



Estimated time needed: 10 minutes

In this lab, you will learn about using views. In SQL, a view is an alternative way of representing data that exists in one or more tables. Just like a real table, it contains rows and columns. The fields in a view are fields from one or more real tables in the database. Though views can be queried like a table, views are dynamic; only the definition of the view is stored, not the data.

How does the syntax of a CREATE VIEW statement look?

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

1. CREATE VIEW view_name AS
2. SELECT column1, column2, ...
3. FROM table_name
4. WHERE condition;

Copied!

How does the syntax of a REPLACE VIEW statement look?

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

1. CREATE OR REPLACE VIEW view_name AS
2. SELECT column1, column2, ...
3. FROM table_name
4. WHERE condition;

Copied!

How does the syntax of a DROP VIEW statement look?

1. 1

1. DROP VIEW view_name;

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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.

To complete this lab you will utilize a Db2 database service on IBM Cloud. If you did not already complete this lab task earlier in this module, you will not yet have access to Db2 on IBM Cloud, and you will need to follow the lab below first:

- [Hands-on Lab : Sign up for IBM Cloud, Create Db2 service instance and Get started with the Db2 console](#)

Database Used in this Lab

The database used in this lab is an internal database. You will be working on a sample HR database. This HR database schema consists of 5 tables called **EMPLOYEES**, **JOB_HISTORY**, **JOBS**, **DEPARTMENTS** and **LOCATIONS**. Each table has a few rows of sample data. The following diagram shows the tables for the HR database:

SAMPLE HR DATABASE TABLES

EMPLOYEES

EMP_ID	F_NAME	L_NAME	SSN	B_DATE	SEX	ADDRESS	JOB_ID	SALARY	MANAGER_ID	DEP_ID
E1001	John	Thomas	123456	1976-01-09	M	5631 Rice, OakPark,IL	100	100000	30001	2
E1002	Alice	James	123457	1972-07-31	F	980 Berry Ln, Elgin,IL	200	80000	30002	5
E1003	Steve	Wells	123458	1980-08-10	M	291 Springs, Gary,IL	300	50000	30002	5

JOB_HISTORY

EMPL_ID	START_DATE	JOBS_ID	DEPT_ID
E1001	2000-01-30	100	2
E1002	2010-08-16	200	5
E1003	2016-08-10	300	5

JOBS

JOB_ID	JOB_TITLE	MIN_SALARY	MAX_SALARY
100	Sr. Architect	60000	100000
200	Sr.SoftwareDeveloper	60000	80000
300	Jr.SoftwareDeveloper	40000	60000

DEPARTMENTS

DEPT_ID_DEP	DEP_NAME	MANAGER_ID	LOC_ID
2	Architect Group	30001	L0001
5	Software Development	30002	L0002
7	Design Team	30003	L0003
5	Software	30004	L0004

LOCATIONS

LOCT_ID	DEP_ID_LOC
L0001	2
L0002	5
L0003	7

NOTE: This lab requires you to have all 5 of these tables of the HR database populated with sample data on Db2. If you don't have the tables above populated with sample data on Db2, please go through the lab below first:

- [Hands-on Lab : Create tables using SQL scripts and Load data into tables](#)

Objectives

After completing this lab, you will be able to:

- Create a View and show a selection of data for a given table
- Update a View to combine two or more tables in meaningful ways
- Drop a created View

Instructions

When you approach the exercises in this lab, follow the instructions to run the queries on Db2:

- Go to the [Resource List](#) of IBM Cloud by logging in where you can find the Db2 service instance that you created in a previous lab under **Services** section. Click on the **Db2-xx service**. Next, open the Db2 Console by clicking on **Open Console** button. Click on the 3-bar menu icon in the top left corner and go to the **Run SQL** page. The Run SQL tool enables you to run SQL statements.
 - If needed, follow [Hands-on Lab : Sign up for IBM Cloud, Create Db2 service instance and Get started with the Db2 console](#)

Exercise 1: Create a View

In this exercise, you will create a View and show a selection of data for a given table.

1. Let's create a view called **EMPSALARY** to display salary along with some basic sensitive data of employees from the HR database. To create the **EMPSALARY** view from the **EMPLOYEES** table, copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

```
1. 1
2. 2
3. 3
1. CREATE VIEW EMPSALARY AS
2. SELECT EMP_ID, F_NAME, L_NAME, B_DATE, SEX, SALARY
3. FROM EMPLOYEES;
```

Copied!

The screenshot shows the IBM Db2 Run SQL console interface. On the left, the SQL editor contains the following code:

```
1 CREATE VIEW EMPSALARY AS
2 SELECT EMP_ID, F_NAME, L_NAME, B_DATE, SEX, SALARY
3 FROM EMPLOYEES;
```

On the right, the results pane shows the execution status:

- Result - Dec 14, 2020 11...
- ✓ CREATE VIEW EMPSALARY AS SELECT EMP_... Run time: 0.018 s
- Status: **Success** | Affected Rows: **0**

2. Using SELECT, query the **EMPSALARY** view to retrieve all the records. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

```
1. 1
1. SELECT * FROM EMPSALARY;
```

Copied!

1
2

```
SELECT * FROM EMPLOYEES;
```

Syntax assistant

Result - Dec 14, 2020 11:05

✓ SELECT * FROM EMPLOYEES

Run time: 0.008 s

Result set 1

Search

EMP_ID	F_NAME	L_NAME	B_DATE	SEX	SALARY
E1001	John	Thomas	1976-01-09	M	100000.00
E1002	Alice	James	1972-07-31	F	80000.00
E1003	Steve	Wells	1980-08-10	M	50000.00
E1004	Santosh	Kumar	1985-07-20	M	60000.00
E1005	Ahmed	Hussain	1981-01-04	M	70000.00
E1006	Nancy	Allen	1978-02-06	F	90000.00
E1007	Mary	Thomas	1975-05-05	F	65000.00
E1008	Bharath	Gupta	1985-05-06	M	65000.00
E1009	Andrea	Jones	1990-07-09	F	70000.00
E1010	Ann	Jacob	1982-03-30	F	70000.00

Show Less

Exercise 2: Update a View

In this exercise, you will update a View to combine two or more tables in meaningful ways.

1. It now seems that the **EMP****SALARY** view we created in exercise 1 doesn't contain enough salary information, such as max/min salary and the job title of the employees. Let's update the **EMP****SALARY** view:
 - combining two tables **EMPLOYEES** and **JOBS** so that we can display our desired information from the HR database.
 - including the columns **JOB TITLE**, **MIN SALARY**, **MAX SALARY** of the **JOBS** table as well as excluding the **SALARY** column of the **EMPLOYEES** table.

Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

- ```

1. 1
2. 2
3. 3
4. 4
1. CREATE OR REPLACE VIEW EMPSALARY AS
2. SELECT EMP_ID, F_NAME, L_NAME, B_DATE, SEX, JOB_TITLE, MIN_SALARY, MAX_SALARY
3. FROM EMPLOYEES, JOBS

```

4. WHERE EMPLOYEES.JOB\_ID = JOBS.JOB\_IDENT;

Copied!

**NOTE:** Don't worry if you don't understand how to combine two tables using implicit inner join. You will learn more about joins later on. For now, just think you are combining the data of two different tables, **EMPLOYEES** and **JOBS** by connecting their respective columns **JOB\_ID** and **JOB\_IDENT** since both the columns contain common unique data. You can have a look at the diagram (at the beginning of the lab) showing the tables for the HR database to observe how the **JOB\_ID** and **JOB\_IDENT** columns from the **EMPLOYEES** and **JOBS** tables respectively contain common unique data.

The screenshot shows a SQL IDE interface. On the left, a code editor contains the following SQL statement:

```
1 CREATE OR REPLACE VIEW EMP_SALARY AS
2 SELECT EMP_ID, F_NAME, L_NAME, B_DATE, SEX, JOB_TITLE, MIN_SALARY, MAX_SALAR
3 FROM EMPLOYEES, JOBS
4 WHERE EMPLOYEES.JOB_ID = JOBS.JOB_IDENT;
5
6
```

On the right, a results pane titled "Result - Dec 14, 2020 11..." displays the execution status:

- A green checkmark icon indicates success.
- The text "CREATE OR REPLACE VIEW EMP\_SALARY AS ..." is shown.
- The "Run time" is 0.022 s.
- A status bar at the bottom indicates "Status: Success" and "Affected Rows: 0".

2. Using SELECT, query the updated **EMP\_SALARY** view to retrieve all the records. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

1. 1


1. SELECT \* FROM EMP\_SALARY;

Copied!

Result set 1

Search










In this exercise, you will drop a created View.

1. Let's delete the created **EMPSALARY** view. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

```
1. 1
1. DROP VIEW EMPSALARY;
```

```
1 DROP VIEW EMP_SALARY;
2
```

Result - Dec 14, 2020 11...   

  DROP VIEW EMPSalary Run time: 0.010 s

Status: **Success** | Affected Rows: 0

2. Using **SELECT**, you can verify whether the **EMPSALARY** view has been deleted or not. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

```
1. 1
1. SELECT * FROM EMPSALARY;
```

Copied!

```
1 SELECT * FROM EMPSALARY;
```

Result - Dec 14, 2020 11...

SELECT \* FROM EMPSALARY

Run time: 0.008 s

Status: **Failed****Error message**

"ZJH17769.EMPSALARY" is an undefined name.. SQLCODE=-204, SQLSTATE=42704, DRIVER=4.26.14

[Learn more about this error](#)

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

## Author(s)

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## Changelog

| Date       | Version | Changed by                 | Change Description      |
|------------|---------|----------------------------|-------------------------|
| 2023-05-10 | 1.2     | Eric Hao & Vladislav Boyko | Updated Page Frames     |
| 2020-12-24 | 1.1     | Steve Ryan                 | ID reviewed             |
| 2020-12-14 | 1.0     | Sandip Saha Joy            | Created initial version |