

动手实验室：插入、更新、删除



Skills
Network

预计所需时间：20 分钟

在本实验中，您将学习除 SELECT 之外的一些常用的 SQL DML（数据操作语言）语句。首先，您将学习 INSERT 语句，该语句用于将新行插入表中。接下来，您将学习 UPDATE 语句，该语句用于更新表中现有行中的数据。最后，您将学习用于从表中删除行的 DELETE 语句。

目标

完成本实验后，您将能够：

- 将新行插入表中
- 更新表中现有行中的数据
- 从表中删除行

涵盖的概念

INSERT 语句的语法如何？

```
1. 1
2. 2
3. 3

1. INSERT INTO table_name (column1, column2, ... )
2. VALUES (value1, value2, ... )
3. ;
```

复制了！

UPDATE 语句的语法如何？

```
1. 1
2. 2
3. 3
4. 4

1. UPDATE table_name
2. SET column1 = value1, column2 = value2, ...
3. WHERE condition
4. ;
```

复制了！

DELETE 语句的语法如何？

```
1. 1
2. 2
3. 3

1. DELETE FROM table_name
2. WHERE condition
3. ;
```

复制了！

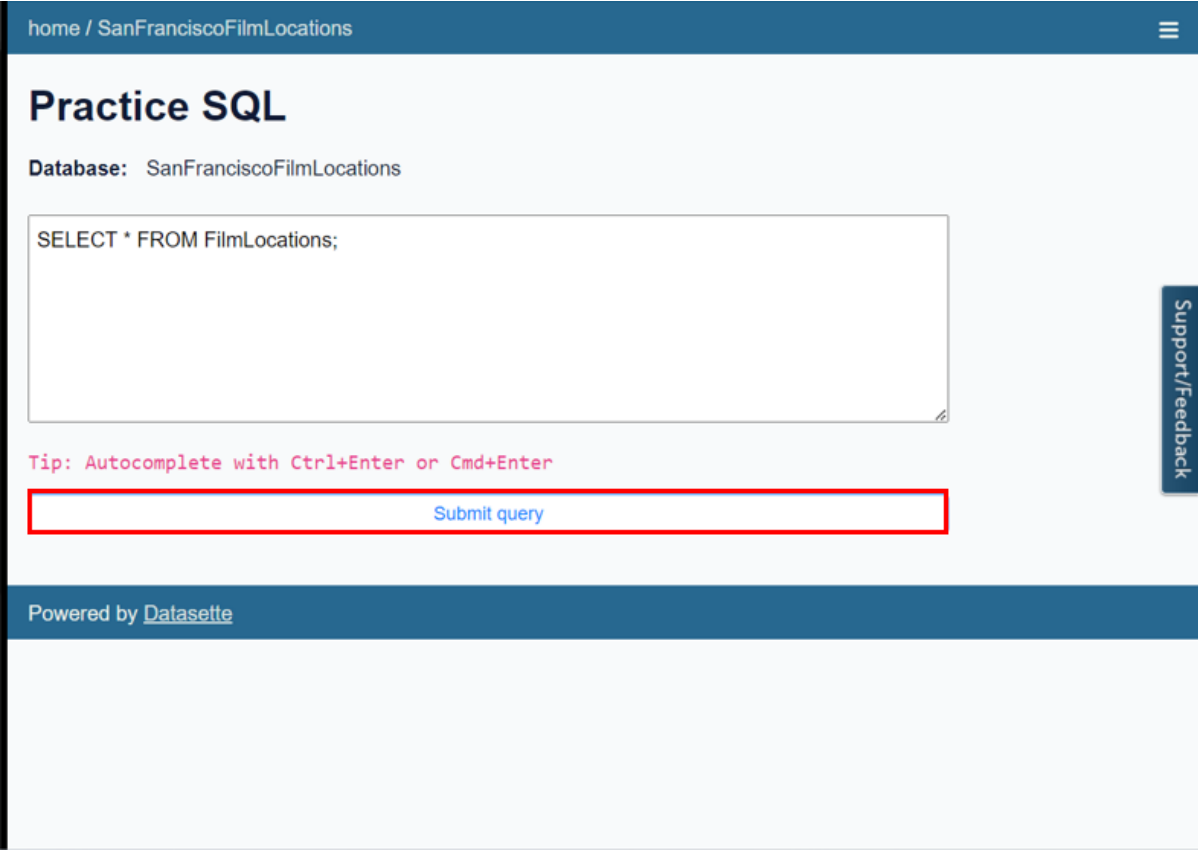
实验室环境介绍

本实验室使用的软件

在本实验中，您将使用 Datasette，这是一个用于探索和发布数据的开源工具。您可以在此处访问[Datasette GitHub 存储库](#)。

使用数据集

Datasette工具提供了一个输入和执行 SQL 查询的平台。通过单击“提交查询”按钮，您可以执行 SQL 查询。



本实验使用的数据库

本实验中使用的数据集是内部数据库。

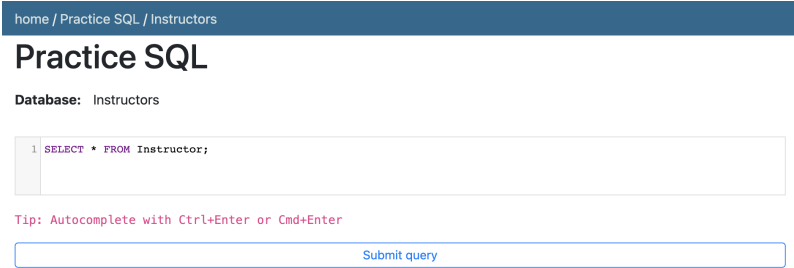
探索数据库

Let us first explore the **Instructors** 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 codeblock 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. 1
1. SELECT * FROM Instructor;
```

Copied!



2. Click **Submit Query**.

3. Now you can scroll down the table and explore all the columns and rows of the **Instructor** table to get an overall idea of the table contents.

ins_id	lastname	firstname	city	country
1	Ahuja	Rav	Toronto	CA
2	Chong	Raul	Toronto	CA
3	Vasudevan	Hima	Chicago	US

4. These are the column attribute descriptions from the **Instructor** table:

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
1. Instructor (
2.   ins_id:    unique identification number of the instructors,
3.   lastname:  last name of the instructors,
4.   firstname: first name of the instructors,
5.   city:      name of the cities where instructors are located,
6.   country:   two-letter country code of the countries where instructors are located
7. )
```

Copied!

Exercise 1: INSERT

In this exercise, you will first go through some examples of using INSERT in queries and then solve some exercise problems by using it.

Task A

Example exercises on INSERT

Let us go through some examples of INSERT related queries:

1. In this example, suppose we want to insert a new single row into the **Instructor** table.

1. Problem:

Insert a new instructor record with id 4 for Sandip Saha who lives in Edmonton, CA into the “Instructor” table.

2. Solution:

```
1. 1
2. 2
1. INSERT INTO Instructor(ins_id, lastname, firstname, city, country)
2. VALUES(4, 'Saha', 'Sandip', 'Edmonton', 'CA');
```

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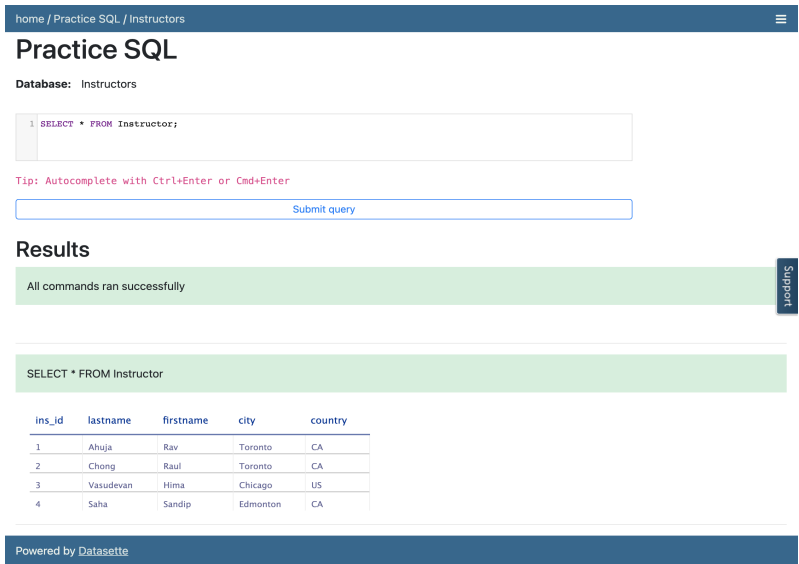
3. Copy the solution code above by clicking on the little copy button on the bottom right of the codeblock below and paste it to the textbox of the Datasette tool. Then click **Submit query**.

4. Copy the code below by clicking on the little copy button on the bottom right of the codeblock below and paste it to the textbox of the Datasette tool. Then click **Submit query**.

```
1. 1
1. SELECT * FROM Instructor;
```

Copied!

5. Your output resultset should look like the image below:



2. In this example, suppose we want to insert some new multiple rows into the **Instructor** table.

1. Problem:

Insert two new instructor records into the “Instructor” table. First record with id 5 for John Doe who lives in Sydney, AU. Second record with id 6 for Jane Doe who lives in Dhaka, BD.

2. Solution:

```
1. 1
2. 2
1. INSERT INTO Instructor(ins_id, lastname, firstname, city, country)
2. VALUES (5, 'Doe', 'John', 'Sydney', 'AU'), (6, 'Doe', 'Jane', 'Dhaka', 'BD');
```

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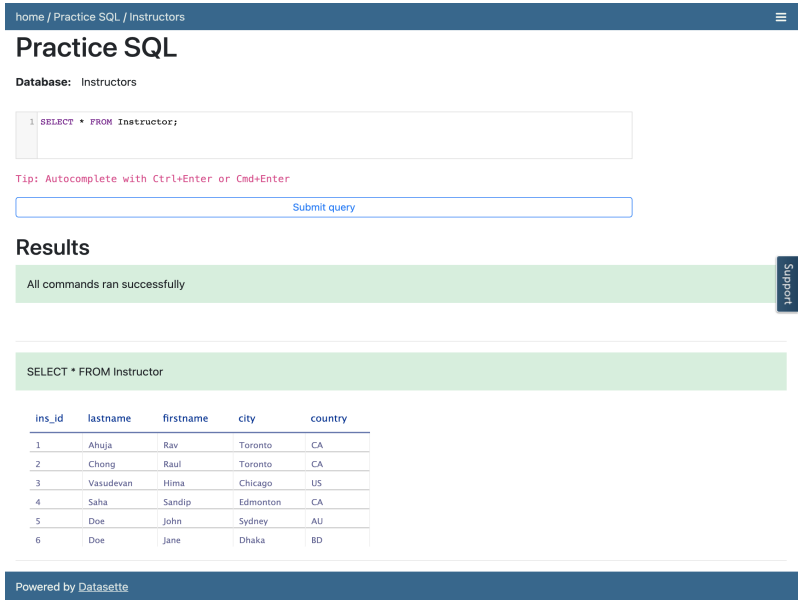
3. Copy the solution code above by clicking on the little copy button on the bottom right of the codeblock below and paste it to the textbox of the Datasette tool. Then click **Submit query**.

4. Copy the code below by clicking on the little copy button on the bottom right of the codeblock below and paste it to the textbox of the Datasette tool. Then click **Submit query**.

```
1. 1
1. SELECT * FROM Instructor;
```

Copied!

5. Your output resultset should look like the image below:



Task B

Practice exercises on INSERT

Now, let us practice creating and running some INSERT related queries.

1. Problem:

Insert a new instructor record with id 7 for Antonio Cangiano who lives in Vancouver, CA into the "Instructor" table.

- ▶ Hint
- ▶ Solution
- ▶ Output

2. Problem:

Insert two new instructor records into the "Instructor" table. First record with id 8 for Steve Ryan who lives in Barlby, GB. Second record with id 9 for Ramesh Sannareddy who lives in Hyderabad, IN.

- ▶ Hint
- ▶ Solution
- ▶ Output

Exercise 2: UPDATE

In this exercise, you will first go through some examples of using UPDATE in queries and then solve some exercise problems by using it.

Task A

Example exercises on UPDATE

Let us go through some examples of UPDATE related queries:

1. In this example, we want to update one column of an existing row of the table.

1. Problem:

Update the city for Sandip to Toronto.

2. Solution:

```
1. 1
2. 2
3. 3
1. UPDATE Instructor
2. SET city='Toronto'
3. WHERE firstname="Sandip";
```

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3. Copy the solution code above by clicking on the little copy button on the bottom right of the codeblock below and paste it to the textbox of the Datasette tool. Then click **Submit query**.

4. Copy the code below by clicking on the little copy button on the bottom right of the codeblock below and paste it to the textbox of the Datasette tool. Then click **Submit query**.

```
1. 1
1. SELECT * FROM Instructor;
```

Copied!

5. Your output resultset should look like the image below:

SELECT * FROM Instructor;

Tip: Autocomplete with Ctrl+Enter or Cmd+Enter

Submit query

Results

All commands ran successfully

SELECT * FROM Instructor

ins_id	lastname	firstname	city	country
1	Ahuja	Rav	Toronto	CA
2	Chong	Raul	Toronto	CA
3	Vasudevan	Hima	Chicago	US
4	Saha	Sandip	Edmonton	CA
5	Doe	John	Sydney	AU
6	Doe	Jane	Dhaka	BD
7	Cangiano	Antonio	Vancouver	CA
8	Ryan	Steve	Barlby	GB
9	Sannareddy	Ramesh	Hyderabad	IN

2. In this example, we want to update multiple columns of an existing row of the table.

1. Problem:

Update the city and country for Doe with id 5 to Dubai and AE respectively.

2. Solution:

```
1. 1
2. 2
3. 3
1. UPDATE Instructor
2. SET city='Dubai', country='AE'
3. WHERE ins_id=5;
```

Copied!

3. Copy the solution code above by clicking on the little copy button on the bottom right of the codeblock below and paste it to the textbox of the Datasette tool. Then click **Submit query**.

4. Copy the code below by clicking on the little copy button on the bottom right of the codeblock below and paste it to the textbox of the Datasette tool. Then click **Submit query**.

```
1. 1
1. SELECT * FROM Instructor;
```

Copied!

5. Your output resultset should look like the image below:

Practice SQL

Database: Instructors

```
1 SELECT * FROM Instructor;
```

Tip: Autocomplete with Ctrl+Enter or Cmd+Enter

Submit query

Results

All commands ran successfully

SELECT * FROM Instructor

ins_id	lastname	firstname	city	country
1	Ahuja	Rav	Toronto	CA
2	Chong	Raul	Toronto	CA
3	Vasudevan	Hima	Chicago	US
4	Saha	Sandip	Toronto	CA
5	Doe	John	Dubai	AE
6	Doe	Jane	Dhaka	BD
7	Cangiano	Antonio	Vancouver	CA
8	Ryan	Steve	Barlby	GB
9	Sannareddy	Ramesh	Hyderabad	IN

Support

Task B

Practice exercises on UPDATE

Now, let us practice creating and running some UPDATE related queries.

1. Problem:

Update the city of the instructor record to Markham whose id is 1.

- ▶ Hint
- ▶ Solution
- ▶ Output

2. Problem:

Update the city and country for Sandip with id 4 to Dhaka and BD respectively.

- ▶ Hint
- ▶ Solution
- ▶ Output

Exercise 3: DELETE

In this exercise, you will first go through an example of using DELETE in a query and then solve an exercise problem by using it.

Task A

Example exercise on DELETE

Let us go through an example of a DELETE related query:

1. In this example, we want to remove a row from the table.

1. Problem:

Remove the instructor record of Doe whose id is 6.

2. Solution:

```
1. 1
2. 2
1. DELETE FROM instructor
2. WHERE ins_id = 6;
```

Copied!

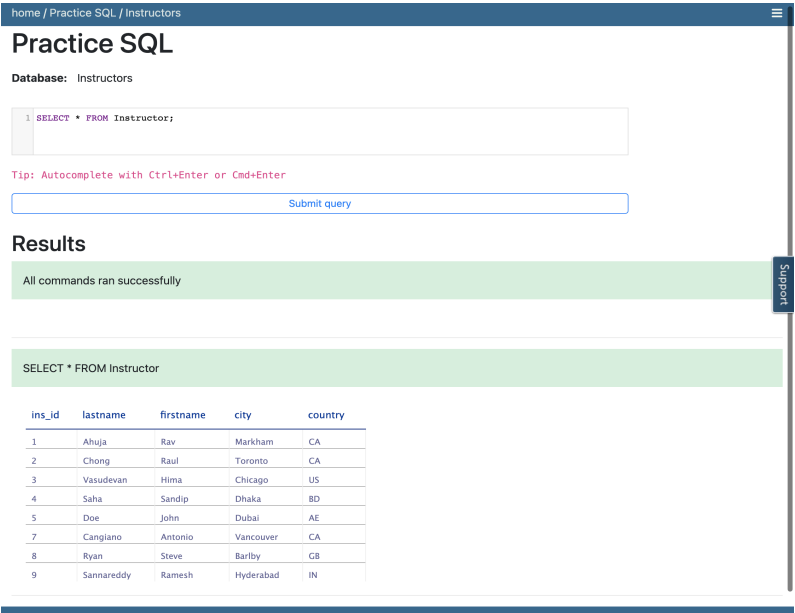
3. Copy the solution code above by clicking on the little copy button on the bottom right of the codeblock below and paste it to the textbox of **Custom SQL query** of the Datasette tool. Then click **Submit query**.

4. Copy the code below by clicking on the little copy button on the bottom right of the codeblock below and paste it to the textbox of the Datasette tool. Then click **Submit query**.

```
1. 1
1. SELECT * FROM Instructor;
```

Copied!

5. Your output resultset should look like the image below:



Task B

Practice exercise on DELETE

Now, let us practice creating and running a DELETE related query.

1. Problem:

Remove the instructor record of Hima.

- Hint
- Solution

► Output

Thank you for completing the Hands-on Lab : INSERT, UPDATE, DELETE! where you learnt to perform operations on tables like inserting and removing rows, and updating the data in existing rows.

Author(s)

- [Sandip Saha Joy](#)

Changelog

Date	Version	Changed by	Change Description
2023-07-11	1.6	Lakshmi Holla	Updated labs
2023-05-11	1.6	Eric Hao & Vladislav Boyko	Updated Page Frames
2023-05-10	1.5	Eric Hao & Vladislav Boyko	Updated Page Frames
2023-05-05	1.4	Benny Li	Republished
2022-08-03	1.3	Sathya Priya	updated HTML tag
2022-07-27	1.2	Lakshmi Holla	updated HTML tag
2020-12-23	1.1	Steve Ryan	ID Review
2020-11-30	1.0	Sandip Saha Joy	Initial version created

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