

# Table Relations and Normalization: Takeaways



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## Syntax

- Launching the SQLite shell:

```
sqlite3 chinook.db
```

- Switching column headers on:

```
.headers on
```

- Switching to column mode:

```
.mode column
```

- Displaying help text:

```
.help
```

- Displaying a list of all tables and views:

```
.tables
```

- Running BASH shell commands:

```
.shell [command]
```

- Viewing table schema.

```
.schema [table_name]
```

- Quitting the SQLite Shell:

```
.quit
```

- Creating a table:

```
CREATE TABLE [table_name] (  
  [column1_name] [column1_type],  
  [column2_name] [column2_type],  
  [column3_name] [column3_type],  
  [...]  
);
```

- Creating a table with a primary and a foreign key:

```
CREATE TABLE purchase (  
  purchase_id INTEGER PRIMARY KEY,  
  user_id INTEGER,  
  purchase_date TEXT,  
  total NUMERIC,  
  FOREIGN KEY (user_id) REFERENCES user(user_id)  
);
```

- Creating a compound primary key:

```
CREATE TABLE [table_name] (
    [column_one_name] [column_one_type],
    [column_two_name] [column_two_type],
    [column_three_name] [column_three_type],
    [column_four_name] [column_four_type],
    PRIMARY KEY (column_one_name, column_two_name)
);
```

- Inserting values into a table:

```
INSERT INTO [table_name] (
    [column1_name],
    [column2_name],
    [column3_name]
) VALUES (
    [value1],
    [value2],
    [value3]
);
```

OR

```
INSERT INTO [table_name] VALUES ([value1], [value2], [value3]);
```

- Deleting selected rows from a table:

```
DELETE FROM [table_name]
WHERE [expression];
```

- Adding a column:

```
ALTER TABLE [table_name]
ADD COLUMN [column_name] [column_type];
```

- Changing values for existing rows:

```
UPDATE [table_name]
SET [column_name] = [expression]
WHERE [expression]
```

## Concepts

- A semicolon is necessary to end your queries in the SQLite shell.
- SQLite comes with a number of dot commands to work with databases.
- Dot commands are run within SQLite shell.
- SQLite uses `TEXT` , `INTEGER` , `REAL` , `NUMERIC` , `BLOB` data types behind the scenes.
- A breakdown of SQLite data types and equivalent data types from other types of SQL.

**Type      Commonly Used For Equivalent Types**

TEXT		CHARACTER
	Names	VARCHAR
	Email Addresses	NCHAR
	Dates and Times	NVARCHAR
	Phone Numbers	DATETIME

INTEGER		INT
	IDs	SMALLINT
	Quantities	BIGINT
		INT8

REAL	Weights	DOUBLE
	Averages	FLOAT
NUMERIC	Prices	DECIMAL
	Statuses	BOOLEAN
BLOB	Binary Data	BLOB

- A primary key is a unique identifier for each row
- A foreign key describes how the column is related to a foreign table
- Database normalization optimizes the design of databases, allowing for stronger data integrity. For example, it helps you avoid data duplication if a record being stored multiple times, and it helps avoid data modification if you need to update several rows after removing duplicate records.
- A compound primary key is when two or more columns combine to form a primary key.

## Resources

- [SQLite Shell](#)
- [Database Normalization](#)