Lab: Using Views in MySQL using phpMyAdmin

Skills Network

Estimated time needed: 20 minutes

In this lab, you will learn how to create tables and load data in the MySQL database service using the phpMyAdmin graphical user interface (GUI) tool.

Software Used in this Lab

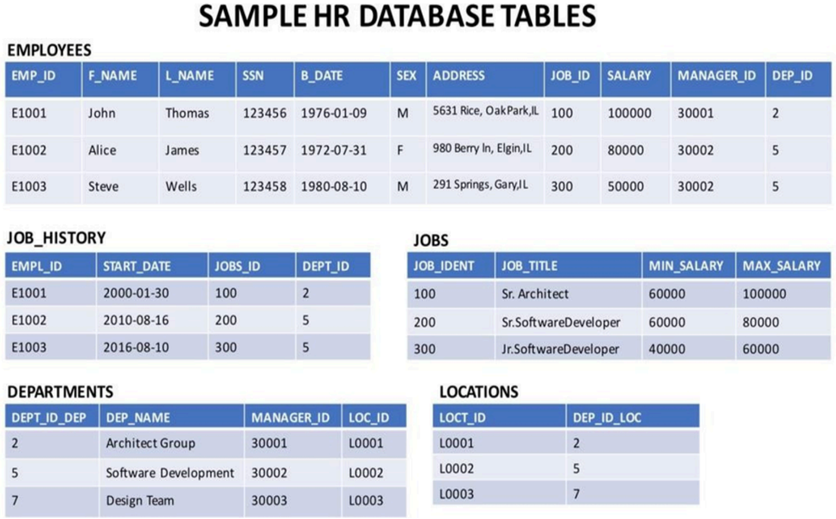
In this lab, you will use MySQL. MySQL is a Relational Database Management System (RDBMS) designed to efficiently store, manipulate, and retrieve data.

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 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_IDENT	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

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 MySQL. If you don't have the tables above populated with sample data on MySQL, please go through the lab below first:

Hands-on Lab: Create and Load Tables using SQL Scripts

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
  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?

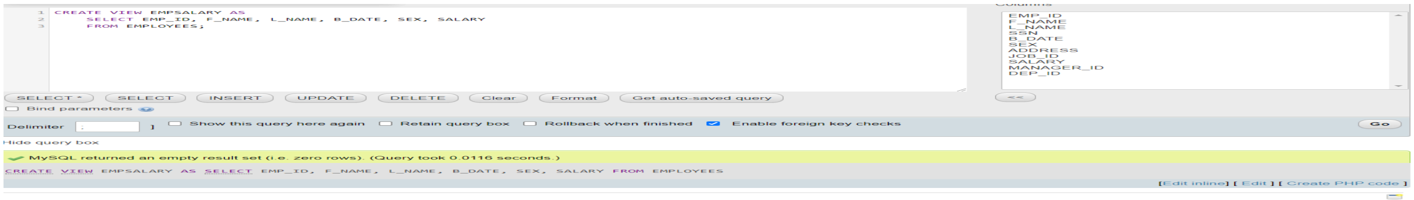
```
DROP VIEW view_name;
```

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 textarea of the **SQL** page. Click **Go**.

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



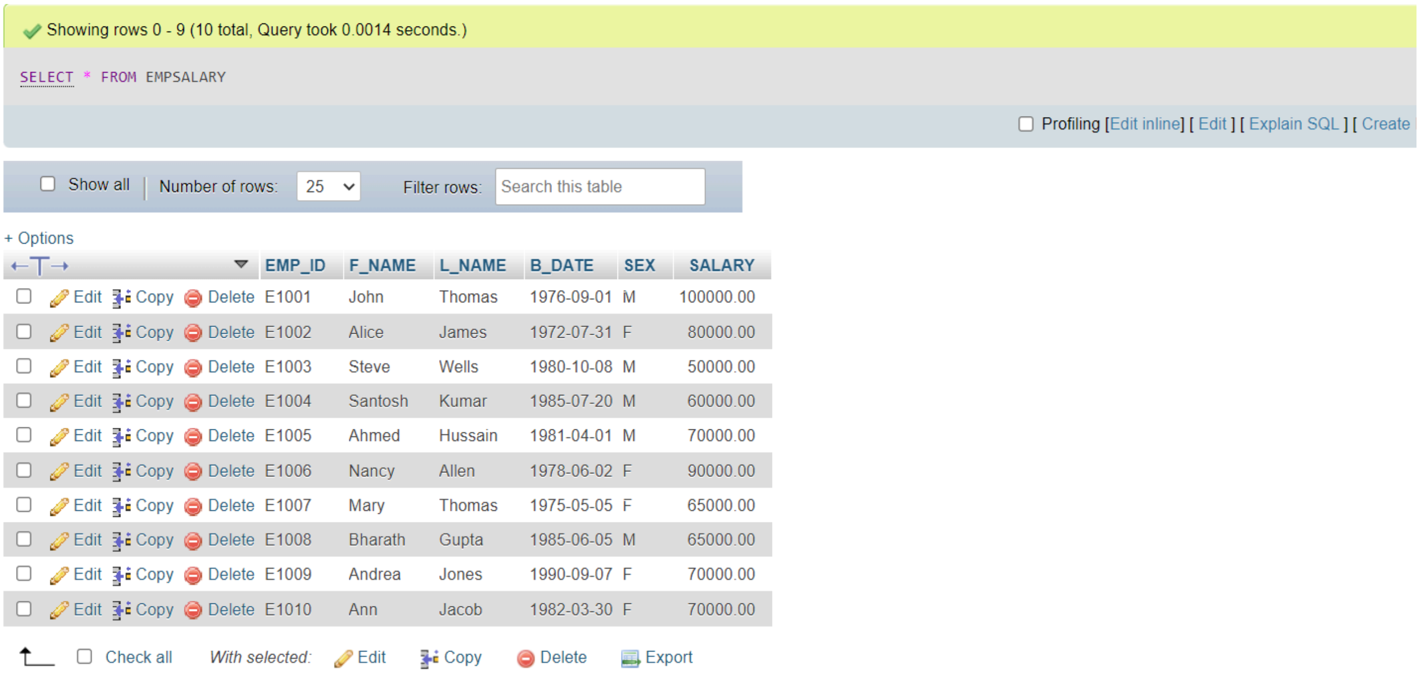
```
CREATE VIEW EMPSALARY AS
    SELECT EMP_ID, F_NAME, L_NAME, B_DATE, SEX, SALARY
    FROM EMPLOYEES;
```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0116 seconds.)

```
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 textarea of the **SQL** page. Click **Go**.

    ```
    SELECT * FROM EMPSALARY;
    ```



✓ Showing rows 0 - 9 (10 total, Query took 0.0014 seconds.)

```
SELECT * FROM EMPSALARY
```

□ Profiling [Edit inline] [Edit] [Explain SQL] [Create
□ Show all | Number of rows: 25 Filter rows: Search this table
+ Options

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

Exercise 2: Update a View

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

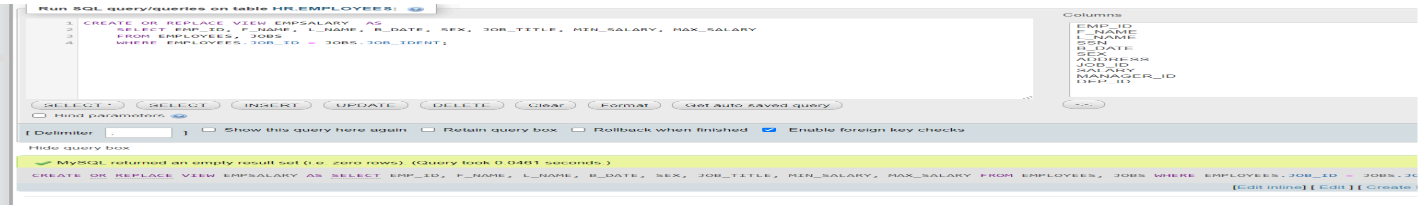
1. It now seems that the **EMPSALARY** view we created in exercise 1 doesn't contain enough salary information, such as max/min salary and the job title of the employees. Let's update the **EMPSALARY** view:

   - 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 textarea of the **SQL** page. Click **Go**..

   ```
   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.

   Run SQL query/queries on table HR.EMPLOYEES:

   ```
   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;
   ```

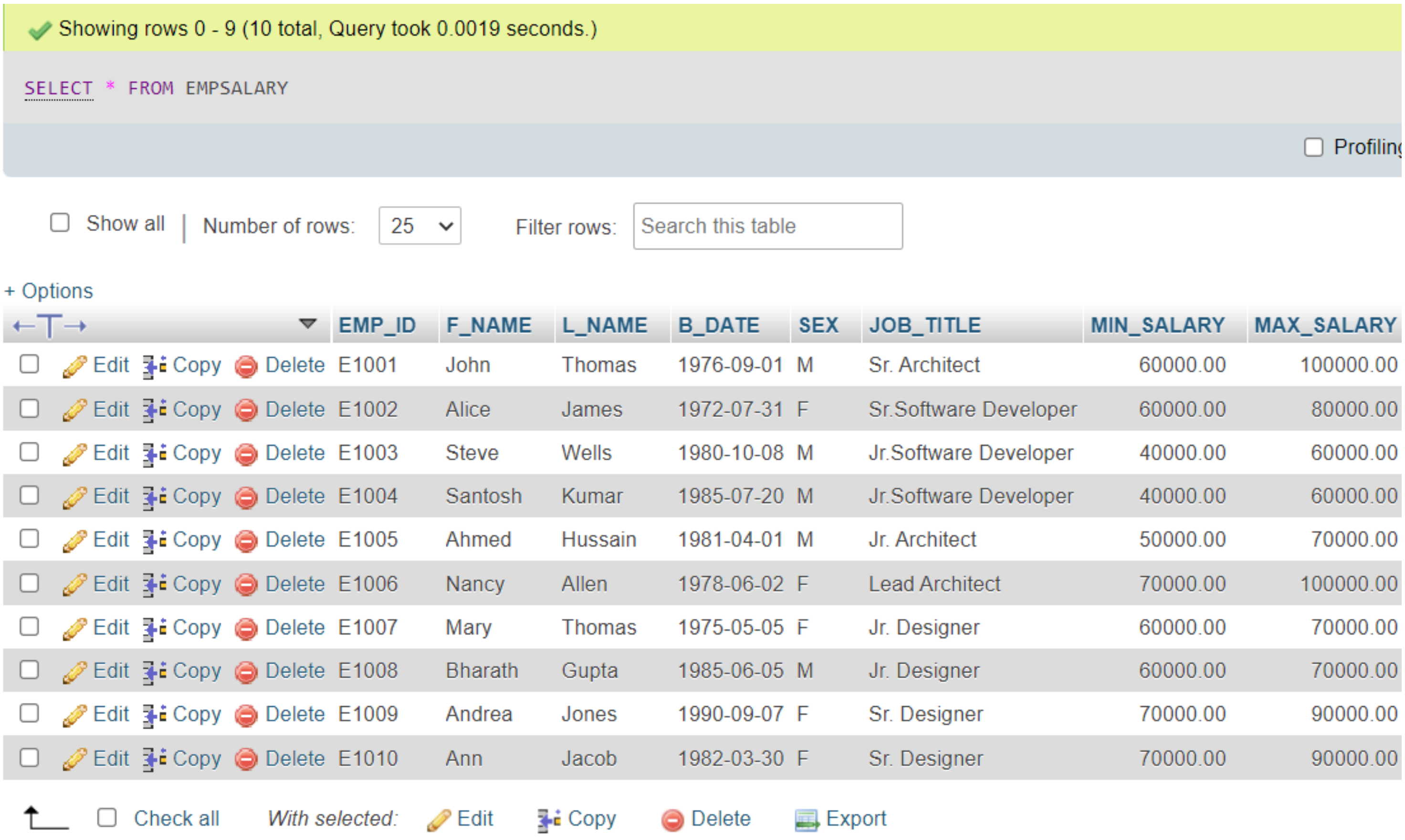
   Columns
EMP_ID
F_NAME
L_NAME
SSN
B_DATE
SEX
ADDRESS
JOB_ID
SALARY
MANAGER_ID
DEP_ID
SELECT * SELECT INSERT UPDATE DELETE Clear Format Get auto-saved query <<
□ Bind parameters
[Delimiter ;] □ Show this query here again □ Retain query box □ Rollback when finished ☑ Enable foreign key checks
Hide query box

   ✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0461 seconds.)

   ```
   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.JC
   ```

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

   ```
   SELECT * FROM EMPSALARY;
   ```



✓ Showing rows 0 - 9 (10 total, Query took 0.0019 seconds.)

```
SELECT * FROM EMPSALARY
```

□ Profiling
□ Show all | Number of rows: 25
Filter rows: Search this table
+ Options

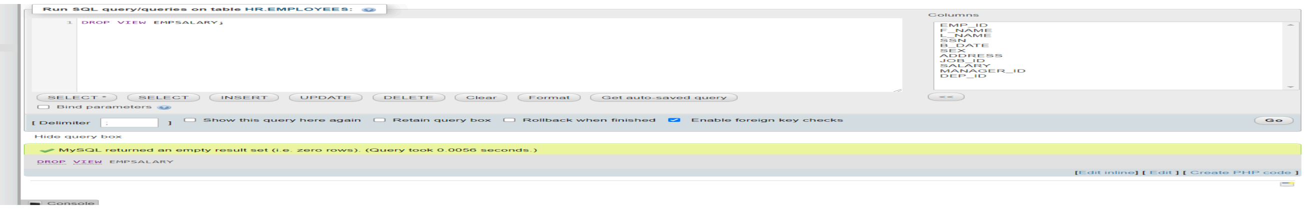
	EMP_ID	F_NAME	L_NAME	B_DATE	SEX	JOB_TITLE	MIN_SALARY	MAX_SALARY
□ Edit Copy Delete	E1001	John	Thomas	1976-09-01	M	Sr. Architect	60000.00	100000.00
□ Edit Copy Delete	E1002	Alice	James	1972-07-31	F	Sr.Software Developer	60000.00	80000.00
□ Edit Copy Delete	E1003	Steve	Wells	1980-10-08	M	Jr.Software Developer	40000.00	60000.00
□ Edit Copy Delete	E1004	Santosh	Kumar	1985-07-20	M	Jr.Software Developer	40000.00	60000.00
□ Edit Copy Delete	E1005	Ahmed	Hussain	1981-04-01	M	Jr. Architect	50000.00	70000.00
□ Edit Copy Delete	E1006	Nancy	Allen	1978-06-02	F	Lead Architect	70000.00	100000.00
□ Edit Copy Delete	E1007	Mary	Thomas	1975-05-05	F	Jr. Designer	60000.00	70000.00
□ Edit Copy Delete	E1008	Bharath	Gupta	1985-06-05	M	Jr. Designer	60000.00	70000.00
□ Edit Copy Delete	E1009	Andrea	Jones	1990-09-07	F	Sr. Designer	70000.00	90000.00
□ Edit Copy Delete	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 paste it to the textarea of the **SQL** page. Click **Go**..

```
DROP VIEW EMPSALARY;
```



Run SQL query/queries on table HR.EMPLOYEES:

```
DROP VIEW EMPSALARY;
```

SELECT * SELECT INSERT UPDATE DELETE Clear Format Get auto-saved query
□ Bind parameters
Columns
EMP_ID
F_NAME
L_NAME
SSN
B_DATE
SEX
ADDRESS
JOB_ID
SALARY
MANAGER_ID
DEP_ID
<<
[Delimiter ;] □ Show this query here again □ Retain query box □ Rollback when finished ☑ Enable foreign key checks
Go
Hide query box

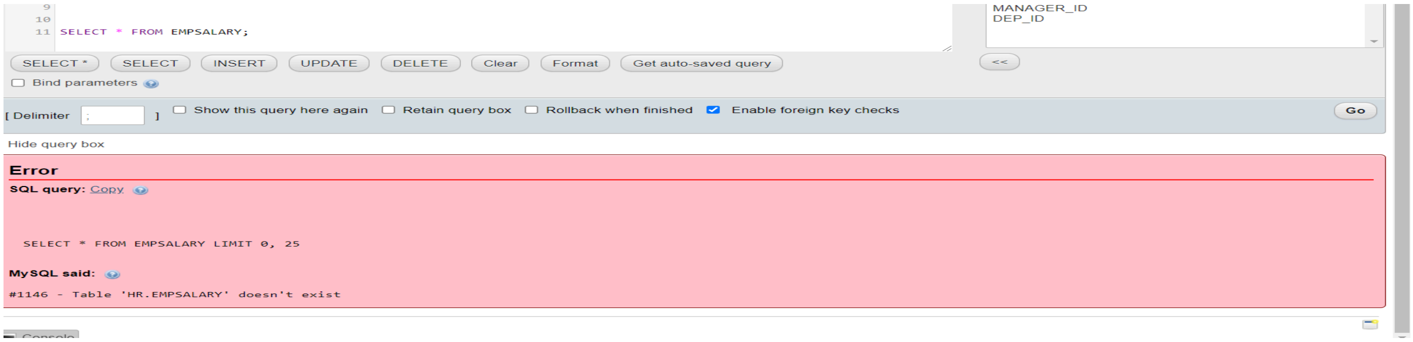
✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0056 seconds.)

```
DROP VIEW EMPSALARY
```

[Edit inline] [Edit] [Create PHP code]
Console

2. 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**..

```
SELECT * FROM EMPSALARY;
```



```
SELECT * FROM EMPSALARY;
```

MANAGER_ID
DEP_ID
SELECT * SELECT INSERT UPDATE DELETE Clear Format Get auto-saved query
<<
Bind parameters
Go
Hide query box
Console

[Delimiter ;] □ Show this query here again □ Retain query box □ Rollback when finished ☑ Enable foreign key checks

Error

SQL query: Copy

```
SELECT * FROM EMPSALARY LIMIT 0, 25
```

MySQL said:

```
#1146 - Table 'HR.EMPSALARY' doesn't exist
```

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

Author(s)

Lakshmi Holla

Malika Singla