*SQL* is a programming language designed to manipulate and manage data stored in relational databases.

<https://www.codecademy.com/articles/sql-commands>

* A *relational database* is a database that organizes information into one or more tables.
* A *table* is a collection of data organized into rows and columns.

A *statement* is a string of characters that the database recognizes as a valid command.

* CREATE TABLE creates a new table.
* INSERT INTO adds a new row to a table.
* SELECT queries data from a table.
* ALTER TABLE changes an existing table.
* UPDATE edits a row in a table.
* DELETE FROM deletes rows from a table.

*Constraints* add information about how a column can be used.

Some of the most common data types are:

* INTEGER, a positive or negative whole number
* TEXT, a text string
* DATE, the date formatted as YYYY-MM-DD for the year, month, and day
* REAL, a decimal value

CREATE TABLE celebs ( id INTEGER, name TEXT, age INTEGER );

INSERT INTO celebs (id, name, age) VALUES (2, 'Beyonce Knowles', 33); INSERT INTO celebs (id, name, age) VALUES (3, 'Jeremy Lin', 26); INSERT INTO celebs (id, name, age) VALUES (4, 'Taylor Swift', 26);

SELECT name FROM celebs;

SELECT \*FROM celebs;

The ALTER TABLE statement adds a new column to a table. You can use this command when you want to add columns to a table.

ALTER TABLE celebs

ADD COLUMN twitter\_handle TEXT;

SELECT \* FROM celebs;

The UPDATE statement edits a row in a table. You can use the UPDATE statement when you want to change existing records.

UPDATE celebs

SET twitter\_handle = '@taylorswift13'

WHERE id = 4;

SELECT \* FROM celebs;

The DELETE FROM statement deletes one or more rows from a table.

IS NULL is a condition in SQL that returns true when the value is NULL and false otherwise.

DELETE FROM celebs

WHERE twitter\_handle IS NULL;

SELECT \* FROM celebs;

Constraints that add information about how a column can be used are invoked after specifying the data type for a column. They can be used to tell the database to reject inserted data that does not adhere to a certain restriction.

1. PRIMARY KEY columns can be used to uniquely identify the row. Attempts to insert a row with an identical value to a row already in the table will result in a *constraint violation*which will not allow you to insert the new row.

2. UNIQUE columns have a different value for every row. This is similar to PRIMARY KEYexcept a table can have many different UNIQUE columns.

3. NOT NULL columns must have a value. Attempts to insert a row without a value for a NOT NULL column will result in a constraint violation and the new row will not be inserted.

4. DEFAULT columns take an additional argument that will be the assumed value for an inserted row if the new row does not specify a value for that column.

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CREATE TABLE awards (

id INTEGER PRIMARY KEY,

recipient TEXT NOT NULL,

award\_name TEXT DEFAULT 'Grammy'

);

CREATE TABLE friends(

id INTEGER,

name TEXT,

birthday DATE

);

INSERT INTO friends(id, name, birthday)

VALUES (1, 'Jane Doe', '1990-05-30');

INSERT INTO friends(id, name, birthday)

VALUES (2, 'Saloni Anand', '2000-08-04');

INSERT INTO friends(id, name, birthday)

VALUES (3, 'Meenu Valecha', '1987-07-02');

UPDATE friends

SET name = 'Jane Smith'

WHERE id = 1;

ALTER TABLE friends

ADD COLUMN email TEXT;

UPDATE friends

SET email = 'jane@codecademy.com'

WHERE id = 1;

DELETE FROM friends

WHERE id = 1;

SELECT \*

FROM friends;