Hands-on Lab: Create Tables and Load Data in Db2

Estimated time needed: 30 minutes

In this lab, you will learn how to create tables and load data in Db2.

Software used in this lab

In this lab, you will use [IBM Db2 Database](#). Db2 is a Relational Database Management System (RDBMS) from IBM, designed to store, analyze and retrieve the data efficiently.

IBM **Db2**

To complete this lab, you will use a Db2 database service on IBM Cloud. If you did not complete the lab below earlier, you may not have access to Db2 on Cloud and should complete that lab before starting this lab.

- [Hands-on Lab : Sign up for IBM Cloud and Create Db2 service instance](#)

Data set used in this lab

Two data sets are used in this lab - PETSHOP and BOOKSHOP.

- PETSHOP table:

ID	ANIMAL	SALEPRICE	SALEDATE	QUANTITY
1	Cat	450.09	2018-05-29	9
2	Dog	666.66	2018-06-01	3
3	Parrot	50.00	2018-06-04	2
4	Hamster	60.60	2018-06-11	6
5	Goldfish	48.48	2018-06-14	24

- BOOKSHOP table:

| BOOK_ID	TITLE	AUTHOR_NAME	AUTHOR_BIO	AUTHOR_ID	PUBLIC
B101	Introduction to Algorithms	Thomas H. Cormen	Thomas H. Cormen is the co-author of Introd...	123	2001-0
B201	Structure and Interpretation of Computer Pro...	Harold Abelson	Harold Abelson, Ph.D., is Class of 1922 Profe...	456	1996-0
B301	Deep Learning	Ian Goodfellow	Ian J. Goodfellow is a researcher working in ...	369	2016-1
B401	Algorithms Unlocked	Thomas H. Cormen	Thomas H. Cormen is the co-author of Introd...	123	2013-0
B501	Machine Learning: A Probabilistic Perspective	Kevin P. Murphy		157	2012-0

Objectives

After completing this lab, you will be able to:

- Create a table structure using the Db2 UI
- Load data into a table from a CSV file
- Create a table structure and load data using an SQL script file

Exercise 1: Create table structure through Db2 UI

In this exercise, you will learn how to create a table structure using the Db2 UI.

1. To access your database instance, go to your IBM Cloud Resource List (you may need to log into IBM Cloud in the process) directly at: [cloud.ibm.com/resources](#)
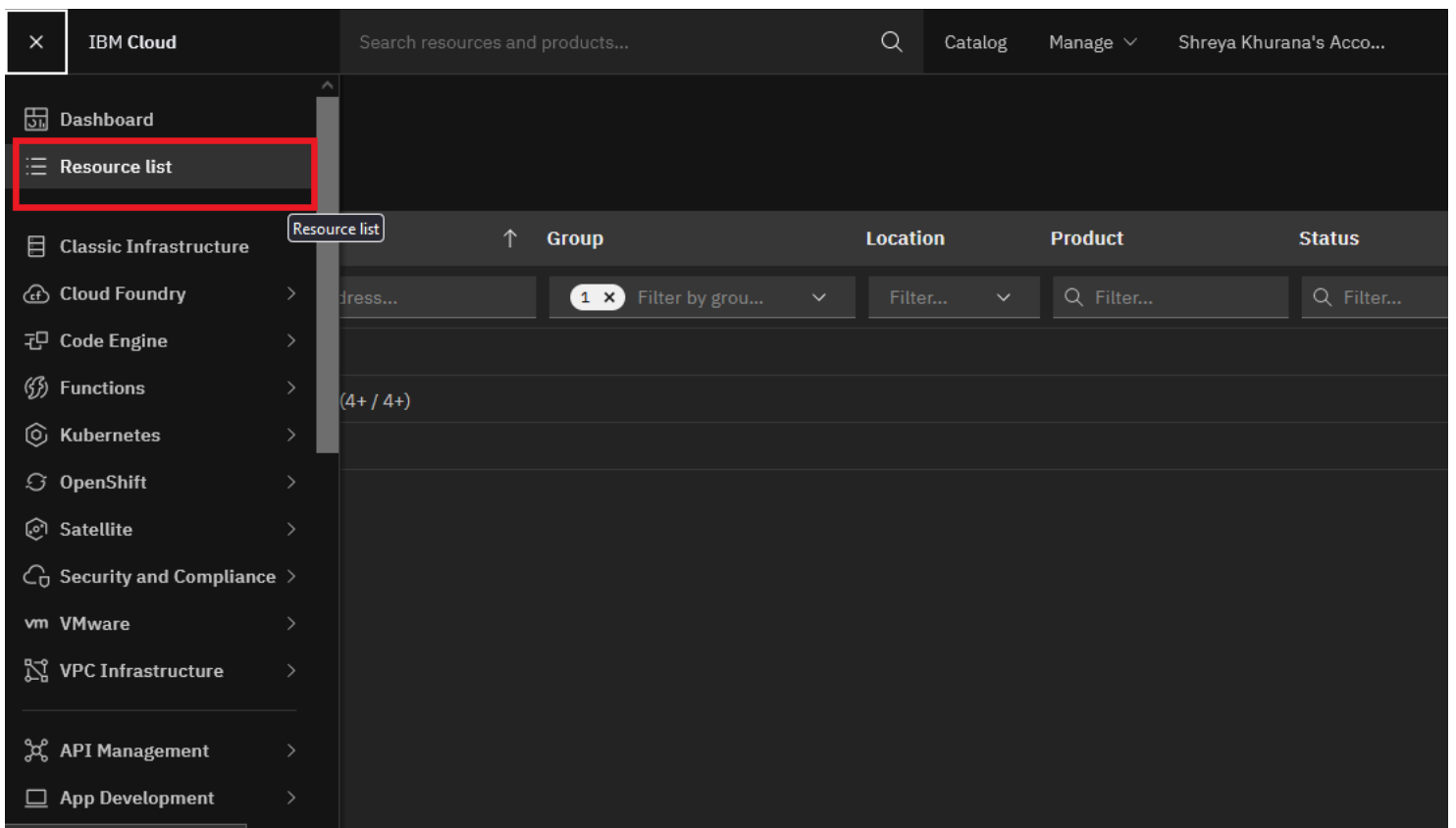
2. In the Resource list, you can locate your Db2 instance under the Databases section. Click on your instance of Db2. (The name typically starts with Db2-xx for example Db2-fk, Db2-50, etc.)
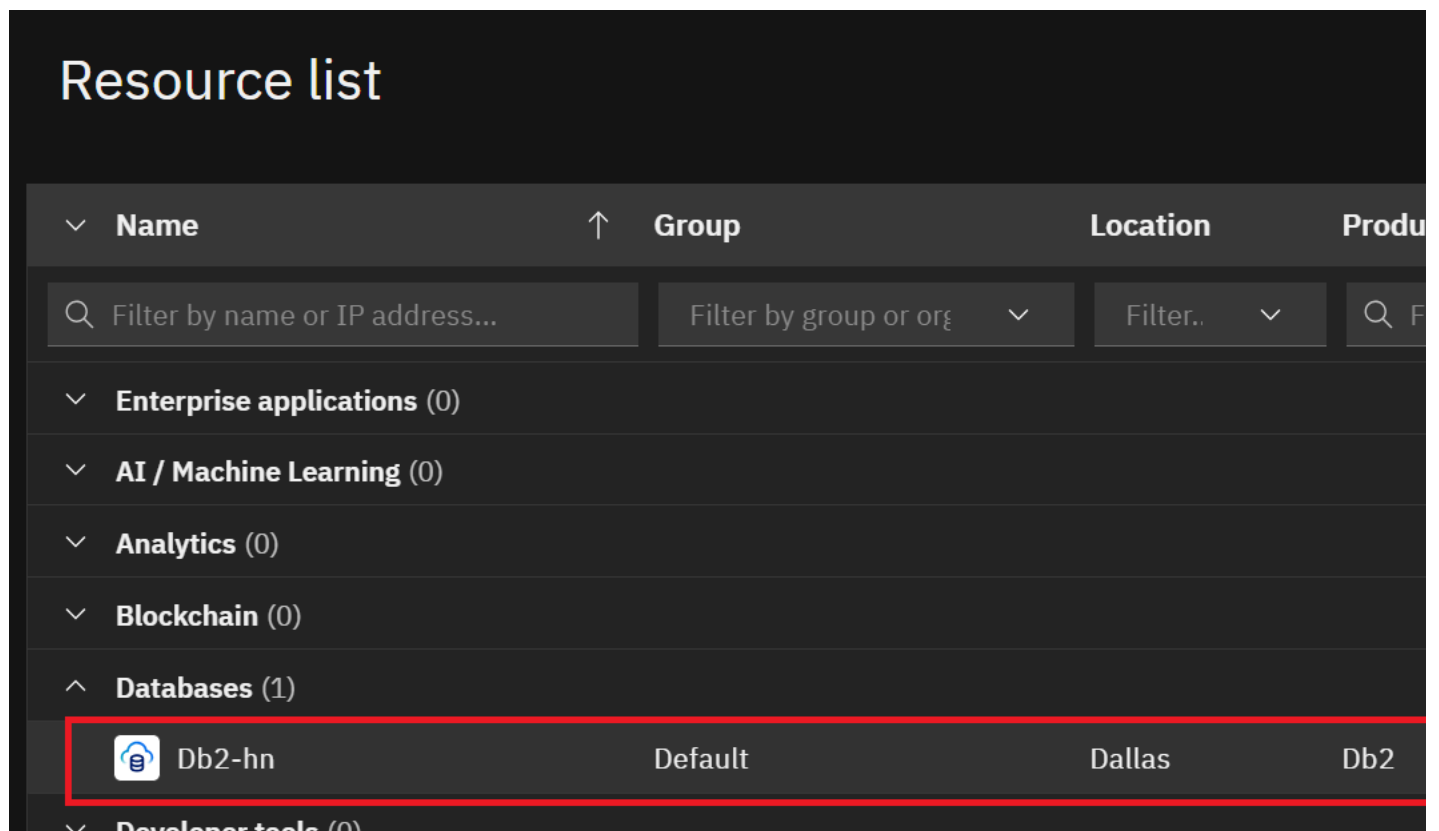
3. Click **Go to UI**.

Db2-hn ✓ Active   Add tags ✏

Manage

Getting started

Service credentials

Connections

Getting started

Where can I find my credentials?
Get your username and password by clicking the "Service Credentials" link to the left and selecting "New Credentials".
Don't see this menu on the left? Click on "Manage in IBM Cloud" to open the IBM Cloud dashboard.

Go to UI ↗   Getting started docs

4. Click on the data icon in the left corner and then click **Tables**. Later select your schema.
   It typically starts with 3 letters (not SQL) followed by 5 numbers (but will be different from the **SRW76180** example below).
   Then click **New table**.

5. The **New Table** creation window will appear. Name the table as **PETSHOP**. Then add 4 more columns by clicking **Add column** four times.

6. Now configure the table structure like the image below. Then click **Create**.
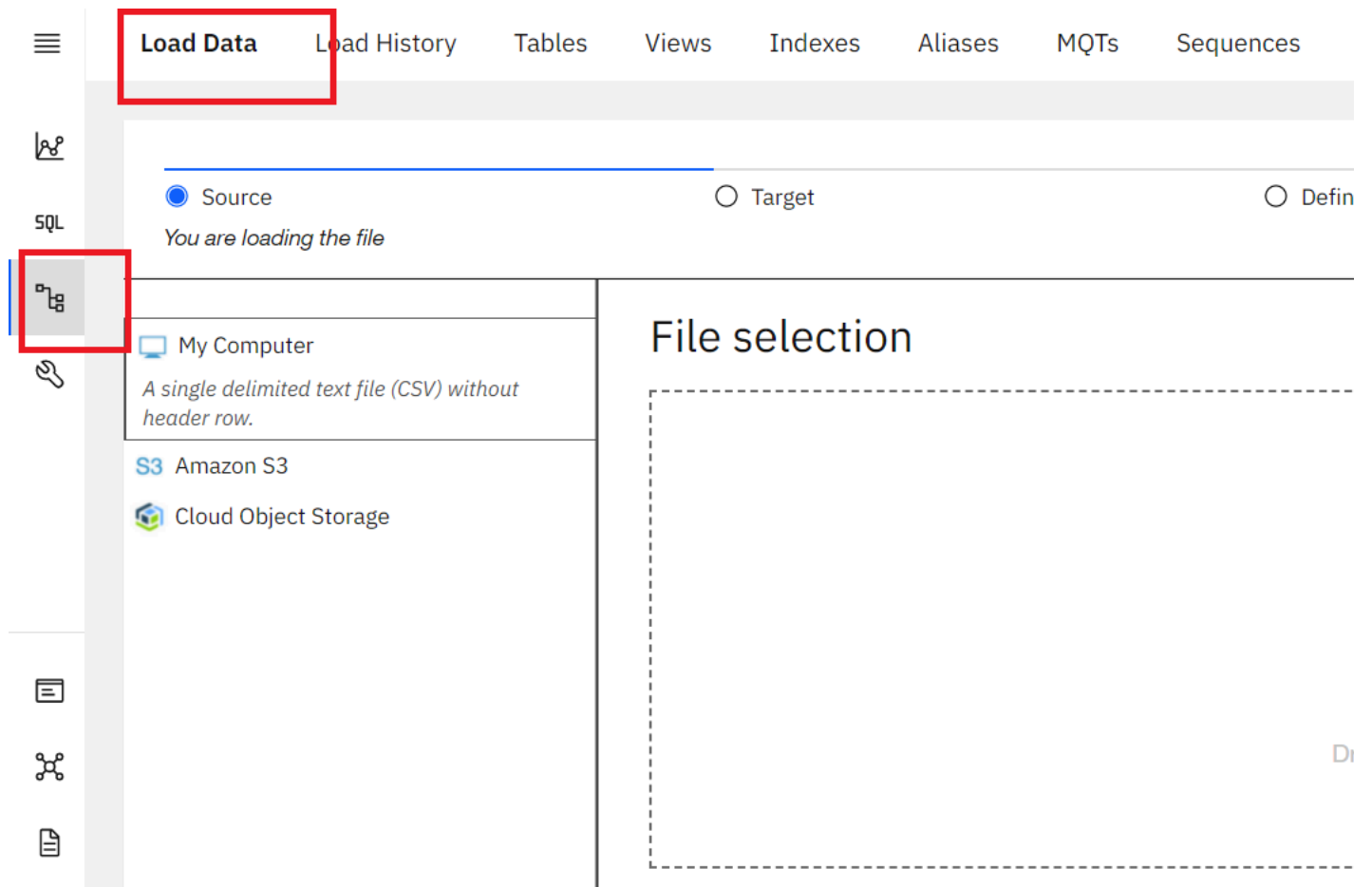
7. You have successfully created **PETSHOP** table.

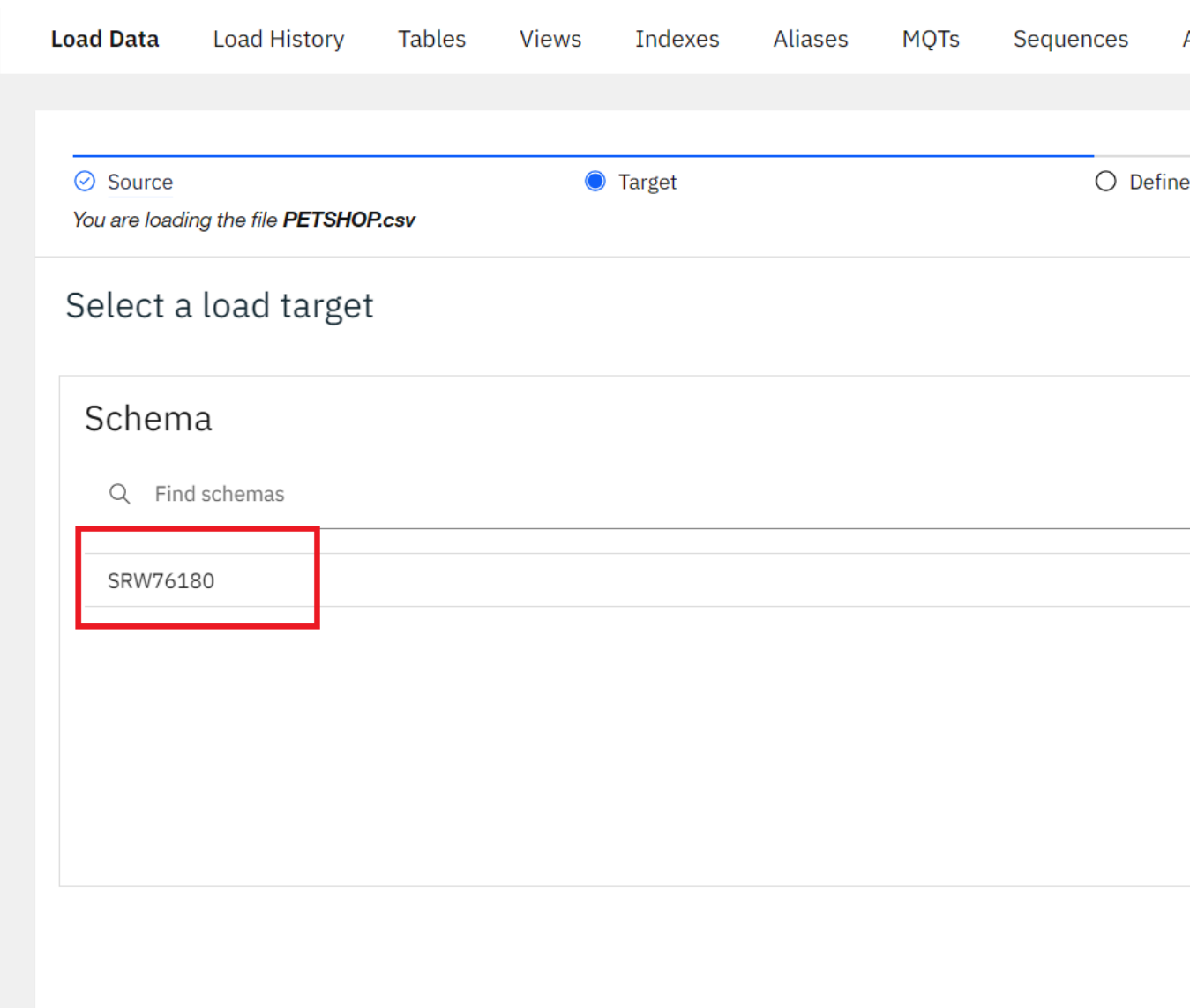# Exercise 2: Load data into tables using CSV files

In this exercise, you will learn how data can be loaded into Db2. You could manually insert each row into the table one by one, but that would take a long time. Instead, Db2 (and almost every other database) allows you to load data from CSV files.

The steps below explain the process of loading data into the table you created earlier in Exercise 1.

1. Download the PETSHOP.csv file below to your local computer:

    ○ PETSHOP.csv

2. From the **data** icon on the left side of the **Go to UI** screen, click **Load Data**.
   Click on the **browse files** link. Later browse for your file on the local machine.

◉ Source   ○ Target   ○ Defin

You are loading the file

🖥 My Computer

A single delimited text file (CSV) without header row.

S3 Amazon S3

⬡ Cloud Object Storage

File selection

Dr

3. Choose the file **PETSHOP.csv** that you downloaded to your computer and click **Open**.

4. Once the file is selected, select your schema and then click **Next**.

○ Source   ● Target   ○ Define

You are loading the file PETSHOP.csv

Select a load target

Schema

🔍 Find schemas

SRW76180

5. It will show all the tables that have been created in this schema, including the PETSHOP table. Select the **PETSHOP** table, and in the new Table definition tab that appears, select **Overwrite table with new data** (note the warning message), then click **Next**.

6. Because the source data file contains row with column labels, ensure that the **Header in first row** option is selected.

  ○ **Note:** Sometimes you may need to select correct **Time & date format** according to the way the date is formatted in the source data file.

7. Click **Next**. Review the load settings and click **Begin Load** at the bottom right-hand corner.

*You are loading the file **PETSHOP.csv** into **SRW76180.PETSHOP***

Review settings

Summary

Code page:	1208 (Default)
Separator:	, (Default)
Time format:	HH:MM:SS (Default)
Date format:	YYYY-MM-DD (Default)
Timestamp format:	YYYY-MM-DD HH:MM:SS (Default)
String delimiter:	(Default)

Option

Maximum number o

1000

8. After loading has completed, you will notice that you were successful in loading all 5 rows of the PETSHOP table. If there are any **Errors** or **Warnings**, you can see them on this screen.

COMPLETE

My computer   Target
PETSHOP.csv   SRW76180.PETSHOP

Status   Settings

5	5	0
Rows read	Rows loaded	Rows rejected

Start time
07/27/2021 6:29:11 PM

End time
07/27/2021 6:29:16 PM

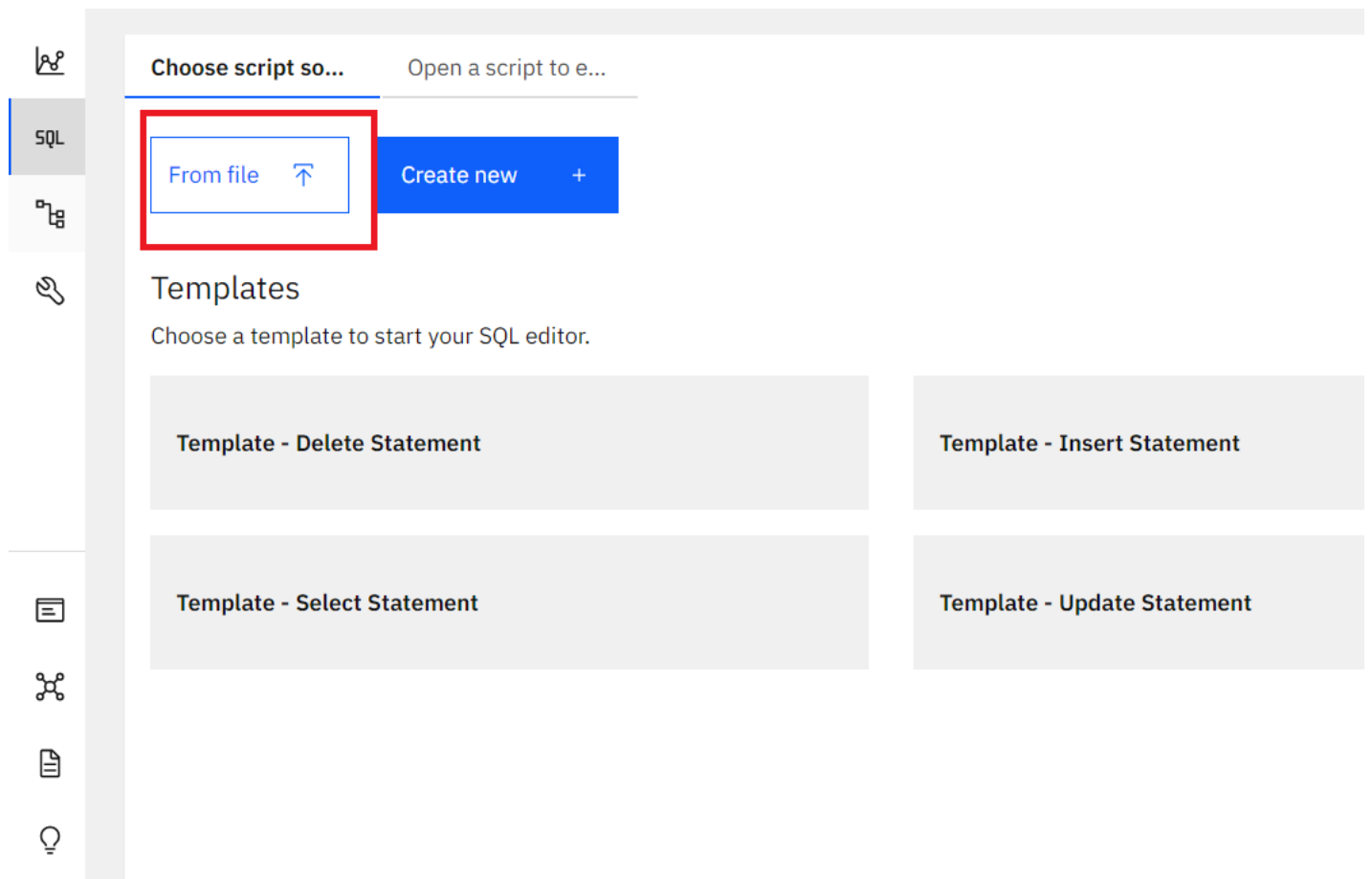The data load job succeec
You can now work with your data.

9. You can see the data that was loaded by clicking **View Table**.

Exercise 3: Create table structure and load data using a SQL script file

In this exercise, you will learn how to create a table and load data into it by executing a script containing the CREATE and INSERT SQL commands.

1. Download the script file to your computer:

   - BookShop-CREATE-INSERT.sql

2. Click on the **RUN SQL** page in the **Go to UI** . The **RUN SQL** tool enables you to run SQL scripts/statements.

* Untitled - 1   ✕

```
1
```

3. Click **From file**.

4. Locate the **BookShop-CREATE-INSERT.sql** file that you downloaded to your computer earlier and load it.

5. Once the statements are in the RUN SQL tool, you can run the queries against the database by clicking **Run all**.
   On the right-hand side of the RUN SQL tool, you will see a Result section. Clicking on the expand button for a query in the Result section will display the execution details of the job, such as whether it ran successfully or had any errors or warnings. Ensure your queries ran successfully and created all the tables.

   - **Note:** You may see several errors before the successful creation of the table. These errors relate to the dropping (removal) of any pre-existing versions of these tables. You can ignore these errors.

Run SQL

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Result - Jul 27,

```
 1  -- Drop the tables in case they exist
 2
 3  DROP TABLE BookShop;
 4  DROP TABLE BookShop_AuthorDetails;
 5
 6  -- Create the table
 7
 8  CREATE TABLE BookShop (
 9      BOOK_ID VARCHAR(4) NOT NULL,
10      TITLE VARCHAR(100) NOT NULL,
11      AUTHOR_NAME VARCHAR(30) NOT NULL,
12      AUTHOR_BIO VARCHAR(250),
13      AUTHOR_ID INTEGER NOT NULL,
14      PUBLICATION_DATE DATE NOT NULL,
15      PRICE_USD DECIMAL(6,2) CHECK(Price_USD>0) NOT NULL
16      );
17
18  -- Insert sample data into the table
19
20  INSERT INTO BookShop VALUES
21  ('B101', 'Introduction to Algorithms', 'Thomas H. Cormen', 'Thomas H. Corme ▾
22  ◀ ▭▭▭▭▭▭                                                                   ▶
```

⌃ ⬤ -- [

Status: ⁝

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Run all	⌄	☑ Remember my selection

ookShop-CREATE....sql ⌃   ▦ PETSHOP.csv   ⌃

6. Now you can look at the table you successfully created. Click on the **data** icon. Click **Tables**.
   Select your schema and then check for the newly created bookshop table. If the newly created tables don't show up, click **Refresh**.

🔍 Find schemas or tables

Schemas

☑ Name	Type	Tables ▲
☑ SRW76180	User	19

Total: 1, selected: 1

Tables

☐ Name ▼
☐ BOARD
☐ BOOKSH(
☐ C1
☐ C2
☐ CHICAG(
☐ CHICAG(
☐ CROP_DA
☐ DAILY_F)

Total: 19, sel

7. Click on the table **BOOKSHOP** you created and you will see its table structure (that is, the list of columns, data types, and so on).

Tables

Name	Schema	Properties	
☐ BOARD	SRW76180	…	
☑ BOOKSHOP	SRW76180	…	
☐ C1	SRW76180	…	
☐ C2	SRW76180	…	
☐ CHICAGO1	SRW76180	…	
☐ CHICAGO_PUBLIC_SCHO…	SRW76180	…	
☐ CROP_DATA	SRW76180	…	
☐ DAILY_FX	SRW76180	…	
☐ FARM_PRICES	SRW76180	…	

New table +

Total: 19, selected: 1

Table defi…
BOOKSHOP

Name

BOOK_ID

TITLE

AUTHOR_N

AUTHOR_E

AUTHOR_I

PUBLICATI

PRICE_USI

View data

8. Click **View Data** to view the table data.

SRW76180.BOOKSHOP

BOOK_ID	TITLE	AUTHOR_NAME	AUTHOR_BIO
B101	Introduction to Algorithms	Thomas H. Cormen	Thomas H. Cormen is the co-author of Introduction to Algor Charles Leiserson, Ron Rivest, and Cliff Stein. He is a Full Pr science at Dartmouth College and currently Chair of the Dar Writing Program.
B201	Structure and Interpretation of Computer Programs	Harold Abelson	Harold Abelson, Ph.D., is Class of 1922 Professor of Comput Engineering in the Department of Electrical Engineering and MIT and a fellow of the IEEE.
B301	Deep Learning	Ian Goodfellow	Ian J. Goodfellow is a researcher working in machine learnir employed at Apple Inc. as its director of machine learning ir Group. He was previously employed as a research scientist a
B401	Algorithms Unlocked	Thomas H. Cormen	Thomas H. Cormen is the co-author of Introduction to Algor Charles Leiserson, Ron Rivest, and Cliff Stein. He is a Full Pr science at Dartmouth College and currently Chair of the Dar Writing Program.
B501	Machine Learning: A Probabilistic Perspective	Kevin P. Murphy	

Conclusion

Congratulations! You have completed this lab, and you have created a table structure and loaded data using a SQL script file.

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