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• 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.

Ans:

```
CREATE DATABASE libray_db;

CREATE TABLE book(
   b_id int,
   tital text,
   author varchar(20),
   publisher varchar(20),
   year_pub INT,
   price int
);

INSERT INTO book
VALUES(101,'theanimal','kishan','meru',2025,2500),(102,'hassinaruba','k.k','m.k',2023,2300),(103,'the kingdom','rana','mahendra',2021,5000),(104,'meluha','d.sastri','m.shastri',1999,3000),(105,'mafia','r.s','g.s',2020,3500);
```

b_id	tital	author	publisher	year_pub	price
101	the animal	kishan	meru	2025	2500
102	hassina ruba	k.k	m.k	2023	2300
103	the kingdom	rana	mahendra	2021	5000
104	meluha	d.sastri	m.shastri	1999	3000
105	mafia	r.s	g.s	2020	3500

• 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.

Ans:

```
CREATE TABLE members(
   m_id INT,
   m_name text,
   d_mship date,
   email text
   );

INSERT INTO members
VALUES(1,'suresh',’2000/04/12’,'suresh@gmail.com'),(2,'hardik',’2000/4/12’,'hardik@gmail.com'),(3,'dev',’2024/7/22’,'dev@gmail.com'),(4,'sauvrav',’2020/4/12’,'saurav@gmail.com'),(5,'gaurav',’2016/05/2024’,'gaurav@gmail.com');
```

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m_id	m_name	d_mship	email
1	suresh	2000-04-12	suresh@gmail.com
2	hardik	2000-04-12	hardik@gmail.com
3	dev	2024-07-22	dev@gmail.com
4	sauvrav	2020-04-12	saurav@gmail.com
5	gaurav	2016-05-24	gaurav@gmail.com

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

Ans:

```
SELECT * FROM book WHERE year_pub<='2022/01/01' ORDER BY year_pub;
```

b_id	tital	author	publisher	year_pub ▲ 1	price
104	meluha	d.sastri	m.shastri	1999	3000
105	mafia	r.s	g.s	2020	3500
103	the kingdom	rana	mahendra	2021	5000

• 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.

Ans:

```
SELECT * FROM book WHERE year_pub<='2022/01/01' ORDER BY year_pub DESC;
```

b_id	tital	author	publisher	year_pub ▼ 1	price
103	the kingdom	rana	mahendra	2021	5000
105	mafia	r.s	g.s	2020	3500
104	meluha	d.sastri	m.shastri	1999	3000

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

Ans:

```
CREATE TABLE book1(
    b_id int,
    tital text,
    author varchar(20),
    publisher varchar(20),
    year_pub INT,
    price int CHECK(price>0) );
```

b_id	tital	author	publisher	year_pub	price
101	the animal	kishan	meru	2025	2500
102	hassina ruba	k.k	m.k	2023	2300
103	the kingdom	rana	mahendra	2021	5000
104	meluha	d.sastri	m.shastri	1999	3000
105	mafia	r.s	g.s	2020	3500

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

Ans:

ALTER TABLE student MODIFY COLUMN email text UNIQUE;

id	name	email
1	rohan	rohan@gmail.com
2	meru	meru@gmail.com
3	kishan	kishan@gmail.com

• 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.

Ans:

```
CREATE TABLE authors(
   a_id int PRIMARY KEY,
   a_firstname text,
   a_lastname text,
   a_country text,
   );
```

a_id	a_firstname	a_lastname	a_country

• 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.

Ans:

```
CREATE TABLE publishers(
   p_id int PRIMARY KEY,
   p_name text,
   contact_no int UNIQUE,
   address text
   );
```

a_id	a_firstname	a_lastname	a_country

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

Ans:

```
ALTER TABLE book ADD genre text;
UPDATE book SET genre=' wild discovry ' WHERE b_id=101;
```

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UPDATE book SET genre='thiller' WHERE b_id=102;
UPDATE book SET genre='historical' WHERE b_id=103;

UPDATE book SET genre=' fantasy fiction' WHERE b_id=104;
UPDATE book SET genre='crime' WHERE b_id=105;

b_id	tital	author	publisher	year_pub	price	genre
101	the animal	kishan	meru	2025	2500	wild discovry
102	hassina ruba	k.k	m.k	2023	2300	thiller
103	the kingdom	rana	mahendra	2021	5000	historical
104	meluha	d.sastri	m.shastri	1999	3000	fantasy fiction
105	mafia	r.s	g.s	2020	3500	crime

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

Ans:
ALTER TABLE members MODIFY email varchar(100);

m_id	m_name	d_mship	email
1	suresh	2000-04-12	suresh@gmail.com
2	hardik	2000-04-12	hardik@gmail.com
3	dev	2024-07-22	dev@gmail.com
4	sauvrav	2020-04-12	saurav@gmail.com
5	gaurav	2016-05-24	gaurav@gmail.com

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

DROP TABLE publishers;

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

Ans:
DROP TABLE members;

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

Ans:
INSERT INTO authors
VALUES(1,'suresh','rameshbhai','mumbai'),(2,'akash','jigarhbhai','mumbai'),(3,'gaurav','nitinbhai','delhi');

a_id	a_firstname	a_lastname	a_country
1	suresh	rameshbhai	mumbai
2	akash	jigarhbhai	mumbai
3	gaurav	nitinbhai	delhi

UPDATE authors SET a_lastname='dineshbhai' WHERE a_id=1;

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UPDATE authors SET a_lastname='hiteshbhai' WHERE a_id=2;
UPDATE authors SET a_lastname='sanjaybhai' WHERE a_id=3;

a_id	a_firstname	a_lastname	a_country
1	suresh	dineshbhai	mumbai
2	akash	hiteshbhai	mumbai
3	gaurav	sanjaybhai	delhi

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

Ans:
DELETE FROM book WHERE price>=3000;

b_id	tital	author	publisher	year_pub	price	genre
101	the animal	kishan	meru	2025	2500	wild discovry
102	hassina ruba	k.k	m.k	2023	2300	thiller

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

Ans:

b_id	tital	author	publisher	year_pub	price	genre
101	the animal	kishan	meru	2025	2500	wild discovry
102	hassina ruba	k.k	m.k	2023	2300	thiller

UPDATE book SET year_pub=2018 WHERE b_id=101;
UPDATE book SET year_pub=2020 WHERE b_id=102;

b_id	tital	author	publisher	year_pub	price	genre
101	the animal	kishan	meru	2018	2500	wild discovry
102	hassina ruba	k.k	m.k	2020	2300	thiller

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

Ans:

b_id	tital	author	publisher	year_pub	price
101	theanimal	kishan	meru	2025	2500
102	hassinaruba	k.k	m.k	2023	2300
103	thekingdom	rana	mahendra	2014	5000
104	meluha	d.sastri	m.shastri	1999	3000
105	mafia	r.s	g.s	2020	3500

UPDATE book SET price=500 WHERE b_id=103;
UPDATE book SET price=300 WHERE b_id=104;

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b_id	tital	author	publisher	year_pub	price
101	theanimal	kishan	meru	2025	2500
102	hassinaruba	k.k	m.k	2023	2300
103	thekingdom	rana	mahendra	2014	500
104	meluha	d.sastri	m.shastri	1999	300
105	mafia	r.s	g.s	2020	3500

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

Ans:

DELETE FROM member WHERE m_ship<'2020/01/01';

m_id	m_name	m_ship	email
2	ramesh	2020-05-13	ramesh@gmail.com
3	jignesh	2021-07-09	jignesh@gmail.com
5	akash	2023-01-12	akash@gmail.com

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

Ans:

b_id	tital	author	publisher	year_pub	price
101	theanimal	kishan	meru	2025	2500
102	hassinaruba	k.k	m.k	2023	2300
103	thekingdom	rana	mahendra	2021	5000
104	meluha	d.sastri	m.shastri	1999	3000
105	mafia	r.s	g.s	2020	3500
106	war and sapce	r.s	g.s	NULL	3500
107	the god	r.trivedi	s.bhraman	2016	NULL
108	the dad	NULL	y.zala	1997	4500

DELETE FROM book WHERE author IS null;

b_id	tital	author	publisher	year_pub	price
101	theanimal	kishan	meru	2025	2500
102	hassinaruba	k.k	m.k	2023	2300
103	thekingdom	rana	mahendra	2021	5000
104	meluha	d.sastri	m.shastri	1999	3000
105	mafia	r.s	g.s	2020	3500
106	war and sapce	r.s	g.s	NULL	3500
107	the god	r.trivedi	s.bhraman	2016	NULL

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

Ans:

SELECT * FROM book WHERE price BETWEEN 2500 AND 3500;

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b_id	tital	author	publisher	year_pub	price
101	theanimal	kishan	meru	2025	2500
104	meluha	d.sastri	m.shastri	1999	3000
105	mafia	r.s	g.s	2020	3500
106	war and sapce	r.s	g.s	NULL	3500

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

Ans:
SELECT * FROM book ORDER BY author LIMIT 3;

b_id	tital	author ▲ 1	publisher	year_pub	price
104	meluha	d.sastri	m.shastri	1999	3000
102	hassinaruba	k.k	m.k	2023	2300
101	theanimal	kishan	meru	2025	2500

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

Ans:

SELECT author.a_nane,book.b_name,book.b_id FROM book INNER JOIN author ON book.b_id=author.b_id;

a_nane	b_name	b_id
deep	bhakti kavya	101
om	ramayan	103
subh	mahabharat	104
gyan	jeevansutra	105
heet	ramayan	103

• 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.

Ans:
SELECT author.a_nane,book.b_name,book.b_id FROM book full JOIN author ON book.b_id=author.b_id;

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

Ans:

SELECT gener,count(title) FROM book1 GROUP BY gener;

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gener	count(title)
crime	1
history book	3
the animal	1

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

Ans:
SELECT year, COUNT(name) FROM member GROUP BY year;

year	COUNT(name)
2023	1
2024	3
2025	2

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

Ans:
```
DELIMITER $$
CREATE PROCEDURE ins( b_id int, b_name text, author text, price int )
BEGIN
INSERT INTO book VALUES(b_id,b_name,author,price);
END

CALL ins(101,'the lion','m.joshi',6000);
CALL ins(102,'the mom','m.gandhi',5000);
```

b_id	b_name	author	price
101	the lion	m.joshi	6000
102	the mom	m.gandhi	5000

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

Ans:
```
CREATE PROCEDURE GetBookPrice(IN book_id INT, OUT book_price DECIMAL(10, 2))
BEGIN
   SELECT price INTO book_price
   FROM books
   WHERE b_id = book_id;
END;
CALL GetBookPrice(1, @price);
SELECT @price;
```

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@price
3000.00

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

Ans:
CREATE VIEW v1 AS SELECT title,author,price FROM book1;
SELECT * FROM v1;

title	author	price
m.prtap	m.pandit	2000
c.shivaji	mahesh darji	5000
the mafia	j.pathk	7000
bhagat singh	harish solnki	2000
the white tiger	m.sukla	3500

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

Ans:
CREATE VIEW v2 AS SELECT * FROM member WHERE year<2020;
SELECT * FROM v2;

id	name	course	year
4	aksah	flutter	2018
6	rakul	flutter	2018

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

Ans:

id	name	td	proccess
1	the lion	2025-01-16 17:39:10	insert record
2	mahabharat	2025-01-16 17:39:10	insert record

CREATE TRIGGER tri2 AFTER UPDATE ON book2 FOR EACH ROW
BEGIN
INSERT INTO alldata(id,name,proccess)VALUES(new.b_id,new.b_name,'update record');
END

UPDATE book2 SET b_name='the dad' WHERE b_id=1;

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id	name	td	proccess
1	the lion	2025-01-16 18:12:29	insert record
2	mahabharat	2025-01-16 18:12:29	insert record
1	the dad	2025-01-16 18:14:51	update record

• 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.

Ans:

b_id	b_name
1	the dad
2	mahabharat

id	name	td	proccess
1	the lion	2025-01-16 18:12:29	insert record
2	mahabharat	2025-01-16 18:12:29	insert record
1	the dad	2025-01-16 18:14:51	update record

```
DELIMITER $$
CREATE TRIGGER tri3 AFTER DELETE ON book2 FOR EACH ROW
BEGIN
INSERT INTO alldata(id,name,proccess)VALUES(old.b_id,old.b_name,'delete record');
END

DELETE FROM book2 WHERE b_id=2;
```

b_id	b_name
1	the dad

id	name	td	proccess
1	the lion	2025-01-16 18:12:29	insert record
2	mahabharat	2025-01-16 18:12:29	insert record
1	the dad	2025-01-16 18:14:51	update record
2	mahabharat	2025-01-16 18:19:01	delete record