Activity 1: Database Challenge

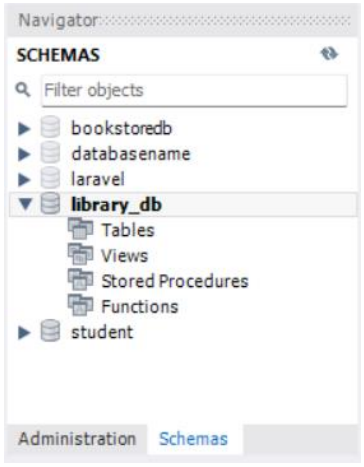
#1:

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




```
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;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

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:

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:

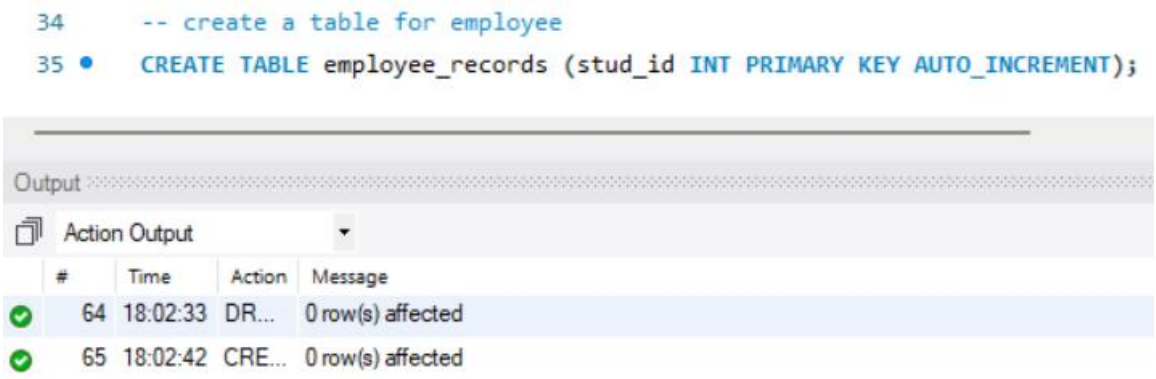
For each scenario below, identify the most appropriate SQL command (CREATE, ALTER, DROP, SELECT, INSERT, UPDATE, DELETE, GRANT, REVOKE) and provide a brief justification for your choice.

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.



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

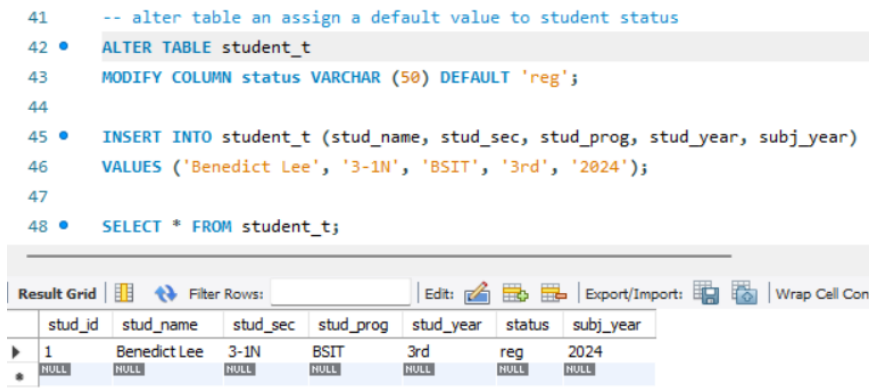
   SQL Command: ALTER

   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 ‘reg’.

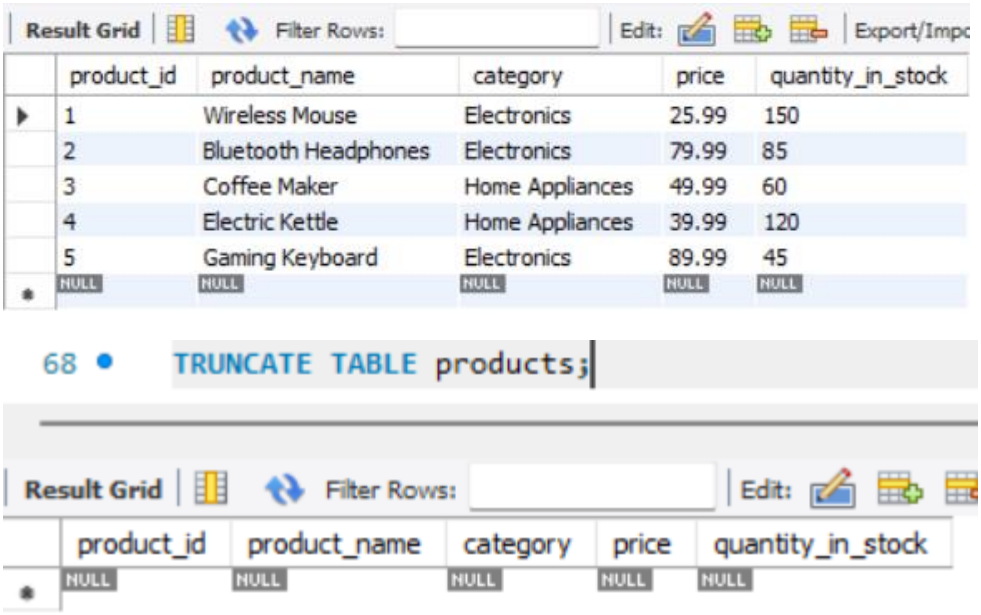


3. **You want to delete all records from the "products" table but keep the table structure.**

   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.



Result Grid | Filter Rows: | Edit: | Export/Impo

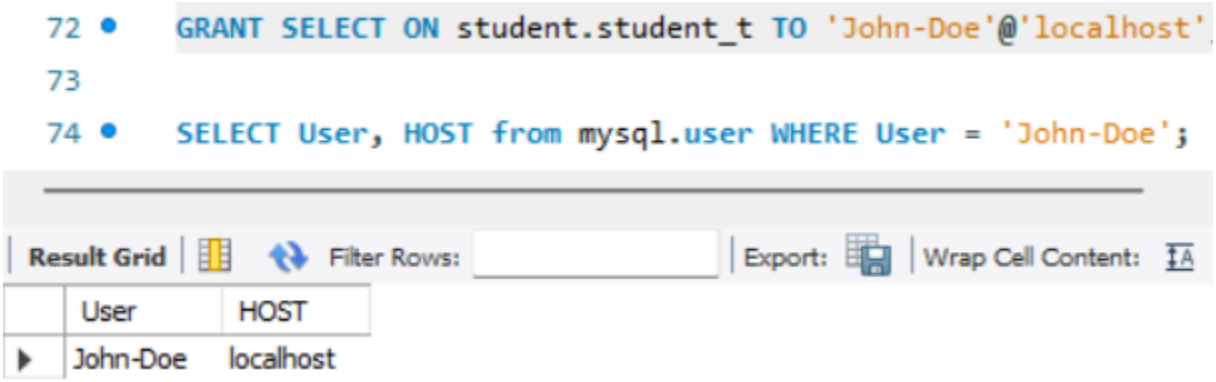
product_id	product_name	category	price	quantity_in_stock
1	Wireless Mouse	Electronics	25.99	150
2	Bluetooth Headphones	Electronics	79.99	85
3	Coffee Maker	Home Appliances	49.99	60
4	Electric Kettle	Home Appliances	39.99	120
5	Gaming Keyboard	Electronics	89.99	45
NULL	NULL	NULL	NULL	NULL

```
68 •  TRUNCATE TABLE products;
```

Result Grid | Filter Rows: | Edit:

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';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

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