

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? Û DROP VIEW view_name;

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 schema consists of 5 tables called EMPLOYEES, JOB_HISTORY, JOBS, DEPARTMENTS and LOCATIONS. Each table has a few rows of

SAMPLE HR DATABASE TABLES

sample data. The following diagram shows the tables for the HR database:

EMPLOYEES MANAGER_ID DEP_ID B_DATE 5631 Rice, Oak Park, IL 100 E1001 123456 1976-01-09 E1002 123457 1972-07-31 291 Springs, Gary, IL 300 E1003 123458 1980-08-10 M JOB_HISTORY JOBS JOB_IDENT JOBS_ID DEPT_ID JOB_TITLE MIN_SALARY MAX_SALARY START_DATE 2000-01-30 100 100 E1001 Sr. Architect 60000 100000 E1002 200 2010-08-16 Sr.SoftwareDeveloper 80000 300 E1003 2016-08-10 LOCATIONS DEPARTMENTS MANAGER_ID LOC_ID DEP_ID_LOC LOCT_ID L0001 Architect Group L0002 L0002 Software Development 30002 L0003 Design Team Software 30004 L0004

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

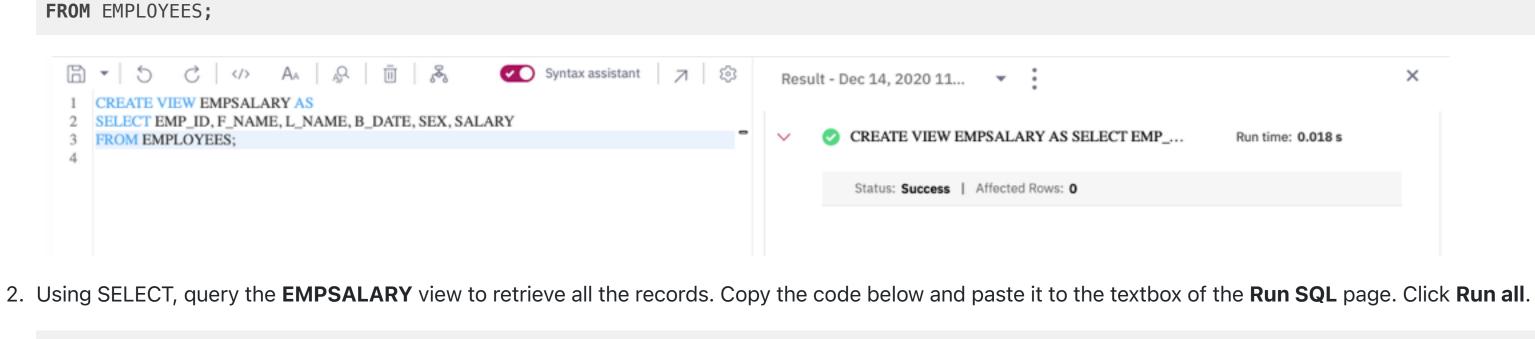
Exercise 1: Create a View

CREATE VIEW EMPSALARY AS

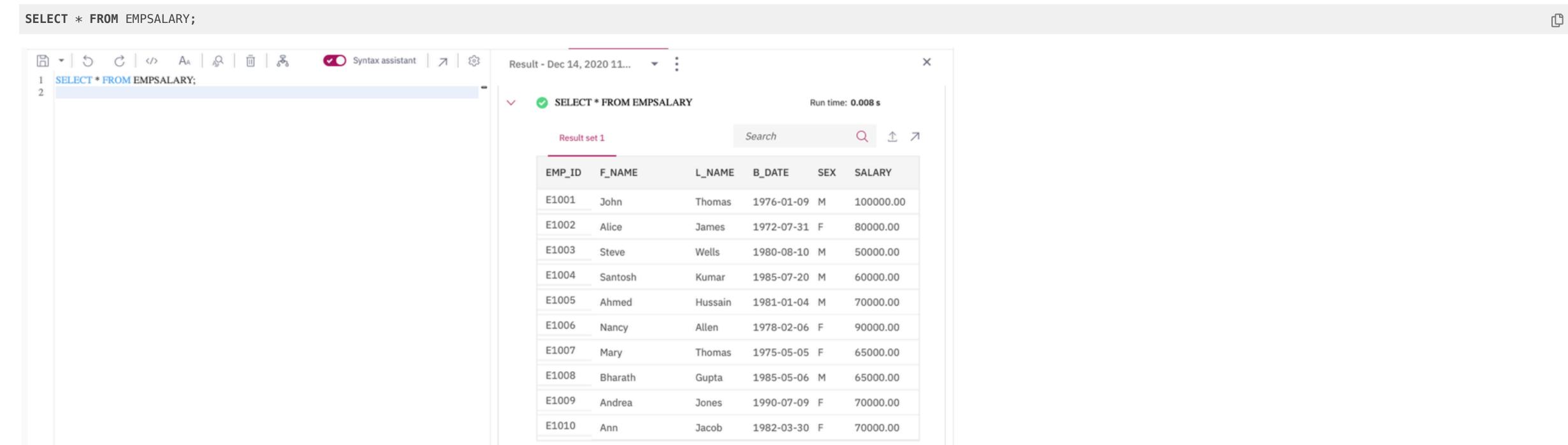
In this exercise, you will create a View and show a selection of data for a given table.

SELECT EMP_ID, F_NAME, L_NAME, B_DATE, SEX, SALARY

1. Let's create a view called EMPSALARY to display salary along with some basic sensitive data of employees from 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.



SELECT * **FROM** EMPSALARY;



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Exercise 2: Update a View In this exercise, you will update a View to combine two or more tables in meaningful ways.

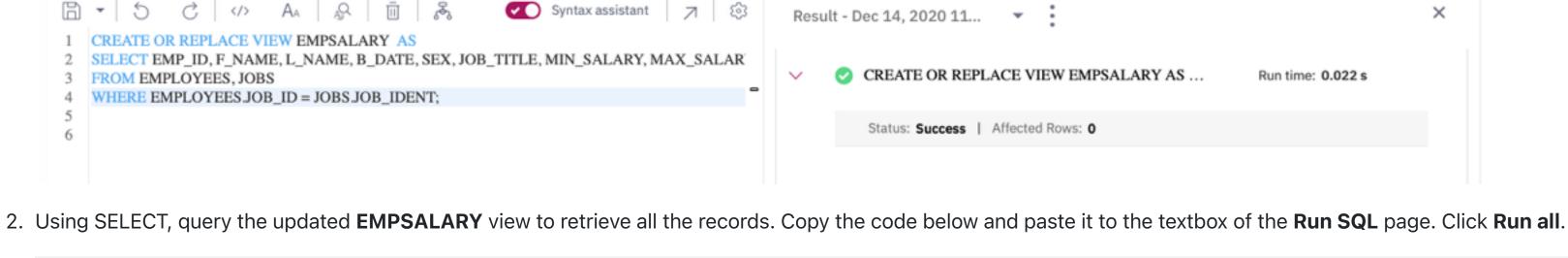
CREATE OR REPLACE VIEW EMPSALARY AS

- 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: o combining two tables **EMPLOYEES** and **JOBS** so that we can display our desired information from the HR database.
 - Copy the code below and paste it to the textbox of the Run SQL page. Click Run all.

• including the columns JOB_TITLE, MIN_SALARY, MAX_SALARY of the JOBS table as well as excluding the SALARY column of the EMPLOYEES table.

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.

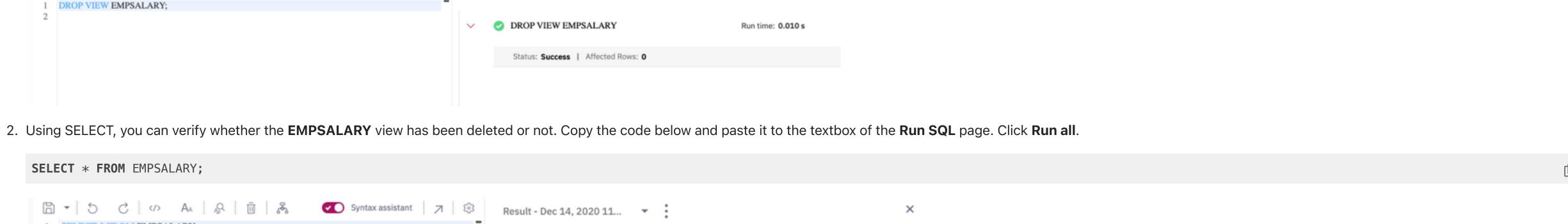
SELECT * **FROM** EMPSALARY;

Result set 1							Search	Q
EMP_ID	F_NAME	L_NAME	B_DATE	SEX	JOB_TITLE	MIN_SALARY	MAX_SALARY	
E1001	John	Thomas	1976-01-09	М	Sr. Architect	60000.00	100000.00	
E1002	Alice	James	1972-07-31	F	Sr.Software Dev	60000.00	80000.00	
E1003	Steve	Wells	1980-08-10	М	Jr.Software Dev	40000.00	60000.00	
E1004	Santosh	Kumar	1985-07-20	М	Jr.Software Dev	40000.00	60000.00	
E1005	Ahmed	Hussain	1981-01-04	М	Jr. Architect	50000.00	70000.00	
E1006	Nancy	Allen	1978-02-06	F	Lead Architect	70000.00	100000.00	
E1007	Mary	Thomas	1975-05-05	F	Jr. Designer	60000.00	70000.00	
E1008	Bharath	Gupta	1985-05-06	М	Jr. Designer	60000.00	70000.00	
E1009	Andrea	Jones	1990-07-09	F	Sr. Designer	70000.00	90000.00	
E1010	Ann	Jacob	1982-03-30	F	Sr. Designer	70000.00	90000.00	

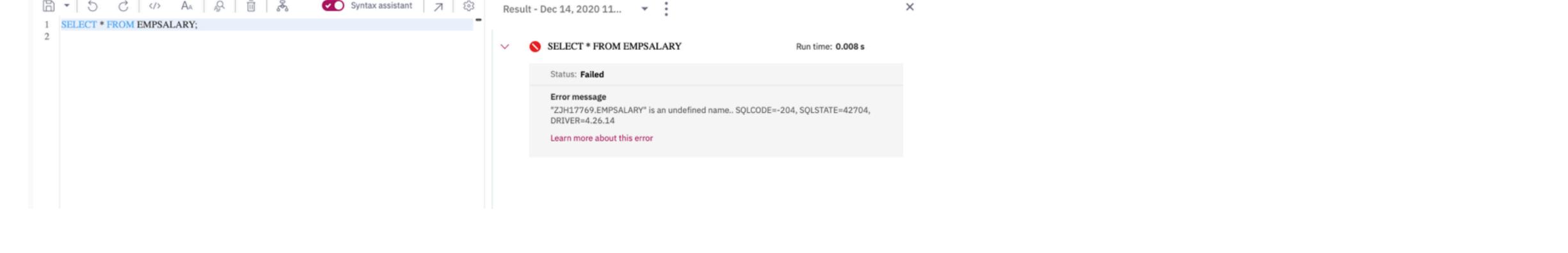
Exercise 3: Drop a View In this exercise, you will drop a created View.

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.

DROP VIEW EMPSALARY; Syntax assistant Result - Dec 14, 2020 11...



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Change Description

ID reviewed

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

Sandip Saha Joy

Author(s)

Other Contributor(s)

Changelog

Changed by **Date** 2020-12-24 1.1 Steve Ryan

Sandip Saha Joy 2020-12-14 1.0 Created initial version