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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?

- 1. 1
- 2. 2 3. 3
- 3.3 1.1
- 1. CREATE VIEW view_name AS
- 2. SELECT column1, column2, ...
- FROM table_name
- 4. WHERE condition;

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How does the syntax of a REPLACE VIEW statement look?

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

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How does the syntax of a DROP VIEW statement look?

- 1. 1
- DROP VIEW view_name;

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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:

about:blank 1/5

4/6/24, 2:58 AM about:blank

SAMPLE HR DATABASE TABLES



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.
 - 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.

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

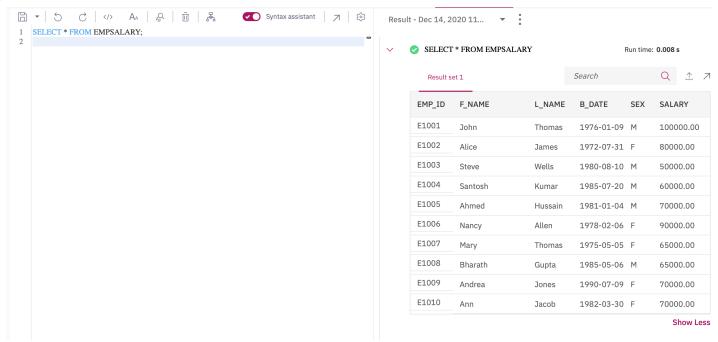
 FROM EMPLOYEES;

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  B - 5 € W
                         A. | Q | 11 | 8
                                                   Syntax assistant
                                                                         (2)
                                                                                  Result - Dec 14, 2020 11...
     CREATE VIEW EMPSALARY AS
     SELECT EMP_ID, F_NAME, L_NAME, B_DATE, SEX, SALARY
                                                                                       CREATE VIEW EMPSALARY AS SELECT EMP_...
                                                                                                                                      Run time: 0.018 s
     FROM EMPLOYEES:
                                                                                           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!
```

about:blank 2/5



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:
 - o 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 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.

```
Result - Dec 14, 2020 11... 

CREATE OR REPLACE VIEW EMPSALARY AS

SELECT EMP_ID, F_NAME, L_NAME, B_DATE, SEX, JOB_TITLE, MIN_SALARY, MAX_SALAR

FROM EMPLOYEES, JOBS

WHERE EMPLOYEES JOBS ID = JOBS JOB_IDENT;

Result - Dec 14, 2020 11... 

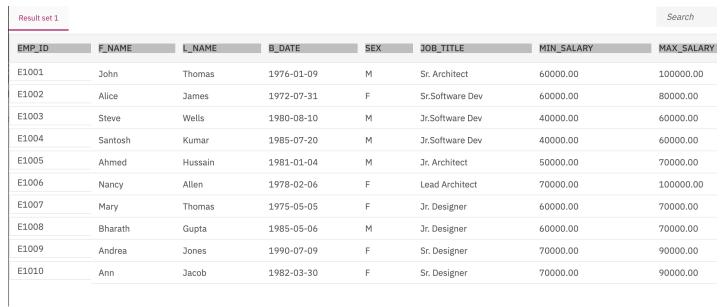
CREATE OR REPLACE VIEW EMPSALARY AS ... Run time: 0.022 s

Status: Success | Affected Rows: 0
```

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**.

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

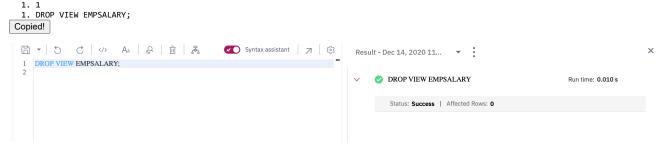
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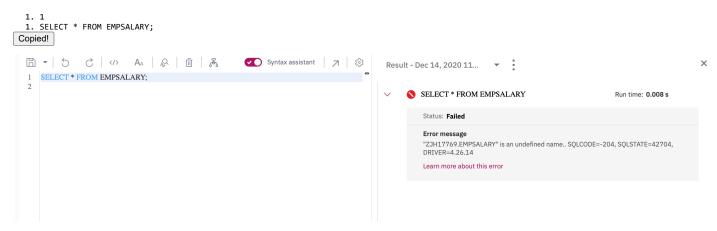
Exercise 3: Drop a View

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.



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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about:blank 4/5

4/6/24, 2:58 AM about:blank

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 |

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about:blank 5/5