

## Activity 1: Database Challenge

#1:

### Instruction:

- Design a database table for managing library books. Include the following requirements

```
1  -- Create database
2 • CREATE DATABASE library_db;
```

- Columns: book\_id (Primary Key, Integer), title (VARCHAR(100)), author (VARCHAR(50)), published\_year (YEAR), genre (VARCHAR(30)), copies\_available (Integer)
- Write the SQL statement to create the table.
- Write an SQL query to insert the following book details into the table: Book ID: 101, Title: "SQL Fundamentals", Author: "John Doe", Published Year: 2022, Genre: "Technology", Copies Available: 5

The screenshot shows a database management interface. On the left, a 'Navigator' pane displays a tree of schemas: 'bookstoredb', 'databasename', 'laravel', 'library\_db' (selected), and 'student'. Under 'library\_db', there are sub-items for 'Tables', 'Views', 'Stored Procedures', and 'Functions'. The main area shows SQL code being executed. The code includes creating a database, creating a table 'library\_books' with columns 'book\_id' (PRIMARY KEY), 'title', 'author', 'published\_year', 'genre', and 'copies\_available', inserting a record for 'SQL Fundamentals' by 'John Doe' in 2022, and selecting all records from the table.

```
4  -- Create table library books
5 • CREATE TABLE library_books(
6      book_id INT PRIMARY KEY,
7      title VARCHAR(100),
8      author VARCHAR(50),
9      published_year YEAR,
10     genre VARCHAR(30),
11     copies_available INT
12 );

16  -- insert the following book details
17 • INSERT INTO library_books(book_id, title, author, published_year, genre, copies_available)
18     VALUES (101, 'SQL Fundamentals', 'John Doe', 2022, 'Technology', 5);
19
20 • SELECT * FROM library_books;
```

The 'Result Grid' shows the data inserted into the library\_books table. The table has columns: book\_id, title, author, published\_year, genre, and copies\_available. The first row shows the inserted record: 101, SQL Fundamentals, John Doe, 2022, Technology, 5. Below it, there is a row with NULL values, indicating the next record to be inserted.

book_id	title	author	published_year	genre	copies_available
101	SQL Fundamentals	John Doe	2022	Technology	5
NULL	NULL	NULL	NULL	NULL	NULL

- Write an SQL query to update the copies\_available for the book with ID 101 to 7

```

22  -- update copies available to 7
23  • UPDATE library_books
24  SET copies_available = 7;

```

Result Grid

Filter Rows:

Edit:

Export/Import:

	book_id	title	author	published_year	genre	copies_available
	101	SQL Fundamentals	John Doe	2022	Technology	7
*	NULL	NULL	NULL	NULL	NULL	NULL

- Write an SQL query to delete all books published before 2000

Result Grid

Filter Rows:

Edit:

Export/Import:

	book_id	title	author	published_year	genre	copies_available
▶	101	SQL Fundamentals	John Doe	2022	Technology	5
	102	Java Script Fundamentals	Chris Evans	1998	Technology	9
	103	HTML Fundamentals	Ethan Lance	1999	Technology	10
*	NULL	NULL	NULL	NULL	NULL	NULL

```

30  -- delete all books publisher before 2000
31  • DELETE FROM library_books
32  WHERE published_year = 2000;
33

```

Result Grid

Filter Rows:

Edit:

Export/Import:

W

	book_id	title	author	published_year	genre	copies_available
	101	SQL Fundamentals	John Doe	2022	Technology	5
	102	Java Script Fundamentals	Chris Evans	1998	Technology	9
	103	HTML Fundamentals	Ethan Lance	1999	Technology	10
	NULL	NULL	NULL	NULL	NULL	NULL

```

30  -- delete all books publisher before 2000
31  • DELETE FROM library_books
32  WHERE published_year < 2000;
33

```

Result Grid

Filter Rows:

Edit:

Export/Import:

	book_id	title	author	published_year	genre	copies_available
▶	101	SQL Fundamentals	John Doe	2022	Technology	5
✱	NULL	NULL	NULL	NULL	NULL	NULL

## #2

**Instructions:**

For each scenario below, identify the most appropriate SQL command (CREATE, ALTER, DROP, SELECT, INSERT, UPDATE, DELETE, GRANT, REVOKE) and provide a brief justification for your choice.

- 1. You need to create a new table in the database to store employee records.**

## SQL Command: CREATE

**SQL Syntax:** CREATE TABLE employee\_records (stud\_id INT PRIMARY KEY AUTO\_INCREMENT).

**Justification:** Since the question asking to create new table in the database, we need to use the CREATE command structure to define a new table.

```
34 -- create a table for employee
35 • CREATE TABLE employee_records (stud_id INT PRIMARY KEY AUTO_INCREMENT);
```

Output				
Action Output				
	#	Time	Action	Message
✓	64	18:02:33	DR...	0 row(s) affected
✓	65	18:02:42	CRE...	0 row(s) affected

- 2. A column in the "student" table needs to have a default value updated.**

## SQL Command: ALTER

## SQL SYNTAX:

```
ALTER TABLE student_t
```

```
MODIFY COLUMN status VARCHAR (50) DEFAULT 'reg';
```

**Justification:** Since I already created the student table, I can just modify the column status to have a default value of 'req'.

```
41 -- alter table an assign a default value to student status
42 • ALTER TABLE student_t
43   MODIFY COLUMN status VARCHAR (50) DEFAULT 'reg';
44
45 • INSERT INTO student_t (stud_name, stud_sec, stud_prog, stud_year, subj_year)
46   VALUES ('Benedict Lee', '3-1N', 'BSIT', '3rd', '2024');
47
48 • SELECT * FROM student_t;
```

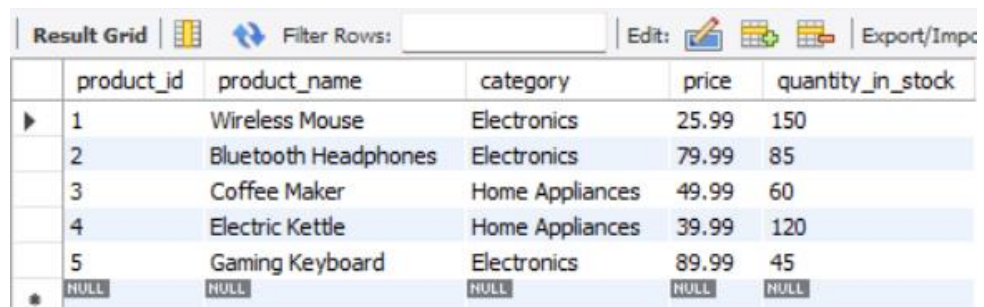
	stud_id	stud_name	stud_sec	stud_prog	stud_year	status	subj_year
▶	1	Benedict Lee	3-1N	BSIT	3rd	reg	2024
	NUL	NUL	NUL	NUL	NUL	NUL	NUL

3. You want to delete all records from the "products" table but keep the table structure.

**SQL Command:** TRUNCATE

**SQL Syntax:** TRUNCATE TABLE products;

**Justification:** To delete the records inside the table I choose to use TRUNCATE command since it will delete the only data related to the table while keeping its structure.



	product_id	product_name	category	price	quantity_in_stock
▶	1	Wireless Mouse	Electronics	25.99	150
	2	Bluetooth Headphones	Electronics	79.99	85
	3	Coffee Maker	Home Appliances	49.99	60
	4	Electric Kettle	Home Appliances	39.99	120
	5	Gaming Keyboard	Electronics	89.99	45
•	NULL	NULL	NULL	NULL	NULL

```
68 • TRUNCATE TABLE products;
```



	product_id	product_name	category	price	quantity_in_stock
•	NULL	NULL	NULL	NULL	NULL

4. A user needs permission to view and query the "sales" table.

**SQL Commands:** GRANT

**SQL Syntax:** GRANT SELECT ON students\_db.student TO 'john\_doe'@'localhost';

**Justification:** Using the GRANT, we can give the user (john\_doe) a privilege to access the student table from student database.

```
72 • GRANT SELECT ON student.student_t TO 'John-Doe'@'localhost';
```

```
73
```

```
74 • SELECT User, HOST from mysql.user WHERE User = 'John-Doe';
```



	User	HOST
▶	John-Doe	localhost

5. You need to remove the "inventory" table entirely from the database.

**SQL Command:** DROP

**SQL Syntax:** DROP TABLE inventory

**Justification:** To delete entirely the table, we need to use the drop command.

Result Grid

Filter Rows:

Edit:

Export/Import:

	ItemID	ItemName	Category	Quantity	Price	Supplier	LastUpdated
▶	1	Laptop	Electronics	50	800.00	TechWorld	2024-11-01
	2	Smartphone	Electronics	200	500.00	MobileHub	2024-11-15
	3	Desk Chair	Furniture	75	120.00	OfficeComfort	2024-11-10
	4	Pen	Stationery	500	1.50	StationeryPlus	2024-10-30
	5	Notebook	Stationery	300	3.00	StationeryPlus	2024-10-25
	6	Water Bottle	Lifestyle	100	10.00	DailyEssentials	2024-11-12
	7	Monitor	Electronics	30	200.00	TechWorld	2024-11-05
	8	Office Desk	Furniture	20	300.00	OfficeComfort	2024-10-20
	9	Backpack	Lifestyle	80	50.00	DailyEssentials	2024-11-18
	10	Mouse	Electronics	150	25.00	TechWorld	2024-11-17

103 • DROP TABLE inventory;

104

Output

Action Output

#	Time	Action
✓ 59	21:32:32	DROP TABLE inventory
✗ 60	21:32:36	SELECT * FROM inventory LIMIT 0, 1000