Hands-on Lab: Simple SELECT Statements



Estimated time needed: 20 minutes

In this lab, you will learn one of the most commonly used statements of SQL (Structured Query Language), the SELECT statement. The SELECT statement is used to select data from a database.

Objectives

After completing this lab, you will be able to:

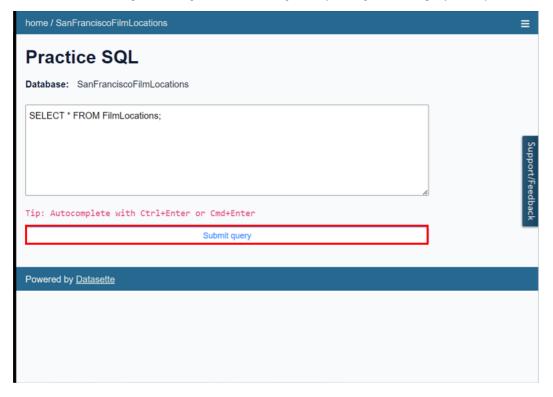
- Query a database to obtain a response as a result set
- Retrieve all or selected columns of a dataset
- · Apply criteria commands to filter the result set

Software Used in this Lab

In this lab, you will use Datasette, an open source-tool for exploring and publishing data. You can visit the <u>Datasette GitHub repository here</u>.

Working with Datasette

The Datasette tool offers a platform to input and execute SQL queries. By clicking the Submit query button, you can execute the SQL query.



Database Used in this Lab

The database used in this lab comes from the following dataset source: Film Locations in San Francisco under a PDDL: Public Domain Dedication and License.

Exploring the Database

Let's first explore the SanFranciscoFilmLocations database using the Datasette tool:

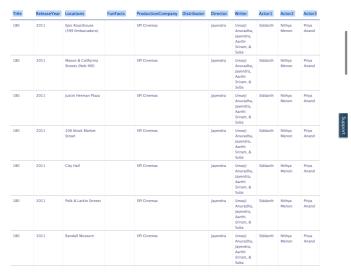
- 1. If the first statement listed below is not already in the Datasette textbox on the right, then copy the code below by clicking on the little copy button on the bottom right of the code block below and then paste it into the textbox of the Datasette tool using either Ctrl+V or right-click in the text box and choose Paste.
- 1.
- SELECT * FROM FilmLocations;

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- 2. Click Submit Query.
- 3. Now, you can scroll down the table and explore all the columns and rows of the FilmLocations table to get an overall idea of the table contents.



4. These are the column attribute descriptions from the FilmLocations table:

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
```

6. 6 7. 7 8. 8 9. 9

10. 10 11. 11 12. 12 13. 13

 FilmLocations(2. Title:

titles of the films, 3. ReleaseYear: time of public release of the films,

4. Locations: locations of San Francisco where the films were shot,

funny facts about the filming locations, companies who produced the films, 5. FunFacts: 6. ProductionCompany: Distributor: companies who distributed the films, people who directed the films, people who wrote the films, 8. Director: 9. Writer: 10. Actor1: person 1 who acted in the films, person 2 who acted in the films, person 3 who acted in the films 11. Actor2: 12. Actor3:

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Using SELECT statement

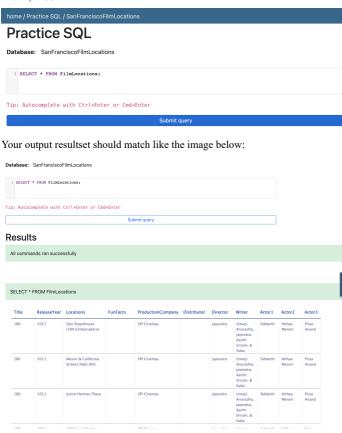
Now, let's go through some examples of SELECT queries.

- 1. Suppose we want to retrieve details of all the films from the FilmLocations table. The details of each film record should contain all the columns. The query statement for this is:
- SELECT * FROM FilmLocations;

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Copy the solution code above and paste it to the textbox of the Datasette tool. Then click Submit query.

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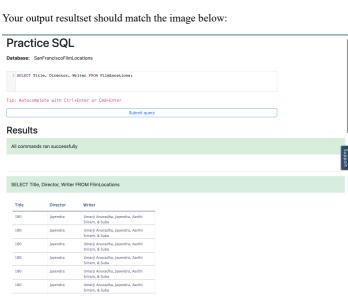


- 2. We want to retrieve the film names and director and writer names. The query now would be:
- 1. 1
- SELECT Title, Director, Writer FROM FilmLocations;

Copied!

Copy the solution code above and paste it to the textbox of the Datasette tool. Then click Submit query.





- 3. We want to retrieve film names along with filming locations and release years. But we also want to restrict the output resultset to retrieve only the film records released in 2001 and onwards (release years after 2001, including 2001).
- 1.
- SELECT Title, ReleaseYear, Locations FROM FilmLocations WHERE ReleaseYear>=2001;

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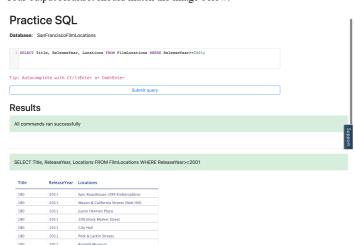
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Copy the solution code above and paste it to the textbox of the Datasette tool. Then click Submit query.



Your output resultset should match the image below:



Practice exercises on the SELECT statement

- 1. Retrieve the fun facts and filming locations of all films.
- ▼ Click here for a hint

Follow example 2 of SELECT, where records containing details of some particular columns have been retrieved.

▼ Click here for the solution

Randall Museur 555 Market St.

- 1.
- 1. SELECT Locations, FunFacts FROM FilmLocations;

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lacktriangledown Click here for the output

Practice SQL

Database: SanFranciscoFilmLocations

1 SELECT Locations, FunFacts FROM FilmLocations;

Tip: Autocomplete with Ctrl+Enter or Cmd+Enter

Submit query

Results

All commands ran successfully

SELECT Locations, FunFacts FROM FilmLocations

Locations	FunFacts
Epic Roasthouse (399 Embarcadero)	
Mason & California Streets (Nob Hill)	
Justin Herman Plaza	
200 block Market Street	
City Hall	

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Polk & Larkin Streets				
Randall Museum				
555 Market St.				
		_	 _	 6.1

Retrieve the names of all films released in the 20th century and before (release years before 2000 including 2000), along with filming locations and release
years.

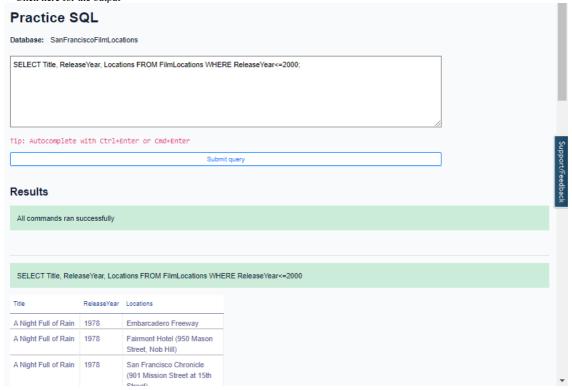
▼ Click here for a hint

Follow example 3 of SELECT, where we restricted the output resultset to retrieve only the film records with certain release years. Use WHERE clause comparison operator <=, which means Less than or equal to.

- ▼ Click here for the solution
 - 1. 1
 - SELECT Title, ReleaseYear, Locations FROM FilmLocations WHERE ReleaseYear<=2000;

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▼ Click here for the output



- 3. Retrieve the names, production company names, filming locations, and release years of the films not written by James Cameron.
- ▼ Click here for a hint

Use WHERE clause comparison operator $\ensuremath{\mathsf{<>}},$ which means Not equal to.

- ▼ Click here for the solution
 - 1. 1
 - 1. SELECT Title, ProductionCompany, Locations, Release Year FROM Film Locations WHERE Writer <> "James Cameron";

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▼ Click here for the output

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Practice SQL

Database: SanFranciscoFilmLocations

1 SELECT Title, ProductionCompany, Locations, ReleaseYear FROM F.

Tip: Autocomplete with Ctrl+Enter or Cmd+Enter

Submit query

Results

All commands ran successfully

SELECT Title, ProductionCompany, Locations, ReleaseYear FROM Film

Title	ProductionCompany	Locations	ReleaseYear	
180	SPI Cinemas	Epic Roasthouse (399 Embarcadero)	2011	
180	SPI Cinemas	Mason & California Streets (Nob Hill)	2011	
180	SPI Cinemas	Justin Herman Plaza	2011	
180	SPI Cinemas	200 block Market	2011	

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		Street	
180	SPI Cinemas	City Hall	2011
180	SPI Cinemas	Polk & Larkin Streets	2011
180	SPI Cinemas	Randall Museum	2011
100	CDL CL		2011

Conclusion

Congratulations on completing this lab!

You are now able to:

- Query a database using SELECT statements
- Retrieve all or selected columns of data
- Filter the query response to meet a defined criteria

Author(s)

Sandip Saha Joy

Other Contributor(s)

Abhishek Gagneja

Changelog

Date	Version	Changed by	Change Description
2023-10-12	1.9	Mercedes Schneider	QA Pass w/Edits
2023-10-11	1.8	Misty Taylor	ID Check
2023-10-01	1.7	Abhishek Gagneja	Updated Lab instructions
2023-07-11	1.6	Lakshmi Holla	Updated labs
2023-06-02	1.5	Eric Hao	Fixed Page Styles
2023-05-10	1.4	Eric Hao & Vladislav Boyko	Updated Page Frames
2023-05-04	1.3	Benny Li	Republished
2022-07-27	1.2	Lakshmi Holla	Updated html tag
2020-11-23	1.1	Steve Ryan	ID Review
2020-11-20	1.0	Sandip Saha Joy	Initial version created

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