Hands-on Lab: Using Views in MySQL using phpMyAdmin



Estimated time needed: 20 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.

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

Software Used in this Lab

In this lab, you will use MySQL. MySQL is a Relational Database Management System (RDBMS) designed to efficiently store, manipulate, and retrieve data.



To complete this lab you will utilize MySQL relational database service available as part of IBM Skills Network Labs (SN Labs) Cloud IDE. SN Labs is a virtual lab environment used in this course.

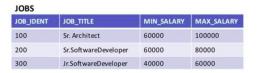
Database Used in this Lab

The database used in this lab is a sample HR database. This HR database schema consists of five 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

EMPLOYE	ES									
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	М	5631 Rice, OakPark,IL	100	100000	30001	2
E1002	Alice	James	123457	1972-07-31	F	980 Berry In, Elgin,IL	200	80000	30002	5
E1003	Steve	Wells	123458	1980-08-10	М	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		



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	

LOCT_ID	DEP_ID_LOC
L0001	2
L0002	5
L0003	7

Follow the steps below to create the database and the tables.

- 1. Open the MySQL interface from Skills Network menu.
- 2. Create a new database and name it $\ensuremath{\mathsf{HR}}.$
- 3. Load and execute the script shared in the link below to create the necessary tables.

HR Database Create Tables Script.sql

4. Load all the tables with the data available in the CSV files shared below.

Departments.csv Employees.csv Jobs.csv Locations.csv JobsHistory.csv

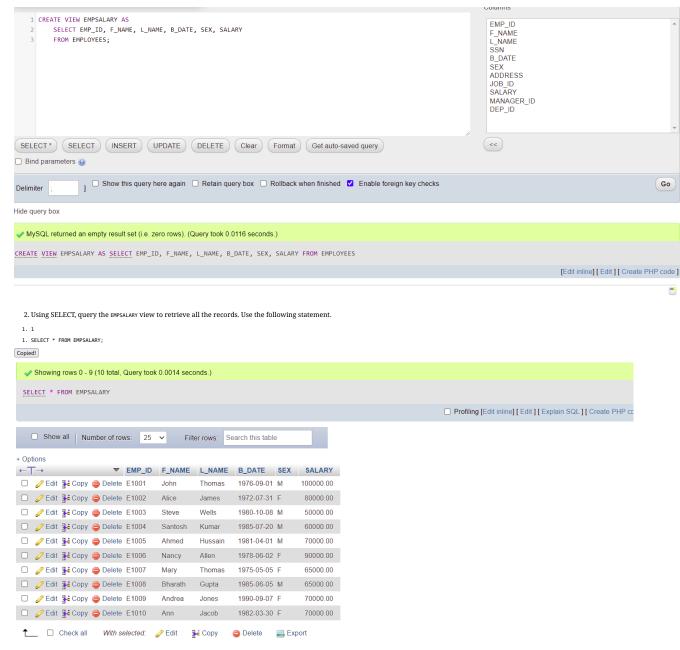
Note: Please refer to the instruction in the lab "Create and Load Tables using SQL Scripts" for instructions regarding loading scripts in MySQL.

Task 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 textarea of the SQL page. Click 60.

1. 1
2. 2
3. 3
1. CREATE VIEW EMPSALARY AS
2. SELECT EMP ID, F_MAME, L_NAME, B_DATE, SEX, SALARY
Copied!



Task 2: Update a View

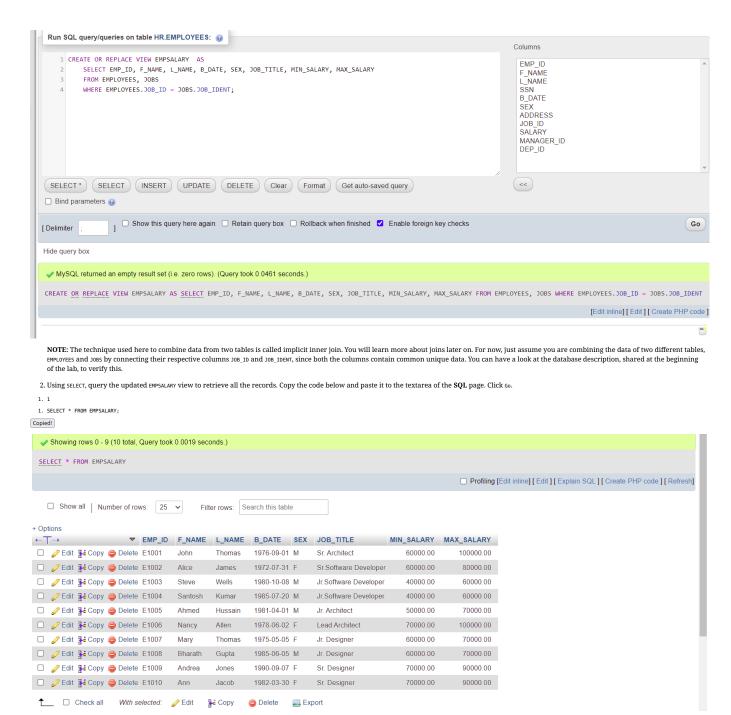
In this exercise, you will update a View to combine two or more tables in meaningful ways.

Assume that the EMPSALARY view we created in Task 1 doesn't contain enough salary information, such as max/min salary and the job title of the employees. For this, we need to get information from other tables in the database. You need all columns from EMPLOYEES table used above, except for SALARY. You also need the columns JOB_TITLE, MIN_SALARY, MAX_SALARY of the JOBS table.

The command to be used is as follows:

```
1. 1
2. 2
3. 3
4. 4
5. 5
1. CREATE OR REPLACE VIEW EMPSALARY AS
2. SELECT EMP_ID, F NAME, L NAME, B DATE, SEX, JOB_TITLE,
3. MIN_SALARY, MAX_SALARY
4. FROM EMPLOYEES, JOBS
5. WHERE EMPLOYEES, JOB_ID = JOBS.JOB_IDENT;

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Task 3: Drop a View

In this exercise, you will drop the created View $\ensuremath{\mathsf{EMPSALARY}}.$ Use the code below.

1. 1

1. DROP VIEW EMPSALARY;

Copied!



Using SELECT, you can verify whether the EMPSALARY view has been deleted or not. Copy the code below and paste it to the textarea of the sql page. Click Go.

1. SELECT * FROM EMPSALARY:



Practice Problems

Try to solve the following practice problems based on your learning in this lab.

- 1. Create a view "EMP_DEPT" which has the following information. $_{\mbox{\footnotesize EMP_ID}}$, $_{\mbox{\footnotesize FNAME}}$, $_{\mbox{\footnotesize LNAME}}$ and $_{\mbox{\footnotesize DEP_ID}}$ from $_{\mbox{\footnotesize EMPLOYEES}}$ table
- ► Click here for the solution
 - 2. Modify "EMP_DEPT" such that it displays Department names instead of Department IDs. For this, we need to combine information from EMPLOYEES and DEPARTMENTS as follows.

EMP_ID, FNAME, LNAME from EMPLOYEES table and

 ${\tt DEP_NAME} \ from \ {\tt DEPARTMENTS} \ table, combined \ over \ the \ columns \ {\tt DEP_ID} \ and \ {\tt DEPT_ID_DEP}.$

- ► Click here for the solution
 - 3. Drop the view "EPM_DEPT".
- ► Click here for the solution

Conclusion

 $Congratulations \ on \ completing \ this \ lab. \ You \ now \ have \ hands-on \ knowledge \ of \ how \ to \ use \ Views \ in \ SQL.$

You have now learned how to:

- Create a new View as per the requirement
- Modify a view to include data from multiple tables in the data set
- Drop a view

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Changelog

Date	Version	Changed by	Change Description
2023-10-13	0.5	Steve Hord	QA pass
2023-09-13	0.4	Misty Taylor	ID Check
2023-09-10	0.3	Abhishek Gagneja	Updated instructions
2023-05-04	0.2	Rahul Jaideep	Updated Markdown file
2021-11-01	0.1	Lakshmi Holla, Malika Singla	Initial Version
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