Name: Vanness M. Lao
Course, Year, and Section: BSIT 3-1N

Activity 1: Database Design Challenge

#1
Instructions:

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

1. Columns: book_id (Primary Key, Integer), title (VARCHAR(100)), author (VARCHAR(50)), published_year (YEAR), genre (VARCHAR(30)), copies_available (Integer).

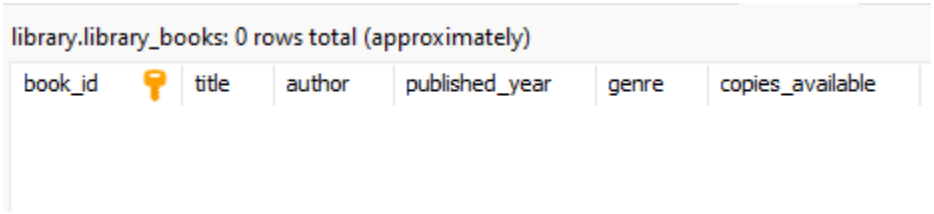
2. Write the SQL statement to create the table.

   Query:

```sql
USE library;

CREATE TABLE library_books (
   book_id INT AUTO_INCREMENT PRIMARY KEY,
   title VARCHAR(100) NOT NULL,
   author VARCHAR(50) NOT NULL,
   published_year YEAR NOT NULL,
   genre VARCHAR(30) NOT NULL,
   copies_available INT
);
```

   Output:



3. 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.

   Query:

```sql
USE library;

INSERT INTO library_books (book_id, title, author, published_year, genre, copies_available)
VALUES (101, 'SQL Fundamentals', 'John Doe', 2022, 'Technology', 5);
```

Output:

library.library_books: 1 rows total (approximately) Next

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

4. Write an SQL query to update the copies_available for the book with ID 101 to 7.

Query:

```
USE library;

UPDATE library_books
SET copies_available = 7
WHERE book_id = 101;

```

Output:

library.library_books: 10 rows total (approximately) Next Show all

book_id	title	author	published_year	genre	copies_available
101	SQL Fundamentals	John Doe	2022	Technology	7
102	Figma UI/UX	Jane Lorax	2024	Technology and Design	29
103	Advanced SQL	Jane Smith	1990	Technology	3
104	Database Design	Michael Brown	2020	Technology	4
105	Web Development	Alice Green	1990	Programming	10
106	Python Essentials	David Blue	2022	Programming	6
107	Cybersecurity Basics	Emily White	2021	Security	7
108	Machine Learning 101	Steve Jobs	2020	Technology	17
109	Cisco Packet Tracing	Ryan Gosling	1999	Networking	5
110	Java Essentials	Bryl Lim	2022	Programming	8

5. Write an SQL query to delete all books published before 2000.

Query:

```
USE library;

DELETE FROM library_books
WHERE published_year < 2000;
```

Output:

library.library_books: 7 rows total (approximately) — Next — Show all

book_id	title	author	published_year	genre	copies_available
101	SQL Fundamentals	John Doe	2022	Technology	7
102	Figma UI/UX	Jane Lorax	2024	Technology and Design	29
104	Database Design	Michael Brown	2020	Technology	4
106	Python Essentials	David Blue	2022	Programming	6
107	Cybersecurity Basics	Emily White	2021	Security	7
108	Machine Learning 101	Steve Jobs	2020	Technology	17
110	Java Essentials	Bryl Lim	2022	Programming	8

#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.
   Answer: CREATE
   Explanation: To define a new table in the database, use the CREATE command. It enables you to define the table's structure, including constraints, data types, and column names.

2. A column in the "student" table needs to have a default value updated.
   Answer: ALTER
   Explanation: By changing a column's default value, renaming columns, or adding or removing columns, the ALTER command alters the structure of an existing table.

3. You want to delete all records from the "products" table but keep the table structure.
   Answer: DELETE
   Explanation: A table's rows can be deleted using the DELETE command without changing its framework. Use it without a WHERE clause to guarantee that all records are deleted.

4. A user needs permission to view and query the "sales" table.
   Answer: GRANT
   Explanation: A user can view (SELECT) or query a table, among other special privileges, with the GRANT command.

5. You need to remove the "inventory" table entirely from the database.
   Answer: DROP
   Explanation: A table is removed from the database using the DROP command, along with its structure and all records, ensuring that the table is completely gone.