

**“LIBRARY MANAGEMENT SYSTEM”
(FOR SQL MODULE)**

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LIBRARY MANAGEMENT SYSTEM

1. DESCRIPTION:

Following database schema is designed to function as a backend storage database for a web application built to manage a library.

By storing information in a relational database, all the tasks related to daily functioning of the library can be performed easily and much more efficiently. Some of the benefits of using this system is to store data over traditional paper registers are as follows:

- Updating and modifying booklist in the library is much easier and efficient.
- Maintaining customer details and their account is easy and efficient.
- Calculations like due payments can be done automatically by DBMS, thus eliminating human error.
- RDBMS provides many ways to analyze available data, thus helping in making more informed decisions about inventory management and other aspects of library management.

This database contains 5 tables:

1. Author
2. Type (Genre of book)
3. Book
4. Customer

5. Transaction

How these tables/entities are related to each other is shown pictorially on next page through ER diagram, i.e., Entity Relationship Diagram.

This database contains 5 tables:

1. Author
2. Type (Genre of book)
3. Book
4. Customer
5. Transaction

Query:

Show tables;

Output:

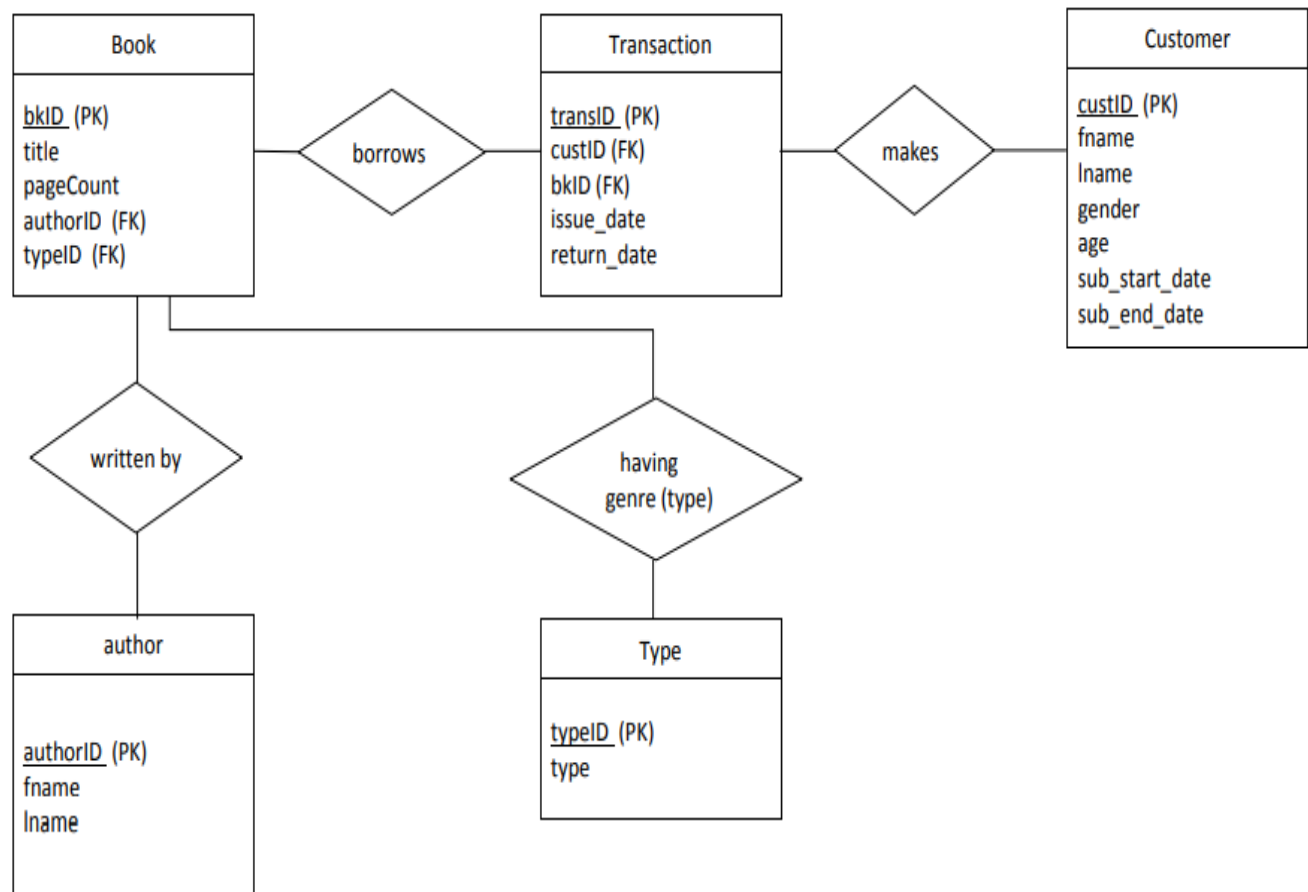
The screenshot shows a database management tool interface. The left sidebar displays a 'SCHEMAS' tree with a 'Filter objects' search bar and a list of schemas: 'client_details', 'company_xyz', 'hospital', 'phpmyadmin', and 'test'. The 'Administration' tab is selected, showing 'Schemas' and 'Information' sub-tabs. The main area displays a 'Query 1' window with a SQL query:

```
select * from transaction;
```

 The 'Result Grid' shows the output of the query, displaying a list of rows from the 'transaction' table. The bottom section shows the 'Output' window with a table of query results, including columns for 'Time', 'Action', 'Message', and 'Duration / Fetch'.

Time	Action	Message	Duration / Fetch
34 08:54:12	CREATE TABLE transaction (transID INT, custID INT, bkID INT, issue_date DATETIME, return_date DATETIME)	0 row(s) affected	0.093 sec
35 08:54:58	select * from transaction LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
36 09:01:51	desc transaction	5 row(s) returned	0.047 sec / 0.000 sec
37 09:08:59	INSERT INTO transaction VALUES (1, 37, 24, '2021-08-31 04:30:00', '2021-09-17 00:15:00'), (2, 32, 17, '2021-08-31 04:30:00', '2021-09-17 00:15:00')	60 row(s) affected Records: 60 Duplicates: 0 Warnings: 0	0.047 sec
38 09:09:07	select * from transaction LIMIT 0, 1000	60 row(s) returned	0.015 sec / 0.000 sec
39 09:14:35	show tables	5 row(s) returned	0.016 sec / 0.000 sec

2. ER-DIAGRAM (ENTITY RELATION – DIAGRAM) FOR LIBRARY MANAGEMENT SYSTEM:



3. DESCRIPTIONS:

- AUTHOR:**

Field	Type	Null	Key	Default	Extra	
authorID	int (11)	NO	PRI	NULL		
fname	varchar (50)	YES		NULL		
lname	varchar (50)	YES		NULL		

Query:

Create database LMS;

use LMS;

create table author (authorID int, fname varchar (50), lname varchar (50),
primary key(authorID));

select * from author;

desc author;

Output:

The screenshot shows a database management tool interface. The top menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The left sidebar shows a 'SCHEMAS' tree with folders for client_details, company_xyz, hospital, phpmyadmin, and test. The main window displays a SQL query script for 'Query 1' with the following content:

```
1 create database LMS;
2 use LMS;
3 CREATE TABLE author (
4   authorID INT,
5   fname VARCHAR(50),
6   lname VARCHAR(50),
7   PRIMARY KEY(authorID)
8 );
9 select * from author;
10 desc author;
```

Below the query editor, the 'Result Grid' shows the output of the 'desc author' query:

Field	Type	Null	Key	Default	Extra
authorID	int(11)	NO	PRI		
fname	varchar(50)	YES			
lname	varchar(50)	YES			

Below the result grid, the 'Action Output' tab shows the execution log:

#	Time	Action	Message	Duration / Fetch
1	01:25:41	create database LMS	1 row(s) affected	0.000 sec
2	01:30:11	use LMS	0 row(s) affected	0.000 sec
3	01:32:49	CREATE TABLE author (authorID INT, fname VARCHAR(50), lname VARCHAR(50), PRIMARY KEY(authorID))	0 row(s) affected	0.016 sec
4	01:33:32	select * from author LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
5	01:52:26	desc author	3 row(s) returned	0.047 sec / 0.000 sec

The bottom status bar indicates 'Query Completed'.

- **TYPE (GENRE):**

Field	Type	Null	Key	Default	Extra
typeID	int (11)	NO	PRI	NULL	
type	varchar (50)	YES		NULL	

Query:

create table type (typeID int, type varchar (50), primary key (typeID));

select * from type;

desc type;

Output:

The screenshot shows a database management tool interface. The top panel displays a list of schemas, including 'client_details', 'company_xyz', 'hospital', 'phpmyadmin', and 'test'. The middle panel shows the SQL editor with the following queries:

```

46 (35, 'Mother', 'Goose');
47 (36, 'Eleanor Hallowell', 'Abbott');
48 select * from author;
49
50
51 CREATE TABLE type (
52 typeID INT,
53 type VARCHAR(50),
54 PRIMARY KEY (typeID)
55 );
56 select * from type;
57 desc type;

```

The bottom panel shows the 'Result Grid' with the following data:

Field	Type	Null	Key	Default	Extra
typeID	int(11)	NO	PRI	NULL	
type	varchar(50)	YES		NULL	

The 'Output' section shows the execution results of the queries:

#	Time	Action	Message	Duration / Fetch
5	01:52:25	desc author	3 row(s) returned	0.047 sec / 0.000 sec
6	01:58:37	INSERT INTO author VALUES (1, 'William Dean', 'Howells'), (2, 'Frederic', 'Brown'), (3, 'Jack', 'London'), (4, 'Ab...	36 row(s) affected Records: 36 Duplicates: 0 Warnings: 0	0.015 sec
7	01:58:58	select * from author LIMIT 0, 1000	36 row(s) returned	0.000 sec / 0.000 sec
8	02:03:10	CREATE TABLE type (typeID INT, type VARCHAR(50), PRIMARY KEY typeID)	0 row(s) affected	0.031 sec
9	02:19:01	select * from type LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
10	02:23:35	desc type	2 row(s) returned	0.047 sec / 0.000 sec

The bottom status bar indicates 'Query Completed'.

- **BOOK:**

Field	Type	Null	Key	Default	Extra
bkID	int (11)	NO	PRI	NULL	
title	varchar (50)	YES		NULL	
pageCount	int (11)	YES		NULL	
authorID	int (11)	YES	MUL	NULL	
typeID	int (11)	YES	MUL	NULL	

Query:

create table book (bkID int, title varchar (50), pageCount int, authorID int, typeID int, primary key (bkID), constraint fk_bk_author foreign key (authorID) references author(authorID), constraint fk_bk_type foreign key (typeID) references type(typeID));

select * from book;

desc book;

Output:

The screenshot shows a database management tool interface with the following components:

- Navigator:** Displays a list of database objects including 'client_details', 'company_xyz', 'hospital', 'phpmyadmin', and 'test'.
- Query Editor:** Contains the following SQL queries:


```

      80 CREATE TABLE book (
      81     bkID INT,
      82     title VARCHAR(50),
      83     pageCount INT,
      84     authorID INT,
      85     typeID INT,
      86     PRIMARY KEY (bkID),
      87     CONSTRAINT fk_bk_author FOREIGN KEY (authorID) REFERENCES author(authorID),
      88     CONSTRAINT fk_bk_type FOREIGN KEY (typeID) REFERENCES type(typeID)
      89 );
      90 select * from book;
      91 desc book;
      
```
- Result Grid:** Displays the output of the 'desc book;' query as a table:

Field	Type	Null	Key	Default	Extra
bkID	int(11)	NO	PRI		
title	varchar(50)	YES			
pageCount	int(11)	YES			
authorID	int(11)	YES	MUL		
typeID	int(11)	YES	MUL		
- Output:** Displays the execution log with the following entries:
 - 10 02:23:35 desc type 2 row(s) returned 0.047 sec / 0.000 sec
 - 11 02:36:05 INSERT into type VALUES (1, 'Science fiction'), (2, 'Satire'), (3, 'Drama'), (4, 'Action and Adventure'), (5, 'Roma... 18 row(s) affected Records: 18 Duplicates: 0 Warnings: 0 0.000 sec
 - 12 02:36:37 select * from type LIMIT 0, 1000 18 row(s) returned 0.000 sec / 0.000 sec
 - 13 02:41:53 CREATE TABLE book (bkID INT, title VARCHAR(50), pageCount INT, authorID INT, typeID INT, PRIMARY ... 0 row(s) affected 0.047 sec
 - 14 02:42:19 select * from book LIMIT 0, 1000 0 row(s) returned 0.000 sec / 0.000 sec
 - 15 03:07:37 desc book 5 row(s) returned 0.047 sec / 0.000 sec

- CUSTOMER:**

Field	Type	Null	Key	Default	Extra
custID	int (11)	NO	PRI	NULL	
fname	varchar (30)	YES		NULL	
lname	varchar (30)	YES		NULL	
gender	varchar (5)	YES		NULL	
age	int (3)	YES		NULL	
sub_start_date	date	YES		NULL	
sub_end_date	date	YES		NULL	

Query:

create table customer (custID int, fname varchar (30), lname varchar (30), gender varchar (5), age int (3), sub_start_date date, sub_end_date date, primary key (custID));

select * from customer;

desc customer;

Output:

The screenshot shows a database management tool interface. The Navigator on the left lists schemas: client_details, company_xyz, hospital, phpmyadmin, and test. The Query Editor in the center contains the following SQL code:

```

212 CREATE TABLE customer (
213     custID INT,
214     fname VARCHAR(30),
215     lname VARCHAR(30),
216     gender VARCHAR(5),
217     age INT(3),
218     sub_start_date DATE,
219     sub_end_date DATE,
220     PRIMARY KEY (custID)
221 );
222 select * from customer;
223 desc customer;

```

The Result Grid at the bottom shows the output of the queries. The first query, 'select * from customer;', returned 7 rows. The second query, 'desc customer;', returned the table structure shown in the table above.

Field	Type	Null	Key	Default	Extra
custID	int(11)	NO	PRI		
fname	varchar(30)	YES			
lname	varchar(30)	YES			
gender	varchar(5)	YES			
age	int(3)	YES			

The Action Output panel at the bottom shows the execution details of the queries, including the time taken and the number of rows affected or returned.

#	Time	Action	Message	Duration / Fetch
26	08:31:32	select * from customer LIMIT 0, 1000	0 row(s) returned	0.031 sec / 0.000 sec
27	08:31:38	desc customer	7 row(s) returned	0.093 sec / 0.000 sec
28	08:32:28	drop table customer	0 row(s) affected	0.032 sec
29	08:33:28	CREATE TABLE customer (custID INT, fname VARCHAR(30), lname VARCHAR(30), gender VARCHAR(5), ...	0 row(s) affected	0.047 sec
30	08:33:52	select * from customer LIMIT 0, 1000	0 row(s) returned	0.047 sec / 0.000 sec
31	08:38:23	desc customer	7 row(s) returned	0.047 sec / 0.000 sec

- **TRANSACTION:**

+	+	+	+	+	+	+
	Field		Type		Null		Key		Default		Extra	
+	+	+	+	+	+	+
	transID		int (11)		NO		PRI		NULL			
	custID		int (11)		YES		MUL		NULL			
	bkID		int (11)		YES		MUL		NULL			
	issue_date		datetime		YES				NULL			
	return_date		datetime		YES				NULL			
+	+	+	+	+	+	+

Query:

```
create table transaction (transID int, custID int, bkID int, issue_date
datetime, return_date datetime,
```

```
primary key (transID), constraint fk_trans_cust foreign key (custID)
references customer(custID),
```

```
constraint fk_trans_bk foreign key (bkID) references book(bkID));
```

```
select * from transaction;
```

```
desc transaction;
```

Output:

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- client_details
- company_xyz
- hospital
- phpmyadmin
- test

Administration Schemas Information

No object selected

Query 1

```
276 CREATE TABLE transaction (  
277     transID INT,  
278     custID INT,  
279     bkID INT,  
280     issue_date DATETIME,  
281     return_date DATETIME,  
282     PRIMARY KEY (transID),  
283     CONSTRAINT fk_trans_cust FOREIGN KEY (custID) REFERENCES customer(custID),  
284     CONSTRAINT fk_trans_bk FOREIGN KEY (bkID) REFERENCES book(bkID)  
285 );  
286  
287  
288 select * from transaction;  
289 desc transaction;
```

Result Grid

Field	Type	Null	Key	Default	Extra
transID	int(11)	NO	PR1		
custID	int(11)	YES	MLA		
bkID	int(11)	YES	MLA		
issue_date	datetime	YES			
return_date	datetime	YES			

Result 19 x

Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
31	08:38:23	desc customer	7 row(s) returned	0.047 sec / 0.000 sec
32	08:48:27	INSERT INTO customer VALUES (1, 'Hazel', 'Green', 'F', 28, '2020-05-15', '2023-05-15'), (2, 'Ashley', 'Marshall', 'F', 29, '2020-05-15', '2023-05-15')	50 row(s) affected Records: 50 Duplicates: 0 Warnings: 0	0.047 sec
33	08:48:50	select * from customer LIMIT 0, 1000	50 row(s) returned	0.000 sec / 0.000 sec
34	08:54:12	CREATE TABLE transaction (transID INT, custID INT, bkID INT, issue_date DATETIME, return_date DATETIME, PRIMARY KEY (transID), CONSTRAINT fk_trans_cust FOREIGN KEY (custID) REFERENCES customer(custID), CONSTRAINT fk_trans_bk FOREIGN KEY (bkID) REFERENCES book(bkID))	0 row(s) affected	0.093 sec
35	08:54:58	select * from transaction LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
36	09:01:51	desc transaction	5 row(s) returned	0.047 sec / 0.000 sec

Object Info Session

Query Completed

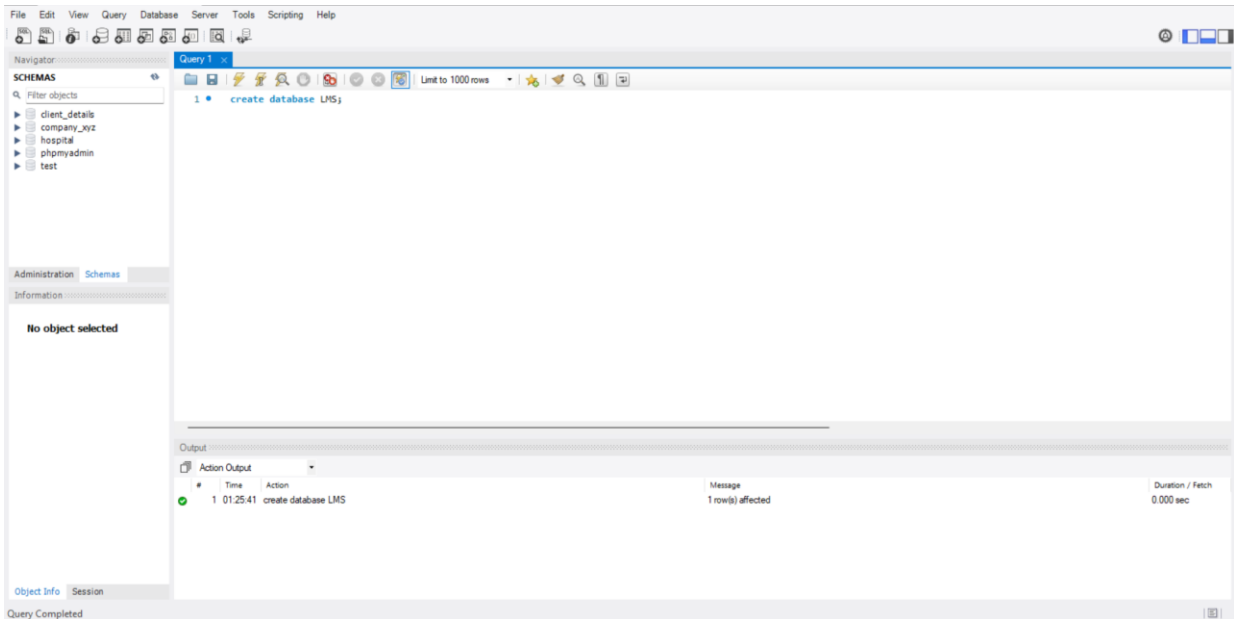
4. COMMANDS:

- **Create Database: lms**

Query:

Create database LMS;

Output:



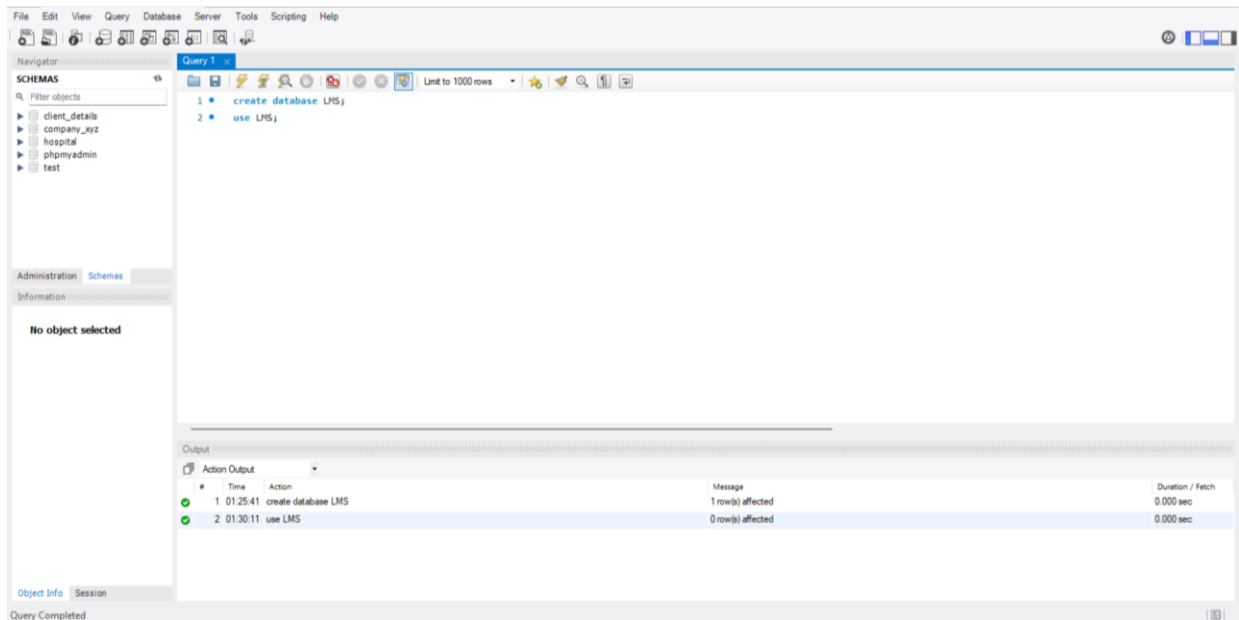
- **Select Database: lms;**

Query:

Create database LMS;

Use LMS;

Output:



- **Create table named author:**

Query:

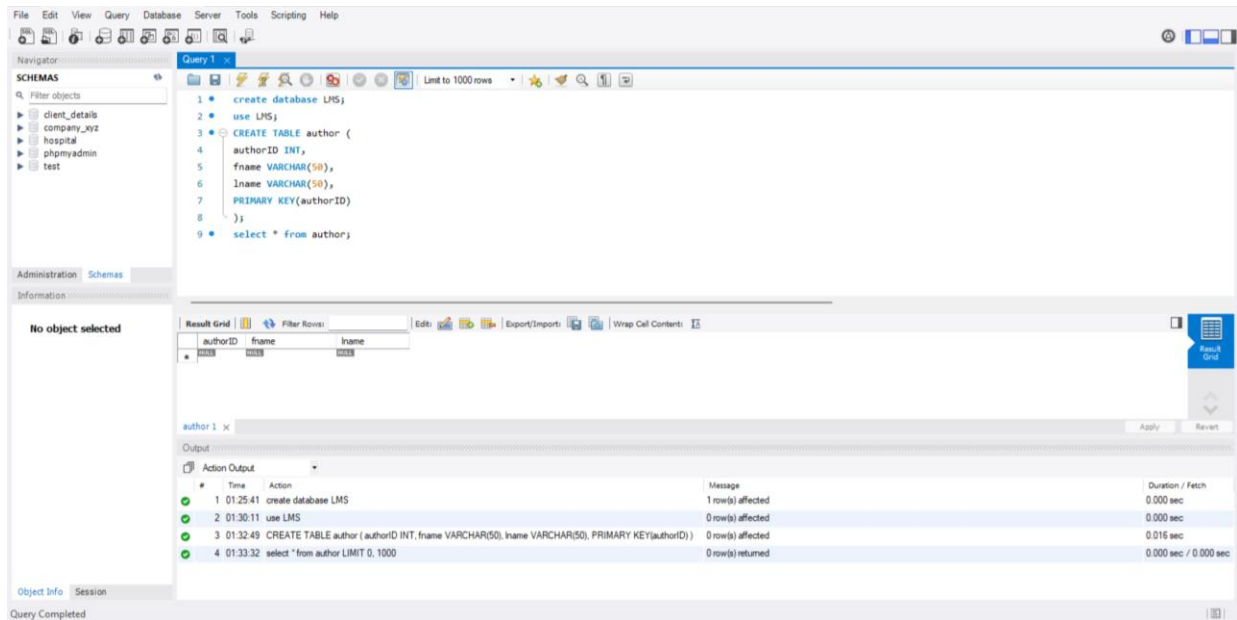
Create database LMS;

use LMS;

create table author (authorID int, fname varchar (50), lname varchar (50),
primary key(authorID));

select * from author;

Output:

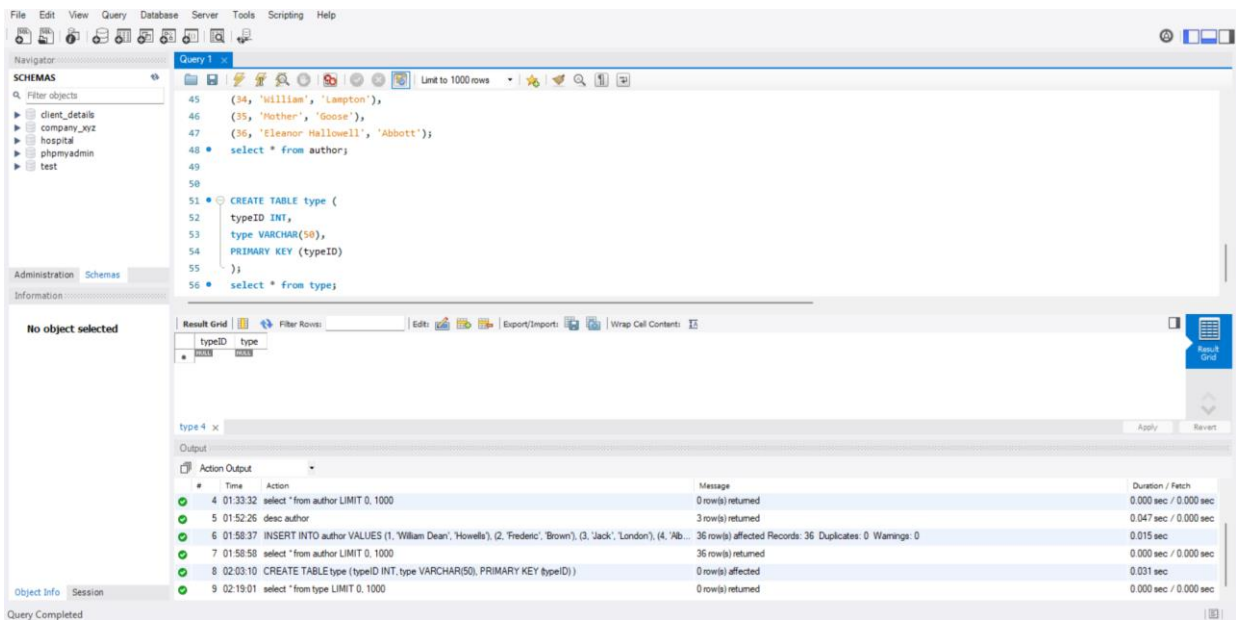


- **Create table named type:**

Query:

Create table type (typeID int, type varchar (50), primary key (typeID));
select * from type;

Output:



- **Create table named book:**

PRIMARY KEY (bkID),

CONSTRAINT fk_bk_author FOREIGN KEY (authorID) REFERENCES author(authorID), CONSTRAINT fk_bk_type FOREIGN KEY (typeID) REFERENCES type(typeID);

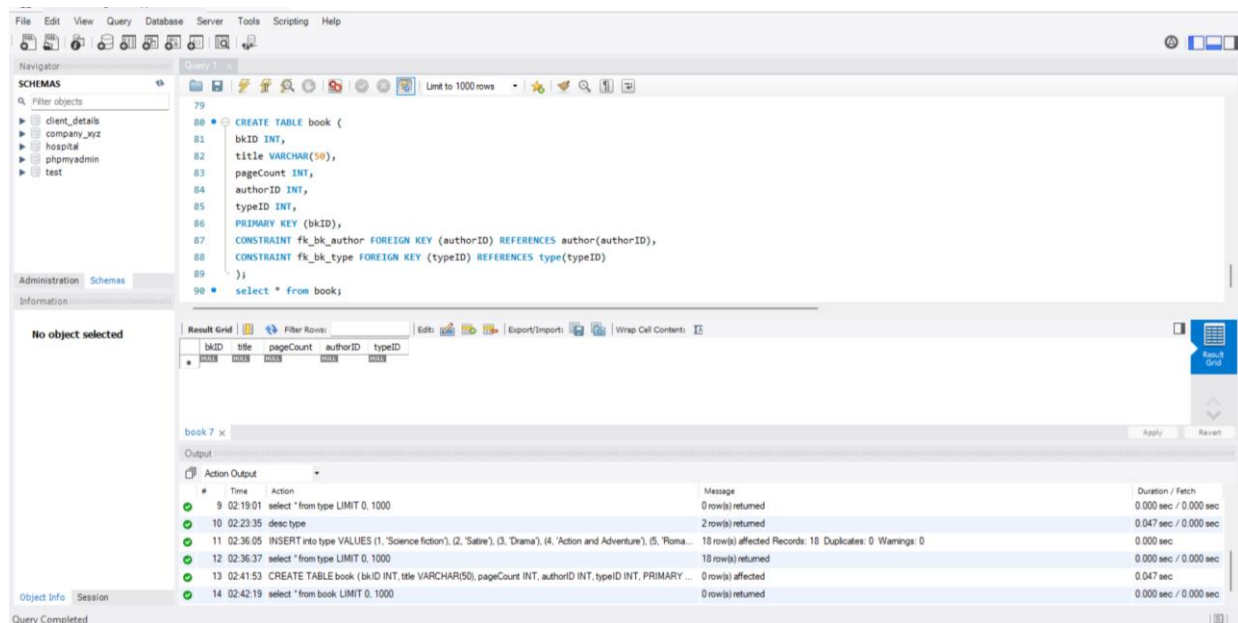
Query:

Create table book (bkID int, title varchar (50), pageCount int, authorID int, typeID int,

primary key (bkID), constraint fk_bk_author foreign key (authorID) references author(authorID), constraint fk_bk_type foreign key (typeID) references type(typeID));

select * from book;

Output:



- **Create table named customer:**

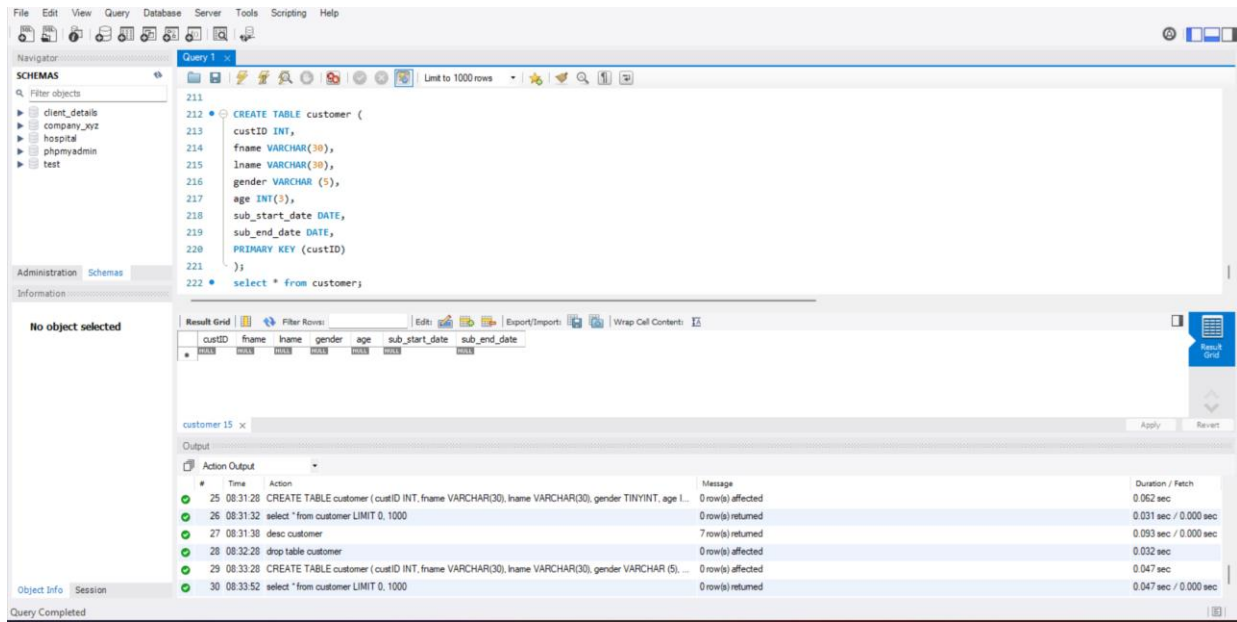
Query:

Create table customer (custID int, fname varchar (30), lname varchar (30),

gender varchar (5), age int (3), sub_start_date date, sub_end_date date, primary key (custID));

select * from customer;

Output:



- **Create table named transaction:**

CONSTRAINT fk_trans_cust FOREIGN KEY (custID) REFERENCES customer(custID), CONSTRAINT fk_trans_bk FOREIGN KEY (bkID) REFERENCES book(bkID));

Query:

create table transaction (transID int, custID int, bkID int, issue_date datetime, return_date datetime, primary key (transID), constraint fk_trans_cust foreign key (custID) references customer(custID), constraint fk_trans_bk foreign key (bkID) references book(bkID));

select * from transaction;

Output:

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- client_details
- company_xyz
- hospital
- phpmyadmin
- test

Administration Schemas Information

No object selected

Query 1

```
277
278 CREATE TABLE transaction (
279     transID INT,
280     custID INT,
281     bkID INT,
282     issue_date DATETIME,
283     return_date DATETIME,
284     PRIMARY KEY (transID),
285     CONSTRAINT fk_trans_cust FOREIGN KEY (custID) REFERENCES customer(custID),
286     CONSTRAINT fk_trans_bk FOREIGN KEY (bkID) REFERENCES book(bkID)
287 )
288 select * from transaction;
```

Result Grid

transID	custID	bkID	issue_date	return_date
*				

transaction 18

Output

Action Output

#	Time	Action	Message	Duration / Fetch
30	08:33:52	select * from customer LIMIT 0, 1000	0 row(s) returned	0.047 sec / 0.000 sec
31	08:38:23	desc customer	7 row(s) returned	0.047 sec / 0.000 sec
32	08:48:27	INSERT INTO customer VALUES (1, 'Hazel', 'Green', 'F', 28, '2020-05-15', '2023-05-15'), (2, 'Ashley', 'Marshall', 'F', 28, '2020-05-15', '2023-05-15')	50 row(s) affected Records: 50 Duplicates: 0 Warnings: 0	0.047 sec
33	08:48:50	select * from customer LIMIT 0, 1000	50 row(s) returned	0.000 sec / 0.000 sec
34	08:54:12	CREATE TABLE transaction (transID INT, custID INT, bkID INT, issue_date DATETIME, return_date DATETIME, PRIMARY KEY (transID), CONSTRAINT fk_trans_cust FOREIGN KEY (custID) REFERENCES customer(custID), CONSTRAINT fk_trans_bk FOREIGN KEY (bkID) REFERENCES book(bkID))	0 row(s) affected	0.093 sec
35	08:54:58	select * from transaction LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

- **Populate “author” table:**

INSERT INTO author VALUES

- (1, 'William Dean', 'Howells'),
- (2, 'Frederic', 'Brown'),
- (3, 'Jack', 'London'),
- (4, 'Albert', 'Blaisdell'),
- (5, 'Ellis', 'Butler'),
- (6, 'Arthur', 'Machen'),
- (7, 'Titus', 'Lucretius'),
- (8, 'Rabindranath', 'Tagore'),
- (9, 'Isaac', 'Asimov'),
- (10, 'Charles', 'Dickens'),
- (11, 'Ralph Waldo', 'Emerson'),
- (12, 'Dorothy', 'Canfield'),
- (13, 'Givoanni', 'Boccaccio'),
- (14, 'George', 'Orwell'),
- (15, 'Publius', 'Ovid'),
- (16, 'Robert Louis', 'Stevenson'),
- (17, 'Virginia', 'Woolf'),
- (18, 'George', 'Eliot'),
- (19, 'Amelia B.', 'Edwards'),
- (20, 'Fyodor', 'Dostoevsky'),
- (21, 'Emily', 'Dickinson'),
- (22, 'Edna', 'Ferber'),
- (23, 'Joseph Sheridan', 'LeFanu'),
- (24, 'John', 'DosPassos'),
- (25, 'Ruth', 'Stuart'),

(26, 'Vladimir', 'Nabokov'),
(27, 'Johanna', 'Spyri'),
(28, 'Ernest', 'Dowson'),
(29, 'Mary Hallock', 'Foote'),
(30, 'Zane', 'Grey'),
(31, 'H. P.', 'Lovecraft'),
(32, 'Samuel', 'Pepys'),
(33, 'Kate Dickinson', 'Sweetser'),
(34, 'William', 'Lampton'),
(35, 'Mother', 'Goose'),
(36, 'Eleanor Hallowell', 'Abbott')

Output:

The screenshot shows a database management tool interface. The top menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The left sidebar contains a Navigator pane with a Schemas tree (client_details, company_xyz, hospital, phpmyadmin, test) and an Administration pane (Schemas, Information). The main area displays a SQL query in a text editor, with line numbers 37 to 48. The query is a SELECT statement that inserts data into a table named 'author'.

```
37 (26, 'Vladimir', 'Nabokov'),  
38 (27, 'Johanna', 'Spyri'),  
39 (28, 'Ernest', 'Dowson'),  
40 (29, 'Mary Hallock', 'Foote'),  
41 (30, 'Zane', 'Grey'),  
42 (31, 'H. P.', 'Lovecraft'),  
43 (32, 'Samuel', 'Pepys'),  
44 (33, 'Kate Dickinson', 'Sweetser'),  
45 (34, 'William', 'Lampton'),  
46 (35, 'Mother', 'Goose'),  
47 (36, 'Eleanor Hallowell', 'Abbott');  
48 select * from author;
```

Below the query editor, the 'Result Grid' shows a table with columns 'authorID', 'fname', and 'lname'. The table contains 5 rows of data:

authorID	fname	lname
1	William Dean	Howells
2	Frederic	Brown
3	Jack	London
4	Albert	Blasdel
5	Ellis	Butler

The 'Output' pane at the bottom shows the execution log. It includes a table with columns '#', 'Time', 'Action', 'Message', and 'Duration / Fetch'. The log shows the following actions:

#	Time	Action	Message	Duration / Fetch
2	01:30:11	use LMS		
3	01:32:49	CREATE TABLE author (authorID INT, fname VARCHAR(50), lname VARCHAR(50), PRIMARY KEY(authorID))	0 row(s) affected	0.000 sec
4	01:33:32	select * from author LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
5	01:52:26	desc author	3 row(s) returned	0.047 sec / 0.000 sec
6	01:58:37	INSERT INTO author VALUES (1, 'William Dean', 'Howells'), (2, 'Frederic', 'Brown'), (3, 'Jack', 'London'), (4, 'Ab...	36 row(s) affected Records: 36 Duplicates: 0 Warnings: 0	0.015 sec
7	01:58:58	select * from author LIMIT 0, 1000	36 row(s) returned	0.000 sec / 0.000 sec

The bottom status bar indicates 'Query Completed'.

- **Populate “type” table:**

INSERT into type VALUES

(1, 'Science fiction'),

(2, 'Satire'),

(3, 'Drama'),

(4, 'Action and Adventure'),

(5, 'Romance'),

(6, 'Mystery'),

(7, 'Horror'),

(8, 'Health'),

(9, 'Guide'),

(10, 'Diaries'),

(11, 'Comics'),

(12, 'Diaries'),

(13, 'Journals'),

(14, 'Biographies'),

(15, 'Fantasy'),

(16, 'History'),

(17, 'Science'),

(18, 'Art');

Output:

File Edit View Query Database Server Tools Scripting Help

Navigator

Query 1

Limit to 1000 rows

66 (8, 'Health'),
67 (9, 'Guide'),
68 (10, 'Diaries'),
69 (11, 'Comics'),
70 (12, 'Diaries'),
71 (13, 'Journals'),
72 (14, 'Biographies'),
73 (15, 'Fantasy'),
74 (16, 'History'),
75 (17, 'Science'),
76 (18, 'Art');
77 select * from type;

Administration Schemas Information

No object selected

Result Grid

typeID	type
1	Science fiction
2	Satire
3	Drama
4	Action and Adventure
5	Romance

type 6 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
7	01:58:50	select * from author LIMIT 0, 1000	36 row(s) returned	0.000 sec / 0.000 sec
8	02:03:10	CREATE TABLE type (typeID INT, type VARCHAR(50), PRIMARY KEY (typeID))	0 row(s) affected	0.031 sec
9	02:19:01	select * from type LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
10	02:23:35	desc type	2 row(s) returned	0.047 sec / 0.000 sec
11	02:36:05	INSERT into type VALUES (1, 'Science fiction'), (2, 'Satire'), (3, 'Drama'), (4, 'Action and Adventure'), (5, 'Roma...	18 row(s) affected Records: 18 Duplicates: 0 Warnings: 0	0.000 sec
12	02:36:37	select * from type LIMIT 0, 1000	18 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

- **Populate “book” table:**

INSERT INTO book VALUES

- (1, 'A Daughter of the Snows', 199, 3, 9),
- (2, 'The Near East: 10,000 Years of History', 298, 9, 13),
- (3, 'The Cocoon: A Rest-Cure Comedy', 90, 25, 12),
- (4, 'The Freakshow Murders', 321, 2, 3),
- (5, 'Pharaohs, Fellahs and Explorers', 367, 19, 9),
- (6, 'Hard Times', 293, 10, 1),
- (7, 'A Modern Instance', 222, 1, 12),
- (8, 'The Real Mother Goose', 88, 35, 1),
- (9, 'A Thousand Miles Up the Nile', 110, 19, 18),
- (10, 'Children of Blood and Bone', 137, 7, 13),
- (11, 'A pushcart at the curb', 95, 24, 1),
- (12, 'The Desert and the Sown', 126, 29, 10),
- (13, 'Three Soldiers', 223, 24, 16),
- (14, 'The End of Eternity', 168, 9, 1),
- (15, 'Annie Kilburn', 291, 1, 12),
- (16, 'A Touch of Sun and Other Stories', 141, 29, 9),
- (17, 'Show Boat', 151, 22, 18),
- (18, 'The Call of the Wild', 362, 3, 18),
- (19, 'My Mark Twain', 339, 1, 9),
- (20, 'Broken Ties', 134, 8, 5),
- (21, 'Short Stories From American History', 305, 4, 8),
- (22, 'Mrs Rosie and the Priest', 104, 13, 14),
- (23, 'So Big', 209, 22, 3),
- (24, 'Monsieur Maurice ', 92, 19, 8),
- (25, 'The Master of Ballantrae', 236, 16, 13),

(26, 'The Unlived Life of Little Mary Ellen', 99, 25, 6),

(27, 'Mouse - The Last Train', 184, 2, 14),

(28, 'Edith Bonham', 122, 29, 7),

(29, 'Maybe Mother Goose', 161, 35, 14),

(30, 'The Noble Gases', 321, 9, 5),

(31, 'Rainy Week', 98, 36, 7),

(32, 'A Hazard of New Fortunes', 144, 1, 4),

(33, 'A Plot for Murder', 108, 2, 13),

(34, 'Nature', 357, 11, 8),

(35, 'Hickory Dickory Dock', 326, 35, 6),

(36, 'Big Fat Hen', 232, 35, 12),

(37, 'The Lone Star Ranger', 328, 30, 9),

(38, 'The Great Fire of London', 252, 32, 9),

(39, 'White Nights', 265, 20, 14),

(40, 'In a Glass Darkly', 173, 23, 9),

(41, 'Fanny herself', 248, 22, 10),

(42, 'Loaded', 273, 2, 4),

(43, 'A Foregone Conclusion', 121, 1, 15),

(44, 'The Hill of Dreams', 175, 6, 6),

(45, 'Adventure', 217, 3, 8),

(46, 'A Tagore Reader', 285, 8, 4),

(47, 'A Tale of Two Cities', 331, 10, 13),

(48, 'Dombey and Son', 344, 10, 14),

(49, 'Famous Women', 273, 13, 1),

(50, 'Rejection, The Ruling Spirit', 358, 5, 2);

Output:

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- client_details
- company_xyz
- hospital
- phpmyadmin
- test

Administration Schemas Information

No object selected

Query 1

Limit to 1000 rows

```
132 (40, 'In a Glass Barkly', 173, 23, 9),
133 (41, 'Fanny herself', 248, 22, 10),
134 (42, 'Loaded', 273, 2, 4),
135 (43, 'A Foregone Conclusion', 121, 1, 15),
136 (44, 'The Hill of Dreams', 175, 6, 6),
137 (45, 'Adventure', 217, 3, 8),
138 (46, 'A Tagore Reader', 285, 8, 4),
139 (47, 'A Tale of Two Cities', 331, 10, 13),
140 (48, 'Dombey and Son', 344, 10, 14),
141 (49, 'Famous Women', 273, 13, 1),
142 (50, 'Rejection, The Ruling Spirit', 358, 5, 2);
143 select * from book;
```

Result Grid

#	bkID	title	pageCount	authorID	typeID
1		A Daughter of the Snows	199	3	9
2		The Near East: 10,000 Years of History	298	9	13
3		The Cocoon/A Rest-Cure Comedy	90	25	12
4		The Freakshow Murders	321	2	3
5		Pharaohs, Fellahs and Explorers	367	19	9

book 9 x

Output

#	Time	Action	Message	Duration / Fetch
12	02:36:37	select * from type LIMIT 0, 1000	18 row(s) returned	0.000 sec / 0.000 sec
13	02:41:53	CREATE TABLE book (bkID INT, title VARCHAR(50), pageCount INT, authorID INT, typeID INT, PRIMARY ...	0 row(s) affected	0.047 sec
14	02:42:19	select * from book LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
15	03:07:37	desc book	5 row(s) returned	0.047 sec / 0.000 sec
16	03:21:55	INSERT INTO book VALUES (1, 'A Daughter of the Snows', 199, 3, 9), (2, 'The Near East: 10,000 Years of H...	50 row(s) affected Records: 50 Duplicates: 0 Warnings: 0	0.015 sec
17	03:22:05	select * from book LIMIT 0, 1000	50 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

- **Populate “customer” table:**

INSERT INTO customer VALUES

(1, 'Hazel', 'Green', 'F', 28, '2020-05-15', '2023-05-15'),
(2, 'Ashley', 'Marshall', 'F', 20, '2020-10-28', '2023-10-28'),
(3, 'Ansley', 'Green', 'F', 22, '2021-07-12', '2024-07-12'),
(4, 'Alcock', 'Chapman', 'F', 22, '2020-01-25', '2023-01-25'),
(5, 'Meadow', 'Taylor', 'F', 23, '2020-12-30', '2023-12-30'),
(6, 'Green', 'Wright', 'M', 32, '2020-03-09', '2023-03-09'),
(7, 'Paxton', 'Foster', 'M', 34, '2020-03-03', '2023-03-03'),
(8, 'Gray', 'King', 'M', 62, '2020-06-26', '2023-06-26'),
(9, 'Jones', 'Collins', 'M', 25, '2020-01-26', '2023-01-26'),
(10, 'Leslie', 'Young', 'F', 42, '2020-02-10', '2023-02-10'),
(11, 'Hailey', 'Hill', 'F', 27, '2021-01-16', '2024-01-16'),
(12, 'Washington', 'Martin', 'M', 24, '2021-05-23', '2024-05-23'),
(13, 'Ramirez', 'Green', 'M', 33, '2020-08-28', '2023-08-28'),
(14, 'Morgan', 'Smith', 'M', 29, '2021-05-15', '2024-05-15'),
(15, 'Perez', 'Baker', 'M', 53, '2020-10-27', '2023-10-27'),
(16, 'Alfie', 'Watson', 'M', 26, '2021-04-05', '2024-04-05'),
(17, 'Madison', 'Jackson', 'F', 35, '2021-02-15', '2024-02-15'),
(18, 'Beverly', 'Moore', 'F', 22, '2020-11-19', '2023-11-19'),
(19, 'Kaden', 'Anderson', 'M', 26, '2021-11-11', '2024-11-11'),
(20, 'Carter', 'Adams', 'M', 27, '2021-07-08', '2024-07-08'),
(21, 'Ackland', 'Adams', 'F', 28, '2021-05-19', '2024-05-19'),
(22, 'Hadley', 'Parker', 'F', 37, '2020-11-21', '2023-11-21'),
(23, 'Henderson', 'Cook', 'M', 38, '2021-08-06', '2024-08-06'),
(24, 'Wright', 'Young', 'M', 35, '2021-05-14', '2024-05-14'),
(25, 'Lindsey', 'Wilkinson', 'F', 28, '2021-10-08', '2024-10-08'),

(26, 'Wren', 'Chapman', 'F', 25, '2021-11-06', '2024-11-06'),
(27, 'Love', 'Chapman', 'F', 19, '2021-10-15', '2024-10-15'),
(28, 'Wes', 'Bell', 'M', 23, '2021-01-25', '2024-01-25'),
(29, 'Tyler', 'Carter', 'M', 27, '2021-08-24', '2024-08-24'),
(30, 'Edwin', 'Cook', 'M', 39, '2021-08-17', '2024-08-17'),
(31, 'Sally', 'Wood', 'F', 45, '2020-06-07', '2023-06-07'),
(32, 'Nelson', 'Smith', 'M', 27, '2020-11-15', '2023-11-15'),
(33, 'Arabelle', 'Brown', 'F', 52, '2021-03-11', '2024-03-11'),
(34, 'Carter', 'Harrison', 'M', 21, '2021-11-30', '2024-11-30'),
(35, 'Baker', 'Bell', 'M', 20, '2021-03-24', '2024-03-24'),
(36, 'Cherish', 'Cooper', 'F', 34, '2020-01-31', '2023-01-31'),
(37, 'Remington', 'Wright', 'M', 29, '2020-08-14', '2023-08-14'),
(38, 'Edwards', 'King', 'M', 24, '2020-02-01', '2023-02-01'),
(39, 'Harleigh', 'Taylor', 'F', 26, '2020-05-05', '2023-05-05'),
(40, 'Ryleigh', 'Clark', 'F', 45, '2020-10-29', '2023-10-29'),
(41, 'Albert', 'Richardson', 'F', 57, '2021-03-19', '2024-03-19'),
(42, 'Lee', 'Ward', 'M', 36, '2020-05-13', '2023-05-13'),
(43, 'Kaylin', 'Bell', 'F', 28, '2020-09-12', '2023-09-12'),
(44, 'Agard', 'Young', 'F', 23, '2021-04-03', '2024-04-03'),
(45, 'Turner', 'Hall', 'M', 24, '2021-01-07', '2024-01-07'),
(46, 'Akes', 'White', 'F', 20, '2021-03-08', '2024-03-08'),
(47, 'Lewis', 'Lee', 'M', 35, '2021-01-30', '2024-01-30'),
(48, 'Karson', 'Cook', 'M', 30, '2021-06-26', '2024-06-26'),
(49, 'Hayden', 'Young', 'M', 31, '2020-12-15', '2023-12-15'),
(50, 'Sterling', 'Shaw', 'M', 26, '2021-06-24', '2024-06-24');

Output:

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- client_details
- company_xyz
- hospital
- phpmyadmin
- test

Administration Schemas Information

Query 1

Limit to 1000 rows

```
264 (40, 'Ryleigh', 'Clark', 'F', 45, '2020-10-29', '2023-10-29'),
265 (41, 'Albert', 'Richardson', 'F', 57, '2021-03-19', '2024-03-19'),
266 (42, 'Lee', 'Ward', 'H', 36, '2020-05-13', '2023-05-13'),
267 (43, 'Kaylin', 'Bell', 'F', 28, '2020-09-12', '2023-09-12'),
268 (44, 'Agard', 'Young', 'F', 23, '2021-04-03', '2024-04-03'),
269 (45, 'Turner', 'Hall', 'H', 24, '2021-01-07', '2024-01-07'),
270 (46, 'Akes', 'White', 'F', 20, '2021-03-08', '2024-03-08'),
271 (47, 'Lewis', 'Lee', 'H', 35, '2021-01-30', '2024-01-30'),
272 (48, 'Karson', 'Cook', 'H', 30, '2021-06-26', '2024-06-26'),
273 (49, 'Hayden', 'Young', 'H', 31, '2020-12-15', '2023-12-15'),
274 (50, 'Sterling', 'Shaw', 'H', 26, '2021-06-24', '2024-06-24');
275 select * from customer;
```

No object selected

Result Grid

	custID	fname	lname	gender	age	sub_start_date	sub_end_date
1	Hazel	Green	F	28	2020-05-15	2023-05-15	
2	Ashley	Marshall	F	20	2020-10-28	2023-10-28	
3	Ansley	Green	F	22	2021-07-12	2024-07-12	
4	Alcock	Chapman	F	22	2020-01-25	2023-01-25	
5	Meadow	Taylor	F	23	2020-12-30	2023-12-30	

customer 17 x

Output

#	Time	Action	Message	Duration / Fetch
28	08:32:20	drop table customer	0 row(s) affected	0.032 sec
29	08:33:28	CREATE TABLE customer (custID INT, fname VARCHAR(30), lname VARCHAR(30), gender VARCHAR(5), ...	0 row(s) affected	0.047 sec
30	08:33:52	select * from customer LIMIT 0, 1000	0 row(s) returned	0.047 sec / 0.000 sec
31	08:38:23	desc customer	7 row(s) returned	0.047 sec / 0.000 sec
32	08:48:27	INSERT INTO customer VALUES (1, 'Hazel', 'Green', 'F', 28, '2020-05-15', '2023-05-15'), (2, 'Ashley', 'Marshall', ...	50 row(s) affected Records: 50 Duplicates: 0 Warnings: 0	0.047 sec
33	08:48:50	select * from customer LIMIT 0, 1000	50 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

- **Populate “transaction” table:**

INSERT INTO transaction VALUES

(1, 37, 24, '2021-08-31 04:30:00', '2021-09-17 00:15:00'),
(2, 32, 17, '2021-10-01 14:28:00', '2021-10-07 11:22:00'),
(3, 40, 29, '2021-10-02 10:45:00', '2021-10-10 17:16:00'),
(4, 36, 44, '2021-10-03 15:57:00', '2021-10-09 10:43:00'),
(5, 11, 16, '2021-10-07 13:19:00', '2021-10-15 18:55:00'),
(6, 29, 34, '2021-10-09 08:32:00', '2021-10-14 08:17:00'),
(7, 23, 26, '2021-10-09 15:48:00', '2021-10-21 10:51:00'),
(8, 3, 34, '2021-10-10 19:55:00', '2021-10-15 09:20:00'),
(9, 37, 50, '2021-10-14 10:25:00', '2021-10-14 12:52:00'),
(10, 36, 39, '2021-10-16 08:53:00', '2021-10-29 18:47:00'),
(11, 47, 14, '2021-10-24 10:50:00', '2021-11-05 18:19:00'),
(12, 32, 30, '2021-10-24 13:48:00', '2021-10-28 19:33:00'),
(13, 7, 33, '2021-10-27 08:10:00', '2021-11-10 14:34:00'),
(14, 32, 12, '2021-10-27 09:27:00', '2021-11-13 18:23:00'),
(15, 44, 19, '2021-10-29 14:39:00', '2021-11-07 18:34:00'),
(16, 11, 1, '2021-11-03 15:11:00', '2021-11-04 19:42:00'),
(17, 15, 3, '2021-11-06 11:51:00', '2021-11-12 11:49:00'),
(18, 4, 36, '2021-11-06 16:24:00', '2021-11-11 14:00:00'),
(19, 8, 44, '2021-11-12 14:02:00', '2021-11-13 15:21:00'),
(20, 33, 21, '2021-11-14 20:35:00', '2021-11-30 07:56:00'),
(21, 23, 18, '2021-11-16 07:40:00', '2021-11-24 11:57:00'),
(22, 13, 29, '2021-11-17 18:29:00', '2021-11-18 11:27:00'),
(23, 42, 31, '2021-11-19 18:54:00', '2021-12-05 14:59:00'),
(24, 11, 48, '2021-11-20 17:26:00', '2021-11-26 08:16:00'),

(25, 29, 42, '2021-11-23 12:20:00', '2021-11-24 10:13:00'),
(26, 37, 48, '2021-11-24 12:45:00', '2021-11-27 10:13:00'),
(27, 7, 20, '2021-11-26 19:55:00', '2021-12-03 15:55:00'),
(28, 39, 31, '2021-12-02 12:51:00', '2021-12-17 08:13:00'),
(29, 49, 17, '2021-12-14 10:11:00', '2021-12-21 09:41:00'),
(30, 37, 3, '2021-12-14 12:11:00', '2021-12-14 12:13:00'),
(31, 1, 49, '2021-12-15 15:21:00', '2021-12-17 09:45:00'),
(32, 49, 10, '2021-12-16 11:16:00', '2022-01-02 13:42:00'),
(33, 34, 26, '2021-12-19 17:38:00', '2021-12-30 09:59:00'),
(34, 21, 28, '2021-12-21 11:05:00', '2022-01-06 17:13:00'),
(35, 31, 14, '2021-12-22 09:48:00', '2022-01-06 16:37:00'),
(36, 10, 20, '2021-12-22 14:12:00', '2021-12-22 16:44:00'),
(37, 25, 50, '2021-12-22 15:27:00', '2021-12-29 08:56:00'),
(38, 25, 32, '2021-12-22 19:01:00', '2022-01-04 11:16:00'),
(39, 11, 24, '2021-12-26 19:09:00', '2022-01-11 19:14:00'),
(40, 45, 31, '2021-12-28 19:35:00', '2022-01-07 09:41:00'),
(41, 36, 17, '2022-01-05 12:30:00', '2022-01-08 17:51:00'),
(42, 21, 16, '2022-01-07 12:04:00', '2022-01-12 16:31:00'),
(43, 27, 47, '2022-01-11 16:47:00', '2022-01-11 17:20:00'),
(44, 1, 23, '2022-01-12 08:13:00', '2022-01-22 13:34:00'),
(45, 11, 1, '2022-01-14 10:22:00', '2022-01-26 13:43:00'),
(46, 5, 20, '2022-01-14 13:19:00', '2022-01-22 10:37:00'),
(47, 22, 14, '2022-01-16 18:40:00', '2022-02-02 12:10:00'),
(48, 14, 14, '2022-01-19 13:28:00', '2022-01-23 19:36:00'),
(49, 45, 9, '2022-01-27 12:06:00', '2022-02-02 15:06:00'),
(50, 20, 13, '2022-01-27 13:47:00', '2022-02-10 11:31:00'),
(51, 24, 18, '2022-01-29 15:54:00', '2022-02-02 08:59:00'),

(52, 6, 4, '2022-01-30 15:25:00', '2022-02-04 09:19:00'),
 (53, 39, 2, '2022-01-30 17:01:00', '2022-02-13 11:13:00'),
 (54, 47, 26, '2022-02-02 11:02:00', '2022-02-12 11:36:00'),
 (55, 39, 47, '2022-02-11 08:55:00', '2022-02-24 12:40:00'),
 (56, 23, 35, '2022-02-12 17:59:00', '2022-02-24 08:56:00'),
 (57, 35, 1, '2022-02-13 19:07:00', '2022-02-17 11:01:00'),
 (58, 35, 1, '2022-02-16 07:08:00', '2022-02-17 11:14:00'),
 (59, 50, 3, '2022-02-26 17:54:00', '2022-03-16 11:53:00'),
 (60, 15, 12, '2022-02-27 15:38:00', '2022-03-11 14:44:00');

Output:

The screenshot shows a database management tool interface. The top menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The left sidebar shows a Schemas tree with folders for client_details, company_xyz, hospital, phpmyadmin, and test. The main window displays a query result grid for a query named 'Query 1'. The grid has columns: transID, custID, bkID, issue_date, and return_date. The data is as follows:

transID	custID	bkID	issue_date	return_date
1	37	24	2021-09-31 04:30:00	2021-09-17 00:15:00
2	32	17	2021-10-01 14:28:00	2021-10-07 11:22:00
3	40	29	2021-10-02 10:45:00	2021-10-10 17:16:00
4	36	44	2021-10-03 15:57:00	2021-10-09 10:43:00
5	11	16	2021-10-07 13:19:00	2021-10-15 18:55:00

Below the grid, the 'Action Output' tab is selected, showing a log of database actions:

#	Time	Action	Message	Duration / Fetch
33	09:40:50	select * from customer LIMIT 0, 1000	50 row(s) returned	0.000 sec / 0.000 sec
34	09:54:12	CREATE TABLE transaction (transID INT, custID INT, bkID INT, issue_date DATETIME, return_date DATETIME)	0 row(s) affected	0.093 sec
35	09:54:50	select * from transaction LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
36	09:01:51	desc transaction	5 row(s) returned	0.047 sec / 0.000 sec
37	09:08:59	INSERT INTO transaction VALUES (1, 37, 24, '2021-09-31 04:30:00', '2021-09-17 00:15:00'), (2, 32, 17, '2021-10-01 14:28:00', '2021-10-07 11:22:00'), (3, 40, 29, '2021-10-02 10:45:00', '2021-10-10 17:16:00'), (4, 36, 44, '2021-10-03 15:57:00', '2021-10-09 10:43:00'), (5, 11, 16, '2021-10-07 13:19:00', '2021-10-15 18:55:00')	60 row(s) affected Records: 60 Duplicates: 0 Warnings: 0	0.047 sec
38	09:09:07	select * from transaction LIMIT 0, 1000	60 row(s) returned	0.015 sec / 0.000 sec

The bottom status bar indicates 'Query Completed'.

5. SUB-QUERIES:

1. Select customers who have not borrowed any book from library

Result:

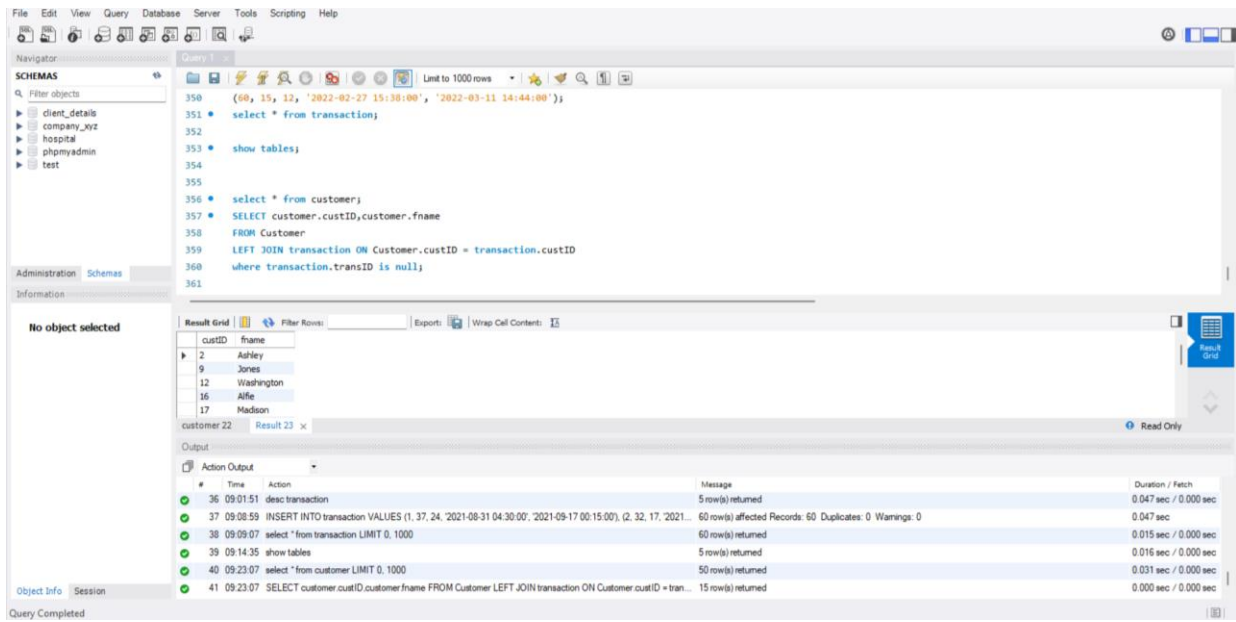
custID	name
2	Ashley Marshall
9	Jones Collins
12	Washington Martin
16	Alfie Watson
17	Madison Jackson
18	Beverly Moore
19	Kaden Anderson
26	Wren Chapman
28	Wes Bell
30	Edwin Cook
38	Edwards King
41	Albert Richardson
43	Kaylin Bell
46	Akes White
48	Karson Cook

Query:

```
select * from customer;
```

```
select customer. custID,customer.fname from customer left join  
transaction on customer.custID = transaction.custID where  
transaction.transID is null;
```

Output:



2. Select book with highest page count

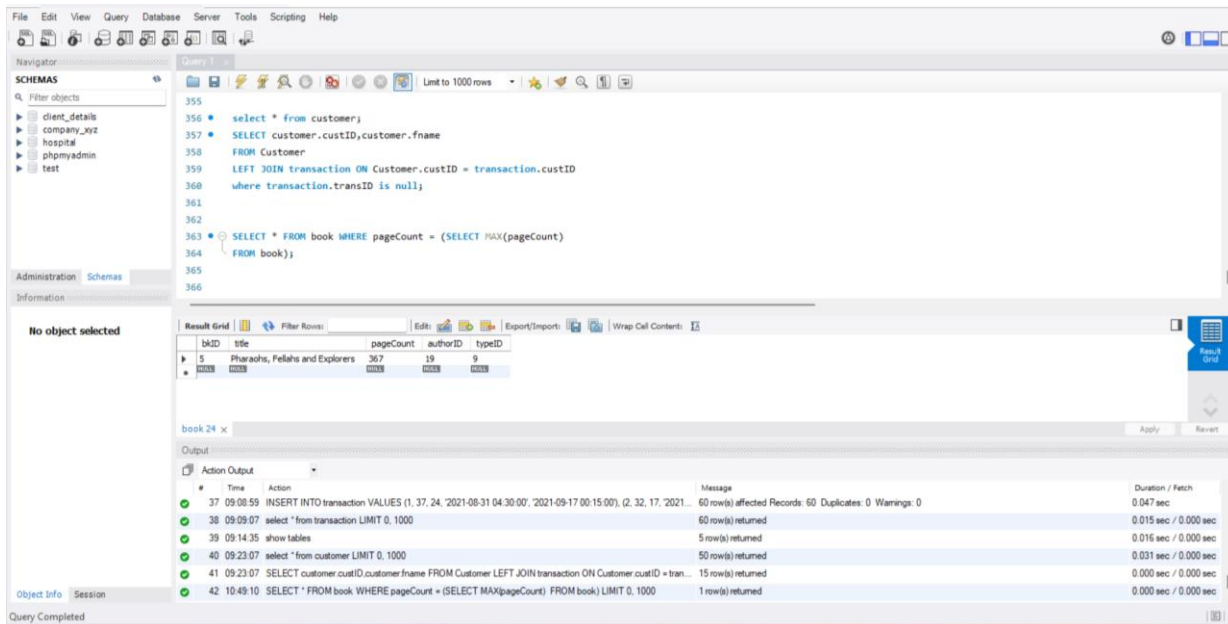
Result:

bkID	title
5	Pharaohs, Fellahs and Explorers

Query:

Select * from book where pagecount = (select max (pagecount) from book);

Output:



3. Select customer who has borrowed some book for longest period

Result:

custID	name
50	Sterling Shaw

Query:

Select customer.custID, customer. fname, max (datediff (transaction.return_date, transaction.issue_date)) as max_borrow_duration from customer join transaction on customer.custID = transaction.custID where transaction.return_date is not null group by customer.custid, customer.fname order by max_borrow_duration desc limit 1;

Output:

Query 1

```
365
366
367 • SELECT customer.custID, customer.fname,
368       MAX(DATEDIFF(transaction.return_date, transaction.issue_date)) AS
369       max_borrow_duration
370 FROM customer
371 JOIN transaction ON customer.custID = transaction.custID
372 WHERE transaction.return_date IS NOT NULL
373 GROUP BY customer.custID, customer.fname
374 ORDER BY max_borrow_duration DESC
375 LIMIT 1;
376
```

No object selected

custID	fname	max_borrow_duration
50	Sterling	18

Result 25

#	Time	Action	Message	Duration / Fetch
38	09:09:07	select * from transaction LIMIT 0, 1000	60 row(s) returned	0.015 sec / 0.000 sec
39	09:14:35	show tables	5 row(s) returned	0.016 sec / 0.000 sec
40	09:23:07	select * from customer LIMIT 0, 1000	50 row(s) returned	0.031 sec / 0.000 sec
41	09:23:07	SELECT customer.custID, customer.fname FROM Customer LEFT JOIN transaction ON Customer.custID = tran...	15 row(s) returned	0.000 sec / 0.000 sec
42	10:49:10	SELECT * FROM book WHERE pageCount = (SELECT MAX(pageCount) FROM book) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
43	11:13:09	SELECT customer.custID, customer.fname, MAX(DATEDIFF(transaction.return_date, transaction.issue_date)) ...	1 row(s) returned	0.016 sec / 0.000 sec

Query Completed

(P.T.O for queries involving joins)

6. JOINS:

1. Display list of all books along with their authors

Result:

bkID	title	author
1	A Daughter of the Snows	Jack London
2	The Near East: 10,000 Years of History	Isaac Asimov
3	The Cocoon: A Rest-Cure Comedy	Ruth Stuart
4	The Freakshow Murders	Frederic Brown
5	Pharaohs, Fellahs and Explorers	Amelia B. Edwards
6	Hard Times	Charles Dickens
7	A Modern Instance	William Dean Howells
8	The Real Mother Goose	Mother Goose
9	A Thousand Miles Up the Nile	Amelia B. Edwards
10	Children of Blood and Bone	Titus Lucretius
11	A pushcart at the curb	John DosPassos
12	The Desert and the Sown	Mary Hallock Foote
13	Three Soldiers	John DosPassos
14	The End of Eternity	Isaac Asimov
15	Annie Kilburn	William Dean Howells
16	A Touch of Sun and Other Stories	Mary Hallock Foote
17	Show Boat	Edna Ferber
18	The Call of the Wild	Jack London
19	My Mark Twain	William Dean Howells
20	Broken Ties	Rabindranath Tagore

21	Short Stories From American History	Albert Blaisdell
22	Mrs Rosie and the Priest	Givoanni Boccaccio
23	So Big	Edna Ferber
24	Monsieur Maurice	Amelia B. Edwards
25	The Master of Ballantrae	Robert Louis Stevenson
26	The Unlived Life of Little Mary Ellen	Ruth Stuart
27	Mouse - The Last Train	Frederic Brown
28	Edith Bonham	Mary Hallock Foote
29	Maybe Mother Goose	Mother Goose
30	The Noble Gases	Isaac Asimov
31	Rainy Week	Eleanor Hallowell Abbott
32	A Hazard of New Fortunes	William Dean Howells
33	A Plot for Murder	Frederic Brown
34	Nature	Ralph Waldo Emerson
35	Hickory Dickory Dock	Mother Goose
36	Big Fat Hen	Mother Goose
37	The Lone Star Ranger	Zane Grey
38	The Great Fire of London	Samuel Pepys
39	White Nights	Fyodor Dostoevsky
40	In a Glass Darkly	Joseph Sheridan LeFanu
41	Fanny herself	Edna Ferber
42	Loaded	Frederic Brown
43	A Foregone Conclusion	William Dean Howells
44	The Hill of Dreams	Arthur Machen
45	Adventure	Jack London
46	A Tagore Reader	Rabindranath Tagore

47	A Tale of Two Cities	Charles Dickens
48	Dombey and Son	Charles Dickens
49	Famous Women	Givoanni Boccaccio
50	Rejection, The Ruling Spirit	Ellis Butler

Query:

Select book.bkID , title,author.fname from book left join author on author.authorID = book.authorID;

Output:

The screenshot shows a database management tool interface. The main window displays a SQL query in a text editor. The query is as follows:

```

370 FROM customer
371 JOIN transaction ON customer.custID = transaction.custID
372 WHERE transaction.return_date IS NOT NULL
373 GROUP BY customer.custID, customer.fname
374 ORDER BY max_borrow_duration DESC
375 LIMIT 1;
376
377
378 select book.bkID , title,author.fname from book left join author on
379 author.authorID = book.authorID;
380
381

```

Below the query editor, the 'Result Grid' shows the output of the query. The results are as follows:

#	bkID	title	fname
1	A Daughter of the Snows	Jack	
2	The Near East: 10,000 Years of History	Isaac	
3	The Cocoon: A Rest-Cure Comedy	Ruth	
4	The Frodo-bag Hobbit	Frederic	
5	Pharaohs, Fellahs and Explorers	Amela B.	

The 'Output' section shows the execution log of the query. The log indicates that the query was executed successfully and returned 50 rows.

2. Display list of top 20 most borrowed books

Result:

bkID	title	times_borrowed
1	A Daughter of the Snows	4
14	The End of Eternity	4
3	The Cocoon: A Rest-Cure Comedy	3
17	Show Boat	3
20	Broken Ties	3
26	The Unlived Life of Little Mary Ellen	3
31	Rainy Week	3
12	The Desert and the Sown	2
16	A Touch of Sun and Other Stories	2
18	The Call of the Wild	2
24	Monsieur Maurice	2
29	Maybe Mother Goose	2
34	Nature	2
44	The Hill of Dreams	2
47	A Tale of Two Cities	2
48	Dombey and Son	2
50	Rejection, The Ruling Spirit	2
2	The Near East: 10,000 Years of History	1
4	The Freakshow Murders	1
9	A Thousand Miles Up the Nile	1

Query:

```
Select book.bkID, title, count(transaction.bkID) as borrow_count from book
join transaction on book.bkID = transaction.bkID group by book.bkID, title
order by borrow_count desc limit 20;
```

Output:

FileEditViewQueryDatabaseServerToolsScriptingHelp

Navigation

SCHEMAS

Filter objects

client_details

company_mst

hospital

pharmacyadmin

test

Administration

Schemas

Information

Query 1

Limit to 1000 rows

376

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1000

select book.bkID , title,author_name from book left join author on

author.authorID = book.authorID;

SELECT book.bkID, title, COUNT(transaction.bkID) AS borrow_count

FROM Book

JOIN transaction ON book.bkID = transaction.bkID

GROUP BY book.bkID, title

ORDER BY borrow_count desc

LIMIT 20;

No object selected

Result Grid

Filter Rows

Export

Wrap Cell Contents

Fetch rows

Read Only

bkID

title

borrow_count

1

A Daughter of the Snows

4

14

The End of Eternity

4

20

Broken Ties

3

26

The Unlived Life of Little Mary Ellen

3

17

Show Boat

3

Output

Action Output

Time

Action

Message

Duration / Fetch

47 11:28:41 SELECT customer.custID, customer.name, customer.frame, MAX(DATEDIFF(transaction.return_date, transaction...

Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MariaDB ...

0.000 sec

48 11:28:58 SELECT customer.custID, customer.name, customer.frame, MAX(DATEDIFF(transaction.return_date, transaction...

Error Code: 1064. Can't group on 'max_borrow_duration'

0.015 sec

49 11:29:36 SELECT customer.custID, customer.name, MAX(DATEDIFF(transaction.return_date, transaction.issue_date)) ...

Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MariaDB ...

0.015 sec

50 11:30:15 SELECT customer.custID, customer.name, MAX(DATEDIFF(transaction.return_date, transaction.issue_date)) ...

1 row(s) returned

0.015 sec / 0.000 sec

51 12:10:21 select book.bkID, title,author_name from book left join author on author.authorID = book.authorID LIMIT 0, 1...

50 row(s) returned

0.031 sec / 0.000 sec

52 12:44:05 SELECT book.bkID, title, COUNT(transaction.bkID) AS borrow_count FROM Book JOIN transaction ON book...

20 row(s) returned

0.015 sec / 0.000 sec

Object Info

Session

Query Completed

3. Display list of top 10 customers who have borrowed most books

Result:

custID	name	books_borrowed
11	Hailey Hill	5
37	Remington Wright	4
23	Henderson Cook	3
32	Nelson Smith	3
36	Cherish Cooper	3
39	Harleigh Taylor	3
49	Hayden Young	2
7	Paxton Foster	2
15	Perez Baker	2
21	Ackland Adams	2

Query:

Select customer.custID, customer.fname, count(transaction.bkID) as books_borrowed from customer join transaction on customer.custID = transaction.custID group by customer.custID, customer.fname order by books_borrowed desc limit 10;

Output:

The screenshot displays a SQL IDE interface with a query editor and a results pane. The query editor contains the following SQL code:

```
386 ORDER BY borrow_count desc
387 LIMIT 10;
388
389
390 SELECT customer.custID, customer.fname, COUNT(transaction.bkID)
391 AS
392 books_borrowed
393 FROM customer
394 JOIN transaction ON customer.custID = transaction.custID
395 GROUP BY customer.custID, customer.fname
396 ORDER BY books_borrowed DESC
397 LIMIT 10;
```

The results pane shows the output of the query, which is a table with three columns: custID, fname, and books_borrowed. The results are as follows:

custID	fname	books_borrowed
11	Hailey	5
37	Remington	4
39	Harleigh	3
23	Henderson	3
32	Nelson	3

The bottom pane shows the execution log with the following messages:

- 48 11:28:50 SELECT customer.custID, customer.fname, MAX(DATEDIFF(transaction.return_date, transaction.issue_date)) ... Error Code: 1056. Can't group on 'max_borrow_duration' 0.015 sec
- 49 11:29:35 SELECT customer.custID, customer.fname, MAX(DATEDIFF(transaction.return_date, transaction.issue_date)) ... Error Code: 1054. You have an error in your SQL syntax; check the manual that corresponds to your MariaDB s... 0.015 sec
- 50 11:30:15 SELECT customer.custID, customer.fname, MAX(DATEDIFF(transaction.return_date, transaction.issue_date)) ... 1 row(s) returned 0.015 sec / 0.000 sec
- 51 12:10:21 select book bkID, title, author, fname from book left join author on author.authorID = book.authorID LIMIT 1, 1 ... 50 row(s) returned 0.021 sec / 0.000 sec
- 52 12:44:05 SELECT book bkID, title, COUNT(transaction.bkID) AS borrow_count FROM Book JOIN transaction ON book... 20 row(s) returned 0.015 sec / 0.000 sec
- 53 12:57:25 SELECT customer.custID, customer.fname, COUNT(transaction.bkID) AS books_borrowed FROM customer ... 10 row(s) returned 0.016 sec / 0.000 sec

