EXTRA LAB PRACTISE FOR DATABASE CONCEPTS

1. Introduction to SQL LAB EXERCISES:

• **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-

```
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_publisher	price
☐	✐ Edit	⌗ Copy	⊖ Delete	1	Introduction to SQL	C.J. Date	TechPress	2019	550.00
☐	✐ Edit	⌗ Copy	⊖ Delete	2	Database Management Systems	Raghu Ramakrishnan	McGraw Hill	2020	720.00
☐	✐ Edit	⌗ Copy	⊖ Delete	3	Learning Python	Mark Lutz	O'Reilly	2021	890.00
☐	✐ Edit	⌗ Copy	⊖ Delete	4	Web Development with PHP	Robin Nixon	O'Reilly	2018	650.00
☐	✐ Edit	⌗ Copy	⊖ Delete	5	Data Structures in C	Reema Thareja	Oxford University Press	2022	780.00

• **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.**

```
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
☐	✐ Edit	⌗ Copy	⊖ Delete	1	Amit Shah	2022-01-15	amit.shah@gmail.com
☐	✐ Edit	⌗ Copy	⊖ Delete	2	Riya Patel	2022-03-10	riya.patel@gmail.com
☐	✐ Edit	⌗ Copy	⊖ Delete	3	Karan Mehta	2022-06-05	karan.mehta@yahoo.com
☐	✐ Edit	⌗ Copy	⊖ Delete	4	Neha Joshi	2022-09-20	neha.joshi@gmail.com
☐	✐ Edit	⌗ Copy	⊖ Delete	5	Priya Singh	2023-02-12	priya.singh@hotmail.com

Ans-

2. SQL Syntax LAB EXERCISES:

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

Ans-

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0019 seconds.)

```
USE library_db;
```

[Edit inline] [Edit] [Create PHP code]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0008 seconds.)

```
SELECT member_id, member_name, date_of_membership, email FROM members WHERE date_of_membership < '2022-01-01' ORDER BY date_of_membership ASC;
```

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

member_id	member_name	date_of_membership	email

3. SQL Constraints

LAB EXERCISES:

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

Ans-

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
☐	1	book_id 🔑	int(11)			No	None		AUTO_INCREMENT	🖉 Change	⊝ Drop	More
☐	2	title	varchar(50)	utf8mb4_general_ci		Yes	NULL			🖉 Change	⊝ Drop	More
☐	3	author	varchar(50)	utf8mb4_general_ci		Yes	NULL			🖉 Change	⊝ Drop	More
☐	4	publisher	varchar(50)	utf8mb4_general_ci		Yes	NULL			🖉 Change	⊝ Drop	More
☐	5	year_of_publisher	year(4)			Yes	NULL			🖉 Change	⊝ Drop	More
☐	6	price	decimal(10,2)			Yes	NULL			🖉 Change	⊝ Drop	More

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

Your SQL query has been executed successfully.

SHOW CREATE TABLE books;

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

Extra options

Table	Create Table
books	CREATE TABLE `books` (`book_id` int(11) NOT NUL...

Ans-

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

LAB EXERCISES:

• 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.

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0002 seconds.)

SELECT * FROM `authors`

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

author_id	first_name	last_name	country

Ans-

• 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.

```
DESC authors;
```

[Edit inline] [Edit] [Create PHP code]

Extra options

Field	Type	Null	Key	Default	Extra
author_id	int(11)	NO	PRI	NULL	
first_name	varchar(50)	YES		NULL	
last_name	varchar(50)	YES		NULL	
country	varchar(50)	YES		NULL	

Query results operations

🖨 Print   ✂ Copy to clipboard   📋 Create view

Your SQL query has been executed successfully.

```
DESC publishers;
```

[Edit inline] [Edit] [Create PHP code]

Extra options

Field	Type	Null	Key	Default	Extra
publisher_id	int(11)	NO	PRI	NULL	
publisher_name	varchar(100)	YES		NULL	
contact_number	varchar(15)	YES	UNI	NULL	
address	varchar(100)	YES		NULL	

Ans-

5. ALTER Command

LAB EXERCISES:

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

✅ 5 rows affected. (Query took 0.0209 seconds.)

```
UPDATE books SET genre = 'Fiction';
```

[Edit inline] [Edit] [Create PHP code]

Ans-

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

Field	Type	Null	Key	Default	Extra
book_id	int(11)	NO	PRI	NULL	auto_increment
title	varchar(50)	YES		NULL	
author	varchar(50)	YES		NULL	
publisher	varchar(50)	YES		NULL	
year_of_publisher	year(4)	YES		NULL	
price	decimal(10,2)	YES		NULL	
genre	varchar(50)	YES		NULL	

Query results operations

🖨 Print   📋 Copy to clipboard   📄 Create view

Your SQL query has been executed successfully.

DESC members;

Field	Type	Null	Key	Default	Extra
member_id	int(11)	NO	PRI	NULL	
member_name	varchar(100)	YES		NULL	
date_of_membership	date	YES		NULL	
email	varchar(100)	YES	UNI	NULL	

Ans-

6. DROP Command

LAB EXERCISES:

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

Your SQL query has been executed successfully.

SHOW CREATE TABLE publishers;

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

Extra options

Table	Create Table
publishers	CREATE TABLE `publishers` (`publisher_id` int(1...

Ans-

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

member_id	member_name	date_of_membership	email
1	Amit Shah	2022-01-15	amit.shah@gmail.com
2	Riya Patel	2022-03-10	riya.patel@gmail.com
3	Karan Mehta	2022-06-05	karan.mehta@yahoo.com
4	Neha Joshi	2022-09-20	neha.joshi@gmail.com
5	Priya Singh	2023-02-12	priya.singh@hotmail.com

Ans-

7. Data Manipulation Language (DML)

LAB EXERCISES:

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

		author_id	first_name	last_name	country
☐	🖉 Edit Copy ⊖ Delete	1	Mark	Twain	USA
☐	🖉 Edit Copy ⊖ Delete	2	Jane	Austen	UK
☐	🖉 Edit Copy ⊖ Delete	3	Ravinder	Smith	India

Ans-

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

Ans- book_id title author publisher year_of_publisher price genre

9. DELETE Command

LAB EXERCISES:

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

Ans-

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

Ans-

10. Data Query Language (DQL)

LAB EXERCISES:

• **Lab 4: Write a query to retrieve all books with price between $50 an d $100.**

Ans-

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

Ans-

11. Data Control Language (DCL)

LAB EXERCISES:

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

> ✅ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0045 seconds.)
>
> ```
> GRANT SELECT ON books TO 'librarian'@'localhost';
> ```
>
> [Edit inline] [Edit] [Create PHP code]

Ans-

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

> ✅ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0010 seconds.)
>
> ```
> GRANT INSERT, UPDATE ON members TO 'admin'@'localhost';
> ```
>
> [Edit inline] [Edit] [Create PHP code]

Ans-

12. REVOKE Command

LAB EXERCISES:

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

> ✅ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0011 seconds.)
>
> ```
> REVOKE INSERT ON books FROM 'librarian'@'localhost';
> ```
>
> [Edit inline] [Edit] [Create PHP code]

Ans-

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

> ✅ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0013 seconds.)
>
> ```
> REVOKE ALL PRIVILEGES ON members FROM 'admin'@'localhost';
> ```
>
> [Edit inline] [Edit] [Create PHP code]

Ans-