

Hands-on Lab: Using Views

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?

```
CREATE VIEW view_name AS
SELECT column1, column2, ...
FROM table_name
WHERE condition;
```

How does the syntax of a REPLACE VIEW statement look?

```
CREATE OR REPLACE VIEW view_name AS
SELECT column1, column2, ...
FROM table_name
WHERE condition;
```

How does the syntax of a DROP VIEW statement look?

```
DROP VIEW view_name;
```

Software Used in this Lab

In this lab, you will use <u>IBM Db2 Database</u>. 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

EMPLOYER	S															
EMP_ID	F_NAME	L_NAME :		SSN B_DATE		E	SEX	ADDRESS		JOB_ID	SALARY		MANAGER_ID		DEP_ID	
E1001	John	Thomas		123456	1976-0	1-09	М	5631 Rice, OakPark,IL		100	100000 3		30001		2	
E1002	Alice	James		123457	1972-0	7-31	F	980 Berry In, Elgin,IL		200	80000		30002		5	
E1003	Steve	Wells		123458	1980-0	8-10	М	291 Springs	, Gary,IL	300	50000		30002		5	
JOB_HIST	ORY						J	OBS								
EMPL_ID	START_D	START_DATE JOBS		_ID	DEPT_ID		J	OB_IDENT	JOB_TIT	TLE		MIN_SALARY		MAX_SALARY		
E1001	2000-01	2000-01-30 100		2			1	.00	Sr. Arch	Sr. Architect		60000		100000		
E1002	2010-08	2010-08-16 2		5			2	00	0 Sr.Softwa		areDeveloper		60000		80000	
E1003	2016-08	2016-08-10 30		5			3	00 Jr.Softv		vareDeveloper		40000		60000		
DEPARTM	ENTS							LOCATI	ONS							
DEPT_ID_DE	P DEP_NA	DEP_NAME MA			GER_ID LOC_I		D	LOCT_ID		DEP	DEP_ID_LOC					
2	Architec	Architect Group		30001		L0001	D1 L0001		2							
5	Software	Software Development			30002		:	L0002		5						
7	Design T	Design Team		30003		L0003	1	L0003		7	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:

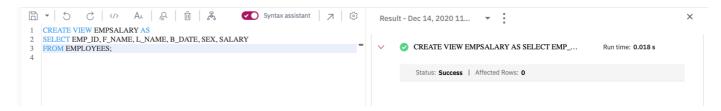
- Go to the <u>Resource List</u> of IBM Cloud by logging in where you can find the Db2 service instance that you created in a previous lab under <u>Services</u> section. Click on the <u>Db2-xx service</u>. Next, open the Db2 Console by clicking on <u>Open Console</u> button. Click on the 3-bar menu icon in the top left corner and go to the <u>Run SQL</u> page. The Run SQL tool enables you to run SQL statements.
 - o 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

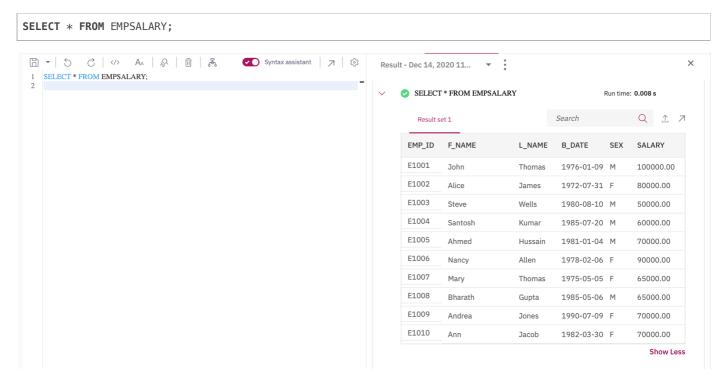
In this exercise, you will create a View and show a selection of data for a given table.

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.

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



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**.



Exercise 2: Update a View

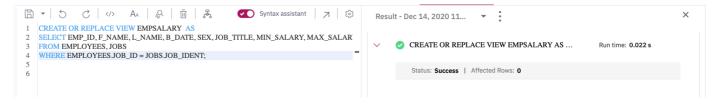
In this exercise, you will update a View to combine two or more tables in meaningful ways.

- 1. It now seems that the **EMPSALARY** 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 **EMPSALARY** 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.

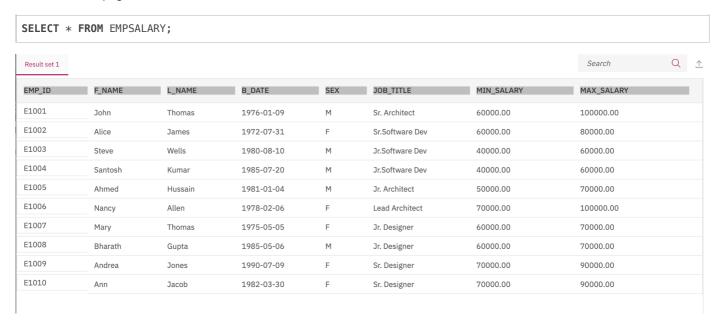
Copy the code below and paste it to the textbox of the Run SQL page. Click Run all.

```
CREATE OR REPLACE VIEW EMPSALARY AS
SELECT EMP_ID, F_NAME, L_NAME, B_DATE, SEX, JOB_TITLE, MIN_SALARY, MAX_SALARY
FROM EMPLOYEES, JOBS
WHERE EMPLOYEES.JOB_ID = JOBS.JOB_IDENT;
```

NOTE: Don't worry if you don't understand how to combine to 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.



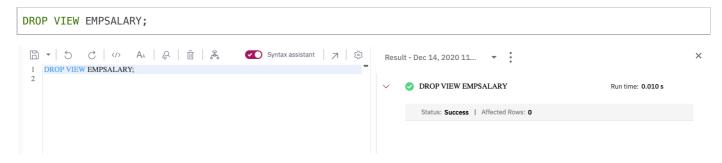
2. Using SELECT, query the updated **EMPSALARY** view to retrieve all the records. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.



Exercise 3: Drop a View

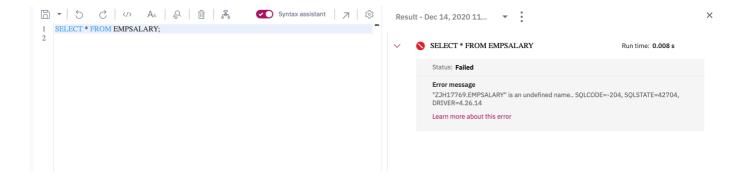
In this exercise, you will drop a created View.

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.



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**.

```
SELECT * FROM EMPSALARY;
```



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

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Other Contributor(s)

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Changelog

Date	Version	Changed by	Change Description
2020-12-24	1.1	Steve Ryan	ID reviewed
2020-12-14	1.0	Sandip Saha Joy	Created initial version

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