MySQL Workbench interface. On the left, the 'SCHEMAS' pane shows the 'library' database selected, with the 'employee' table highlighted under the 'Tables' section. The 'Columns' pane for the 'employee' table lists: Emp_id (varchar(10), PK), Emp_name (varchar(30)), Position (varchar(30)), Salary (decimal(10,2)), and Branch_no (varchar(10)).

The central 'Query Editor' shows the following SQL query:

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

SELECT
    Emp_name, Salary
FROM
    employee
ORDER BY salary DESC;
```

Below the query editor, the 'Result Grid' displays the query results:

Emp_name	Salary
John Doe	60000.00
Mike Johnson	55000.00
Jane Smith	45000.00
Sarah Brown	42000.00
Emily Davis	40000.00

At the bottom, the 'Output' pane shows the 'Action Output' for the query execution:

#	Time	Action	Message	Duration / Fetch
45	11:39:22	SELECT	Book_Mile, Category, Rental_Price FROM Books WHERE Status = 'YES' LIMIT 0, 1000	16 row(s) returned 0.016 sec / 0.000 sec

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

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

- Tables
 - books
 - branch
 - customer
 - Columns
 - Indexes
 - Foreign Keys
 - Triggers
 - employee
 - issuestatus
 - Columns
 - Indexes
 - Foreign Keys

Administration Schemas

Information

Query 1 x

Limit to 1000 rows

```
174
175
176 # 3. Retrieve the book titles and the corresponding customers who have issued those books.
177
178 * SELECT
179     issuestatus.Issued_book_name,
180     customer.Customer_name
181 FROM
182     issuestatus
183     INNER JOIN
184     customer ON issuestatus.Issued_cust = customer.Customer_Id;
185
186
187
```

Table: customer

Columns:

- Customer_Id varchar(10) PK
- Customer_name varchar(30)
- Customer_address varchar(50)
- Reg_date date

Result Grid

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 22 x

Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
45	11:43:47	SELECT Emp_name , Salary from employee order by salary desc LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

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

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

Tables

books

branch

customer

Columns

Indexes

Foreign Keys

Triggers

employee

issuestatus

Columns

Indexes

Foreign Keys

Administration Schemas

Information

Query 1 x

Limit to 1000 rows

```
194
195
196
197
198 # 4. Display the total count of books in each category.
199
200 SELECT
201     Category, COUNT(Book_title) AS Total_Books
202 FROM
203     books
204 GROUP BY Category;
```

Result Grid

Category	Total_Books
Fantasy	2
History	7
Literary Fiction	1
Classic	4
Fiction	1
Mystery	1

Table: customer

Columns:

Customer_Id varchar(10) PK

Customer_name varchar(30)

Customer_address varchar(50)

Reg_date date

Result 24 x

Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
48	11:55:39	SELECT	Category, COUNT(Book_title) FROM books GROUP BY Category LIMIT 0, 1000	6 row(s) returned 0.015 sec / 0.000 sec

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

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

Tables

- books
- branch
- customer
- employee

Columns

- Emp_id
- Emp_name
- Position
- Salary
- Branch_no

Indexes

Foreign Keys

Administration Schemas

Information

Query 1 x

Limit to 1000 rows

```
209
210 # 5. Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.
211
212 * SELECT
213     emp_name, Position
214 FROM
215     employee
216 WHERE
217     salary > 50000;
218
219
220
221
```

Table: employee

Columns:

- Emp_id: varchar(10) PK
- Emp_name: varchar(30)
- Position: varchar(30)
- Salary: decimal(10,2)
- Branch_no: varchar(10)

Result Grid

emp_name	Position
John Doe	Manager
Mike Johnson	Librarian

employee 25 x

Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
49	11:56:33	SELECT	Category, COUNT(Book_title) AS Total_Books FROM books GROUP BY Category LIMIT 0, 1...	6 row(s) returned 0.000 sec / 0.000 sec

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

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

Tables

- books
- branch
- customer
- employee

Columns

Indexes

Foreign Keys

Triggers

Issues

Column

Indexes

Foreign Keys

Administration Schemas

Information

Table: employee

Columns:

- Emp_id varchar(10) PK
- Emp_name varchar(30)
- Position varchar(30)
- Salary decimal(10,2)
- Branch_no varchar(10)

Query 1 x

Limit to 1000 rows

```
222
223
224
225 # 6. Display the branch numbers and the total count of employees in each branch.
226
227
228 SELECT
229     branch_no, COUNT(emp_id) AS total_count
230 FROM
231     employee
232 GROUP BY branch_no;
```

Result Grid

branch_no	total_count
B001	1
B002	1
B003	1
B004	1
B005	1

Result 28 x

Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
53	12:09:12	select branch , count(emp_id) from employee group by branch LIMIT 0, 1000	Error Code: 1054. Unknown column 'branch' in 'field list'	0.015 sec
54	12:09:30	select branch_no , count(emp_id) from employee group by branch LIMIT 0, 1000	Error Code: 1054. Unknown column 'branch' in 'group statement'	0.000 sec
55	12:09:47	select branch_no , count(emp_id) from employee group by branch_no LIMIT 0, 1000	5 row(s) returned	0.015 sec / 0.000 sec
56	12:10:05	select branch_no , count(emp_id) AS total_count from employee group by branch_no LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

7. Display the names of customers who have issued books in the month of May 2023.

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

Tables

- books
- branch
- customer
- employee
- issuestatus

Columns

- Indexes
- Foreign Keys
- Triggers
- returnstatus

Views

Stored Procedures

Administration Schemas

Information

Table: **issuestatus**

Columns:

- Issue_id varchar(10) PK
- Issued_cust varchar(10)
- Issued_book_name varchar(80)
- Issue_date date
- Isbn_book varchar(20)

Query 1

Limit to 1000 rows

```
233
234
235
236
237 # 7. Display the names of customers who have issued books in the month of May 2023.
238
239
240 SELECT
241     customer.Customer_name
242 FROM
243     customer
244     INNER JOIN
245     issuestatus ON customer.Customer_id = issuestatus.Issued_cust
246 WHERE
247     issuestatus.Issue_date >= '2023-05-01'
248     AND issuestatus.Issue_date <= '2023-05-31';
249
```

Result Grid

Filter Rows: Exports Wrap Cell Contents

Customer_name
Alice Johnson
Bob Smith
Carol Davis
Dave Wilson
Eve Brown

Result 30 x

Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
58	12:16:11	SELECT customer.Customer_name FROM customer INNER JOIN issuestatus ON customer.Cus...	0 row(s) returned	0.000 sec / 0.000 sec
59	12:16:51	SELECT customer.Customer_name FROM customer INNER JOIN issuestatus ON customer.Cus...	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

8. Retrieve book_title from book table containing

MySQL Workbench

SQL x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

library

Tables

- books
- branch
- customer
- employee
- issuestatus

Columns

- Indexes
- Foreign Keys
- Triggers
- returnstatus

Views

Stored Procedures

Administration Schemas

Information

Table: **issuestatus**

Columns:

- Issue_Id varchar(10) PK
- Issued_cust varchar(10)
- Issued_book_name varchar(80)
- Issue_date date
- Isbn_book varchar(255)

Query 1 x

Limit to 1000 rows

```
260
261
262 # 8. Retrieve book_title from book table containing 'history'.
263
264
265 • SELECT
266     book_title
267 FROM
268     books
269 WHERE
270     Category = 'history';
271
272
273
274
```

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 31 x

Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
59	12:16:51	SELECT customer.Customer_name FROM customer INNER JOIN issuestatus ON customer.Cus...	5 row(s) returned	0.000 sec / 0.000 sec
60	12:18:22	SELECT book_title FROM books WHERE Category = 'history' LIMIT 0, 1000	7 row(s) returned	0.016 sec / 0.000 sec

Object Info Session
