



# SQL Clauses

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## SQL Clauses



### WHAT'S COVERED

"SQL" stands for "Structured Query Language," a programming language that is typically used in relational databases. There are three main SQL clauses: **SELECT**, **FROM**, and **WHERE**. At the conclusion of this tutorial, you will be able to recall the three main SQL clauses and their functions. This tutorial explores these SQL clauses in three parts:

1. Getting Started
2. Running a Query
3. Adding **WHERE**

## 1. Getting Started

A **database** is an organized collection of data. Databases are a useful means of storing, managing, and retrieving data quickly. They consist of sets of records contained within one or more tables, with each table identified by the table name. This unit will teach you how to use simple SQL database commands to manage and retrieve data.

The most common command to interact with a database is the **SELECT** statement, utilized to query (i.e., request) data from the database. A statement is a complete piece of code that can run independently, and is comprised of clauses. The most basic **SELECT** statement has the format of:

```
SELECT *  
FROM <tablename>;
```

This basic **SELECT** statement is comprised of two clauses that must occur in that specific order. The **SELECT** clause indicates the columns to list in the specific order that they will appear. In this case, the **\*** is a unique wildcard that stands for **ALL** columns. Using this means that all the columns are selected to be displayed back to the user in the order that they appear in the table names that are listed. The second clause is the **FROM** clause that lists the table names that will be returned. For now, we will only focus on one table, but we will address multiple table queries later on in the course.

The data that is returned from a **SELECT** statement is stored in a result table called a result-set.

Keep in mind that SQL keywords are not case sensitive, meaning that **select** is the same as **Select** or **SELECT**. Using uppercase keywords is a best practice to visually separate out the keywords from the table or column

names. However, it is not required.



## TERMS TO KNOW

### Database

A set of records contained within one or more tables.

### SELECT

An SQL clause that retrieves zero or more rows of data from one or more database columns.

### FROM

An SQL clause that identifies one or more tables as the source for a database query statement.

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## 2. Running a Query

Throughout this course, you will use a free and open-source relational database management system called Postgres to practice running queries. To access the Postgres database environment, open the following link in another browser window or tab: <https://postgres.sophia.org>. If you enter the Postgres database environment, you will see a list of database tables on the left side under the Schema Browser (album, artist, customer, employee, genre, invoice, etc.) Under each table name is a list of columns of data and their data types.

Using the Postgres database environment for this course, you can query the customer table by entering in:

```
SELECT *  
FROM customer;
```

### Video Transcription

[MUSIC PLAYING] Let's take a look at the SQL Query interface. On the left side, there is a list of tables. And under each table name is a list of columns and data types.

This is the schema for the database. The largest area is used to enter your own SQL queries. You can fill this with one of the examples by selecting it from the dropdown menu at the top.

Once you have entered a query, you can run it by clicking the Play button to the upper right. After running a query, you can view the results at the bottom of the screen.

You can reset the database at any time by reloading the web page. This will change everything back to its starting state. You should write down your SQL queries in another location before running them, either a text document on your computer or on a piece of paper. This way, you won't lose any progress you have already made if you need to reset.

[MUSIC PLAYING]



## TRY IT

Your turn! Try a query in the SQL tool. Start with the example above to see if you can replicate the results. Then, try a SELECT query on any of the other tables listed in the database on the left side under the Schema Browser. To get started, press the LAUNCH DATABASE button below to open the SQL tool in a new tab.

## Video Transcription

[MUSIC PLAYING] A SELECT statement is the basic statement in order query data from a table. For example, we have the customer table that's located here. In order to query from the table, we would specify the SELECT statement. Then we specify the columns that's going to be selected. We can utilize the star as a wildcard to include all columns.

Then we include the FROM clause. And then we list the table names associated with what we're trying to query from. Here, we can go ahead and choose customer. Click on Run, and the result set should return all of the rows associated with the customer itself.

Now, we can also filter the data a little bit further, that we'll get into in future tutorials, utilizing the WHERE clause. For example, if we're trying to find the WHERE clause and identify the customers that have the customer\_id equal to 2, this would filter the data set. So prior to running this, we'll see that there's 59 rows. However, once we run this, it'll filter the data, only return the ones that fit that criteria, and return a single row, because we only have one row that has a customer\_id that's equal to 2.

[MUSIC PLAYING]

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## 3. Adding WHERE

The third main clause of the SELECT statement is the **WHERE** clause. The WHERE clause is used to filter records, and only returns those rows/records when they fulfill a specific condition. There are many ways to filter data using the WHERE clause, which can be used not only in SELECT statements, but also in other statements like the UPDATE and DELETE statements. We will cover these other statements in later lessons.



### THINK ABOUT IT

What might be some other things you'd want to ask that are not possible with only these three clauses?



### TERM TO KNOW

#### WHERE

An SQL clause that applies conditions to filter the result-set.



### SUMMARY

There are three main SQL clauses: SELECT, FROM, and WHERE. You can use them to form queries that display the desired data from a database. SELECT defines the columns to return from the table. FROM identifies the desired table. WHERE filters the data to meet your chosen conditions.

