



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 utilize 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](#)

Dataset Used in this Lab

Two datasets 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:

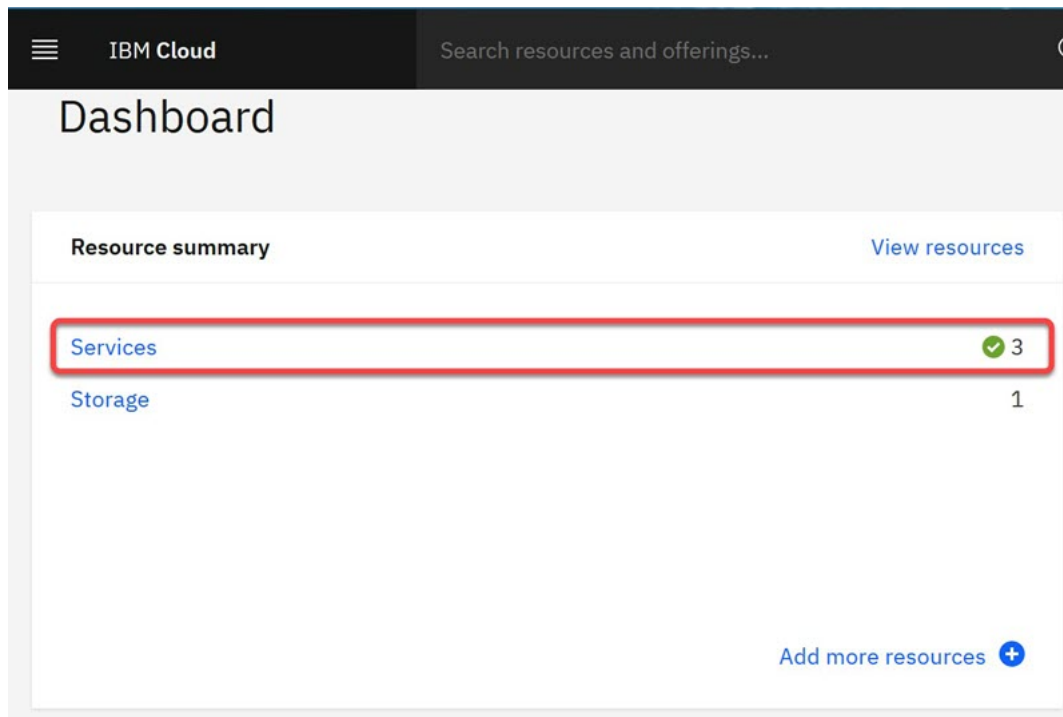
- Create a table structure using the Db2 UI
- Load data into a table from a CSV file
- Create a table structure and load data using an SQL script file

Exercise 1: Create table structure through Db2 UI

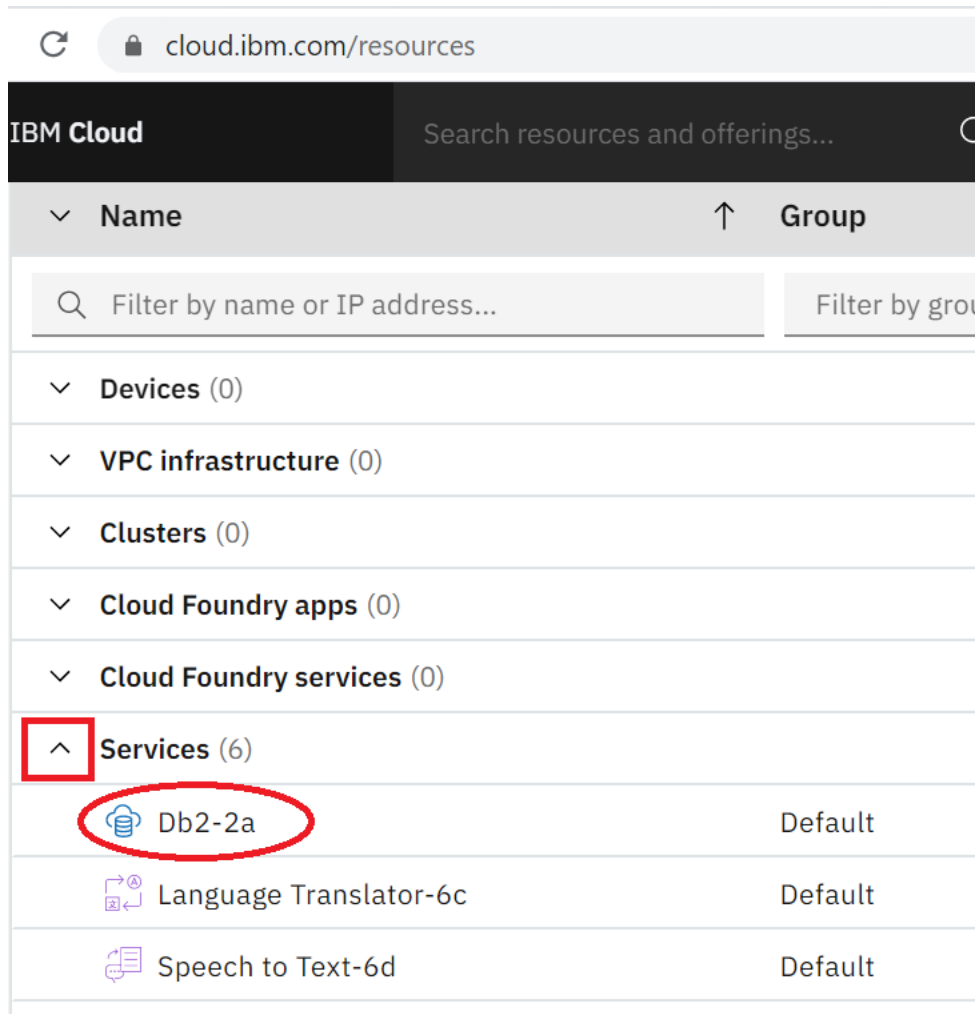
In this exercise, you will learn how to create a table structure using the Db2 UI.

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

- **Alternative:** Go to your IBM Cloud dashboard (you may need to login to IBM Cloud in the process) at: cloud.ibm.com and click **Services**.



2. In the Resource list, expand the **Services** and locate and click on your instance of Db2 you provisioned in exercise 2 (the name typically starts with Db2-xx for example Db2-fk, Db2-50, etc.)



3. Click on the **Go to UI** button.

IBM Cloud Search resources and offerings...

Resource list /

Db2-x4

Active Add tags

Manage

- Getting started
- Service credentials
- Connections

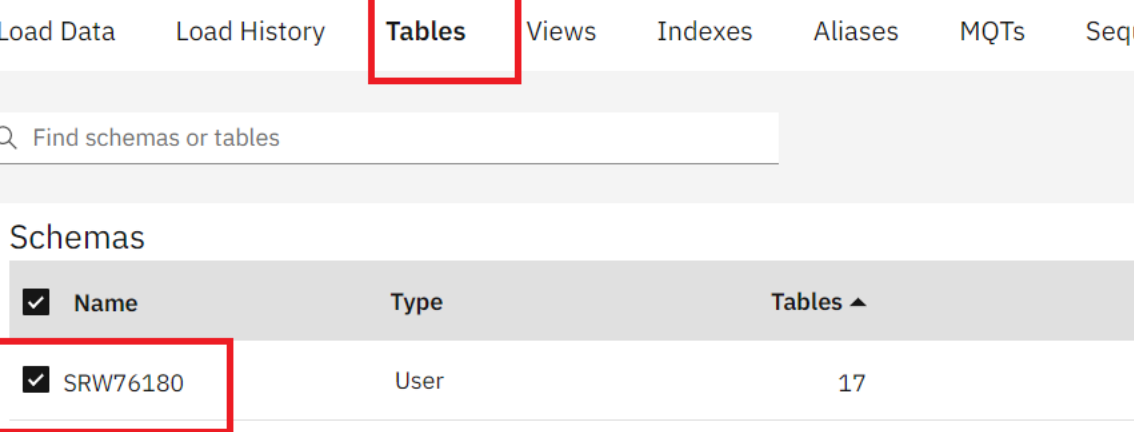
Getting started

Where can I find my credentials?

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

[Go to UI](#) [Getting started docs](#)

- Click on the data icon in the left corner and then click on the **Tables** tab. 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 on **New table**



The screenshot shows the IBM Db2 on Cloud console interface. At the top, there is a navigation bar with the title 'IBM Db2 on Cloud' and a menu with options: 'Load Data', 'Load History', 'Tables', 'Views', 'Indexes', 'Aliases', 'MQTs', and 'Sequences'. The 'Tables' option is highlighted with a red box. Below the navigation bar is a search bar with the placeholder text 'Find schemas or tables'. On the left side, there is a sidebar with icons for 'SQL' and a database icon, which is also highlighted with a red box. The main content area displays a table titled 'Schemas'. The table has three columns: 'Name', 'Type', and 'Tables'. The first row is a header with a checked checkbox, 'Name', 'Type', and 'Tables ▲'. The second row is a data row with a checked checkbox, 'SRW76180', 'User', and '17'. This row is highlighted with a red box. On the right side, there is a partial view of another table titled 'Table' with a column 'Name' and a row with a checkbox and 'N'.

<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	--	--

Create

Generate 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:
- o

[PETSHOP.csv](#)
2. From the **data** icon on the left side of the **Go to UI** screen , click on the **Load Data** tab.
Click on the **browse files** link. Later browse for your file on the local machine.

The screenshot shows the 'Load Data' interface of a database tool. The top navigation bar includes 'Load Data', 'Load History', 'Tables', 'Views', 'Indexes', 'Aliases', 'MQTs', and 'Sequences'. The 'Load Data' tab is highlighted with a red box. Below the navigation bar, there are three radio buttons: 'Source' (selected), 'Target', and 'Defin'. The 'Source' section is titled 'You are loading the file'. On the left sidebar, the 'My Computer' option is highlighted with a red box. The 'File selection' area on the right is a large dashed box. The 'My Computer' option is described as 'A single delimited text file (CSV) without header row.' The 'Amazon S3' and 'Cloud Object Storage' options are also visible.

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** button.

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, choose **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

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: ,

He

	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** in the bottom right-hand corner.

about:blank

8/16

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 c

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

Rows read

5

Rows loaded

0

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 on **View Table**.

Source

Target

Define

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

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

	ID INTEGER	ANIMAL VARCHAR	SALEPRICE DECIMAL	SALE DATE
1	1	Cat	450.09	20
2	2	Dog	666.66	20
3	3	Parrot	50.00	20
4	4	Hamster	60.60	20
5	5	Goldfish	48.48	20

Exercise 3: Create table structure and load data using an 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

SQL



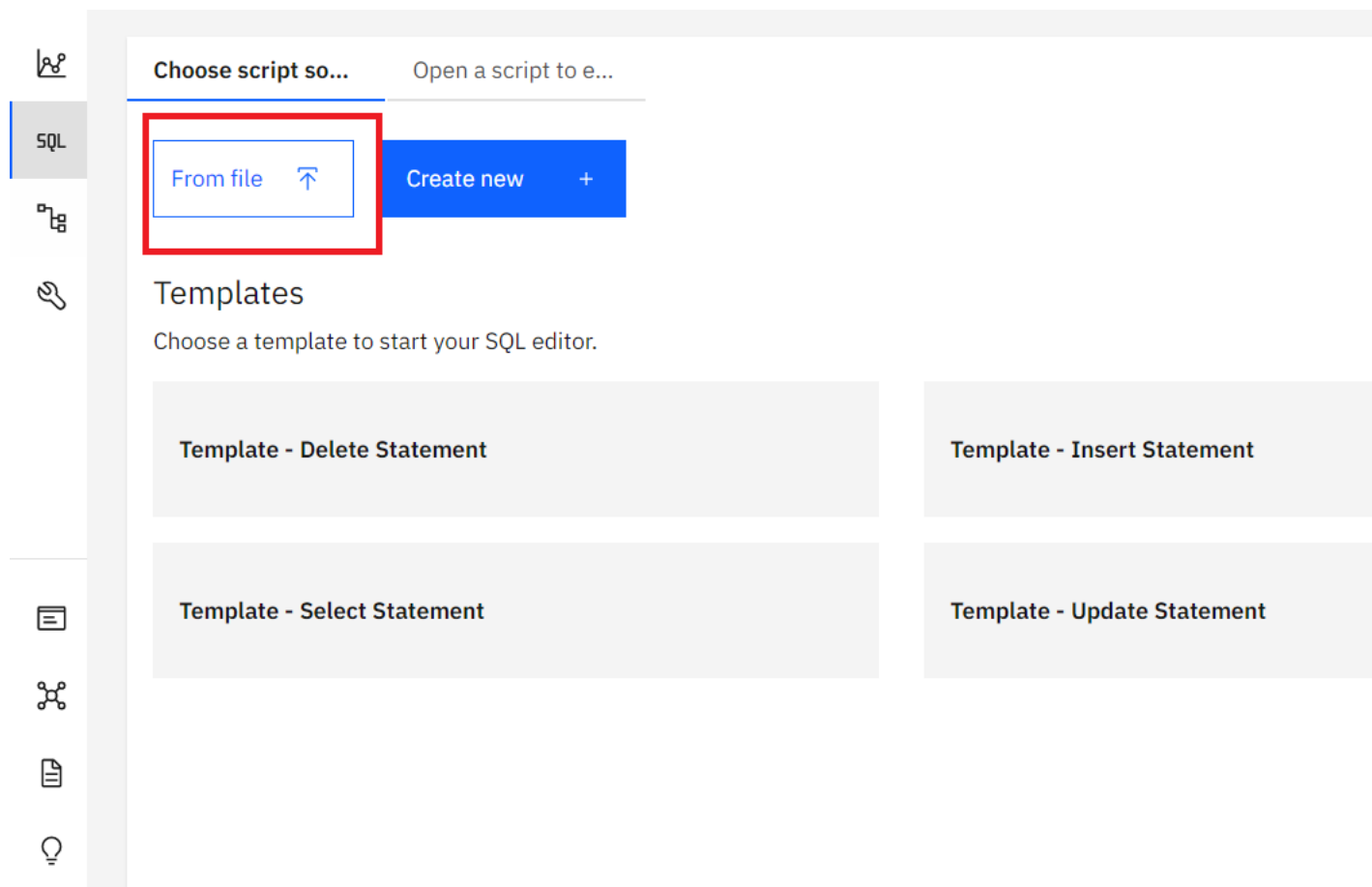
* Untitled - 1

×

▾

1

3. Click on **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 the **Run all** button.
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 show 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-...' with a toolbar containing icons for saving, undo, redo, and syntax assistance. The SQL script is as follows:

```

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  'MIT Press', '2001', 49.99);
  
```

At the bottom left, there is a blue '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 on the **Tables** tab. 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

Applica

Find schemas or tables

Schemas

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

Total: 1, selected: 1

Tables

☐ Name ▼

☐ BOARD

☐ BOOKSH

☐ C1

☐ C2

☐ CHICAGO

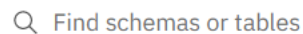
☐ CHICAGO

☐ 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, etc).



8. Click on **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 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 learning, 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	

Congratulations! You have completed this lab, and you are ready for the next topic.

Author(s)

- [Sandip Saha Joy](#)

Changelog

Date	Version	Changed by	Change Description
27-07-2022	1.2	Lakshmi Holla	updated numbers
29-07-2021	1.1	Lakshmi Holla	Modified as per new DB2 UI
16-03-2020	1.0	Sandip Saha Joy	Created initial version

© IBM Corporation 2021. All rights reserved.