Working with Data

In this module, we'll delve into how to work with data in SQL, using our 'Bookstore Inventory' database as a practical example. We'll cover creating tables, inserting, updating, deleting data, and altering table structures.

Creating Tables using CREATE Command

Purpose: The **`CREATE TABLE`** command is used to create a new table in the database.

Example:

```
CREATE TABLE Publishers (
    PublisherID INT PRIMARY KEY,
    Name VARCHAR(100),
    Address VARCHAR(200)
);
```

This creates a new table named 'Publishers' with three columns: PublisherID, Name, and Address.

Inserting Data into Tables using INSERT

Purpose: The **`INSERT INTO`** command is used to add new rows (records) to a table.

Example:

```
INSERT INTO Publishers (PublisherID, Name, Address) VALUES
(1, 'Penguin Books', 'New York, USA'),
(2, 'HarperCollins', 'London, UK');
```

Updating Existing Data using UPDATE

Purpose: The **`UPDATE`** command is used to modify existing records in a table.

Example:

```
UPDATE Books SET Price = Price + 2 WHERE Genre = 'Fiction';
```

Deleting Data using DELETE

The `DELETE` command is used to remove records from a table.

Example:

```
DELETE FROM Books WHERE Title = '1984';
```

Modifying Table Structure using ALTER TABLE

Purpose: The `ALTER TABLE` command is used to modify the structure of an existing table, such as adding, deleting, or modifying columns.

Adding a column:

```
ALTER TABLE Publishers ADD COLUMN Website VARCHAR(100);
```

Modify a column:

```
ALTER TABLE Publishers ALTER COLUMN Address VARCHAR(250);
```

Delete a Column:

```
ALTER TABLE Publishers DROP COLUMN Website;
```

Practice Questions

Note: you don't need to submit these practice questions, it's just for practicing purposes, if you face any doubts, feel free to ask in the discord server.

Question 1: Create a New Table

Create a table named `Customers` with the following columns:

- `CustomerID` (integer, primary key)
- `FirstName` (varchar, 50 characters)
- `LastName` (varchar, 50 characters)
- `Email` (varchar, 100 characters)

Question 2: Insert Data

Insert the following records into the `Customers` table:

> CustomerID: 101, FirstName: 'Amit', LastName: 'Kumar', Email: 'amit.kumar@example.com'
> CustomerID: 102, FirstName: 'Priya', LastName: 'Sharma', Email: 'priya.sharma@example.com'

Question 3: Update Existing Data

In the `Books` table, increase the price of all books in the 'Sci-Fi' genre by 3.

Question 4: Delete Data

Delete the book with the title 'Pride and Prejudice' from the `Books` table.

Question 5: Modify Table Structure

Add a new column to the `Customers` table named `PhoneNumber` (varchar, 15 characters).

Question 6: Advanced Insertion

Insert a new book into the `Books` table. Choose a title, author, genre, price, quantity, and publication year of your choice.

Question 7: Conditional Update

Update the `Customers` table to set the email to 'updated@email.com' for all customers whose `LastName` is 'Sharma'.

Question 8: Complex Deletion

Delete all records from the `Books` table where the `Quantity` is less than 5.

Question 9: Alter Table Challenge

Alter the `Books` table to change the `Genre` column's character limit to 100 characters.

Question 10: Multiple Conditions Update

In the `Books` table, reduce the price by 2 for all books published before the year 2000 and having a quantity of more than 10.