

Hands-on Lab: Stored Procedures 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

Mysql_learners database has been used in this lab.

Data Used in this Lab

The data used in this lab is internal data. You will be working on the **PETSALE** table.

ID ▲	ANIMAL	SALEPRICE
1	Cat	450.09
2	Dog	666.66
3	Parrot	50.00
4	Hamster	60.60
5	Goldfish	48.48

This lab requires you to have the PETSALE table populated with sample data on mysql phpadmin interface. You might have created and populated a PETSALE table in a previous lab. But for this lab, it is recommended you download the PETSALE-CREATE-v2.sql script below, upload it to phpadmin console and run it. The script will create a new PETSALE table dropping any previous PETSALE table if exists, and will populate it with the required sample data.

- [PETSALE-CREATE-v2.sql](#)

Objectives

After completing this lab, you will be able to:

- Create stored procedures
- Execute stored procedures

Exercise 1

In this exercise, you will create and execute a stored procedure to read data from a table on mysql phpadmin using SQL.

1. Make sure you have created and populated the **PETSALE** table following the steps in the “**Data Used in this Lab**” section of this lab.

ID ▲	ANIMAL	SALEPRI
1	Cat	450.09
2	Dog	666.66
3	Parrot	50.00
4	Hamster	60.60
5	Goldfish	48.48

2.
- You will create a stored procedure routine named **RETRIEVE_ALL**.
 - This **RETRIEVE_ALL** routine will contain an SQL query to retrieve all the records from the PETSALE table, so you don't need to write the same query over and over again. You just call the stored procedure routine to execute the query everytime.
 - To create the stored procedure routine, copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
9. 9
10. 10
11. 11
12. 12

1. DELIMITER //
2.
3. CREATE PROCEDURE RETRIEVE_ALL()
4.
5. BEGIN
6.
7.     SELECT * FROM PETSALE;
8.
9.
10. END //
11.
12. DELIMITER ;
```

Copied!


Run SQL query/queries on database Mysql_learners: 

```
1 DELIMITER //  
2  
3 CREATE PROCEDURE RETRIEVE_ALL()  
4  
5 BEGIN  
6  
7     SELECT * FROM PETALE;  
8  
9  
10 END //  
11  
12 DELIMITER ;
```

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 0.0064 seconds.)

```
CREATE PROCEDURE RETRIEVE_ALL() BEGIN SELECT * FROM PETALE; END
```

3. To call the RETRIEVE_ALL routine, open another **SQL** tab by clicking **Open in new Tab**

The screenshot shows the phpMyAdmin web interface. On the left is a sidebar with a tree view of databases and tables. The main area is titled 'Server: mysql:3306 » Database: HR » Table: EMPLOYEES'. Below this is a toolbar with buttons for 'Browse', 'Structure', 'SQL', 'Search', 'Insert', 'Export', and 'Import'. The 'SQL' button is active, and a context menu is open over it, showing options like 'Open link in new tab', 'Open link in new window', 'Open link in incognito window', 'Save link as...', 'Copy link address', and 'Inspect'. The 'Open link in new tab' option is highlighted with a red box. Below the toolbar is a text area for the SQL query, which contains the text '1 SELECT * FROM `EMPLOYEES`'. At the bottom of the interface are buttons for 'SELECT *', 'SELECT', 'INSERT', 'UPDATE', 'DELETE', 'Clear', 'Format', and 'Get auto-s'. There is also a checkbox for 'Bind parameters' and a section for query options including 'Delimiter', 'Show this query here again', 'Retain query box', and 'Rollback when finished'.

Delete the default line which appears so that you will get a blank window.

copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

```
1. 1  
1. CALL RETRIEVE_ALL;
```

Copied!

11 `CALL RETRIEVE_ALL;`

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

✓ Showing rows 0 - 4 (5 total, Query took 0.0010 seconds.)

`CALL RETRIEVE_ALL`

☐ Show all | Number of rows: Filter rows:

Options

	ANIMAL	SALEPRICE	SALEDATE	QUANTITY
1	Cat	450.09	2018-05-29	9
2	Dog	666.66	2018-06-01	3
3	Parrot	50.00	2018-06-04	2
4	Hamster	60.60	2018-06-11	6
5	Goldfish	48.48	2018-06-14	24

4. You can view the created stored procedure routine `RETRIEVE_ALL`. On the left panel, expand the `mysql` option. Click on **Procedures** then click on the **RETRIEVE_ALL** and view the procedure.

The screenshot shows the phpMyAdmin interface. On the left sidebar, the 'mysql' database is expanded, and 'Procedures' is selected. The 'RETRIEVE_ALL' procedure is highlighted. The main panel shows the procedure definition:

```
DROP PROCEDURE `RETRIEVE_ALL`; CREATE DEFINER=`root`@`%` PROCEDURE `RETRIEVE_ALL`() NOT DETERMINISTIC CONTAINS SQL SQL SECURITY DEFINER
FROM PETSALE; END
```

Below the definition, there is a 'Run SQL query/queries on table mysql.PETSALE:' section with a query editor containing:

```
1 SELECT * FROM `PETSALE` WHERE 1
```

At the bottom, there are buttons for 'SELECT *', 'SELECT', 'INSERT', 'UPDATE', 'DELETE', 'Clear', 'Format', and 'Get auto-saved query'. There is also a 'Bind parameters' checkbox and a 'Console' button.

After clicking on the Procedure **Retrieve_All**, you can view the procedure definition and execute it by clicking on **GO**.

The screenshot shows the phpMyAdmin interface with the 'RETRIEVE_ALL' stored procedure selected. The 'Details' tab is active, displaying the following information:

- Routine name:** RETRIEVE_ALL
- Type:** PROCEDURE
- Parameters:** (Empty table with columns: Direction, Name, Type, Length/Values, Options)
- Definition:**

```
1 BEGIN
2
3 SELECT * FROM PETALE;
4
5
6 END
```
- Is deterministic:** ☐
- Adjust privileges:** ☒
- Definer:** 'root'@'%'
- Security type:** DEFINER

At the bottom right, the 'Go' button is highlighted with a red box, and the 'Close' button is visible next to it.

5. If you wish to drop the stored procedure routine RETRIEVE_ALL, copy the code below and paste it to the textarea of the SQL page. Click **Go**.

```
1. 1
2. 2
3. 3

1. DROP PROCEDURE RETRIEVE_ALL;
2.
3. CALL RETRIEVE_ALL;
```

Copied!

The screenshot shows a MySQL IDE window with a menu bar (Structure, SQL, Search, Query, Export, Import, Operations, Privileges, Routines) and a toolbar. The SQL editor contains the following code:

```
1  
2 DROP PROCEDURE RETRIEVE_ALL;  
3  
4 CALL RETRIEVE_ALL;  
5  
6
```

Below the editor are buttons for "Clear", "Format", and "Get auto-saved query". There is a checkbox for "Bind parameters" and a help icon. At the bottom, there are checkboxes for "Show this query here again", "Retain query box", "Rollback when finished", and "Enable foreign key checks" (which is checked). A "Delimiter" dropdown is set to semicolon.

An error message is displayed in a red box:

Error

SQL query: [Copy](#)

```
CALL RETRIEVE_ALL
```

MySQL said: ⓘ

#1305 - PROCEDURE Mysql_learners.RETRIEVE_ALL does not exist

Exercise 2

In this exercise, you will create and execute a stored procedure to write/modify data in a table on Db2 using SQL.

1. Make sure you have created and populated the **PETSALE** table following the steps in the “**Data Used in this Lab**” section of this lab.

ID ▲	ANIMAL	SALEPRI
1	Cat	450.09
2	Dog	666.66
3	Parrot	50.00
4	Hamster	60.60
5	Goldfish	48.48

- 2.
- You will create a stored procedure routine named **UPDATE_SALEPRICE** with parameters **Animal_ID** and **Animal_Health**.
 - This **UPDATE_SALEPRICE** routine will contain SQL queries to update the sale price of the animals in the PETSALÉ table depending on their health conditions, **BAD** or **WORSE**.
 - This procedure routine will take animal ID and health condition as parameters which will be used to update the sale price of animal in the PETSALÉ table by an amount depending on their health condition. Suppose -
 - For animal with ID XX having BAD health condition, the sale price will be reduced further by 25%.
 - For animal with ID YY having WORSE health condition, the sale price will be reduced further by 50%.
 - For animal with ID ZZ having other health condition, the sale price won't change.
- To create the stored procedure routine, copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

```

1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
9. 9
10. 10
11. 11
12. 12
13. 13
14. 14
15. 15
16. 16
17. 17
18. 18
19. 19
20. 20
21. 21
22. 22
23. 23
24. 24
25. 25
26. 26

1. DELIMITER @
2. CREATE PROCEDURE UPDATE_SALEPRICE (
3.   IN Animal_ID INTEGER, IN Animal_Health VARCHAR(5) )
4. BEGIN
5.
6.   IF Animal_Health = 'BAD' THEN
7.     UPDATE PETSALÉ
8.     SET SALEPRICE = SALEPRICE - (SALEPRICE * 0.25)
9.     WHERE ID = Animal_ID;
10.
11.   ELSEIF Animal_Health = 'WORSE' THEN
12.     UPDATE PETSALÉ
13.     SET SALEPRICE = SALEPRICE - (SALEPRICE * 0.5)
14.     WHERE ID = Animal_ID;
15.
16.   ELSE
17.     UPDATE PETSALÉ
18.     SET SALEPRICE = SALEPRICE
19.     WHERE ID = Animal_ID;
20.
21.   END IF;
22.
23. END @
24.
25. DELIMITER ;
26.

```


Copied!

Server: mysql:5.6.23 Database: mysql_learners

Structure SQL Search Query Export Import Operations Privileges Routines

Run SQL query/queries on database Mysql_learners:

```

15
16     ELSE
17         UPDATE PETALE
18         SET SALEPRICE = SALEPRICE
19         WHERE ID = Animal_ID;
20
21     END IF;
22
23 END @
24
25 DELIMITER ;
26

```

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 0.0214 seconds.)

```

CREATE PROCEDURE UPDATE_SALEPRICE ( IN Animal_ID INTEGER, IN Animal_Health VARCHAR(5) ) BEGIN IF Animal_Health = 'BAD' THEN
(SALEPRICE * 0.25) WHERE ID = Animal_ID; ELSEIF Animal_Health = 'WORSE' THEN UPDATE PETALE SET SALEPRICE = SALEPRICE -
PETALE SET SALEPRICE = SALEPRICE WHERE ID = Animal_ID; END IF; END

```

3. Let's call the UPDATE_SALEPRICE routine. We want to update the sale price of animal with ID 1 having **BAD** health condition in the PETALE table. open another **SQL** tab by clicking **Open in new Tab**

The screenshot shows the phpMyAdmin web interface. On the left is a sidebar with a tree view of databases and tables. The main area is titled 'Server: mysql:3306 » Database: HR » Table: EMPLOYEES'. Below this is a toolbar with buttons for 'Browse', 'Structure', 'SQL', 'Search', 'Insert', 'Export', and 'Import'. The 'SQL' button is active, and a context menu is open over it, showing options like 'Open link in new tab', 'Open link in new window', 'Open link in incognito window', 'Save link as...', 'Copy link address', and 'Inspect'. The 'Open link in new tab' option is highlighted with a red box. Below the toolbar is a text area for the SQL query, which contains the text '1 SELECT * FROM `EMPLOYEES`'. At the bottom of the SQL tab, there are buttons for 'SELECT *', 'SELECT', 'INSERT', 'UPDATE', 'DELETE', 'Clear', 'Format', and 'Get auto-s'. There is also a checkbox for 'Bind parameters' and a section for query options including 'Delimiter', 'Show this query here again', 'Retain query box', and 'Rollback when finished'.

Delete the default line which appears so that you will get a blank window.

copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

Note if you have dropped RETREIVE_ALL procedure rerun the creation script of that procedure before executing these lines.

```

1. 1
2. 2
3. 3
4. 4
5. 5

1. CALL RETRIEVE_ALL;
2.
3. CALL UPDATE_SALEPRICE(1, 'BAD');
4.
5. CALL RETRIEVE_ALL;

```

Copied!

Showing rows 0 - 4 (5 total, Query took 0.0007 seconds.)

CALL RETRIEVE_ALL

☐ Show all | Number of rows: 25 ▼ Filter rows: Search this table

+ Options

ID	ANIMAL	SALEPRICE	SALEDATE	QUANTITY
1	Cat	450.09	2018-05-29	9
2	Dog	666.66	2018-06-01	3
3	Parrot	50.00	2018-06-04	2
4	Hamster	60.60	2018-06-11	6
5	Goldfish	48.48	2018-06-14	24

Note: #1265 D

Showing rows

CALL RETRIEVE_A

☐ Show all |

+ Options

ID	ANIMAL	S
1	Cat	
2	Dog	
3	Parrot	
4	Hamster	
5	Goldfish	

4. Let's call the UPDATE_SALEPRICE routine once again. We want to update the sale price of animal with ID 3 having **WORSE** health condition in the PETSALe table. copy the code below and paste it to the textarea of the SQL page. Click **Go**. You will have all the records retrieved from the PETSALe table.

```
1. 1
2. 2
3. 3
4. 4
5. 5
```

```
1. CALL RETRIEVE_ALL;
2.
3. CALL UPDATE_SALEPRICE(3, 'WORSE');
4.
5. CALL RETRIEVE_ALL;
```

Copied!

Showing rows 0 - 4 (5 total, Que

CALL RETRIEVE_ALL

☐ Show all | Number of rows: 25 ▼ Filter rows: Search this table

Options

D	ANIMAL	SALEPRICE	SALEDATE	QUANTITY
1	Cat	337.57	2018-05-29	9
2	Dog	666.66	2018-06-01	3
3	Parrot	50.00	2018-06-04	2
4	Hamster	60.60	2018-06-11	6
5	Goldfish	48.48	2018-06-14	24

☐ Show all | Number of rows: 25 ▼ Filter rows: Search this table

Query results operations

Showing rows 0 - 4 (5 total, Que

CALL RETRIEVE_ALL

☐ Show all | Number of rows:

Options

D	ANIMAL	SALEPRICE	SA
1	Cat	337.57	20
2	Dog	666.66	20
3	Parrot	25.00	20
4	Hamster	60.60	20
5	Goldfish	48.48	20

☐ Show all | Number of rows:

5. You can view the created stored procedure routine UPDATE_SALEPRICE. Click on the **Routines** and view the procedure.

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StructureSQLSearchQueryExportImportOperationsPrivilegesRoutines

Routines

Name	Action	Type	Returns
<input type="checkbox"/> RETRIEVE_ALL	Edit Execute Export Drop	PROCEDURE	
<input type="checkbox"/> UPDATE_SALEPRICE	Edit Execute Export Drop	PROCEDURE	

☐ Check all With selected: Export Drop

New

Add routine

6. If you wish to drop the stored procedure routine UPDATE_SALEPRICE, copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

```
1. 1
2. 2
3. 3

1. DROP PROCEDURE UPDATE_SALEPRICE;
2.
3. CALL UPDATE_SALEPRICE;
```

Copied!

7
8
9 DROP PROCEDURE UPDATE_SALEPRICE;
10
11 CALL UPDATE_SALEPRICE;

ClearFormatGet auto-saved query

☐ Bind parameters

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

Hide query box

Error

SQL query: [Copy](#)

DROP PROCEDURE UPDATE_SALEPRICE

MySQL said:

#1305 - PROCEDURE Mysql_learners.UPDATE_SALEPRICE does not exist

Congratulations! You have completed this lab on creating stored procedures in MySQL, and are ready for the next topic.

Author(s)

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12/13

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Changelog

Date	Version	Changed by	Change Description
2021-08-09	0.2	Sathya Priya	Updated HTML tags and SQL link
2021-11-01	0.1	Lakshmi Holla, Malika Singla	Initial Version

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