



# Hands-on Lab: String Patterns, Sorting and Grouping in MySQL using phpMyAdmin

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.



**EMPLOYEES** 

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:

60000

80000

#### SAMPLE HR DATABASE TABLES

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 Ir	, Elgin,IL	200	80000	30002	5
E1003	Steve	Wells	123458	1980-08-10	М	291 Springs	, Gary,IL	300	50000	30002	5
IOB_HIST	ORY				J	OBS					
EMPL_ID	START_D	ATE .	IOBS_ID	DEPT_ID	10	OB_IDENT	JOB_TI	TLE .		MIN_SALARY	MAX_SALAR
E1001	2000.01	20	100	2	2.0	00	Cr Arab	Itaat	3	50000	100000

300

DEPARTMEN	15		
DEPT_ID_DEP	DEP_NAME	MANAGER_ID	LOC_ID
2	Architect Group	30001	L0001
5	Software Development	30002	L0002
7	Design Team	30003	L0003
5	Software	30004	L0004

200

2010-08-16

2016-08-10

LOCT_ID	DEP_ID_LOC
L0001	2
L0002	5
L0003	7

Sr.SoftwareDeveloper

Jr.SoftwareDeveloper

## **Objectives**

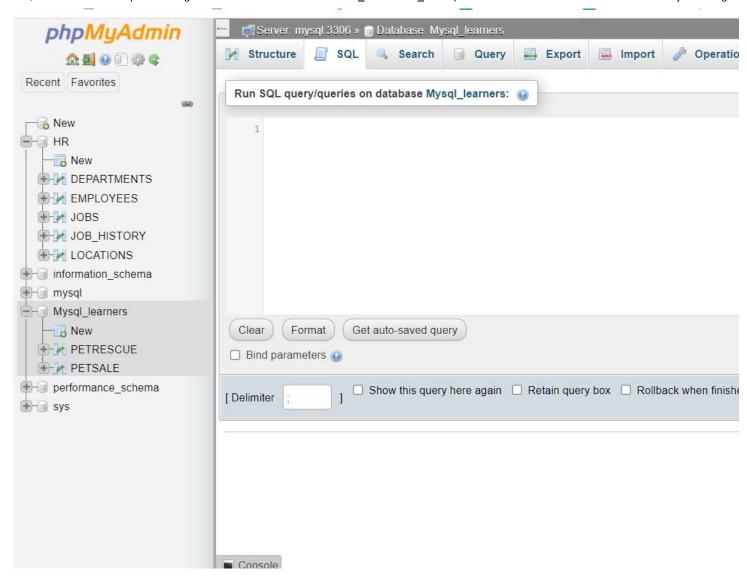
E1002

E1003

After completing this lab, you will be able to:

- Simplify a SELECT statement by using string patterns, ranges, or sets of values
- · Sort the result set in either ascending or descending order and identify which column to use for the sorting order
- · Eliminate duplicates from a result set and further restrict a result set

Once the tables are loaded open the sql editor to start executing the functions.



# **Exercise 1: String Patterns**

In this exercise, you will go through some SQL problems on String Patterns.

1. Problem:

Retrieve all employees whose address is in Elgin,IL.

- ► Hint
- ▶ Solution
- ▶ Output
- 2. Problem:

Retrieve all employees who were born during the 1970's.

- ▶ Hint
- ▶ Solution
- ► Output
- 3. Problem:

Retrieve all employees in department 5 whose salary is between 60000 and 70000.

► Hint

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  - ► Solution ▶ Output

## **Exercise 2: Sorting**

In this exercise, you will go through some SQL problems on Sorting.

1. Problem:

Retrieve a list of employees ordered by department ID.

- ► Hint
- ▶ Solution
- ▶ Output
- 2. Problem:

Retrieve a list of employees ordered in descending order by department ID and within each department ordered alphabetically in descending order

- ▶ Hint
- ▶ Solution
- ▶ Output
- 3. (Optional) Problem:

In SQL problem 2 (Exercise 2 Problem 2), use department name instead of department ID. Retrieve a list of employees ordered by department name, and within each department ordered alphabetically in descending order by last name.

- ► Hint
- ▶ Solution
- ► Output

# **Exercise 3: Grouping**

In this exercise, you will go through some SQL problems on Grouping.

NOTE: The SQL problems in this exercise involve usage of SQL Aggregate functions AVG and COUNT. COUNT has been covered earlier. AVG is a function that can be used to calculate the Average or Mean of all values of a specified column in the result set. For example, to retrieve the average salary for all employees in the EMPLOYEES table, issue the query: SELECT AVG(SALARY) FROM EMPLOYEES;. You will learn more about AVG and other aggregate functions later in the lecture Builtin Database Functions.

1. Problem:

For each department ID retrieve the number of employees in the department.

- ► Hint
- ▶ Solution
- ▶ Output
- 2. Problem:

For each department retrieve the number of employees in the department, and the average employee salary in the department.

- ► Hint
- ▶ Solution
- ▶ Output
- 3. Problem:

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	computed columns in the result set of SQL problem 2 (Exercise 3 Problem 2) as NUMEMPLOYEES and AVGSALARY.
► Hint	
► Solution	
► Output	
4. Problem:	
In SQL pr	roblem 3 (Exercise 3 Problem 3), order the result set by Average Salary
► Hint	
► Solution	
► Output	
5. Problem:	
In SQL pr	roblem 4 (Exercise 3 Problem 4), limit the result to departments with fewer than 4 employees.
► Hint	
► Solution	
► Output	
Solution S  If you would like to ruinterface and run. Following the second seco	un all the solution queries of the SQL problems of this lab with a script, download the script below.Import the script to phpadmin mysql ow Hands-on Lab: Create tables using SQL scripts and Load data into tables on how to upload a script to phpmyadmin console and run it.
• <u>StringPattern-Set</u>	orting-GroupingSolutionScript.sql
Congratulations!	You have completed this lab, and you are ready for the next topic.
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Changelog	
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