

# 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

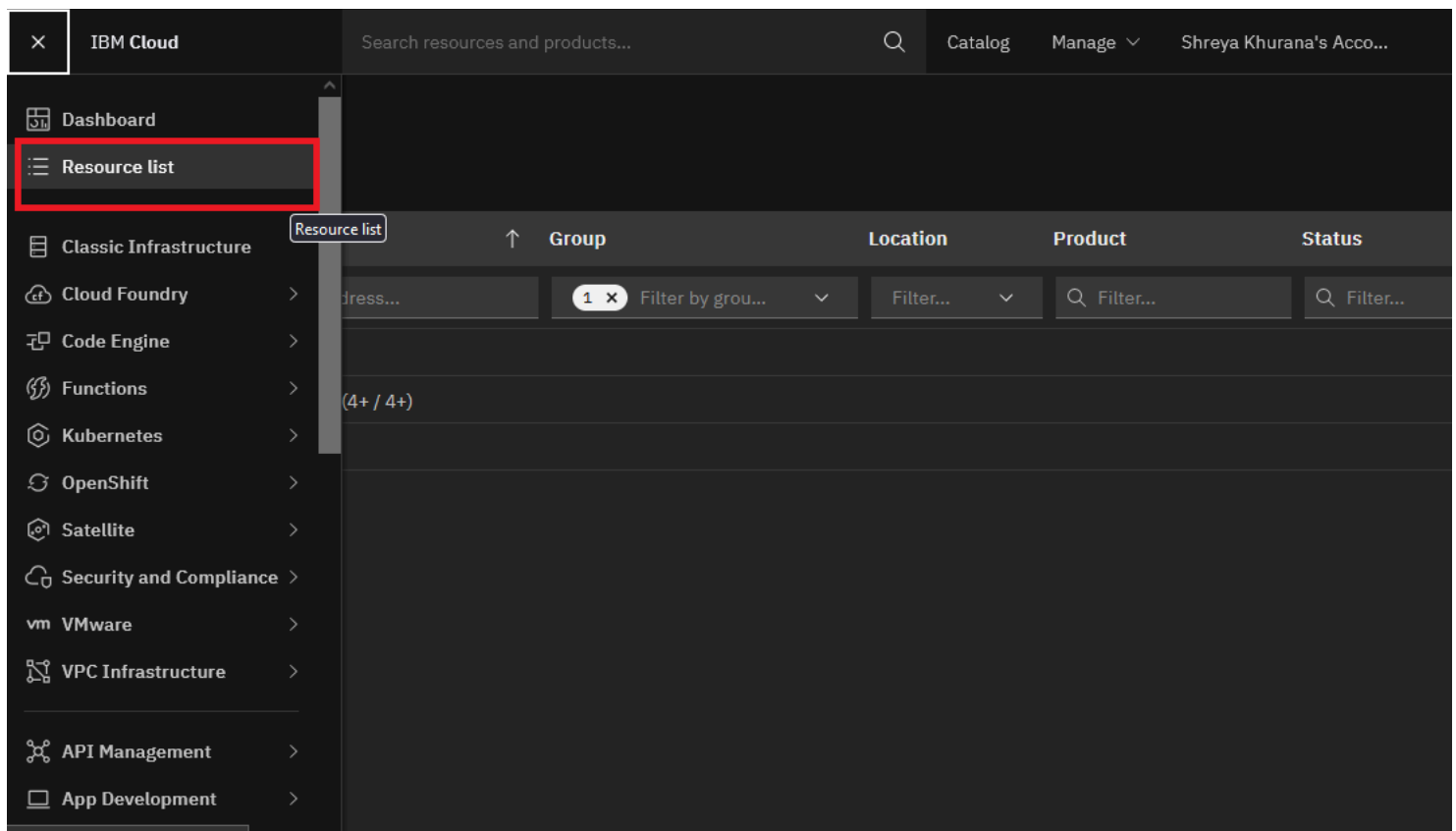
After completing this lab, you will be able to:

- 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

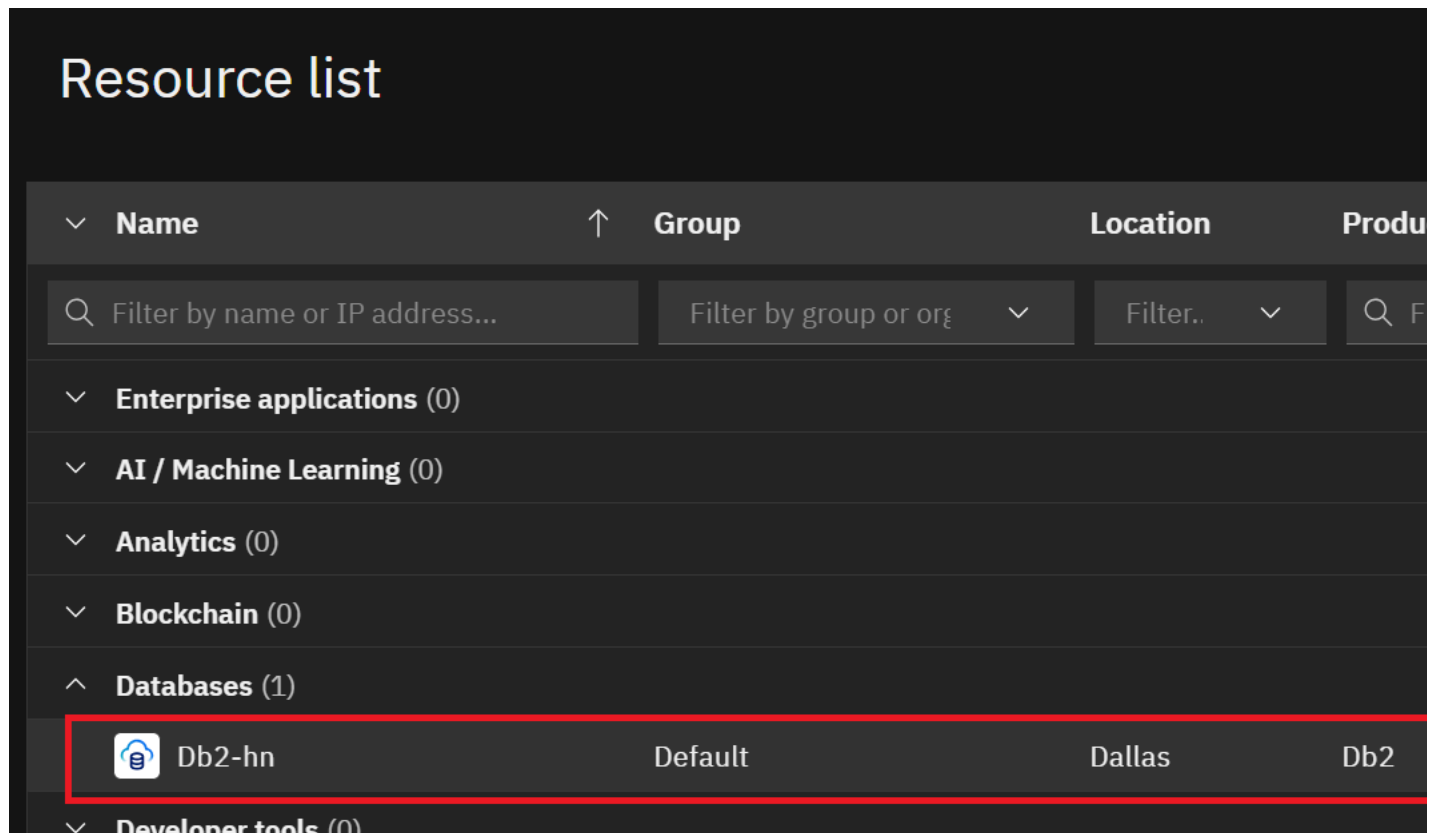
In this exercise, you will learn how to create a table structure using the Db2 UI.

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](https://cloud.ibm.com/resources)



The screenshot shows the IBM Cloud console interface. On the left, a sidebar contains navigation links: Dashboard, Resource list (highlighted with a red box), Classic Infrastructure, Cloud Foundry, Code Engine, Functions, Kubernetes, OpenShift, Satellite, Security and Compliance, VMware, VPC Infrastructure, API Management, and App Development. The main area displays a table with columns: Group, Location, Product, and Status. A search bar and filter options are visible at the top of the main area.

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.)



The screenshot shows the 'Resource list' page in the IBM Cloud console. The 'Databases' section is expanded, showing a list of database instances. One instance, 'Db2-hn', is highlighted with a red box. The table has columns: Name, Group, Location, and Product.


Name	Group	Location	Product
Enterprise applications (0)			
AI / Machine Learning (0)			
Analytics (0)			
Blockchain (0)			
Databases (1)			
Db2-hn	Default	Dallas	Db2
Developer tools (0)			

3. Click Go to UI.

[Resource list](#) /

# Db2-hn

✓ Active

Add tags 

Manage

Getting started

Service credentials


Connections

## Getting started

Where can I find my credentials?

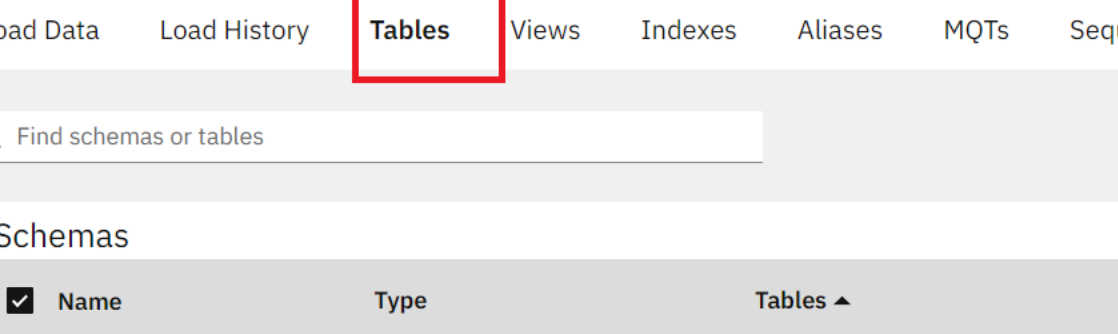
Get your username and password by clicking the "Service Credentials" link to the left and selecting "New Credentials".

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

- 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**.



IBM Db2 on Cloud

Load Data Load History **Tables** Views Indexes Aliases MQTs Sequences

Find schemas or tables

### Schemas

<input checked="" type="checkbox"/> Name	Type	Tables ▲
<input checked="" type="checkbox"/> SRW76180	User	17

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

New table

SRW76180

PETSHOP

Add column +

Name	Data type	Nullable	Length	Scale
COL1	CHAR	Y	5	--
COL2	CHAR	Y	5	--
COL3	CHAR	Y	5	--
COL4	CHAR	Y	5	--
COL5	CHAR	Y	5	--

Generate DDL

Create

6. Now configure the table structure like the image below. Then click **Create**.

**New Table**  
QDW50830  
PETSHOP

+

Add column

COLUMN NAME	DATA TYPE	NULLABLE	LENGTH	SCALE
ID	INTEGER	N	--	--
ANIMAL	VARCHAR	Y	20	--
SALEPRICE	DECIMAL	Y	6	2
SALEDATE	DATE	Y	--	--
QUANTITY	INTEGER	Y	--	--

CreateGenerate DDL

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.

Load Data Load History Tables Views Indexes Aliases MQTs Sequences

Source Target Defin

You are loading the file

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

Amazon S3

Cloud Object Storage

File selection

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**.

Load Data Load History Tables Views Indexes Aliases MQTs Sequences /

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**.

☒ Source
 ☒ Target
 ☐ Define

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

## Select a load target

### Schema

Find schemas

SRW76180	<input checked="" type="checkbox"/>
----------	-------------------------------------

### Table

Find tables in SRW76180

FARM_PRICES
MONTHLY_FX
PETRESCUE
PETSHOP
SCHOOL
SEOUL_BIKE_SHARING
SPACEXTBL

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.

☒ Source
 ☒ Target
 ☒ Define

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

Code page (character encoding): 1208 (UTF-8)  ⓘ Separator: , ☒ Header in first row

	ID INTEGER	ANIMAL VARCHAR	SALEPRICE DECIMAL	
1	1	Cat	450.09	2
2	2	Dog	666.66	2
3	3	Parrot	50.00	2
4	4	Hamster	60.60	2
5	5	Goldfish	48.48	2

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



☒ Source☒ Target☒ Define

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.



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 succeeded

You can now work with your data.

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

☒ Source
 ☒ Target
 ☒ Define

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

Code page (character encoding): 1208 (UTF-8)

Separator: ,

Header:

	ID INTEGER	ANIMAL VARCHAR	SALEPRICE DECIMAL	SALEDATE DATE
1	1	Cat	450.09	2010-01-01
2	2	Dog	666.66	2010-01-01
3	3	Parrot	50.00	2010-01-01
4	4	Hamster	60.60	2010-01-01
5	5	Goldfish	48.48	2010-01-01

### 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.



Run SQL

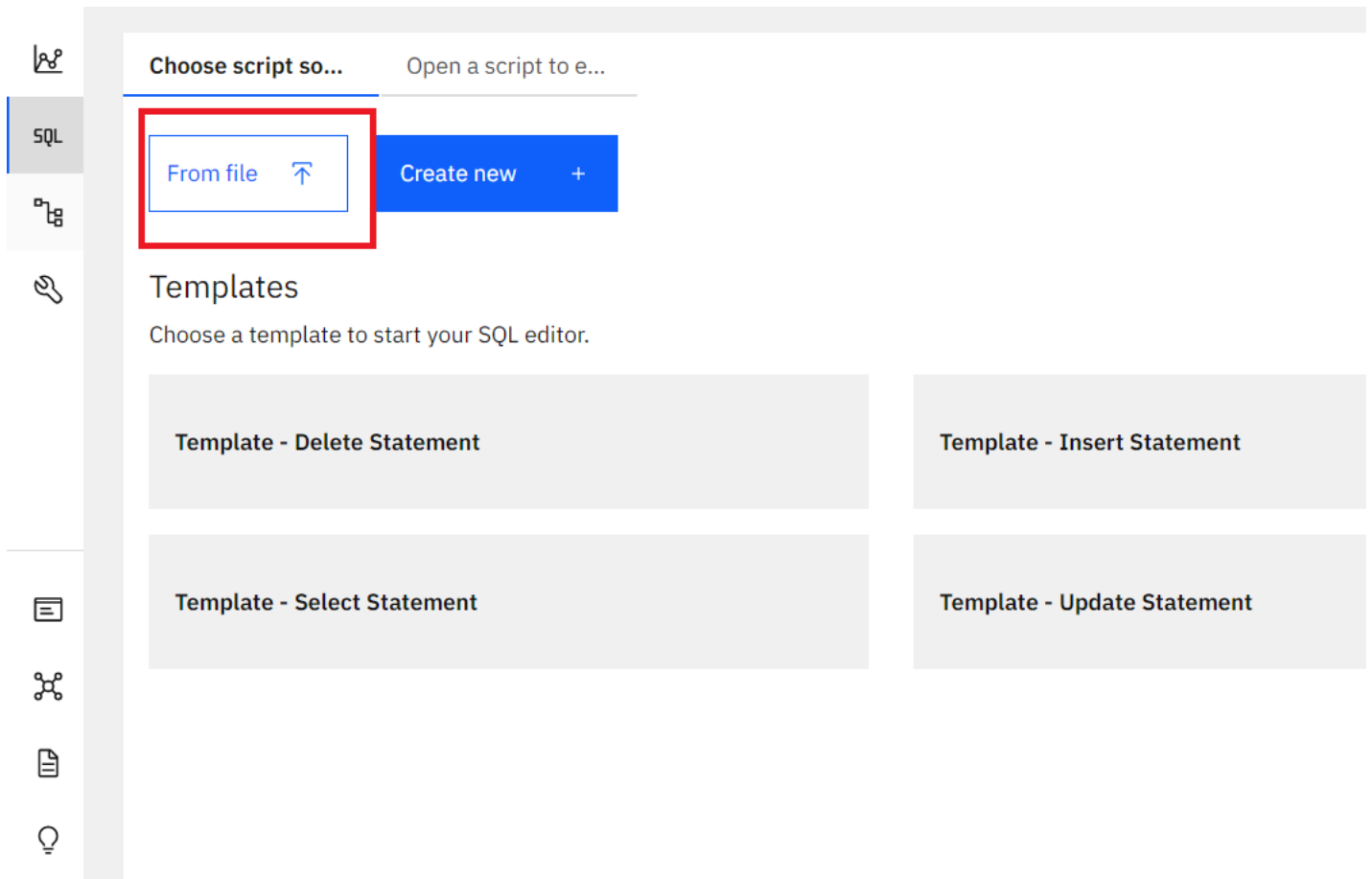


\* Untitled - 1 x

SQL



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

The screenshot shows a SQL editor window titled "\* BookShop-...". The editor contains the following SQL script:

```

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. Cormen',
22

```

The right sidebar shows the execution results for the first three statements:

- Statement 1: -- Drop the tables in case they exist. Status: Success (green checkmark).
- Statement 2: DROP TABLE BookShop; Status: Success (green checkmark).
- Statement 3: DROP TABLE BookShop\_AuthorDetails; Status: Success (green checkmark).

At the bottom, there is a "Run all" button and a checkbox labeled "Remember my selection" which is checked.

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**.

[Load Data](#) [Load History](#) **[Tables](#)** [Views](#) [Indexes](#) [Aliases](#) [MQTs](#) [Sequences](#) [Applications](#)

### Schemas

<input checked="" type="checkbox"/> Name	Type	Tables ▲
<input checked="" type="checkbox"/> SRW76180	User	19

Total: 1, selected: 1

### Tables

☐ Name ▼

☐ BOARD

☐ BOOKSHO

☐ C1

☐ C2

☐ CHICAGO

☐ CHICAGO

☐ 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).

Find schemas or tables

Schemas

Tables

New table +

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

...

Total: 19, selected: 1

Table defi

BOOKSHOP

Name

BOOK\_ID

TITLE

AUTHOR\_M

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 Algorithms. He is a Full Professor of Computer Science at Dartmouth College and currently Chair of the Dartmouth Writing Program.
B201	Structure and Interpretation of Computer Programs	Harold Abelson	Harold Abelson, Ph.D., is Class of 1922 Professor of Computer Science and Engineering in the Department of Electrical Engineering and Computer Science at MIT and a fellow of the IEEE.
B301	Deep Learning	Ian Goodfellow	Ian J. Goodfellow is a researcher working in machine learning. He is currently employed at Apple Inc. as its director of machine learning in the Siri Group. He was previously employed as a research scientist at Google.
B401	Algorithms Unlocked	Thomas H. Cormen	Thomas H. Cormen is the co-author of Introduction to Algorithms. He is a Full Professor of Computer Science at Dartmouth College and currently Chair of the Dartmouth 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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# Skills Network