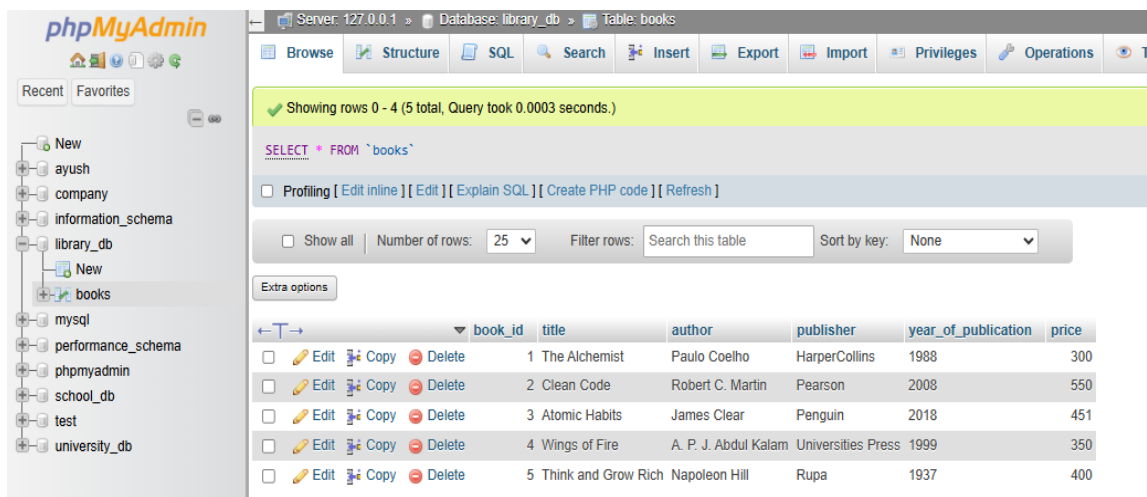


EXTRA LAB PRACTISE FOR DATABASE CONCEPTS

1. Introduction to SQL

Lab 3 : Create a database called library_db and a table books with columns: book_id, title, author, publisher, year_of_publication, and price. Insert five records into the table.

- CREATE DATABASE library_db
- CREATE TABLE books (book_id int PRIMARY KEY AUTO_INCREMENT, title varchar(20),author varchar(20),publisher varchar(20),year_of_publication varchar(20), price int)
- INSERT INTO books (title,author,publisher,year_of_publication,price)VALUES('The Alchemist', 'Paulo Coelho', 'HarperCollins', 1988, 299.50),('Clean Code', 'Robert C. Martin', 'Pearson', 2008, 550.00),('Atomic Habits', 'James Clear', 'Penguin', 2018, 450.75),('Wings of Fire', 'A. P. J. Abdul Kalam', 'Universities Press', 1999, 350.00),('Think and Grow Rich', 'Napoleon Hill', 'Rupa', 1937, 399.99);



Server: 127.0.0.1 » Database: library_db » Table: books

Showing rows 0 - 4 (5 total, Query took 0.0003 seconds.)

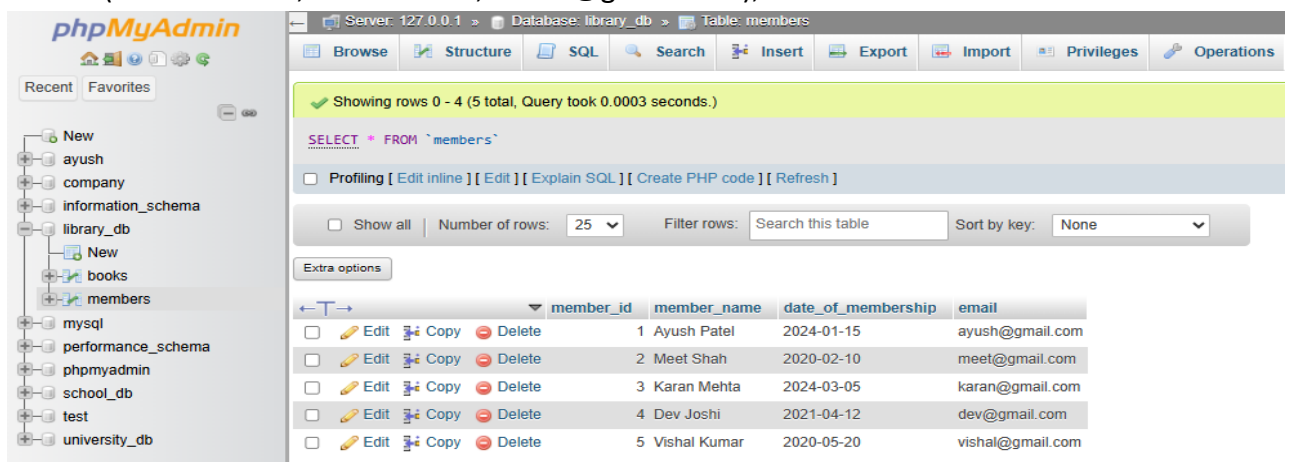
SELECT * FROM `books`

Number of rows: 25 Filter rows: Search this table Sort by key: None

	book_id	title	author	publisher	year_of_publication	price
<input type="checkbox"/> Edit Copy Delete	1	The Alchemist	Paulo Coelho	HarperCollins	1988	300
<input type="checkbox"/> Edit Copy Delete	2	Clean Code	Robert C. Martin	Pearson	2008	550
<input type="checkbox"/> Edit Copy Delete	3	Atomic Habits	James Clear	Penguin	2018	451
<input type="checkbox"/> Edit Copy Delete	4	Wings of Fire	A. P. J. Abdul Kalam	Universities Press	1999	350
<input type="checkbox"/> Edit Copy Delete	5	Think and Grow Rich	Napoleon Hill	Rupa	1937	400

Lab 4 : Create a table members in library_db with columns: member_id, member_name, date_of_membership, and email. Insert five records into this table.

- CREATE TABLE members (member_id INT PRIMARY KEY, member_name VARCHAR(20), date_of_membership DATE, email VARCHAR(20));
- INSERT INTO members (member_name, date_of_membership, email) VALUES ('Ayush Patel', '2024-01-15', 'ayush@gmail.com'), ('Meet Shah', '2020-02-10', 'meet@gmail.com'), ('Karan Mehta', '2024-03-05', 'karan@gmail.com'), ('Dev Joshi', '2021-04-12', 'dev@gmail.com'), ('Vishal Kumar', '2020-05-20', 'vishal@gmail.com');



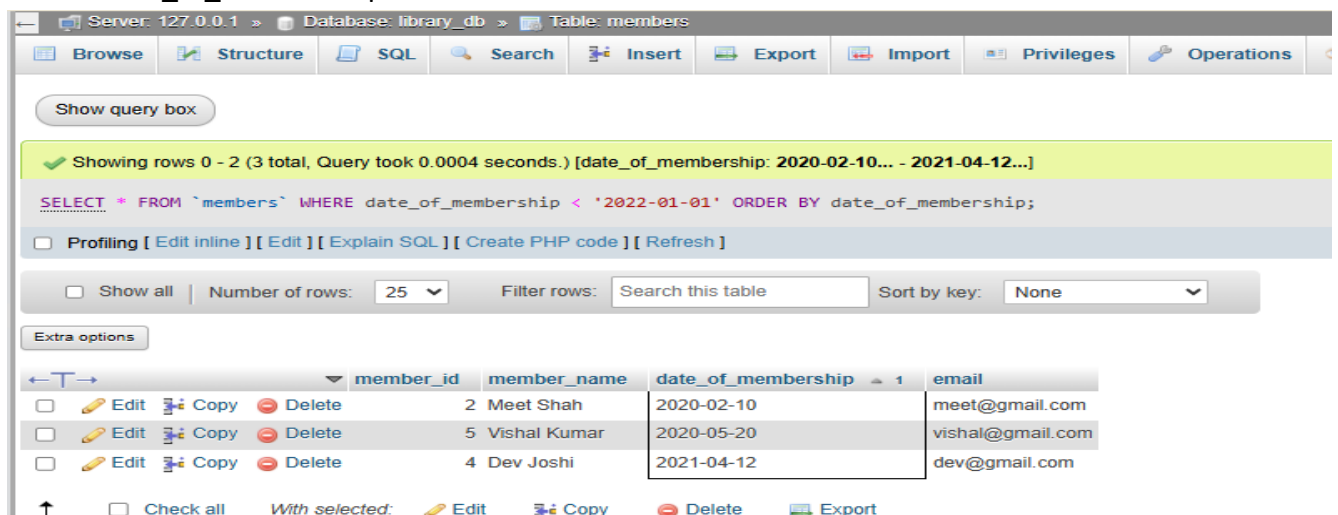
The screenshot shows the phpMyAdmin interface. On the left is the database navigation tree with 'library_db' selected. The main panel shows the 'members' table structure and data. The table has 5 rows of data.

member_id	member_name	date_of_membership	email
1	Ayush Patel	2024-01-15	ayush@gmail.com
2	Meet Shah	2020-02-10	meet@gmail.com
3	Karan Mehta	2024-03-05	karan@gmail.com
4	Dev Joshi	2021-04-12	dev@gmail.com
5	Vishal Kumar	2020-05-20	vishal@gmail.com

2. SQL Syntax

Lab 3 : Retrieve all members who joined the library before 2022. Use appropriate SQL syntax with WHERE and ORDER BY.

- SELECT * FROM `members` WHERE date_of_membership < '2022-01-01' ORDER BY date_of_membership

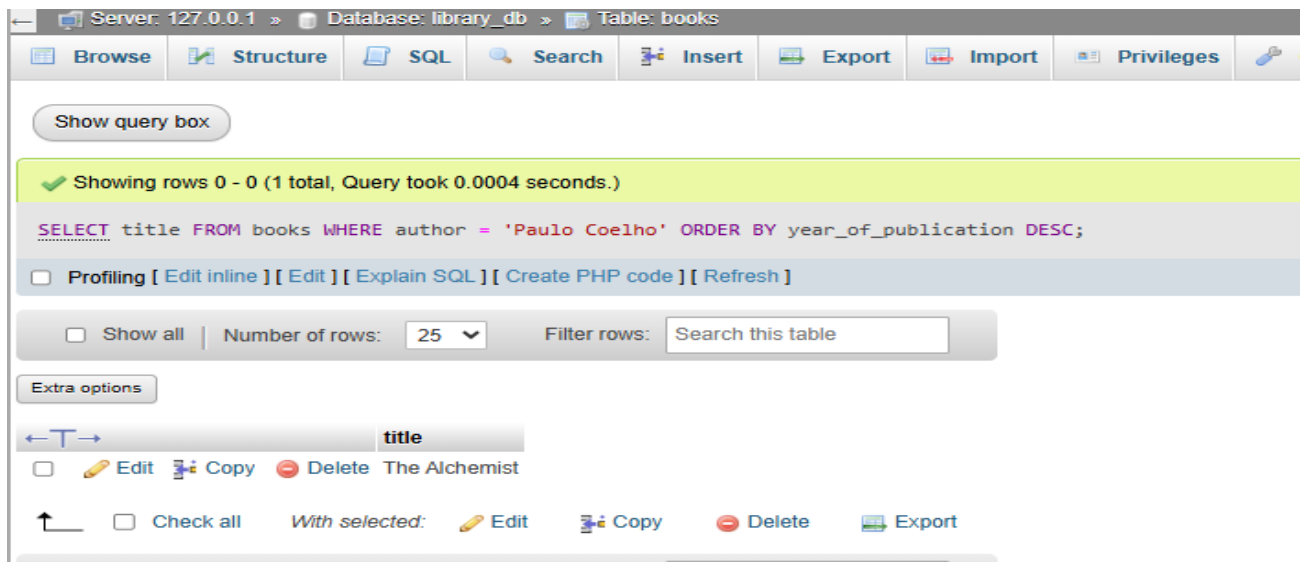


The screenshot shows the phpMyAdmin interface with a SQL query executed. The query is: `SELECT * FROM `members` WHERE date_of_membership < '2022-01-01' ORDER BY date_of_membership;`. The result shows 3 rows of data.

member_id	member_name	date_of_membership	email
2	Meet Shah	2020-02-10	meet@gmail.com
5	Vishal Kumar	2020-05-20	vishal@gmail.com
4	Dev Joshi	2021-04-12	dev@gmail.com

Lab 4 : Write SQL queries to display the titles of books published by a specific author. Sort the results by year_of_publication in descending order.

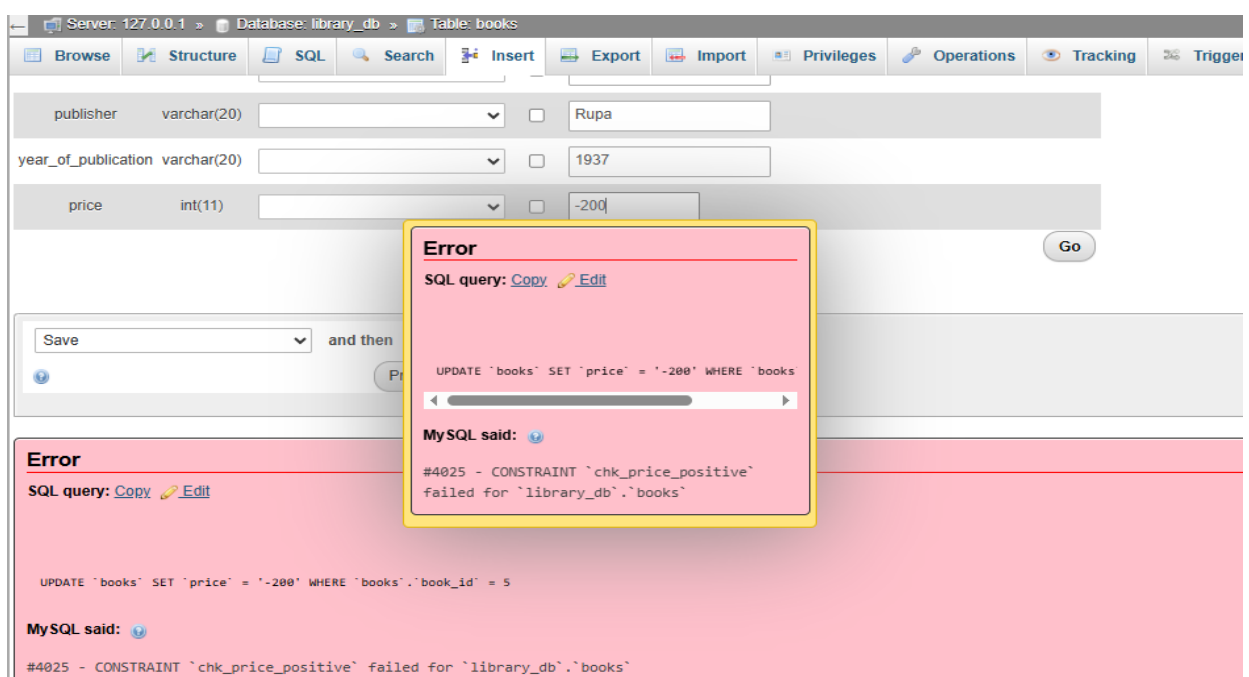
- SELECT title FROM books WHERE author = 'Paulo Coelho' ORDER BY year_of_publication DESC



3. SQL Constraints

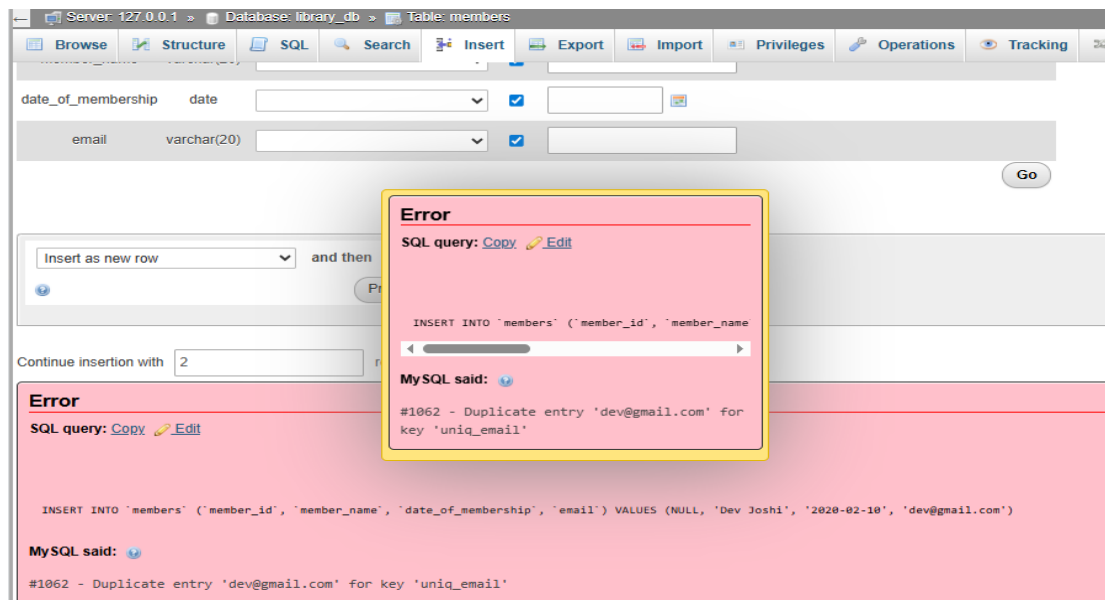
Lab 3 : Add a CHECK constraint to ensure that the price of books in the books table is greater than 0.

- ALTER TABLE books ADD CONSTRAINT check_price_positive CHECK (price > 0)



Lab 4 : Modify the members table to add a UNIQUE constraint on the email column, ensuring that each member has a unique email address.

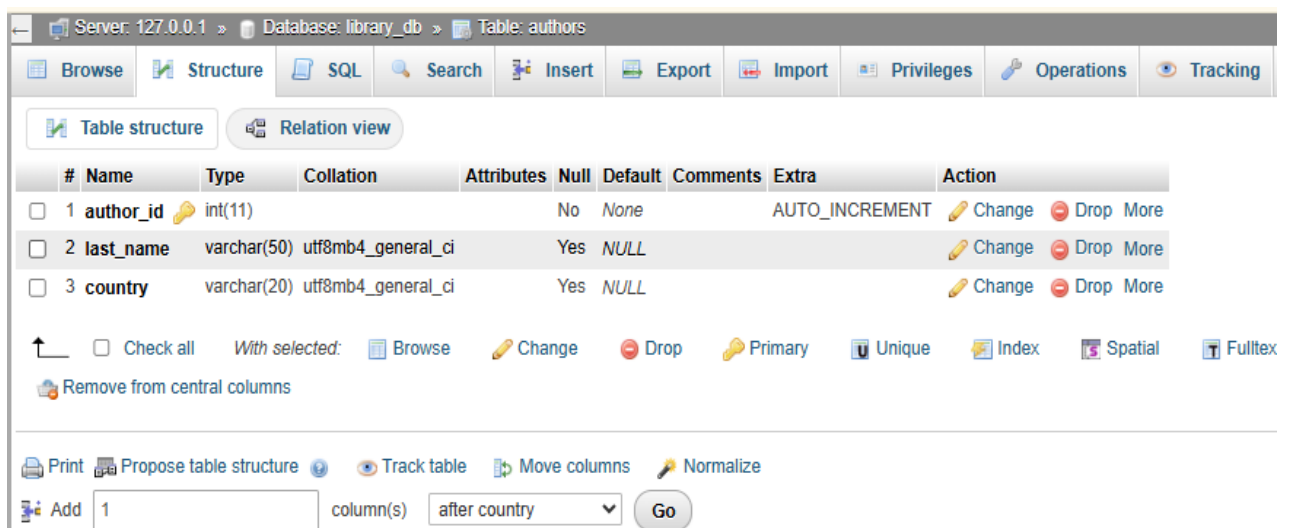
- ALTER TABLE members ADD CONSTRAINT uniq_email UNIQUE(email)



4. Main SQL Commands and Sub-commands (DDL)

Lab 3 : Create a table authors with the following columns: author_id, first_name, last_name, and country. Set author_id as the primary key.

- CREATE TABLE authors (author_id int PRIMARY KEY AUTO_INCREMENT, last_name varchar(50), country varchar(20))



Lab 4 : Create a table publishers with columns: publisher_id, publisher_name, contact_number, and address. Set publisher_id as the primary key and contact_number as unique.

- CREATE TABLE publishers (publisher_id int PRIMARY KEY AUTO_INCREMENT, publisher_name varchar(50), contact_number int UNIQUE KEY, address varchar(50))

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	publisher_id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	publisher_name	varchar(50)	utf8mb4_general_ci		Yes	NULL			Change Drop More
3	contact_number	int(11)			Yes	NULL			Change Drop More
4	address	varchar(50)	utf8mb4_general_ci		Yes	NULL			Change Drop More

5. ALTER Command

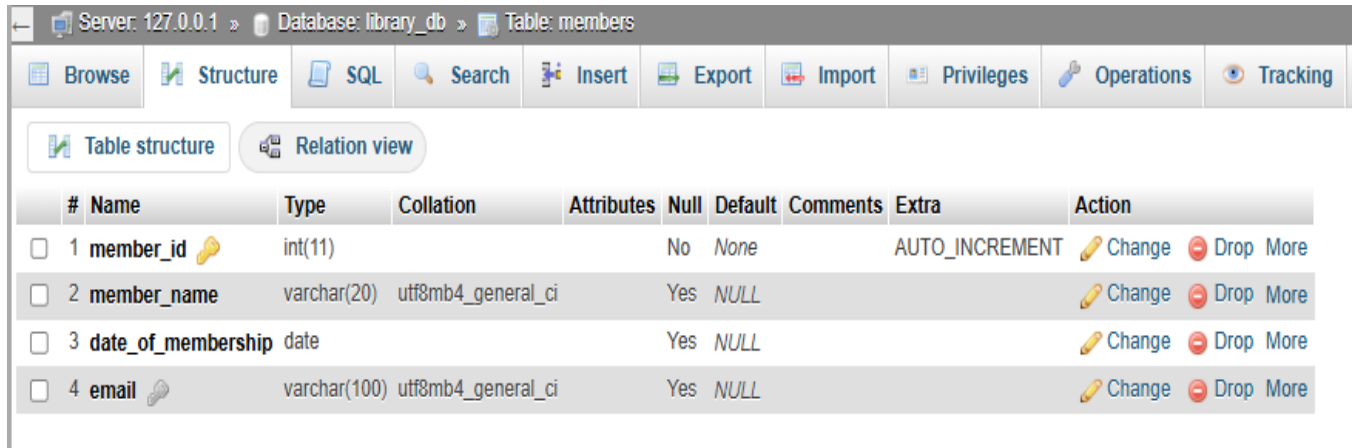
Lab 3 : Add a new column genre to the books table. Update the genre for all existing records.

- ALTER TABLE books ADD COLUMN gener varchar(50)
- UPDATE books SET genre = 'Fiction / Philosophy' WHERE book_id = 1;
- UPDATE books SET genre = 'Programming' WHERE book_id = 2;
- UPDATE books SET genre = 'Self Help' WHERE book_id = 3;
- UPDATE books SET genre = 'Biography' WHERE book_id = 4;
- UPDATE books SET genre = 'Self Help' WHERE book_id = 5;

book_id	title	author	publisher	year_of_publication	price	genre
1	The Alchemist	Paulo Coelho	HarperCollins	1988	300	Fiction / Philosophy
2	Clean Code	Robert C. Martin	Pearson	2008	550	Programming
3	Atomic Habits	James Clear	Penguin	2018	451	Self Help
4	Wings of Fire	A. P. J. Abdul Kalam	Universities Press	1999	350	Biography
5	Think and Grow Rich	Napoleon Hill	Rupa	1937	400	Self Help

Lab 4 : Modify the members table to increase the length of the email column to 100 characters.

- ALTER TABLE members MODIFY email varchar(100)



The screenshot shows the phpMyAdmin interface for the 'library_db' database, specifically the 'members' table. The 'Table structure' tab is selected. The table has four columns: 'member_id' (int(11), primary key, AUTO_INCREMENT), 'member_name' (varchar(20)), 'date_of_membership' (date), and 'email' (varchar(100), primary key). The 'email' column is highlighted in blue.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 member_id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
<input type="checkbox"/>	2 member_name	varchar(20)	utf8mb4_general_ci		Yes	NULL			Change Drop More
<input type="checkbox"/>	3 date_of_membership	date			Yes	NULL			Change Drop More
<input type="checkbox"/>	4 email	varchar(100)	utf8mb4_general_ci		Yes	NULL			Change Drop More

6. DROP Command

Lab 3 : Drop the publishers table from the database after verifying its structure.

- DROP TABLE publishers



The screenshot shows the phpMyAdmin interface with an error message. The error message is: "#1146 - Table 'library_db.publishers' doesn't exist". The error is displayed in a yellow box. Below the error message, the SQL query is shown: "SELECT * FROM 'publishers' WHERE 1 LIMIT 0, 25". The error message is repeated at the bottom of the page.

Clear Format Get auto-saved query

☐ Bind parameters

Bookmark this SQL query:

Delimiter: ; ☐ Show this query here again ☐ Retain query box ☐ Rollback when finished ☒ Enable foreign key checks

Error

SQL query: [Copy](#)

```
SELECT * FROM 'publishers' WHERE 1 LIMIT 0, 25
```

MySQL said:

#1146 - Table 'library_db.publishers' doesn't exist

#1146 - Table 'library_db.publishers' doesn't exist

Lab 4 : Create a backup of the members table and then drop the original members table.

- CREATE TABLE members_backup AS SELECT * FROM members
- DROP TABLE members

Server: 127.0.0.1 » Database: library_db » Table: members_backup

[Browse](#) [Structure](#) [SQL](#) [Search](#) [Insert](#) [Export](#) [Import](#) [Privileges](#)

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available

✓ Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

```
SELECT * FROM `members_backup`
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 ▾ | Filter rows:

Extra options

member_id	member_name	date_of_membership	email
1	Ayush Patel	2024-01-15	ayush@gmail.com
2	Meet Shah	2020-02-10	meet@gmail.com
3	Karan Mehta	2024-03-05	karan@gmail.com
4	Dev Joshi	2021-04-12	dev@gmail.com
5	Vishal Kumar	2020-05-20	vishal@gmail.com

7. Data Manipulation Language (DML)

Lab 4 : Insert three new authors into the authors table, then update the last name of one of the authors.

- INSERT INTO authors (first_name,last_name,country) VALUES ('Paulo', 'Coelho', 'Brazil');
- INSERT INTO authors (first_name,last_name,country) VALUES ('Robert', 'Martin', 'USA');
- INSERT INTO authors (first_name,last_name,country) VALUES ('James', 'Clear', 'USA');
- UPDATE authors SET last_name = 'C.martin' WHERE author_id = 2

Server: 127.0.0.1 » Database: library_db » Table: authors

Browse Structure SQL Search Insert Export

Showing rows 0 - 2 (3 total, Query took 0.0004 seconds.)

SELECT * FROM `authors`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

		author_id	first_name	last_name	country
<input type="checkbox"/>	Edit Copy Delete	1	Paulo	Coelho	Brazil
<input type="checkbox"/>	Edit Copy Delete	2	Robert	Martin	USA
<input type="checkbox"/>	Edit Copy Delete	3	James	Clear	USA

Server: 127.0.0.1 » Database: library_db » Table: authors

Browse Structure SQL Search Insert Export

Showing rows 0 - 2 (3 total, Query took 0.0003 seconds.)

SELECT * FROM `authors`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

		author_id	first_name	last_name	country
<input type="checkbox"/>	Edit Copy Delete	1	Paulo	Coelho	Brazil
<input type="checkbox"/>	Edit Copy Delete	2	Robert	C.martin	USA
<input type="checkbox"/>	Edit Copy Delete	3	James	Clear	USA

Lab 5 : Delete a book from the books table where the price is higher than \$100.

- DELETE FROM books WHERE price>100

Server: 127.0.0.1 » Database: library_db » Table: books

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking

Showing rows 0 - 2 (3 total, Query took 0.0003 seconds.)

SELECT * FROM `books`

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

	book_id	title	author	publisher	year_of_publication	price	genre
<input type="checkbox"/> Edit Copy Delete	1	The Alchemist	Paulo Coelho	HarperCollins	1988	60	Fiction / Philosophy
<input type="checkbox"/> Edit Copy Delete	3	Atomic Habits	James Clear	Penguin	2018	95	Self Help
<input type="checkbox"/> Edit Copy Delete	5	Think and Grow Rich	Napoleon Hill	Rupa	1937	90	Self Help

8. UPDATE Command

Lab 3 : Update the year_of_publication of a book with a specific book_id.

- UPDATE books SET year_of_publication = 2020 WHERE book_id = 3

Server: 127.0.0.1 » Database: library_db » Table: books

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking

Showing rows 0 - 2 (3 total, Query took 0.0005 seconds.)

SELECT * FROM `books`

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

	book_id	title	author	publisher	year_of_publication	price	genre
<input type="checkbox"/> Edit Copy Delete	1	The Alchemist	Paulo Coelho	HarperCollins	1988	60	Fiction / Philosophy
<input type="checkbox"/> Edit Copy Delete	3	Atomic Habits	James Clear	Penguin	2020	95	Self Help
<input type="checkbox"/> Edit Copy Delete	5	Think and Grow Rich	Napoleon Hill	Rupa	1937	90	Self Help

Lab 4 : Increase the price of all books published before 2015 by 10%.

- UPDATE books SET price = price * 1.10 WHERE year_of_publication < 2015

Server: 127.0.0.1 > Database: library_db > Table: books

Showing rows 0 - 2 (3 total, Query took 0.0003 seconds.)

SELECT * FROM `books`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

	book_id	title	author	publisher	year_of_publication	price	genre
<input type="checkbox"/> Edit Copy Delete	1	The Alchemist	Paulo Coelho	HarperCollins	1988	66	Fiction / Philosophy
<input type="checkbox"/> Edit Copy Delete	3	Atomic Habits	James Clear	Penguin	2020	95	Self Help
<input type="checkbox"/> Edit Copy Delete	5	Think and Grow Rich	Napoleon Hill	Rupa	1937	99	Self Help

9. DELETE Command

Lab 3 : Remove all members who joined before 2020 from the members table.

- DELETE FROM members WHERE date_of_membership < '2020-01-01'

Server: 127.0.0.1 > Database: library_db > Table: members

Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

SELECT * FROM `members`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

	member_id	member_name	date_of_membership	email
<input type="checkbox"/> Edit Copy Delete	1	Ayush Patel	2024-01-15	ayush@gmail.com
<input type="checkbox"/> Edit Copy Delete	2	Meet Shah	2010-02-10	meet@gmail.com
<input type="checkbox"/> Edit Copy Delete	3	Karan Mehta	2005-03-05	karan@gmail.com
<input type="checkbox"/> Edit Copy Delete	4	Dev Joshi	2021-04-12	dev@gmail.com
<input type="checkbox"/> Edit Copy Delete	5	Vishal Kumar	2020-05-20	vishal@gmail.com

Server: 127.0.0.1 > Database: library_db > Table: members

Showing rows 0 - 2 (3 total, Query took 0.0003 seconds.)

SELECT * FROM `members`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

	member_id	member_name	date_of_membership	email
<input type="checkbox"/> Edit Copy Delete	1	Ayush Patel	2024-01-15	ayush@gmail.com
<input type="checkbox"/> Edit Copy Delete	4	Dev Joshi	2021-04-12	dev@gmail.com
<input type="checkbox"/> Edit Copy Delete	5	Vishal Kumar	2020-05-20	vishal@gmail.com

Lab 4 : Delete all books that have a NULL value in the author column.

- DELETE FROM books WHERE author IS null

Server: 127.0.0.1 » Database: library_db » Table: books

[Browse](#) [Structure](#) [SQL](#) [Search](#) [Insert](#) [Export](#) [Import](#) [Privileges](#) [Operations](#)

✓ Showing rows 0 - 1 (2 total, Query took 0.0005 seconds.)

`SELECT * FROM `books``

☐ Profiling [\[Edit inline \]](#) [\[Edit \]](#) [\[Explain SQL \]](#) [\[Create PHP code \]](#) [\[Refresh \]](#)

☐ Show all | Number of rows: 25 ▼ Filter rows: Sort by key: None ▼

Extra options

		book_id	title	author	publisher	year_of_publication	price	genre		
<input type="checkbox"/>	Edit	Copy	Delete	3	Atomic Habits	NULL	Penguin	2020	95	Self Help
<input type="checkbox"/>	Edit	Copy	Delete	5	Think and Grow Rich	Napoleon Hill	Rupa	1937	99	Self Help

Server: 127.0.0.1 » Database: library_db » Table: books

[Browse](#) [Structure](#) [SQL](#) [Search](#) [Insert](#) [Export](#) [Import](#) [Privileges](#) [Operations](#)

✓ Showing rows 0 - 0 (1 total, Query took 0.0003 seconds.)

`SELECT * FROM `books``

☐ Profiling [\[Edit inline \]](#) [\[Edit \]](#) [\[Explain SQL \]](#) [\[Create PHP code \]](#) [\[Refresh \]](#)

☐ Show all | Number of rows: 25 ▼ Filter rows:

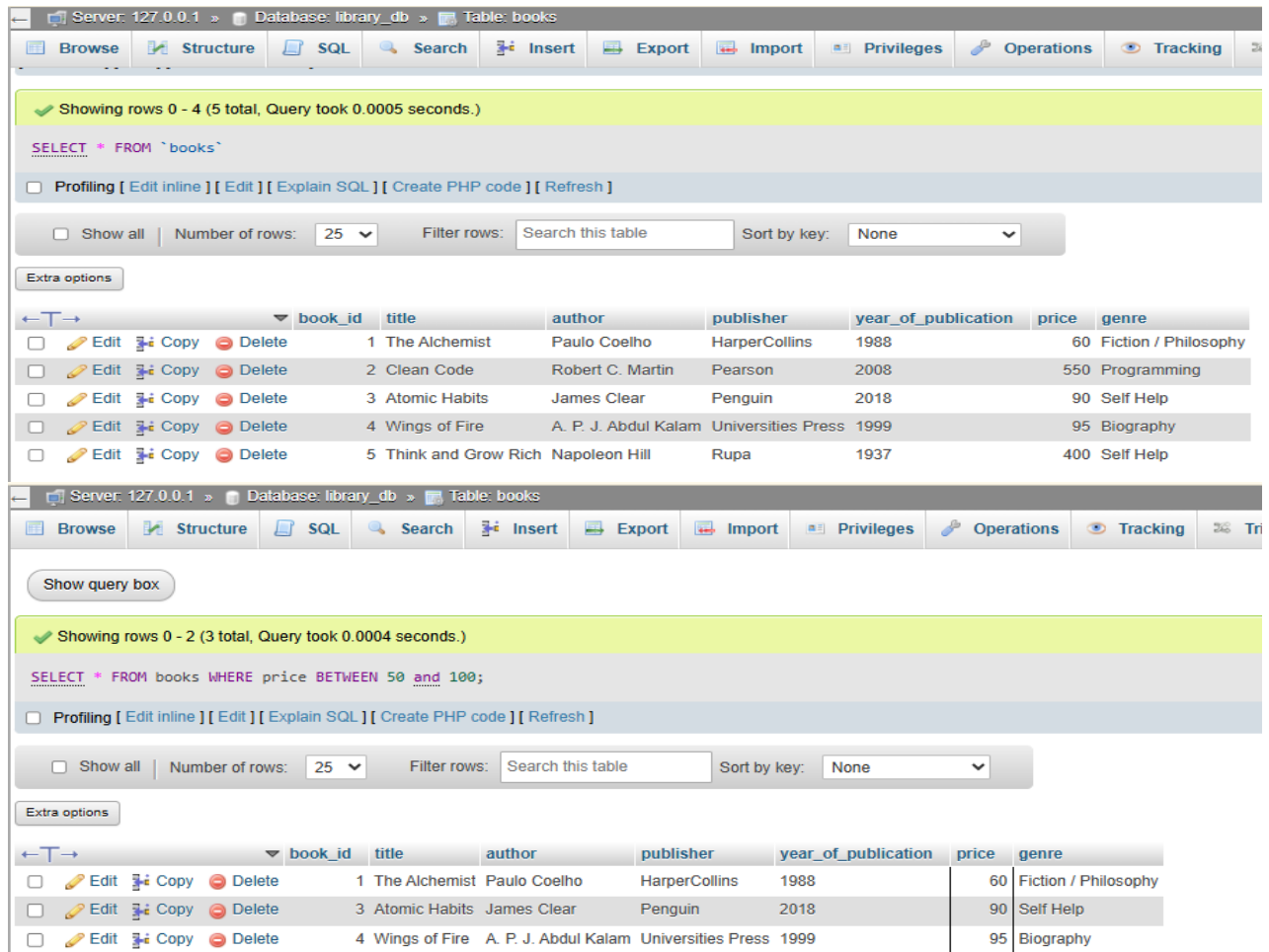
Extra options

		book_id	title	author	publisher	year_of_publication	price	genre		
<input type="checkbox"/>	Edit	Copy	Delete	5	Think and Grow Rich	Napoleon Hill	Rupa	1937	99	Self Help

10. Data Query Language (DQL)

Lab 4 : Write a query to retrieve all books with price between \$50 and \$100.

- `SELECT * FROM books WHERE price BETWEEN 50 and 100`



Server: 127.0.0.1 » Database: library_db » Table: books

Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

```
SELECT * FROM `books`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

	book_id	title	author	publisher	year_of_publication	price	genre
<input type="checkbox"/>	1	The Alchemist	Paulo Coelho	HarperCollins	1988	60	Fiction / Philosophy
<input type="checkbox"/>	2	Clean Code	Robert C. Martin	Pearson	2008	550	Programming
<input type="checkbox"/>	3	Atomic Habits	James Clear	Penguin	2018	90	Self Help
<input type="checkbox"/>	4	Wings of Fire	A. P. J. Abdul Kalam	Universities Press	1999	95	Biography
<input type="checkbox"/>	5	Think and Grow Rich	Napoleon Hill	Rupa	1937	400	Self Help

Server: 127.0.0.1 » Database: library_db » Table: books

Show query box

Showing rows 0 - 2 (3 total, Query took 0.0004 seconds.)

```
SELECT * FROM books WHERE price BETWEEN 50 and 100;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

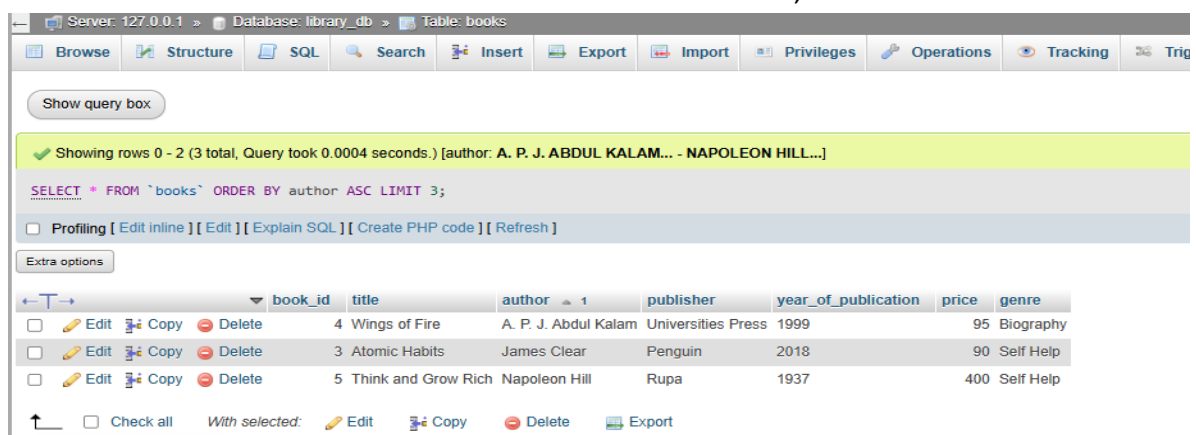
Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

	book_id	title	author	publisher	year_of_publication	price	genre
<input type="checkbox"/>	1	The Alchemist	Paulo Coelho	HarperCollins	1988	60	Fiction / Philosophy
<input type="checkbox"/>	3	Atomic Habits	James Clear	Penguin	2018	90	Self Help
<input type="checkbox"/>	4	Wings of Fire	A. P. J. Abdul Kalam	Universities Press	1999	95	Biography

Lab 5 : Retrieve the list of books sorted by author in ascending order and limit the results to the top 3 entries.

- `SELECT * FROM `books` ORDER BY author ASC LIMIT 3;`



Server: 127.0.0.1 » Database: library_db » Table: books

Show query box

Showing rows 0 - 2 (3 total, Query took 0.0004 seconds.) [author: A. P. J. ABDUL KALAM... - NAPOLEON HILL...]

```
SELECT * FROM `books` ORDER BY author ASC LIMIT 3;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Extra options

	book_id	title	author	publisher	year_of_publication	price	genre
<input type="checkbox"/>	4	Wings of Fire	A. P. J. Abdul Kalam	Universities Press	1999	95	Biography
<input type="checkbox"/>	3	Atomic Habits	James Clear	Penguin	2018	90	Self Help
<input type="checkbox"/>	5	Think and Grow Rich	Napoleon Hill	Rupa	1937	400	Self Help

Check all | With selected: Edit Copy Delete Export

11. Data Control Language (DCL)

Lab 3 : Grant SELECT permission to a user named librarian on the books table.

Lab 4 : Grant INSERT and UPDATE permissions to the user admin on the members table.

- GRANT SELECT ON library_db.books TO 'librarian'@'localhost';
- GRANT INSERT, UPDATE ON library_db.members TO 'admin'@'localhost';

The screenshot shows the phpMyAdmin interface for the 'library_db' database, specifically the 'books' table. The 'SQL' tab is selected. A message indicates that the SQL query has been executed successfully. The query entered is 'SHOW GRANTS FOR 'librarian'@'localhost';'. Below the query, the results show the grants for the 'librarian' user: 'GRANT USAGE ON *.* TO 'librarian'@'localhost'' and 'GRANT SELECT ON 'library_db'.'books' TO 'librarian...'.

Server: 127.0.0.1 » Database: library_db » Table: books

Browse Structure SQL Search Insert Export

Show query box

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and

Your SQL query has been executed successfully.

```
SHOW GRANTS FOR 'librarian'@'localhost';
```

☐ Profiling [Edit inline] [Edit] [Create PHP code] [Refresh]

Extra options

Grants for librarian@localhost

```
GRANT USAGE ON *.* TO 'librarian'@'localhost'
```

```
GRANT SELECT ON 'library_db'.'books' TO 'librarian...'
```

The screenshot shows the phpMyAdmin interface for the 'library_db' database, specifically the 'books' table. The 'SQL' tab is selected. A message indicates that the SQL query has been executed successfully. The query entered is 'SHOW GRANTS FOR 'admin'@'localhost';'. Below the query, the results show the grants for the 'admin' user: 'GRANT USAGE ON *.* TO 'admin'@'localhost'' and 'GRANT INSERT, UPDATE ON 'library_db'.'members' TO ...'.

Server: 127.0.0.1 » Database: library_db » Table: books

Browse Structure SQL Search Insert Export

Show query box

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, C

Your SQL query has been executed successfully.

```
SHOW GRANTS FOR 'admin'@'localhost';
```

☐ Profiling [Edit inline] [Edit] [Create PHP code] [Refresh]

Extra options

Grants for admin@localhost

```
GRANT USAGE ON *.* TO 'admin'@'localhost'
```

```
GRANT INSERT, UPDATE ON 'library_db'.'members' TO ...'
```

12. REVOKE Command

Lab 3 : Revoke the INSERT privilege from the user librarian on the books table.

Lab 4 : Revoke all permissions from user admin on the members table.

- REVOKE INSERT ON library_db.books FROM 'librarian'@'localhost';
- REVOKE ALL PRIVILEGES ON library_db.members FROM 'admin'@'localhost';

Server: 127.0.0.1 » Database: library_db » Table: books

Browse Structure SQL Search Insert Export

Show query box

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and

Your SQL query has been executed successfully.

```
SHOW GRANTS FOR 'librarian'@'localhost';
```

☐ Profiling [Edit inline] [Edit] [Create PHP code] [Refresh]

Extra options

Grants for librarian@localhost

```
GRANT USAGE ON *.* TO 'librarian'@'localhost'
```

```
GRANT SELECT ON 'library_db'.'books' TO 'librarian...'
```

Server: 127.0.0.1 » Database: library_db » Table: books

Browse Structure SQL Search Insert Export

Show query box

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and

Your SQL query has been executed successfully.

```
SHOW GRANTS FOR 'admin'@'localhost';
```

☐ Profiling [Edit inline] [Edit] [Create PHP code] [Refresh]

Extra options

Grants for admin@localhost

```
GRANT USAGE ON *.* TO 'admin'@'localhost'
```

13. Transaction Control Language (TCL)

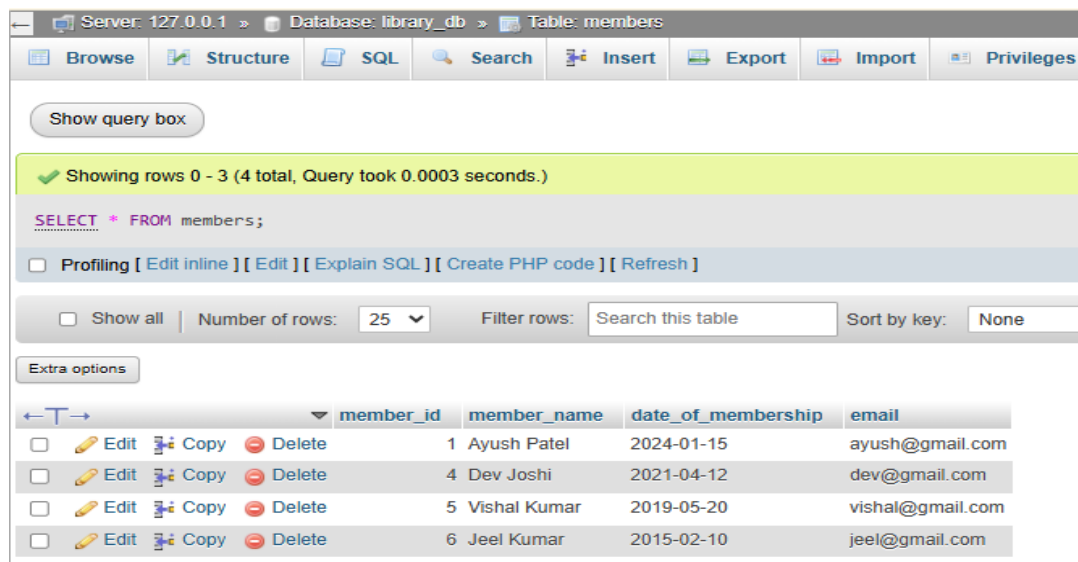
Lab 3 : Use COMMIT after inserting multiple records into the books table, then make another insertion and perform a ROLLBACK.

- START TRANSACTION;
INSERT INTO books
(book_id, title, author, publisher, year_of_publication, price, genre)
VALUES
(6, 'Data Structures', 'Mark Allen Weiss', 'Pearson', 2014, 450, 'Programming');
INSERT INTO books
(book_id, title, author, publisher, year_of_publication, price, genre)
VALUES
(7, 'Operating System Concepts', 'Silberschatz', 'Wiley', 2018, 600, 'Programming');
COMMIT;
START TRANSACTION;
INSERT INTO books
(book_id, title, author, publisher, year_of_publication, price, genre)
VALUES
(8, 'Machine Learning', 'Tom Mitchell', 'McGraw Hill', 2017, 700, 'AI');
ROLLBACK;

	book_id	title	author	publisher	year_of_publication	price	genre
<input type="checkbox"/>	1	The Alchemist	Paulo Coelho	HarperCollins	1988	60	Fiction / Philosophy
<input type="checkbox"/>	2	Clean Code	Robert C. Martin	Pearson	2008	550	Programming
<input type="checkbox"/>	3	Atomic Habits	James Clear	Penguin	2018	90	Self Help
<input type="checkbox"/>	4	Wings of Fire	A. P. J. Abdul Kalam	Universities Press	1999	95	Biography
<input type="checkbox"/>	5	Think and Grow Rich	Napoleon Hill	Rupa	1937	400	Self Help
<input type="checkbox"/>	6	Data Structures	Mark Allen Weiss	Pearson	2014	450	Programming
<input type="checkbox"/>	7	Operating System Con	Silberschatz	Wiley	2018	600	Programming

Lab 4 : Set a SAVEPOINT before making updates to the members table, perform some updates, and then roll back to the SAVEPOINT.

- START TRANSACTION;
SAVEPOINT before_update;
UPDATE members
SET email = 'updated_ayush@gmail.com'
WHERE member_id = 1;
UPDATE members
SET member_name = 'Dev Joshi Patel'
WHERE member_id = 4;
ROLLBACK TO before_update;
COMMIT;



Server: 127.0.0.1 » Database: library_db » Table: members

Browse Structure SQL Search Insert Export Import Privileges

Show query box

Showing rows 0 - 3 (4 total, Query took 0.0003 seconds.)

SELECT * FROM members;

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

Extra options

		member_id	member_name	date_of_membership	email
<input type="checkbox"/>	Edit Copy Delete	1	Ayush Patel	2024-01-15	ayush@gmail.com
<input type="checkbox"/>	Edit Copy Delete	4	Dev Joshi	2021-04-12	dev@gmail.com
<input type="checkbox"/>	Edit Copy Delete	5	Vishal Kumar	2019-05-20	vishal@gmail.com
<input type="checkbox"/>	Edit Copy Delete	6	Jeel Kumar	2015-02-10	jeel@gmail.com

14. SQL Joins

Lab 3 : Perform an INNER JOIN between books and authors tables to display the title of books and their respective authors' names.

- `SELECT title, first_name, last_name FROM books JOIN authors ON author = CONCAT(first_name, ' ', last_name);`

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

- Server:** 127.0.0.1
- Database:** library_db
- Table:** books
- Navigation Bar:** Browse, Structure, SQL, Search, Insert, Export, Import, Privileges, Operations.
- Message Bar:** "Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available."
- Query Status:** "Showing rows 0 - 2 (3 total, Query took 0.0005 seconds.)"
- SQL Query:**

```
SELECT title, first_name, last_name FROM books JOIN authors ON author = CONCAT(first_name, ' ', last_name);
```
- Query Options:** Profiling, Edit inline, Edit, Explain SQL, Create PHP code, Refresh.
- Display Settings:** Show all, Number of rows: 25, Filter rows: Search this table, Sort by key: None.
- Extra options:** A button to expand additional settings.
- Results Table:**

title	first_name	last_name
The Alchemist	Paulo	Coelho
Atomic Habits	James	Clear
Think and Grow Rich	Napoleon	Hill

Lab 4 : Use a FULL OUTER JOIN to retrieve all records from the books and authors tables, including those with no matching entries in the other table.

- `SELECT title, first_name, last_name FROM books LEFT JOIN authors ON author = CONCAT(first_name, ' ', last_name) UNION SELECT title, first_name, last_name FROM books RIGHT JOIN authors ON author = CONCAT(first_name, ' ', last_name);`

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

- Server:** 127.0.0.1
- Database:** library_db
- Table:** books
- Navigation Bar:** Browse, Structure, SQL, Search, Insert, Export, Import, Privileges, Operations, Tracking, Triggers.
- Message Bar:** "Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available."
- Query Status:** "Showing rows 0 - 5 (6 total, Query took 0.0011 seconds.)"
- SQL Query:**

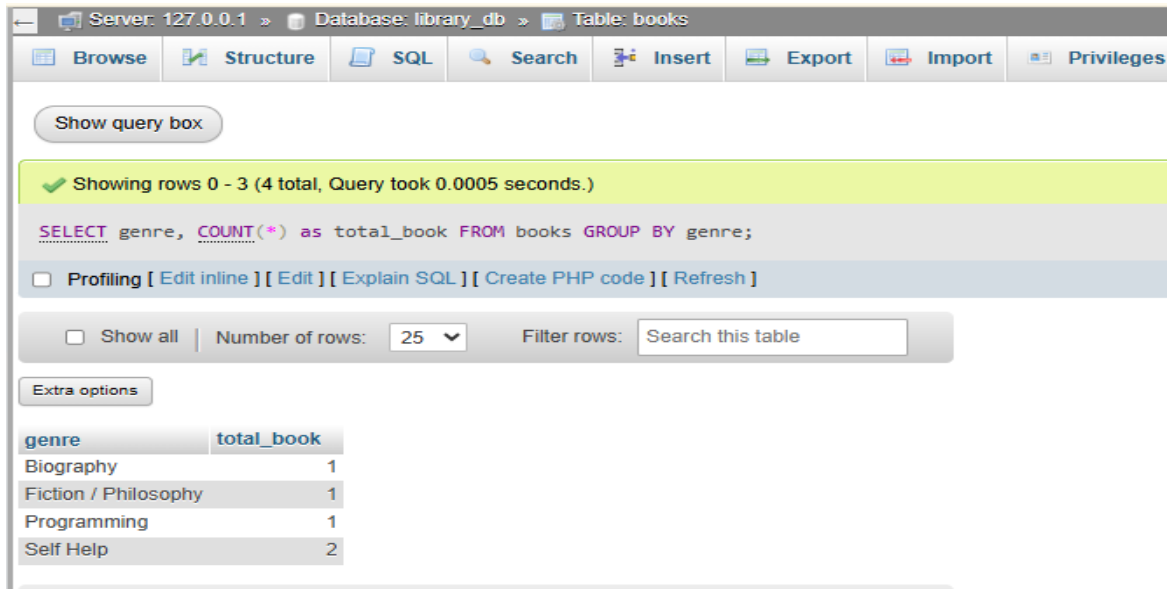
```
SELECT title, first_name, last_name FROM books LEFT JOIN authors ON author = CONCAT(first_name, ' ', last_name) UNION SELECT title, first_name, last_name FROM books RIGHT JOIN authors ON author = CONCAT(first_name, ' ', last_name);
```
- Query Options:** Profiling, Edit inline, Edit, Explain SQL, Create PHP code, Refresh.
- Display Settings:** Show all, Number of rows: 25, Filter rows: Search this table, Sort by key: None.
- Extra options:** A button to expand additional settings.
- Results Table:**

title	first_name	last_name
The Alchemist	Paulo	Coelho
Atomic Habits	James	Clear
Think and Grow Rich	Napoleon	Hill
Clean Code	NULL	NULL
Wings of Fire	NULL	NULL
NULL	Robert	Martin

15. SQL Group By

Lab 3 : Group books by genre and display the total number of books in each genre.

- SELECT genre, COUNT(*) as total_book FROM books GROUP BY genre;



Server: 127.0.0.1 » Database: library_db » Table: books

Showing rows 0 - 3 (4 total, Query took 0.0005 seconds.)

```
SELECT genre, COUNT(*) as total_book FROM books GROUP BY genre;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

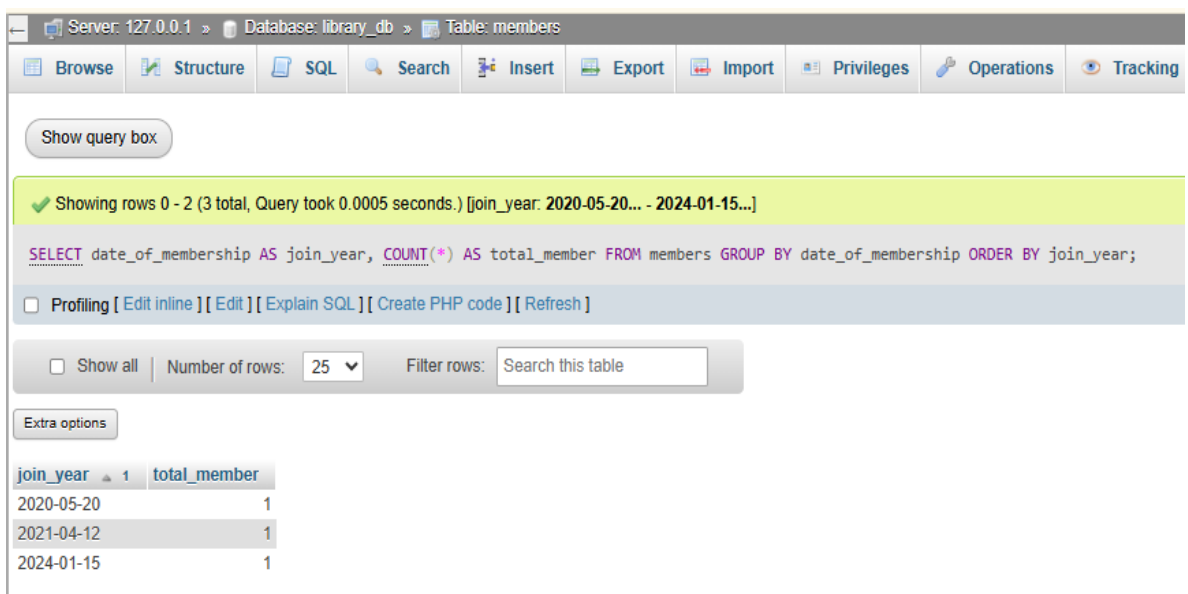
Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

genre	total_book
Biography	1
Fiction / Philosophy	1
Programming	1
Self Help	2

Lab 4 : Group members by the year they joined and find the number of members who joined each year.

- SELECT date_of_membership AS join_year, COUNT(*) AS total_member FROM members GROUP BY date_of_membership ORDER BY join_year;



Server: 127.0.0.1 » Database: library_db » Table: members

Showing rows 0 - 2 (3 total, Query took 0.0005 seconds.) [join_year: 2020-05-20... - 2024-01-15...]

```
SELECT date_of_membership AS join_year, COUNT(*) AS total_member FROM members GROUP BY date_of_membership ORDER BY join_year;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

join_year	total_member
2020-05-20	1
2021-04-12	1
2024-01-15	1

16. SQL Stored Procedure

Lab 3 : Write a stored procedure to retrieve all books by a particular author.

```
- DELIMITER //  
CREATE PROCEDURE getbook_by_author (IN author_name varchar(50))  
BEGIN  
SELECT * FROM books WHERE author = author_name;  
END //  
DELIMITER ;
```

Server: 127.0.0.1 » Database: library_db

Structure SQL Search Query Export Import Operations Privileges Routines

✓ Your SQL query has been executed successfully.
1 row affected by the last statement inside the procedure.

```
SET @p0='James clear'; CALL `getbook_by_author` (@p0);
```

Execution results of routine `getbook_by_author`

book_id	title	author	publisher	year_of_publication	price	genre
3	Atomic Habits	James Clear	Penguin	2018	90	Self Help

Routines

☐ Check all

Name	Type	Returns	
<input type="checkbox"/> getbook_by_author	PROCEDURE		<input type="button" value="Edit"/> <input type="button" value="Execute"/> <input type="button" value="Export"/> <input type="button" value="Drop"/>

Lab 4 : Write a stored procedure that takes book_id as an argument and returns the price of the book.

```
- DELIMITER //  
CREATE PROCEDURE getprice_by_bookid (IN b_id int)  
BEGIN  
SELECT price FROM books WHERE book_id = b_id;  
END//  
DELIMITER ;
```

The screenshot shows a MySQL database interface with the following components:

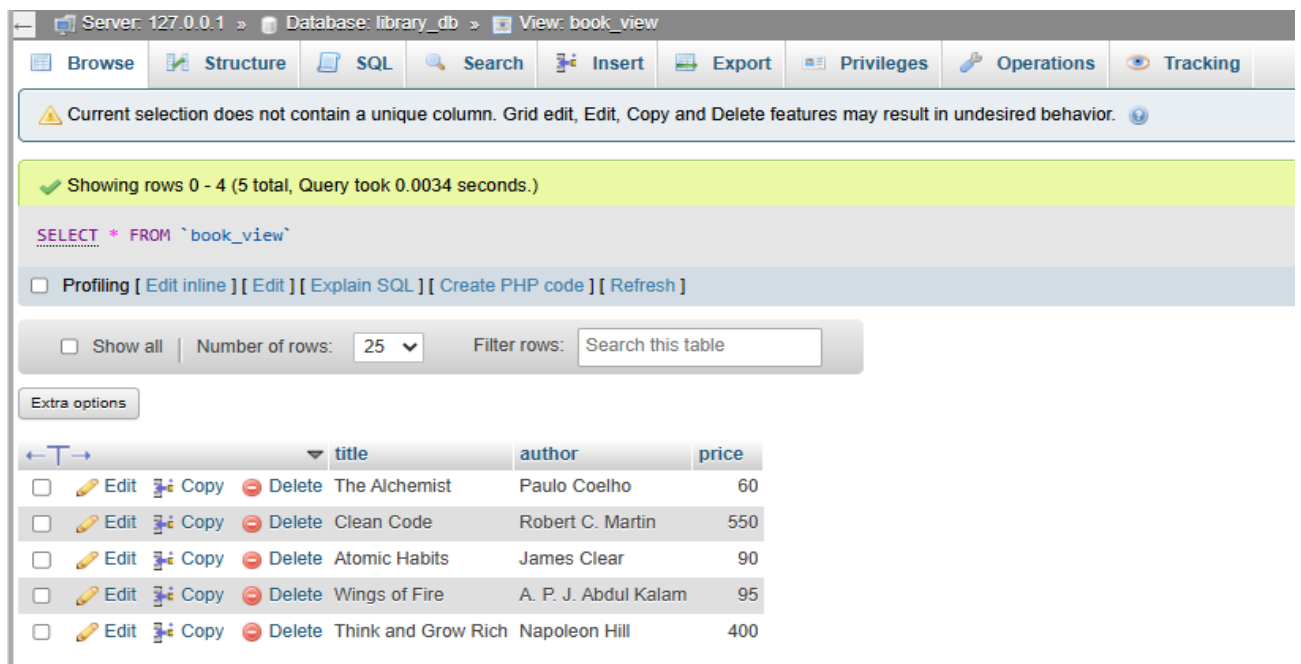
- Header:** Server: 127.0.0.1, Database: library_db
- Navigation Bar:** Structure, SQL, Search, Query, Export, Import, Operations, Privileges
- Message Bar:** A green bar indicating "Your SQL query has been executed successfully. 1 row affected by the last statement inside the procedure."
- SQL Editor:** Contains the SQL code: `SET @p0='3'; CALL `getprice_by_bookid` (@p0);`
- Execution Results:** A box titled "Execution results of routine 'getprice_by_bookid'" showing a single row with the column "price" and the value "90".
- Routines Section:** A table listing database routines.

	Name	Type	Returns	
<input type="checkbox"/>	getbook_by_author	PROCEDURE		Edit Execute Export Drop
<input type="checkbox"/>	getprice_by_bookid	PROCEDURE		Edit Execute Export Drop

17. SQL View

Lab 3 : Create a view to show only the title, author, and price of books from the books table.

- CREATE VIEW book_view AS SELECT title,author,price FROM books



Server: 127.0.0.1 » Database: library_db » View: book_view

Current selection does not contain a unique column. Grid edit, Edit, Copy and Delete features may result in undesired behavior.

Showing rows 0 - 4 (5 total, Query took 0.0034 seconds.)

```
SELECT * FROM `book_view`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

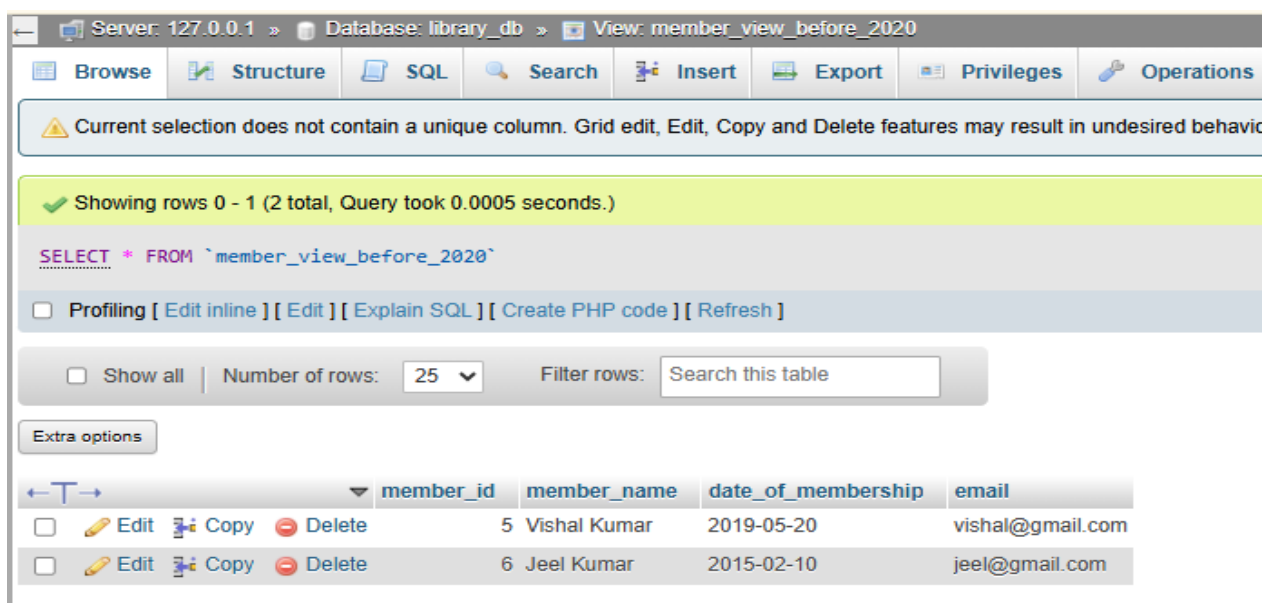
Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

	title	author	price
<input type="checkbox"/> Edit Copy Delete	The Alchemist	Paulo Coelho	60
<input type="checkbox"/> Edit Copy Delete	Clean Code	Robert C. Martin	550
<input type="checkbox"/> Edit Copy Delete	Atomic Habits	James Clear	90
<input type="checkbox"/> Edit Copy Delete	Wings of Fire	A. P. J. Abdul Kalam	95
<input type="checkbox"/> Edit Copy Delete	Think and Grow Rich	Napoleon Hill	400

Lab 4 : Create a view to display members who joined before 2020.

- CREATE VIEW member_view_before_2020 AS SELECT * FROM members WHERE date_of_membership < '2020-01-01'



Server: 127.0.0.1 » Database: library_db » View: member_view_before_2020

Current selection does not contain a unique column. Grid edit, Edit, Copy and Delete features may result in undesired behavior.

Showing rows 0 - 1 (2 total, Query took 0.0005 seconds.)

```
SELECT * FROM `member_view_before_2020`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

	member_id	member_name	date_of_membership	email
<input type="checkbox"/> Edit Copy Delete	5	Vishal Kumar	2019-05-20	vishal@gmail.com
<input type="checkbox"/> Edit Copy Delete	6	Jeel Kumar	2015-02-10	jeel@gmail.com

18. SQL Trigger

Lab 3 : Create a trigger to automatically update the last_modified timestamp of the books table whenever a record is updated.

- DELIMITER \$\$
CREATE TRIGGER trg_update_books_timestamp
BEFORE UPDATE ON books
FOR EACH ROW
BEGIN
SET NEW.last_modified = CURRENT_TIMESTAMP;
END\$\$
DELIMITER ;

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

- Toolbar:** Browse, Structure, SQL, Search, Insert, Export, Import, Privileges.
- SQL Editor:** Contains the query: `UPDATE books SET price = 650 WHERE book_id = 2;`
- Execution Status:** A green bar indicates "Showing rows 0 - 6 (7 total, Query took 0.0003 seconds.)"
- Query Results:** A table with 7 rows and 3 columns: book_id, title, last_modified.
- Table Data:**

	book_id	title	last_modified
<input type="checkbox"/> Edit Copy Delete	1	The Alchemist	2025-12-27 11:20:13
<input type="checkbox"/> Edit Copy Delete	2	Clean Code	2025-12-27 11:23:33
<input type="checkbox"/> Edit Copy Delete	3	Atomic Habits	2025-12-27 11:20:13
<input type="checkbox"/> Edit Copy Delete	4	Wings of Fire	2025-12-27 11:20:13
<input type="checkbox"/> Edit Copy Delete	5	Think and Grow Rich	2025-12-27 11:20:13
<input type="checkbox"/> Edit Copy Delete	6	Data Structures	2025-12-27 11:20:13
<input type="checkbox"/> Edit Copy Delete	7	Operating System Con	2025-12-27 11:20:13

Lab 4 : Create a trigger that inserts a log entry into a log_changes table whenever a DELETE operation is performed on the books table.

```
- DELIMITER $$  
CREATE TRIGGER trg_books_delete_log  
AFTER DELETE ON books  
FOR EACH ROW  
BEGIN  
    INSERT INTO log_changes (book_id, action_type)  
    VALUES (OLD.book_id, 'DELETE');  
END$$  
DELIMITER ;
```

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

- Top Bar:** Server: 127.0.0.1 > Database: library_db > Table: log_changes
- Navigation Tabs:** Browse, Structure, SQL, Search, Insert, Export, Import, Priv
- Query Execution Results:**
 - 1 row deleted. (Query took 0.0004 seconds.)
`DELETE FROM books WHERE book_id = 7;`
 - Showing rows 0 - 0 (1 total, Query took 0.0003 seconds.)
`SELECT * FROM log_changes;`
- Table View:**
 - Buttons: [Edit inline] [Edit] [Create PHP code]
 - Options: ☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
 - Controls: ☐ Show all | Number of rows: 25 | Filter rows: Search this table
 - Extra options button
- Data Table:**

	log_id	book_id	action_type	action_time
<input type="checkbox"/> Edit Copy Delete	1	7	DELETE	2025-12-27 11:27:34

19. Introduction to PL/SQL

Lab 3 : Write a PL/SQL block to insert a new book into the books table and display a confirmation message.

```
- DELIMITER $$  
CREATE PROCEDURE insert_book()  
BEGIN  
INSERT INTO books  
  (book_id, title, author, publisher, year_of_publication, price, genre)  
  VALUES (10, 'MySQL Basics', 'John Smith', 'Pearson', 2023, 450, 'Database');  
SELECT 'Book inserted successfully' AS message;  
END$$  
DELIMITER ;
```

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

- Header:** Server: 127.0.0.1 > Database: library_db > Table: books
- Navigation Bar:** Browse, Structure, SQL, Search, Insert, Export
- Buttons:** Show query box
- Warning:** Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and De
- Success Message:** Showing rows 0 - 0 (1 total, Query took 0.0143 seconds.)
- SQL Code:** CALL insert_book();
- Actions:** [Edit inline] [Edit] [Create PHP code]
- Filters:** Show all | Number of rows: 25 | Filter rows: Search this table
- Extra options:** Extra options
- Output:** message
Book inserted successfully

Lab 4 : Write a PL/SQL block to display the total number of books in the books table.

```
- DELIMITER $$  
CREATE PROCEDURE total_books_count()  
BEGIN  
    DECLARE total INT;  
    SELECT COUNT(*) INTO total FROM books;  
    SELECT total AS total_books;  
END$$  
DELIMITER ;
```

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

- Header:** Server: 127.0.0.1 » Database: library_db » Table: books
- Navigation Bar:** Browse, Structure, SQL, Search, Insert, Export, Import
- Buttons:** Show query box
- Warning:** ⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are disabled.
- Query Results:**
 - ✓ Showing rows 0 - 0 (1 total, Query took 0.0006 seconds.)
 - call total_books_count();
 - [Edit inline] [Edit] [Create PHP code]
- Table Controls:**
 - ☐ Show all
 - Number of rows: 25 ▼
 - Filter rows: Search this table
- Extra options:** (button)
- Table Data:**

total_books
8

20. PL/SQL Syntax

Lab 3 : Write a PL/SQL block to declare variables for book_id and price, assign values, and display the results.

```
- DELIMITER $$  
CREATE PROCEDURE show_book_variables()  
BEGIN  
    DECLARE v_book_id INT;  
    DECLARE v_price DECIMAL(10,2);  
    SET v_book_id = 2;  
    SET v_price = 550.00;  
    SELECT v_book_id AS book_id, v_price AS price;  
END$$  
DELIMITER ;
```

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

- Header:** Server: 127.0.0.1 » Database: library_db » Table: books
- Navigation Bar:** Browse, Structure, SQL, Search, Insert, Export, Import
- Buttons:** Show query box
- Warning:** ⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are disabled.
- Status Bar:** ✓ Showing rows 0 - 0 (1 total, Query took 0.0005 seconds.)
- Query:** `CALL show_book_variables();`
- Actions:** [Edit inline] [Edit] [Create PHP code]
- Filters:** ☐ Show all | Number of rows: 25 | Filter rows: Search this table
- Extra options:** Extra options
- Table:**

book_id	price
2	550.00

Lab 4 : Write a PL/SQL block using constants and perform arithmetic operations on book prices.

```
- DELIMITER $$  
CREATE PROCEDURE book_price_calculation()  
BEGIN  
    DECLARE base_price DECIMAL(10,2) DEFAULT 500;  
    DECLARE gst_rate DECIMAL(10,2) DEFAULT 18;  
    DECLARE gst_amount DECIMAL(10,2);  
    DECLARE final_price DECIMAL(10,2);  
    SET gst_amount = (base_price * gst_rate) / 100;  
    SET final_price = base_price + gst_amount;  
    SELECT  
        base_price AS base_price,  
        gst_amount AS gst_amount,  
        final_price AS final_price;  
END$$  
DELIMITER ;
```

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

- Top Bar:** Server: 127.0.0.1 > Database: library_db > Table: books
- Navigation Bar:** Browse, Structure, SQL, Search, Insert, Export, Import
- Buttons:** Show query box
- Message Bar:** ⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete fea
- Query Execution Status:** ✓ Showing rows 0 - 0 (1 total, Query took 0.0005 seconds.)
- SQL Editor:** `CALL book_price_calculation();`
- Actions:** [Edit inline] [Edit] [Create PHP code]
- Table Controls:** ☐ Show all | Number of rows: 25 | Filter rows: Search this table
- Extra options:** (button)
- Table Data:**

base_price	gst_amount	final_price
500.00	90.00	590.00

21. PL/SQL Control Structures

Lab 3 : Write a PL/SQL block using IF-THEN-ELSE to check if a book's price is above \$100 and print a message accordingly.

```
- DELIMITER $$
CREATE PROCEDURE check_book_price()
BEGIN
    DECLARE v_price DECIMAL(10,2);
    SET v_price = 150;
    IF v_price > 100 THEN
        SELECT 'Book price is above $100' AS message;
    ELSE
        SELECT 'Book price is $100 or below' AS message;
    END IF;
END$$
DELIMITER ;
```

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

- Header:** Server: 127.0.0.1 > Database: library_db
- Navigation Bar:** Structure, SQL, Search, Query, Export, Import
- Buttons:** Show query box
- Warning Message:** ⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy ar
- Success Message:** ✓ Showing rows 0 - 0 (1 total, Query took 0.0004 seconds.)
- Code Editor:** `CALL check_book_price();`
- Actions:** [Edit inline] [Edit] [Create PHP code]
- Table Controls:** ☐ Show all | Number of rows: 25 ▼ | Filter rows: Search this table
- Extra options:** Extra options
- Table:**

message
Book price is above \$100

Lab 4 : Use a FOR LOOP in PL/SQL to display the details of all books one by one.

- DELIMITER \$\$

```
CREATE PROCEDURE display_all_books()
```

```
BEGIN
```

```
    DECLARE done INT DEFAULT 0;
```

```
    DECLARE v_id INT;
```

```
    DECLARE v_title VARCHAR(100);
```

```
    DECLARE v_price DECIMAL(10,2);
```

```
    DECLARE book_cursor CURSOR FOR
```

```
        SELECT book_id, title, price FROM books;
```

```
    DECLARE CONTINUE HANDLER FOR NOT FOUND SET done = 1;
```

```
    OPEN book_cursor;
```

```
    read_loop: LOOP
```

```
        FETCH book_cursor INTO v_id, v_title, v_price;
```

```
        IF done = 1 THEN
```

```
            LEAVE read_loop;
```

```
        END IF;
```

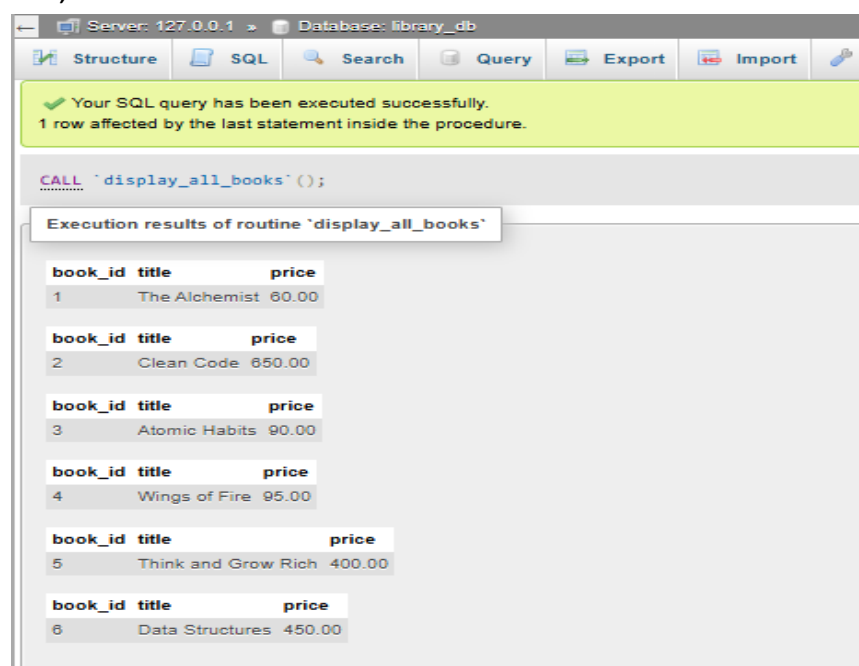
```
        SELECT v_id AS book_id, v_title AS title, v_price AS price;
```

```
    END LOOP;
```

```
    CLOSE book_cursor;
```

```
END$$
```

```
DELIMITER ;
```



Server: 127.0.0.1 > Database: library_db

Structure SQL Search Query Export Import

✓ Your SQL query has been executed successfully.
1 row affected by the last statement inside the procedure.

CALL `display_all_books`();

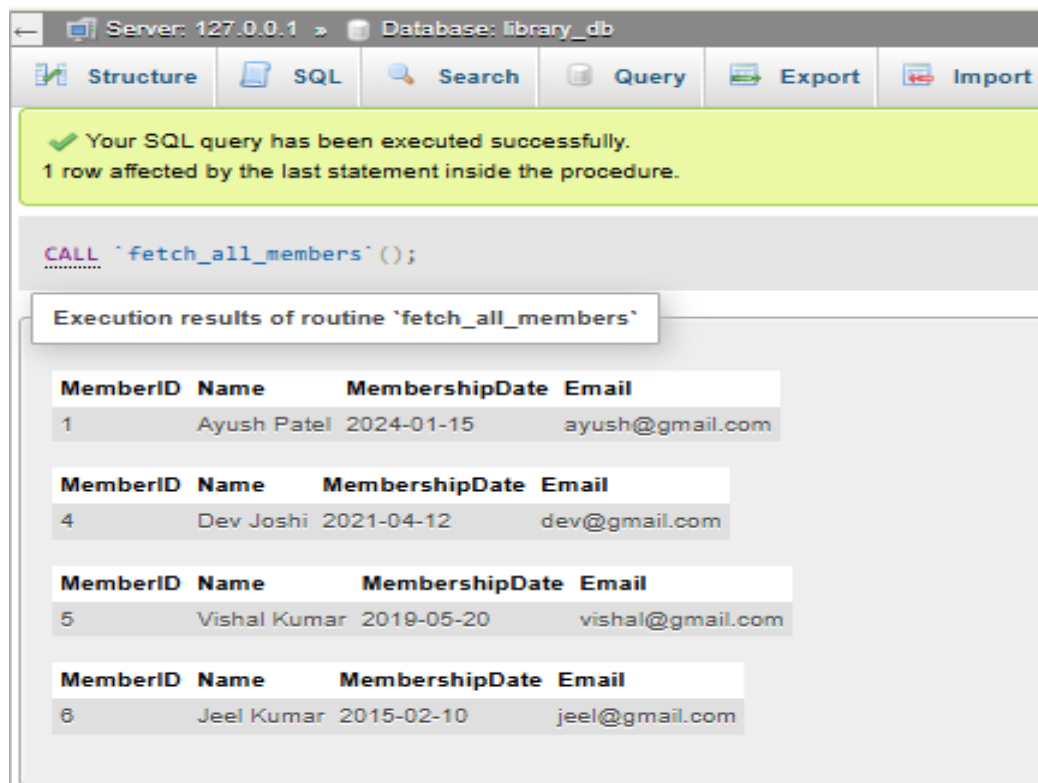
Execution results of routine `display_all_books`

book_id	title	price
1	The Alchemist	60.00
2	Clean Code	650.00
3	Atomic Habits	90.00
4	Wings of Fire	95.00
5	Think and Grow Rich	400.00
6	Data Structures	450.00

22. SQL Cursors

Lab 3 : Write a PL/SQL block using an explicit cursor to fetch and display all records from the members table.

```
- DELIMITER //
CREATE PROCEDURE fetch_all_members()
BEGIN
    DECLARE v_member_id INT;
    DECLARE v_member_name VARCHAR(100);
    DECLARE v_date_of_membership DATE;
    DECLARE v_email VARCHAR(100);
    DECLARE done INT DEFAULT 0;
    DECLARE member_cursor CURSOR FOR
        SELECT member_id, member_name, date_of_membership, email FROM
members;
    DECLARE CONTINUE HANDLER FOR NOT FOUND SET done = 1;
    OPEN member_cursor;
    read_loop: LOOP
        FETCH member_cursor INTO v_member_id, v_member_name,
v_date_of_membership, v_email;
        IF done = 1 THEN
            LEAVE read_loop;
        END IF;
        SELECT v_member_id AS MemberID,
            v_member_name AS Name,
            v_date_of_membership AS MembershipDate,
            v_email AS Email;
    END LOOP;
    CLOSE member_cursor;
END;
//
DELIMITER ;
```



Lab 4 : Create a cursor to retrieve books by a particular author and display their titles.

```

- DELIMITER //
CREATE PROCEDURE fetch_books_by_author(IN author_name VARCHAR(100))
BEGIN
    DECLARE v_title VARCHAR(255);
    DECLARE done INT DEFAULT 0;
    DECLARE books_cursor CURSOR FOR
        SELECT title FROM books WHERE author = author_name;
    DECLARE CONTINUE HANDLER FOR NOT FOUND SET done = 1;
    OPEN books_cursor;
    read_loop: LOOP
        FETCH books_cursor INTO v_title;
        IF done = 1 THEN
            LEAVE read_loop;
        END IF;
        SELECT v_title AS BookTitle;
    END LOOP;
    CLOSE books_cursor;
END;
//
DELIMITER ;

```

Server: 127.0.0.1 » Database: library_db

Structure SQL Search Query Export Import

✓ Your SQL query has been executed successfully.
1 row affected by the last statement inside the procedure.

```
SET @p0='Paulo Coelho'; CALL `fetch_books_by_author` (@p0);
```

Execution results of routine 'fetch_books_by_author'

BookTitle
The Alchemist

23. Rollback and Commit Savepoint

Lab 3 : Perform a transaction that includes inserting a new member, setting a SAVEPOINT, and rolling back to the savepoint after making updates.

- START TRANSACTION;
INSERT INTO members (member_name,date_of_membership,email)
VALUES ('Rahul Sharma', '2025-12-27', 'rahul@example.com');
SAVEPOINT before_update;
UPDATE members
SET email = 'rahul_new@example.com'
WHERE member_id = 7;
ROLLBACK TO SAVEPOINT before_update;
COMMIT;

Server: 127.0.0.1 » Database: library_db » Table: members

Browse Structure SQL Search Insert Export Import Privileges

✓ Showing rows 0 - 4 (5 total, Query took 0.0003 seconds.)

```
SELECT * FROM `members`
```

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

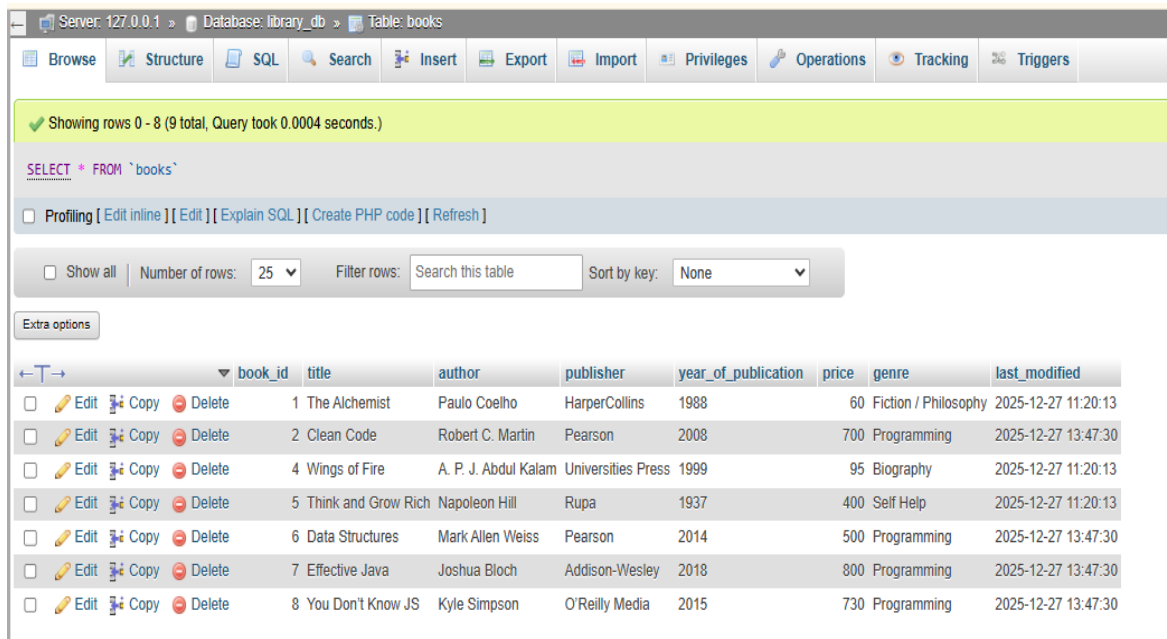
☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

	member_id	member_name	date_of_membership	email
<input type="checkbox"/> Edit Copy Delete	1	Ayush Patel	2024-01-15	ayush@gmail.com
<input type="checkbox"/> Edit Copy Delete	4	Dev Joshi	2021-04-12	dev@gmail.com
<input type="checkbox"/> Edit Copy Delete	5	Vishal Kumar	2019-05-20	vishal@gmail.com
<input type="checkbox"/> Edit Copy Delete	6	Jeel Kumar	2015-02-10	jeel@gmail.com
<input type="checkbox"/> Edit Copy Delete	7	Rahul Sharma	2025-12-27	rahul@example.com

Lab 4 : Use COMMIT after successfully inserting multiple books into the books table, then use ROLLBACK to undo a set of changes made after a savepoint.

- START TRANSACTION;
INSERT INTO books (title, author, publisher, year_of_publication, price, genre)
VALUES
('Effective Java', 'Joshua Bloch', 'Addison-Wesley', 2018, 750, 'Programming'),
('You Don't Know JS', 'Kyle Simpson', 'O'Reilly Media', 2015, 680, 'Programming');
COMMIT;
START TRANSACTION;
SAVEPOINT sp_books;
UPDATE books
SET price = price + 50
WHERE genre = 'Programming';
DELETE FROM books
WHERE title = 'Atomic Habits';
ROLLBACK TO sp_books;
COMMIT;



Server: 127.0.0.1 » Database: library_db » Table: books

Showing rows 0 - 8 (9 total, Query took 0.0004 seconds.)

SELECT * FROM `books`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

		book_id	title	author	publisher	year_of_publication	price	genre	last_modified
<input type="checkbox"/>	Edit Copy Delete	1	The Alchemist	Paulo Coelho	HarperCollins	1988	60	Fiction / Philosophy	2025-12-27 11:20:13
<input type="checkbox"/>	Edit Copy Delete	2	Clean Code	Robert C. Martin	Pearson	2008	700	Programming	2025-12-27 13:47:30
<input type="checkbox"/>	Edit Copy Delete	4	Wings of Fire	A. P. J. Abdul Kalam	Universities Press	1999	95	Biography	2025-12-27 11:20:13
<input type="checkbox"/>	Edit Copy Delete	5	Think and Grow Rich	Napoleon Hill	Rupa	1937	400	Self Help	2025-12-27 11:20:13
<input type="checkbox"/>	Edit Copy Delete	6	Data Structures	Mark Allen Weiss	Pearson	2014	500	Programming	2025-12-27 13:47:30
<input type="checkbox"/>	Edit Copy Delete	7	Effective Java	Joshua Bloch	Addison-Wesley	2018	800	Programming	2025-12-27 13:47:30
<input type="checkbox"/>	Edit Copy Delete	8	You Don't Know JS	Kyle Simpson	O'Reilly Media	2015	730	Programming	2025-12-27 13:47:30