



Hands-on Lab: Working with Multiple Tables 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.



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

EMP ID	E NAME	F NAME L NAME		SSN B DATE		SEX	ADDRESS		JOB ID	SALAF	NAANAC	MANAGER ID	
CIVIE_ID	F_INAIVIE	L_INATIVIE	3314	B_DAIL	2	JEA	ADDRESS		JOB_ID	JALA	WANAC	ick_iD	DEP_ID
E1001	John	Thomas	123456	1976-0	1-09	М	5631 Rice, Oak Park,IL		100	100000 30001			2
E1002	Alice	James 1		1972-0	-07-31 F		980 Berry In, Elgin,IL		200	80000	30002		5
E1003	Steve	Steve Wells		1980-0	8-10	м	291 Springs, Gary, IL		300	50000 30002			5
JOB HIST	ORY					10	OBS						
EMPL_ID		START_DATE JOB		DEPT_ID			B_IDENT			LE I		MA	X_SALARY
E1001	2000-01	000-01-30 100		2		10	00 Sr. Arch		itect		60000	100	000
E1002	2010-08	2010-08-16 200		5		20	00 Sr.Softv		wareDeveloper		60000	800	00
E1003	2016-08	2016-08-10 300		5		30	00	Jr.Softv	vareDevel	oper	40000	600	00
DEPARTIV	ENTS						LOCATI	ONS					
DEPT_ID_D	EP DEP_NA	DEP_NAME		MANAGER_ID			LOCT_ID		DEP	DEP_ID_LOC			
2	Architec	Architect Group		30001			L0001		2				
5	Softwar	Software Development		30002			L0002		5				
7	Design 1	Design Team		30003			L0003		7	7			
5	Coffuser	Software		30004									

Objectives

After completing this lab you will be able to:

- Write SQL queries that access more than one table
- Compose queries that access multiple tables using a nested statement in the WHERE clause
- Build queries with multiple tables in the FROM clause
- Write Implicit Join queries with join criteria specified in the WHERE clause
- · Specify aliases for table names and qualify column names with table aliases

In this lab, you will through some SQL practice problems that will provide hands-on experience with SQL queries that access multiple tables. You will be:

- · Accessing Multiple Tables with Sub-Queries
- · Accessing Multiple Tables with Implicit Joins

How does an Implicit version of CROSS JOIN (also known as Cartesian Join) statement syntax look?

SELECT column_name(s)
FROM table1, table2;

How does an Implicit version of INNER JOIN statement syntax look?

SELECT column_name(s)
FROM table1, table2
WHERE table1.column_name = table2.column_name;

Exercise 1: Accessing Multiple Tables with Sub-Queries

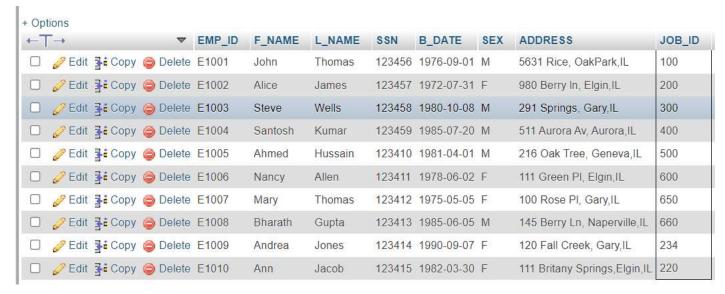
1. Problem:

Retrieve only the EMPLOYEES records that correspond to jobs in the JOBS table.

▼ Solution

select * from EMPLOYEES where JOB_ID IN (select JOB_IDENT from JOBS);

▼ Output



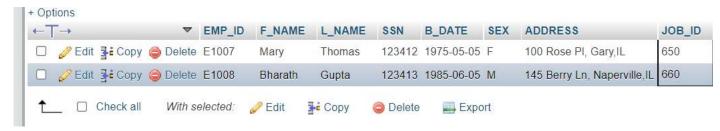
2. Problem:

Retrieve only the list of employees whose JOB_TITLE is Jr. Designer.

▼ Solution

select * from EMPLOYEES where JOB_ID IN (select JOB_IDENT from JOBS where JOB_TITLE= 'Jr. Designer');

▼ Output



3. Problem:

Retrieve JOB information and list of employees who earn more than \$70,000.

▼ Solution

▼ Output



4. Problem:

Retrieve JOB information and list of employees whose birth year is after 1976.

▼ Solution

select JOB_TITLE, MIN_SALARY,MAX_SALARY,JOB_IDENT from JOBS where JOB_IDENT IN (select JOB_ID from EMPLOYEES where YEAR(B_DATE)>1976);



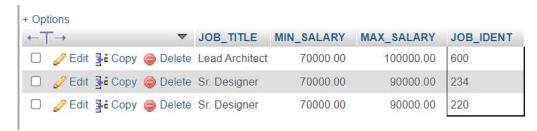
5. Problem:

Retrieve JOB information and list of female employees whose birth year is after 1976.

▼ Solution

select JOB_TITLE, MIN_SALARY,MAX_SALARY,JOB_IDENT from JOBS where JOB_IDENT IN (select JOB_ID from EMPLOYEES where YEAR(B_DATE)>1976 and SEX='F')

▼ Output



Exercise 2: Accessing Multiple Tables with Implicit Joins

1. Problem:

Perform an implicit cartesian/cross join between EMPLOYEES and JOBS tables.

▼ Solution

select * from EMPLOYEES, JOBS;

▼ Output

+ Options EMP_ID	F_NAME	L_NAME	SSN	B_DATE	SEX	ADDRESS	JOB_ID	SALARY	MANAGER_ID	DEP_ID
E1010	Ann	Jacob	123415	1982-03-30	F	111 Britany Springs,Elgin,IL	220	70000.00	30004	5
E1009	Andrea	Jones	123414	1990-09-07	F	120 Fall Creek, Gary,IL	234	70000.00	30003	7
E1008	Bharath	Gupta	123413	1985-06-05	M	145 Berry Ln, Naperville,IL	660	65000.00	30003	7
E1007	Mary	Thomas	123412	1975-05-05	F	100 Rose Pl, Gary,IL	650	65000.00	30003	7
E1006	Nancy	Allen	123411	1978-06-02	F	111 Green PI, Elgin,IL	600	90000.00	30001	2
E1005	Ahmed	Hussain	123410	1981-04-01	M	216 Oak Tree, Geneva,IL	500	70000.00	30001	2
E1004	Santosh	Kumar	123459	1985-07-20	M	511 Aurora Av, Aurora,IL	400	60000.00	30004	5
E1003	Steve	Wells	123458	1980-10-08	M	291 Springs, Gary,IL	300	50000.00	30002	5
E1002	Alice	James	123457	1972-07-31	F	980 Berry In, Elgin,IL	200	80000.00	30002	5
E1001	John	Thomas	123456	1976-09-01	M	5631 Rice, OakPark,IL	100	100000.00	30001	2
E1010	Ann	Jacob	123415	1982-03-30	F	111 Britany Springs,Elgin,IL	220	70000.00	30004	5
E1009	Andrea	Jones	123414	1990-09-07	F	120 Fall Creek, Gary,IL	234	70000.00	30003	7
E1008	Bharath	Gupta	123413	1985-06-05	M	145 Berry Ln, Naperville,IL	660	65000.00	30003	7
E1007	Mary	Thomas	123412	1975-05-05	F	100 Rose PI, Gary,IL	650	65000.00	30003	7
Conso	Nancy	Allen	123411	1978-06-02	F	111 Green PI, Elgin,IL	600	90000.00	30001	2

2. Problem:

Retrieve only the EMPLOYEES records that correspond to jobs in the JOBS table.

 \blacksquare Solution

select * from EMPLOYEES, JOBS where EMPLOYEES.JOB_ID = JOBS.JOB_IDENT;

► Output

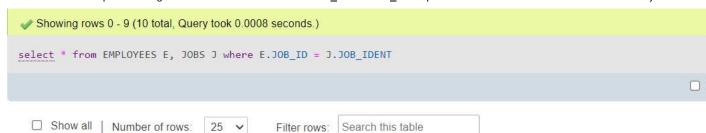
3. Problem:

Redo the previous query, using shorter aliases for table names.

▼ Solution

select * from EMPLOYEES E, JOBS J where E.JOB_ID = J.JOB_IDENT;

▼ Output



+ Options

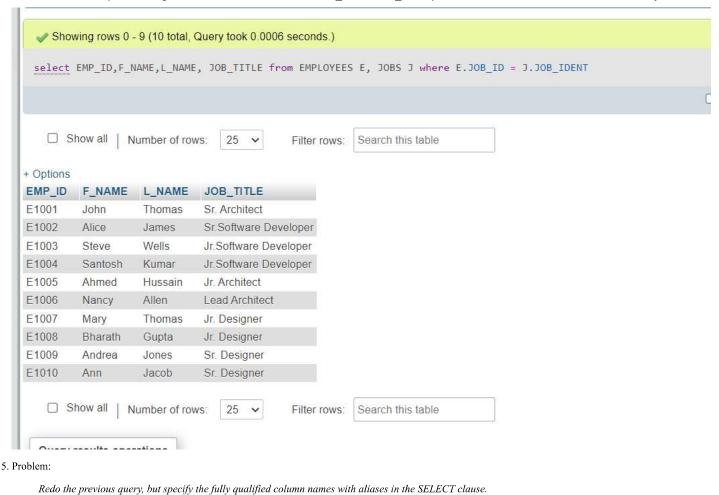
EMP_ID	F_NAME	L_NAME	SSN	B_DATE	SEX	ADDRESS	JOB_ID	SALARY	MANAGER_ID	DEP_ID
E1001	John	Thomas	123456	1976-09-01	M	5631 Rice, OakPark,IL	100	100000.00	30001	2
E1002	Alice	James	123457	1972-07-31	F	980 Berry In, Elgin,IL	200	80000.00	30002	5
E1003	Steve	Wells	123458	1980-10-08	M	291 Springs, Gary,IL	300	50000.00	30002	5
E1004	Santosh	Kumar	123459	1985-07-20	M	511 Aurora Av, Aurora,IL	400	60000.00	30004	5
E1005	Ahmed	Hussain	123410	1981-04-01	M	216 Oak Tree, Geneva,IL	500	70000.00	30001	2
E1006	Nancy	Allen	123411	1978-06-02	E	111 Green PI, Elgin,IL	600	90000.00	30001	2
E1007	Mary	Thomas	123412	1975-05-05	F	100 Rose PI, Gary,IL	650	65000.00	30003	7
E1008	Bharath	Gupta	123413	1985-06-05	M	145 Berry Ln, Naperville,IL	660	65000.00	30003	7
E1009	Andrea	Jones	123414	1990-09-07	F	120 Fall Creek, Gary,IL	234	70000.00	30003	7

4. Problem:

Redo the previous query, but retrieve only the Employee ID, Employee Name and Job Title.

select EMP_ID,F_NAME,L_NAME, JOB_TITLE from EMPLOYEES E, JOBS J where E.JOB_ID = J.JOB_IDENT;

▼ Output



Solution Script

▼ Solution

▶ Output

If you would like to run all the solution queries of the SQL problems of this lab with a script, download the script below. Import the script to mysql phpadmin interface and run. Follow Hands-on Lab: Create tables using SQL scripts and Load data into tables on how to import a script to MYsql phpadmin interface and run it.

• MultipleTablesSolutionScript.sql

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

select E.EMP_ID, E.F_NAME, E.L_NAME, J.JOB_TITLE from EMPLOYEES E, JOBS J where E.JOB_ID = J.JOB_IDENT;

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Changelog

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