

Module 4 - DDL Command in SQL

What is DDL (Data Definition Language)?

DDL stands for Data Definition Language. It includes SQL commands that are used to create, modify, or delete the structure of database objects like:

- Tables
- Views
- Indexes
- Schemas
- Databases

Important:

DDL does not manage the data inside the tables. That's what DML (Data Manipulation Language) like INSERT, UPDATE, and DELETE does.

DDL statements are auto-committed, meaning changes are immediately saved to the database and cannot be rolled back (undone) in many systems.

What is the CREATE Command?

The **CREATE** command is used in SQL to make something new in a database. Usually, we use it to create a table, but it can also be used to create a database, view, index, and more.

In most cases, when you're starting a new project, you first use the CREATE command to make the tables where your data will be stored.

Syntax of CREATE TABLE

```
CREATE TABLE table_name (  
    column1 data_type [constraint],  
    column2 data_type [constraint],  
    ...  
);
```



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Example

```
CREATE TABLE students (
  student_id INT,
  name VARCHAR(100),
  age INT
);
```

Explanation:

Part	Meaning
CREATE TABLE	You are telling the database to make a new table.
students	This is the name of the table. You can name it whatever makes sense.
student_id INT	This is the first column. It will store whole numbers (e.g., 1, 2, 3).
name VARCHAR(100)	This column will store names. VARCHAR means "variable-length text" – up to 100 characters.
age INT	This column stores the age, using whole numbers.

Common Data Types Used in CREATE

Data Type	What It Stores	Example
INT	Whole numbers	18, 25, 100
VARCHAR(n)	Text (up to n characters)	'Alice', 'School Name'
CHAR(n)	Fixed-length text	'M', 'Y'
DATE	Dates	'2025-06-09'
FLOAT or DECIMAL	Decimal numbers	3.14, 99.99

Adding Constraints (Optional)

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Constraint	Meaning
PRIMARY KEY	Uniquely identifies each row (no duplicates)
NOT NULL	Column cannot be left empty
UNIQUE	All values in the column must be different
DEFAULT	Sets a default value if none is given
CHECK	Makes sure values meet a condition

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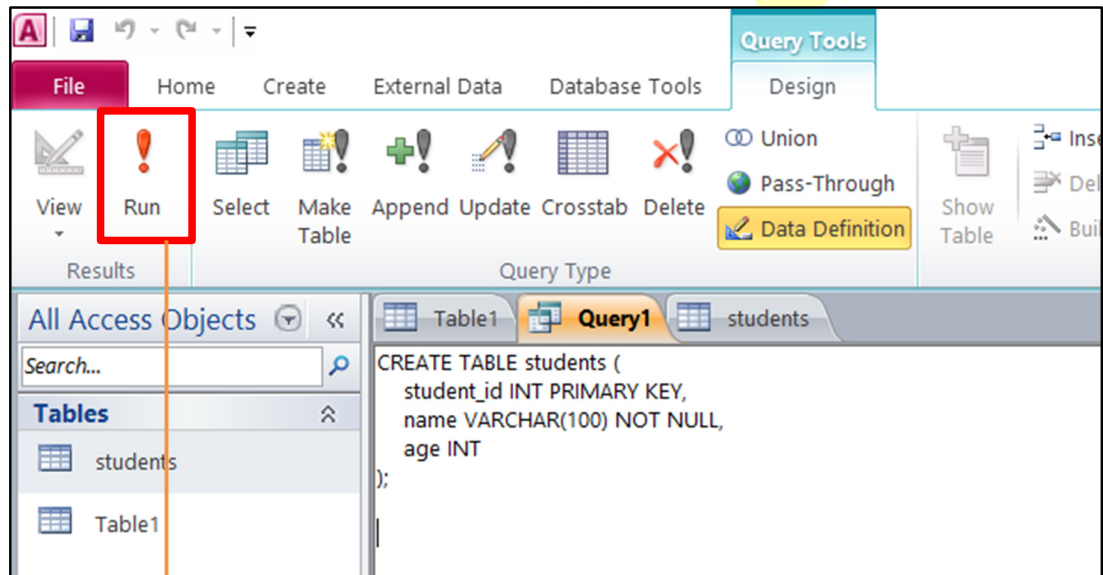
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Example With Constraints

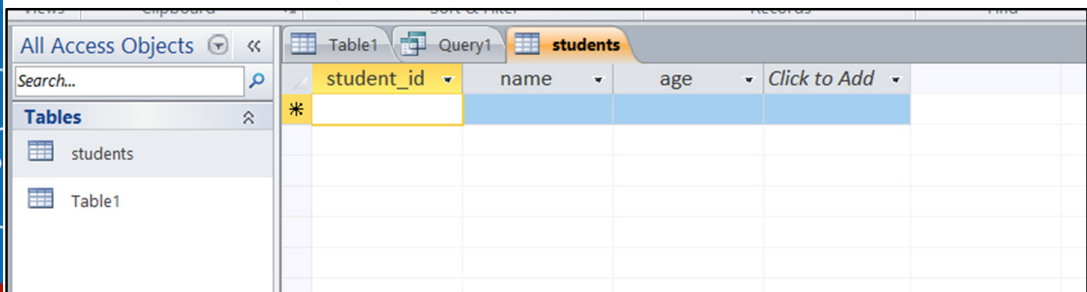
```
CREATE TABLE students (
    student_id INT PRIMARY KEY,
    name VARCHAR(100) NOT NULL,
    age INT
);
```

Explanation:

- student_id is a **primary key** (must be unique and not null).
- name is **required** (can't be empty).



Click to run it will create a table with name student



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What is the ALTER Command in SQL?

The ALTER command in SQL is used to modify the structure of an existing table in a database.

It allows you to:

- Add new columns
- Delete existing columns
- Change data types of columns
- Rename columns or the table itself
- Add or remove constraints (like PRIMARY KEY, NOT NULL)

You use ALTER when the table already exists, but you want to change something about its structure.

Syntax of Alter command

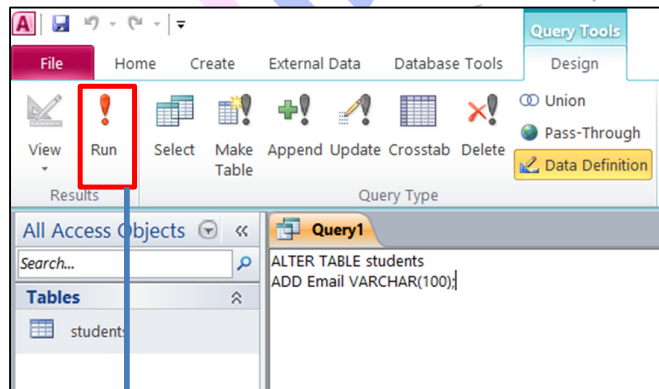
Syntax to add new Column:

ALTER TABLE table_name
ADD column_name datatype;

This adds a new column to an existing table.

Example:

ALTER TABLE students
ADD Email VARCHAR(100)



Click on run to add Column name Email

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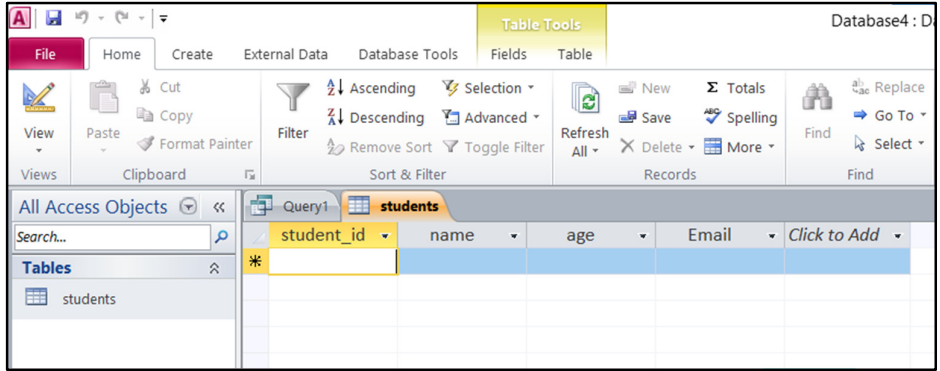
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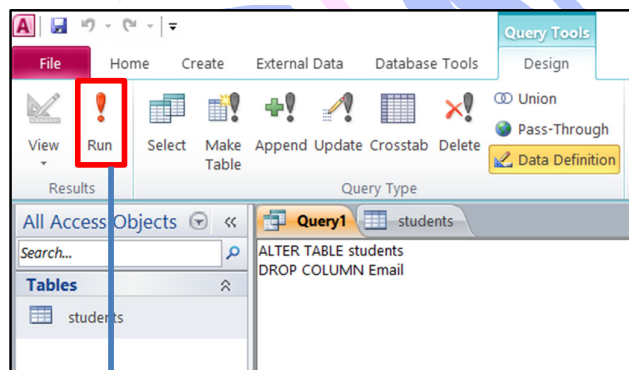
Syntax to Delete a Column:

```
ALTER TABLE table_name
DROP COLUMN column_name;
```

This removes a column from an existing table.

Example

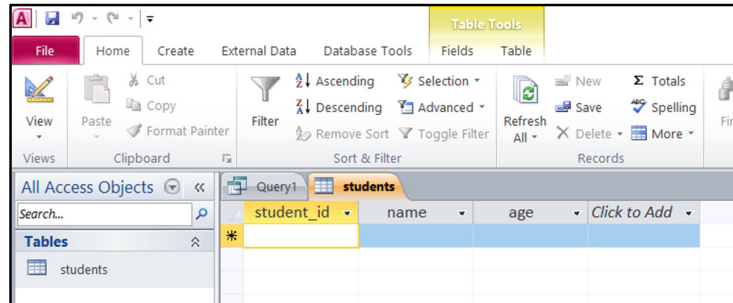
```
ALTER TABLE students
DROP COLUMN Email
```



Click Run to delete a column

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Syntax to Modify Column data type

ALTER TABLE table_name
ALTER COLUMN column_name new_datatype;

Example:

ALTER TABLE students
ALTER COLUMN age Int

This will Changes the data type of an existing column

What is the DROP Command in SQL?

The DROP command is a **Data Definition Language (DDL)** command used to **completely delete** database objects such as tables, databases, indexes, or views.

- When you use the DROP command, the object is **permanently removed** from the database.
- All the data stored in that object is also deleted.
- This action **cannot be undone** (unless you have backups).

Meaning of DROP Command

- DROP means to **remove or delete something entirely**.
- In SQL, it means you are telling the database system to **remove the whole structure and its data**.

What can you DROP?

You can use DROP to delete:

- **Tables:** Remove the entire table and all its data.
- **Databases:** Delete an entire database.
- **Indexes:** Delete indexes to improve or change performance.
- **Views:** Remove a saved query or view.
- Other objects depending on the database system.

Note:

- MS Access **does NOT support** dropping databases via SQL – because the database is a file managed outside SQL commands.
- MS Access **does NOT support DROP COLUMN** to remove a column via SQL – you need to remove columns manually in table design or by using VBA.
- You can use **DROP INDEX** to delete indexes on tables.
- Dropping a table or index in MS Access **cannot be undone unless you have a backup** of the database file.

Syntax of Drop command to drop a table:

DROP TABLE table_name

Example:

DROP TABLE students

Note : it will delete the entire table



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