LAB 11 CREATE A SIMPLE DATABASE WITH TWO TABLES

OBJECTIVES:

- Create a database with two tables
- Add user access to the created database
- Use a Web Stack with a GUI database administration tool
- Use the command line to connect to a database

BASIC CONCEPTS FOR CREATING DATABASES

In this lab, we will work with the three language subsets of SQL:

- Data Definition Language (DDL),
- Data Control Language (DCL), and
- Data Manipulation Language (DML).

We will be using commands from the DDL and DCL subsets. With the DDL we will create a simple database with two tables. We will control access to our database using the DCL. The tool that we will use is called **phpMyAdmin**, part of the XAMPP install package.

phpMyAdmin is a DDL, DCL, and DML GUI interface used to create and manage MySQL/Maria databases. Another popular GUI interface for creating and managing MySQL/Maria database is MySQL Workbench.

Remember behind the GUIs are the actual SQL statements. These statements are the same statements we would use in our code when creating applications that work with databases or working at the command line without a GUI interface. We will work with the **mydatabase** database using the Data Manipulation Language (DML) at the command line and in our code in later labs.

This lab creates a database named **mydatabase** with two tables (**personnel** & **timesheet)** and adds a user and password to access the **mydatabase** database. This database is used in the upcoming labs, so follow the instructions closely to make sure your database is setup correctly.

LAB TASK CHECKLIST

Complete the following tasks for this lab:

1. Review the Lesson (Assignment, Reading and Additional materials)
2. Create a Database called **mydatabase**
3. Add the ***cti110*** user with a password of ***wtcc*** for **mydatabase**
4. Create the following tables (see Database Requirements below):
    a. **personnel**

i. empID, firstName, lastName, jobTitle, hourlyWage
ii. populate the table and add data to columns

b. **timesheet**
i. empID, hoursWorked
ii. populate the table and add data to columns

5. Submit Assignment files:
   a. *lastname*_mydatabase.sql
   b. *lastname*_designer
   c. *lastname*_login

where *lastname* is your last name.

DATABASE REQUIREMENTS:

Database Name: mydatabase
Tables:

- personnel
- timesheet

User Account:

- Username: *cti110*
- Password: *wtcc*

Table Structure:

personnel:

Column	Data Type	Null	Links to
empID	int (11)	No	
firstName	varchar (64)	No	
lastName	varchar (64)	No	
jobTitle	varchar (64)	No	
hourlyWage	float	No	

timesheet:

Column	Data Type	Null	Links to
empID	int (11)	No	->personnel. EmpID
hoursWorked	int (11)	No	

Table Data:
personnel records (empID, firstName, lastName, jobTitle, hourlyWage)

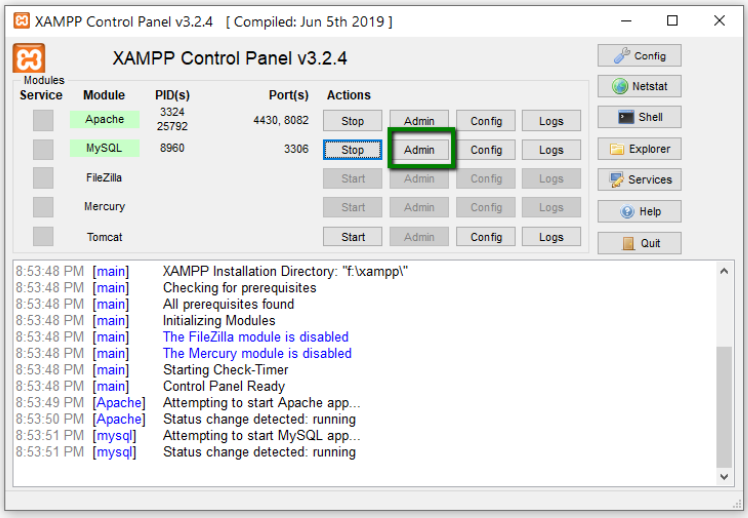
- 12345, Chris, Smith, Sales, 12.55
- 12347, Mary, Peters, Sales, 12.55
- 12348, Mike, Jones, Manager, 24.15
- 12353, Anne, Humphries, Accountant, 25.45
- 12356, Ann, Jones, Sales,13.75
- 12357, John, Jackson, Reception, 8.75
- 12358, John, King, Cleaner, 7.75
- 12360, Ken, Stewart, Accountant, 28.55
- 12361, Joan, Smith, Cleaner, 8.25
- 12363, Jesse, Andrews, Sales, 10.75

timesheet records (empID, hoursWorked)

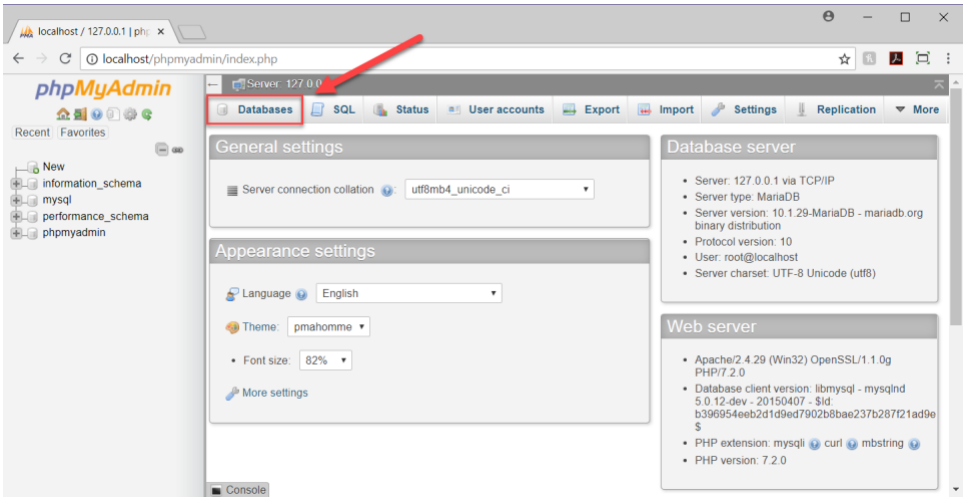
- 12345, 30
- 12347, 35
- 12348, 40
- 12353, 35
- 12356, 20
- 12357, 40
- 12358, 32
- 12360, 20
- 12361, 32
- 12363, 35

Lab Instructions for creation and setup of database

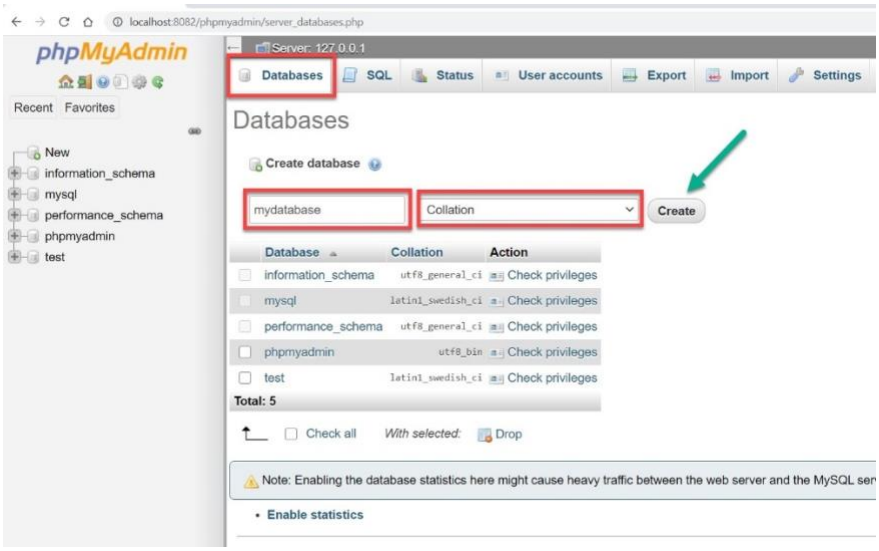
1. Select **Admin** to open Admin Console



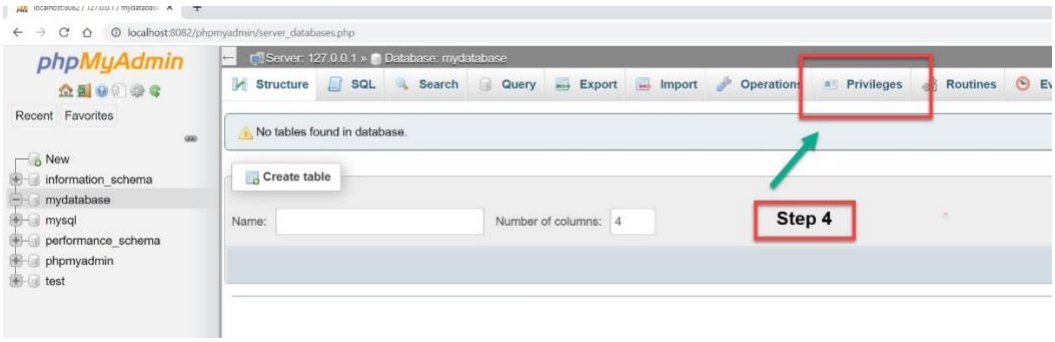
2. Once the Admin Console opens (in your browser), select the **Databases** tab.



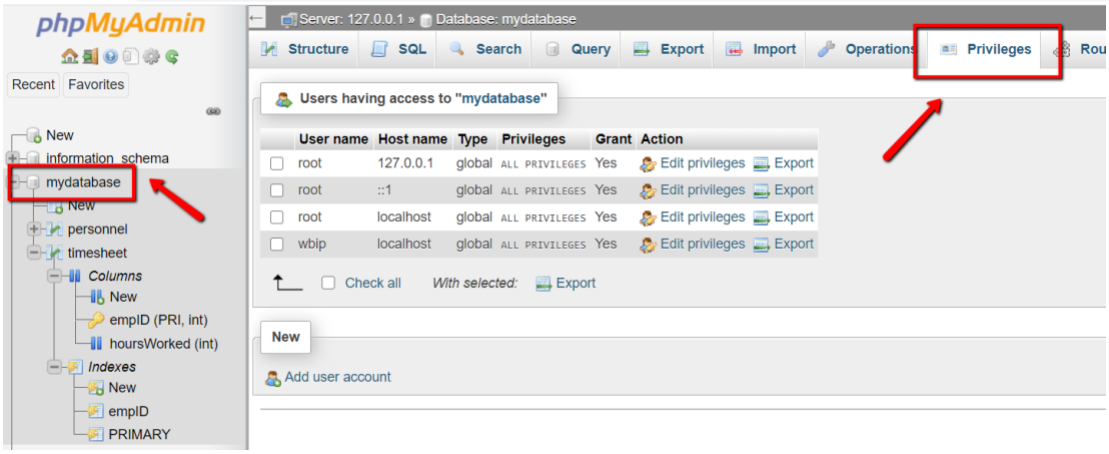
3. Create the **mydatabase** database (fill in the required values and click **Create**)



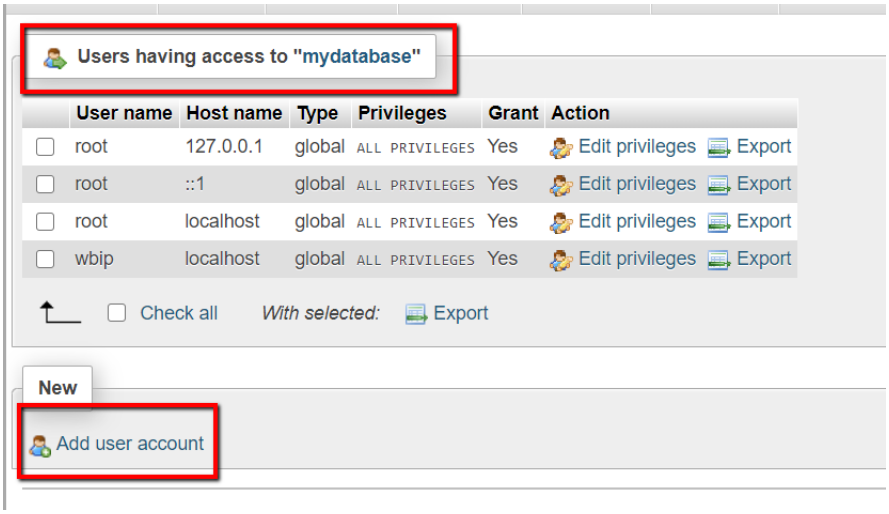
4. Create a new user for the Database **mydatabase**



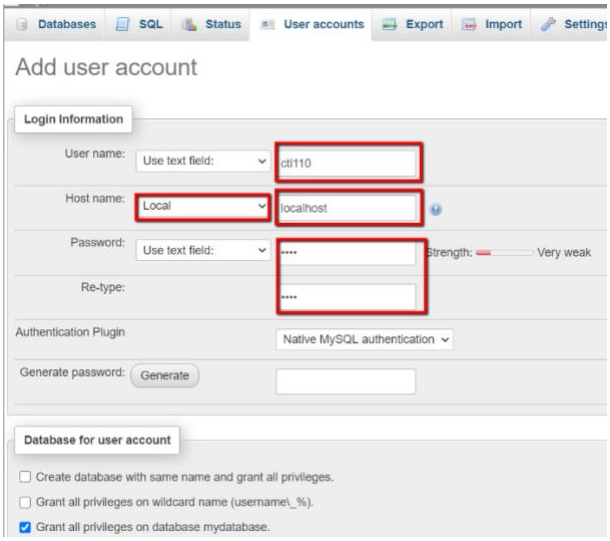
5. Make sure mydatabase is selected



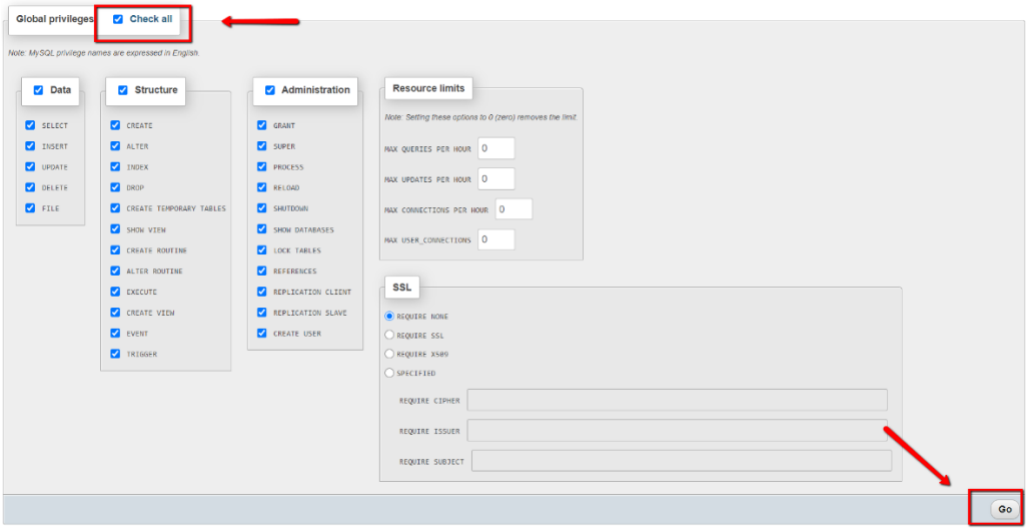
6. Select Add user account



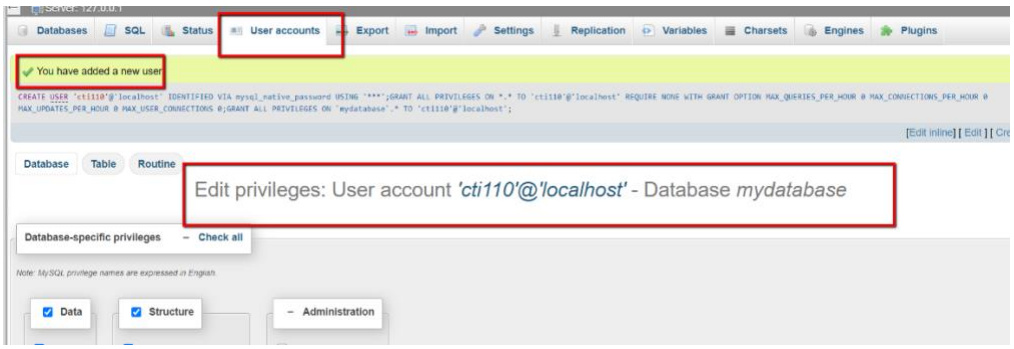
7. Fill in the required fields



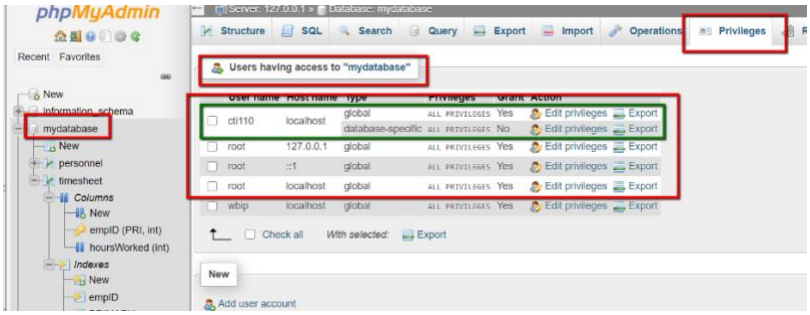
8. Scroll down the screen, set the privileges (**Check All**), then **Go**.



9. The resulting screen should include a confirmation message indicating the successful addition of your user. Select the User accounts tab to return to the User accounts overview page



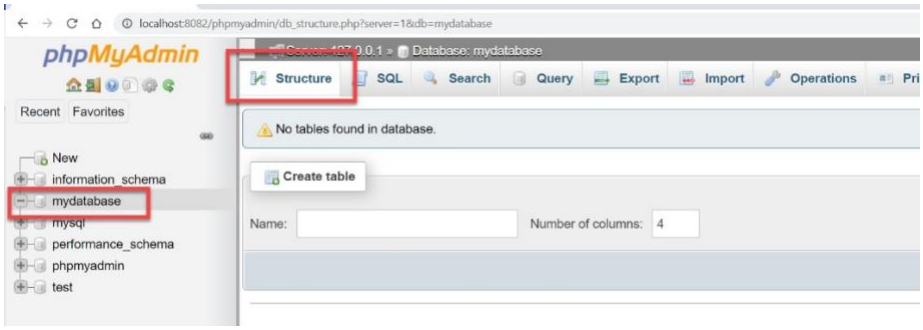
10. The new user (‘cti110’) has now been added.



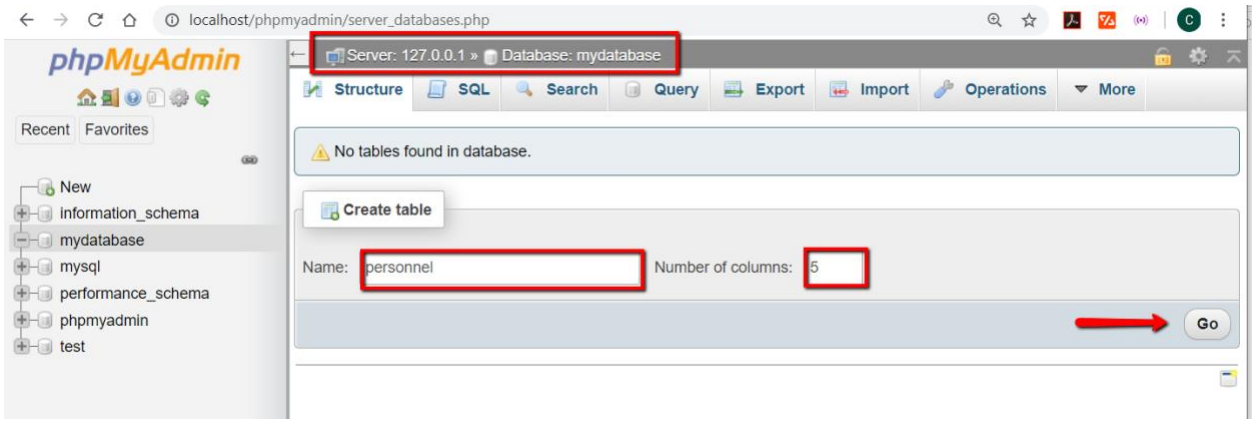
NOTE: If you were creating a user at the “command prompt” or in your code, the Data Access Language (DAL) SQL statement would be similar to this:

```
CREATE USER 'wbip'@'localhost' IDENTIFIED VIA mysql_native_password USING '***';GRANT ALL PRIVILEGES
ON *.* TO 'wbip'@'localhost' REQUIRE NONE WITH GRANT OPTION MAX_QUERIES_PER_HOUR 0
MAX_CONNECTIONS_PER_HOUR 0 MAX_UPDATES_PER_HOUR 0 MAX_USER_CONNECTIONS 0;GRANT ALL PRIVILEGES ON
`test`.* TO 'wbip'@'localhost';
```

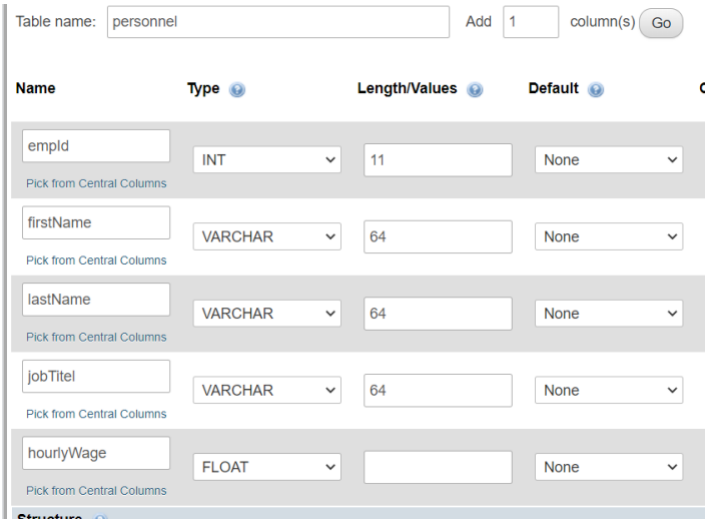
11. Select the mydatabase. You should now be in the Structure Tab.



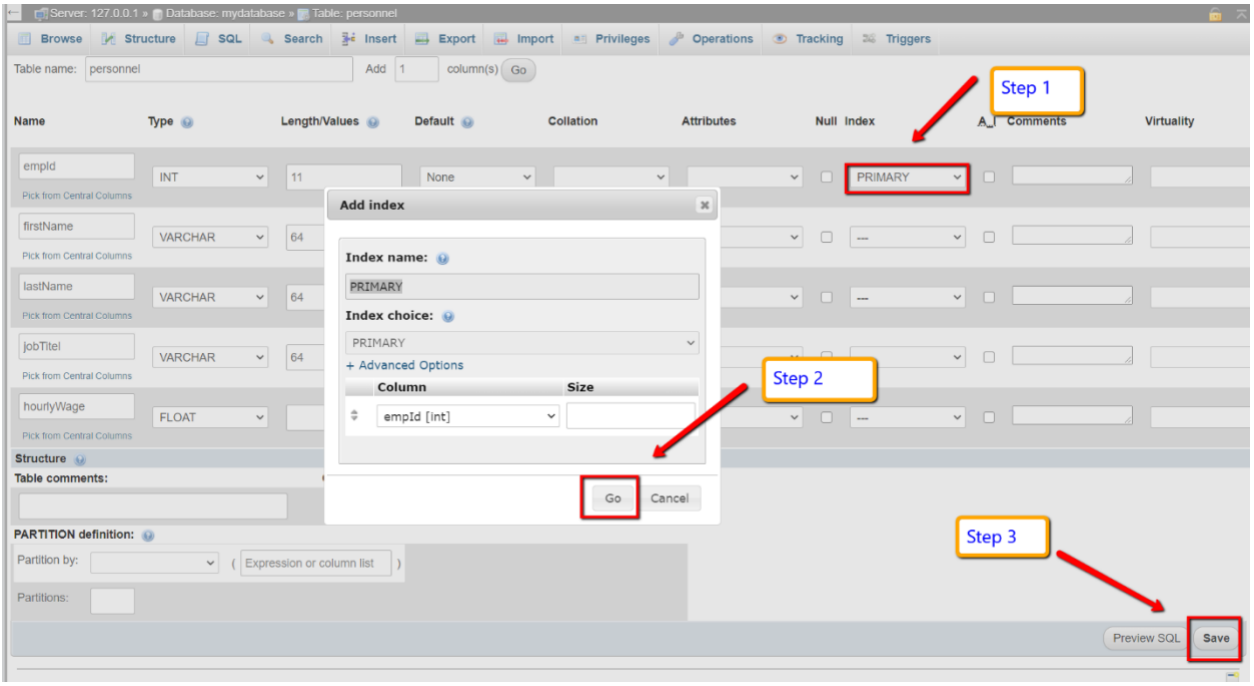
12. Create the “personnel” table. The “personnel” table contains 5 fields/columns. Enter the table **Name**, **Number of columns** and click **Go**.



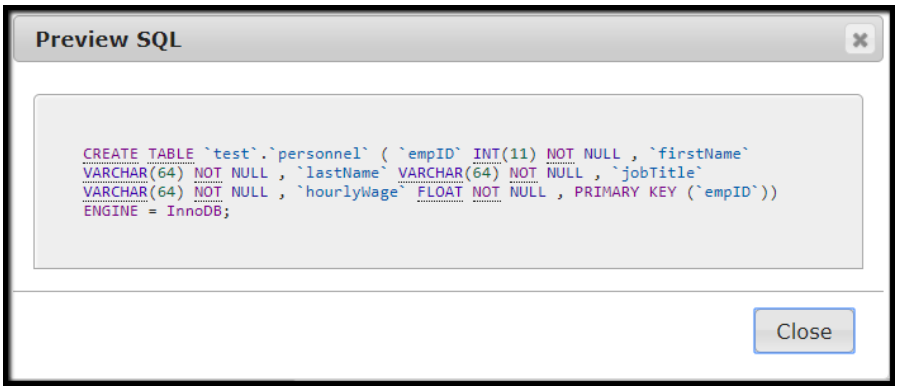
13. Define the information required for this new table using the information provided in the Table Structure section. Enter the **Name**, **Type**, and **Length/Values** for each column.



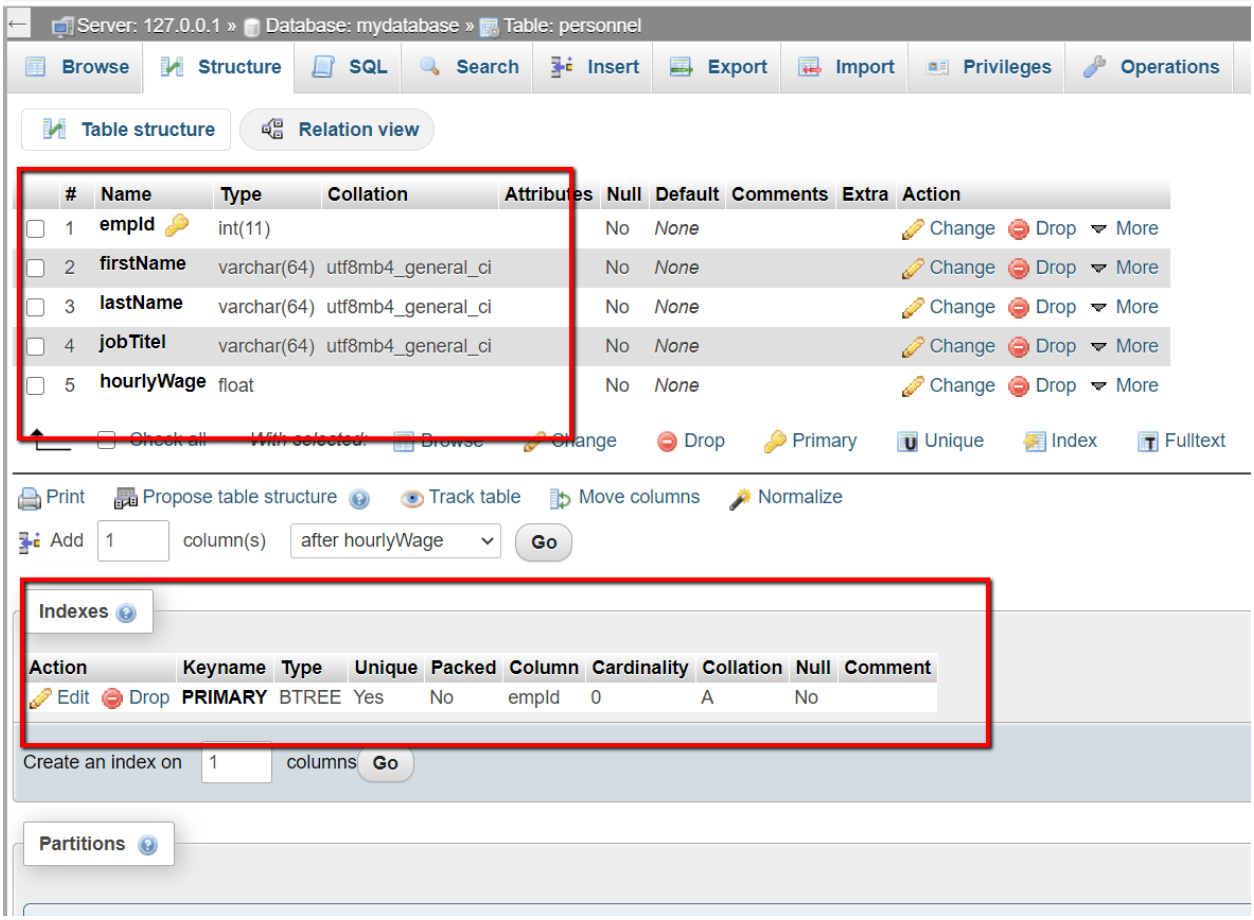
14. Before leaving this screen, click on the **Index** field associated with **empID** to define it as the table's **PRIMARY** key. A pop-up window will open. Click **Go** and **Save** to complete the process.



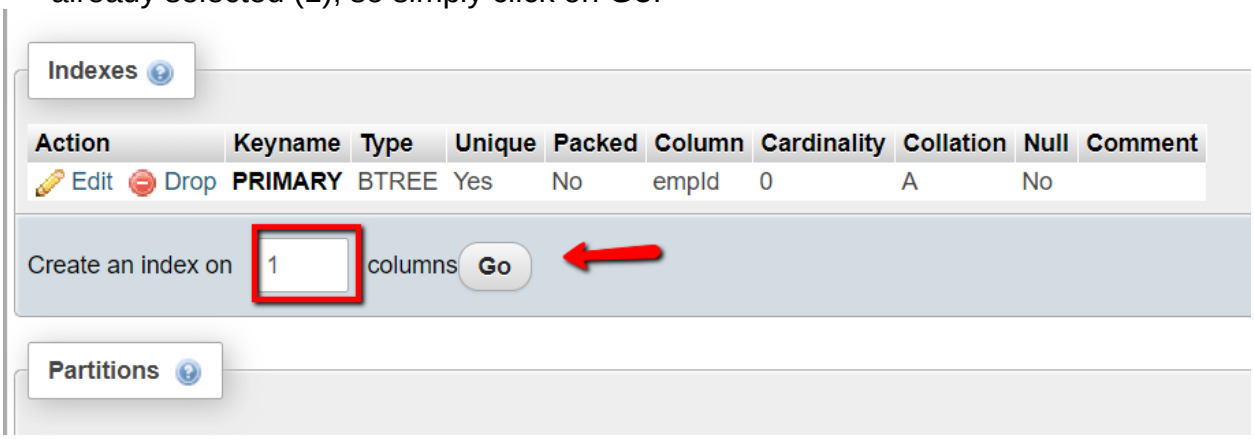
NOTE: If you were creating this table at the “command prompt” or in your code, the Data Definition Language (DDL) SQL statement would be similar to this:



15. The resulting screen shows the action was successful [Server: 127.0.0.1 >> Database: mydatabase >> Table: personnel].

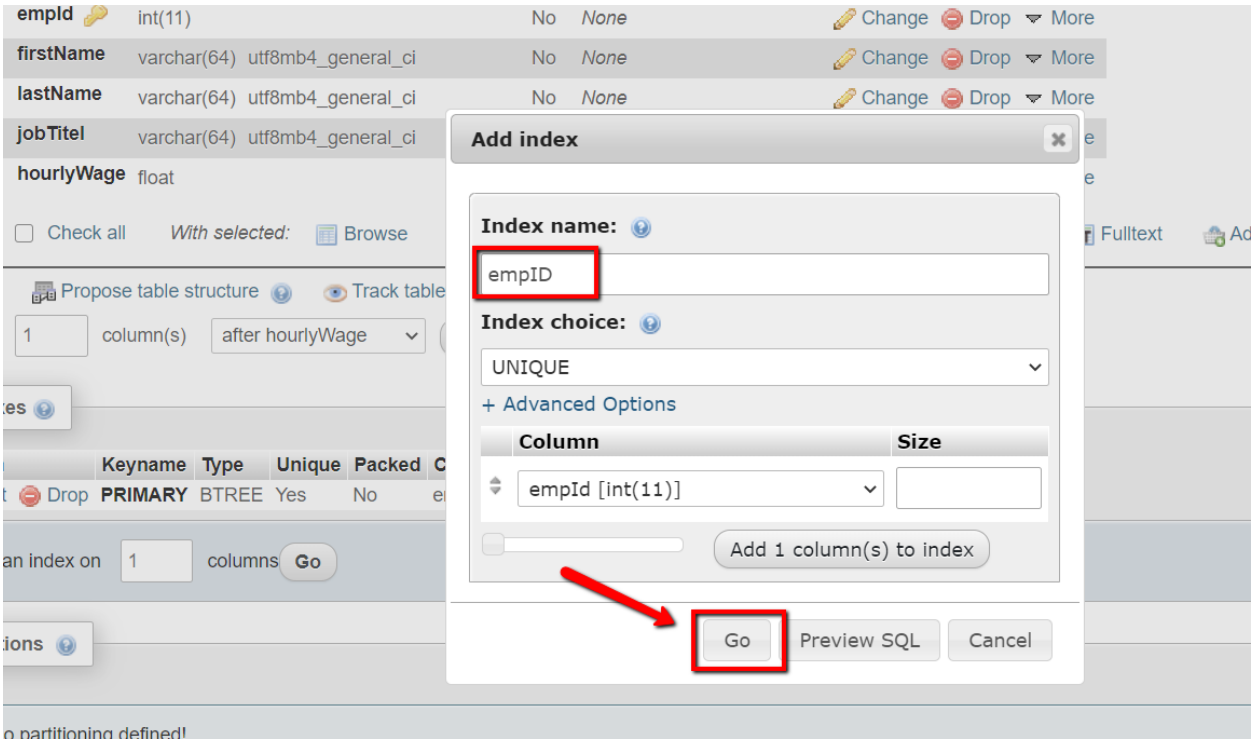


16. Make **empID** a UNIQUE Key. In the Indexes section, the correct column number is already selected (1), so simply click on **Go**.

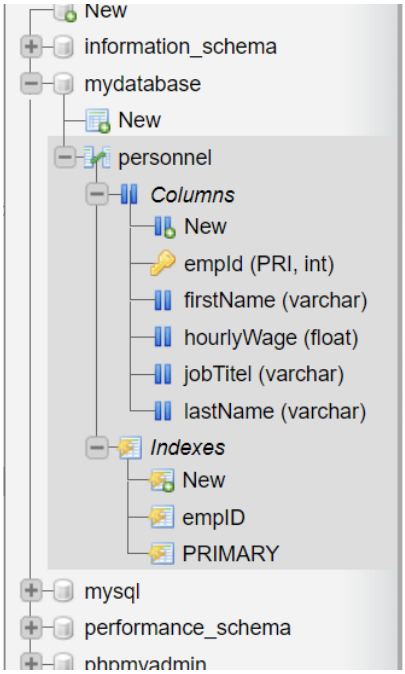


NOTE: If you were modifying this table at the “command prompt” or in your code the Data Definition Language (DDL) SQL statement would be similar to this:

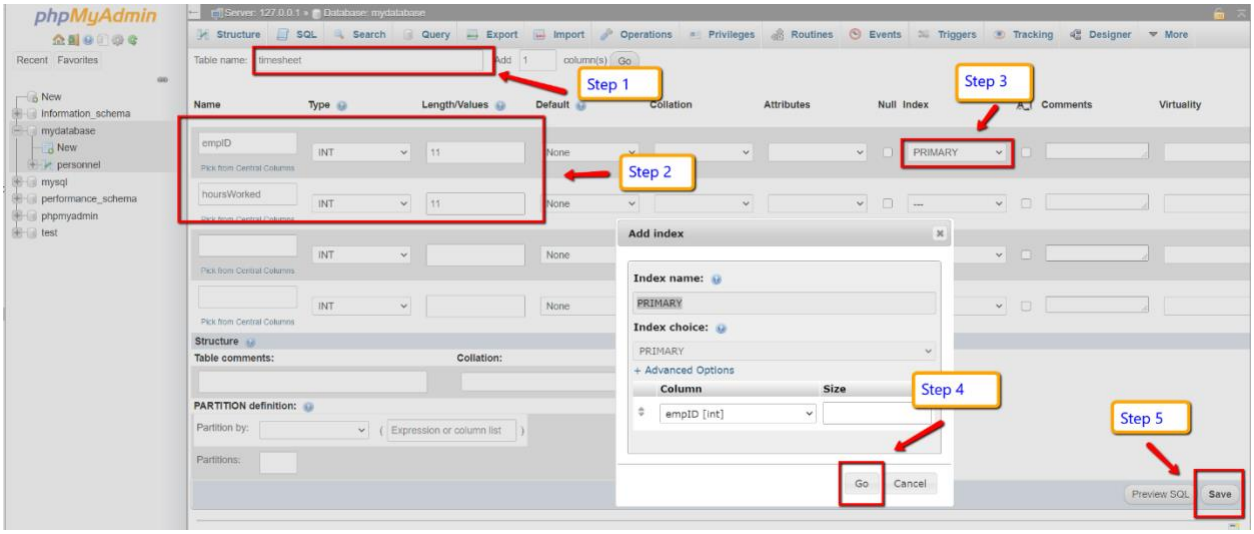
17. Enter the index name (**empID**) info and click **Go**.

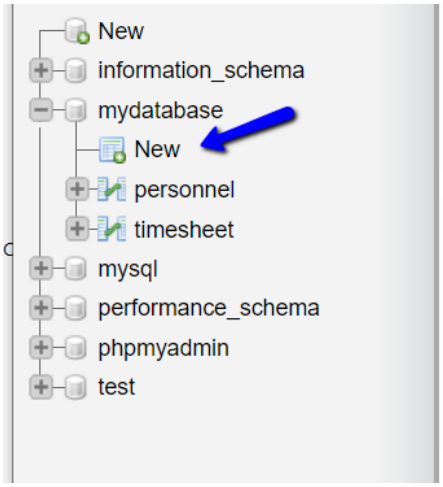


18. Review the details for the **mydatabase** database, and specifically the **personnel** table, in the left-hand navigation pane. Expand all the "+" signs to see the underlying details.

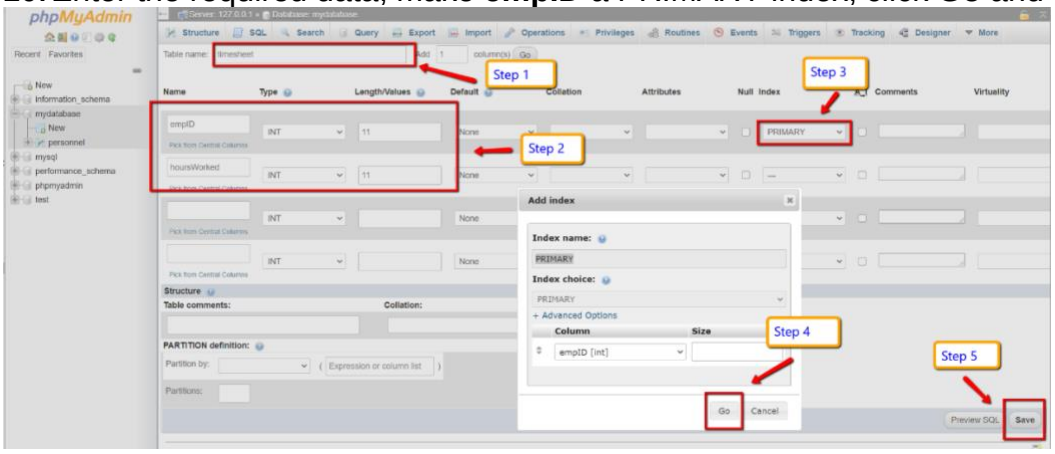


19. Now, create the **timesheet** table by repeating the same steps used to create the **personnel** table. Reference the correct Table Structure information for the column and index details.



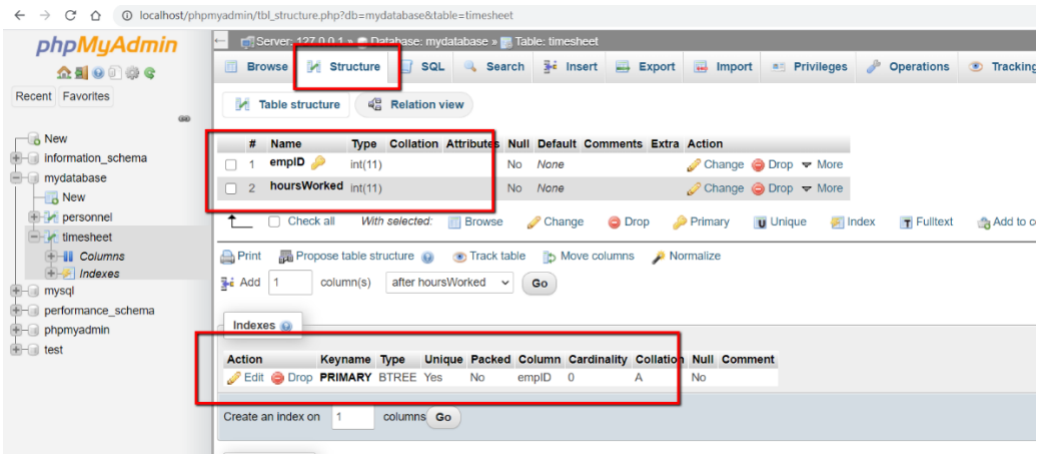


20. Enter the required data, make **empID** a PRIMARY index, click **Go** and **Save**.

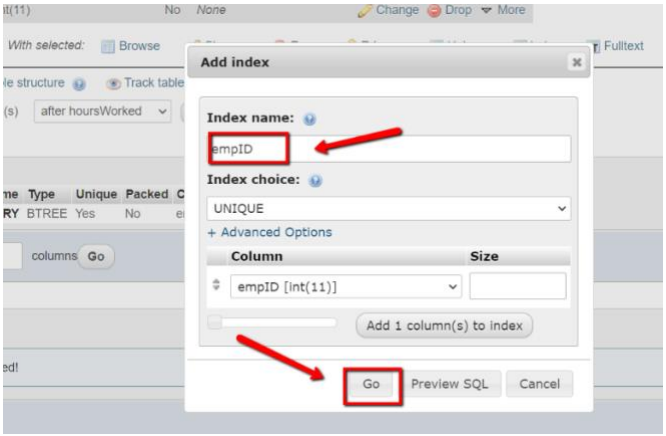


NOTE: If you were creating this table at the “command prompt” or in your code the Data Definition Language (DDL) SQL statement would be like this:

21. The resulting screen shows the action was successful [Server: 127.0.0.1 >> Database: mydatabase >> Table: timesheet].



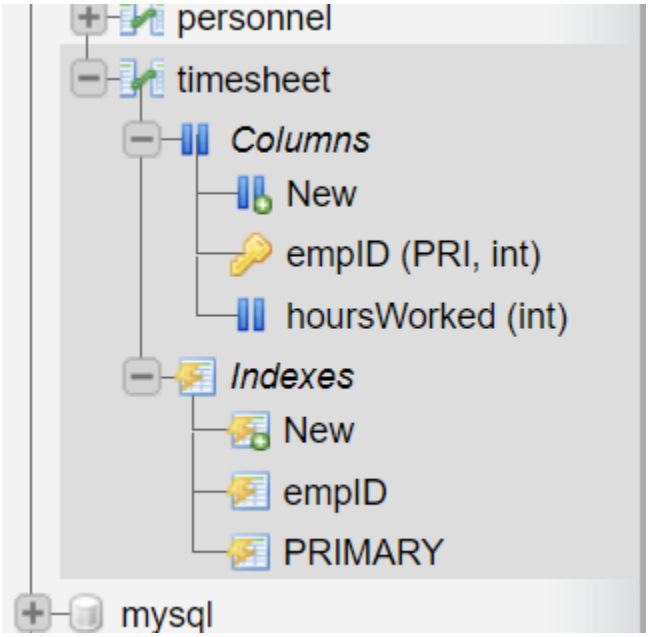
22. Make **empID** a UNIQUE Key. In the Indexes section, the correct column number is already selected (1), so simply click on **Go**.



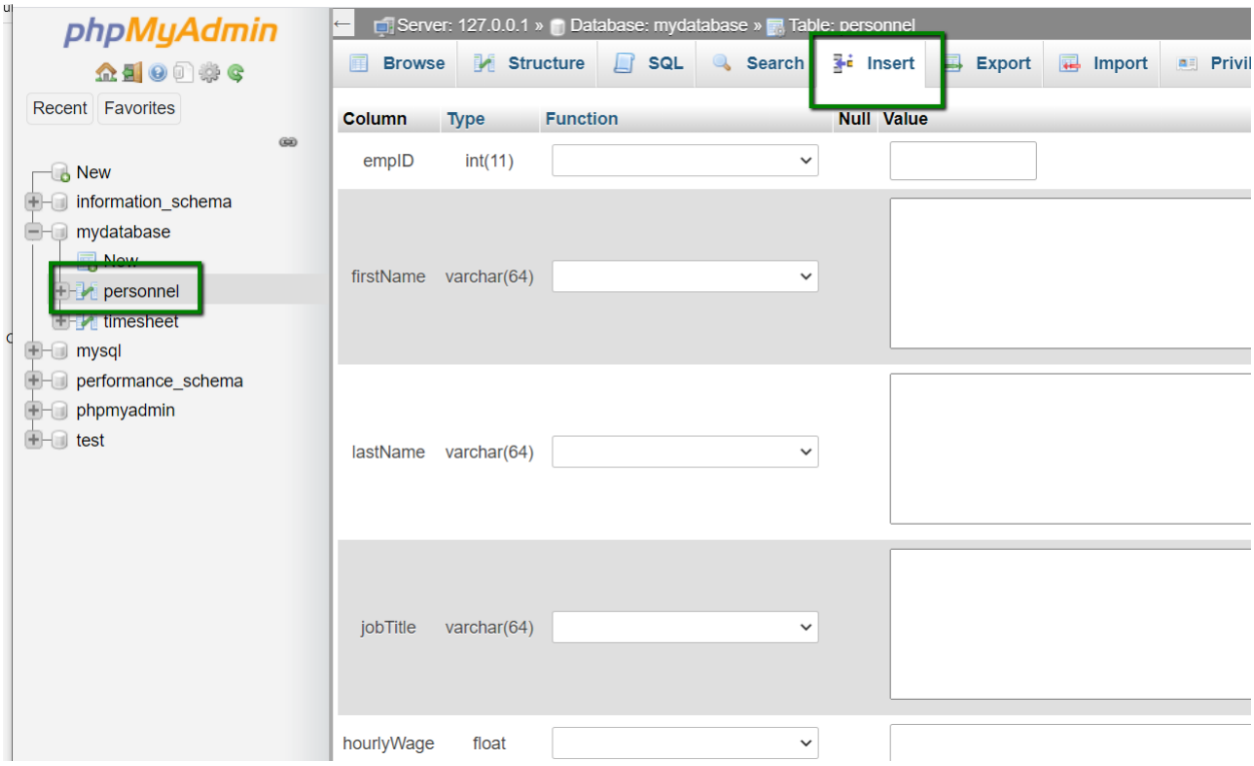
23. Enter the index name (**empID**) info and click **Go**.

NOTE: If you were modifying this table at the “command prompt” or in your code the Data Definition Language (DDL) SQL statement would be similar to this:

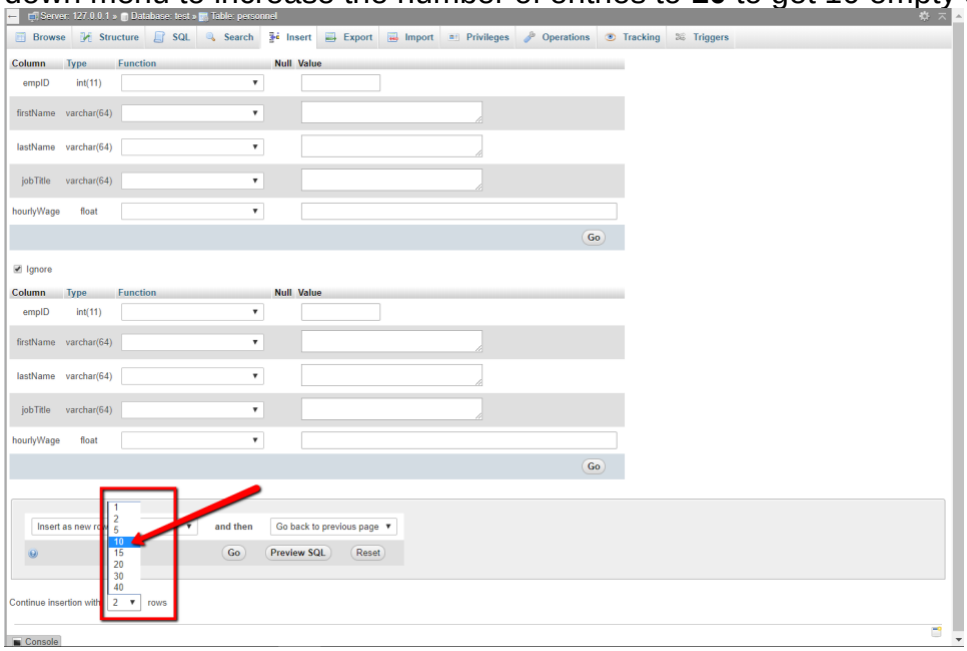
24. Review the details for the **mydatabase** database, and specifically the **timesheet** table, in the left-hand navigation pane. Expand all the “+” signs to see the underlying details.



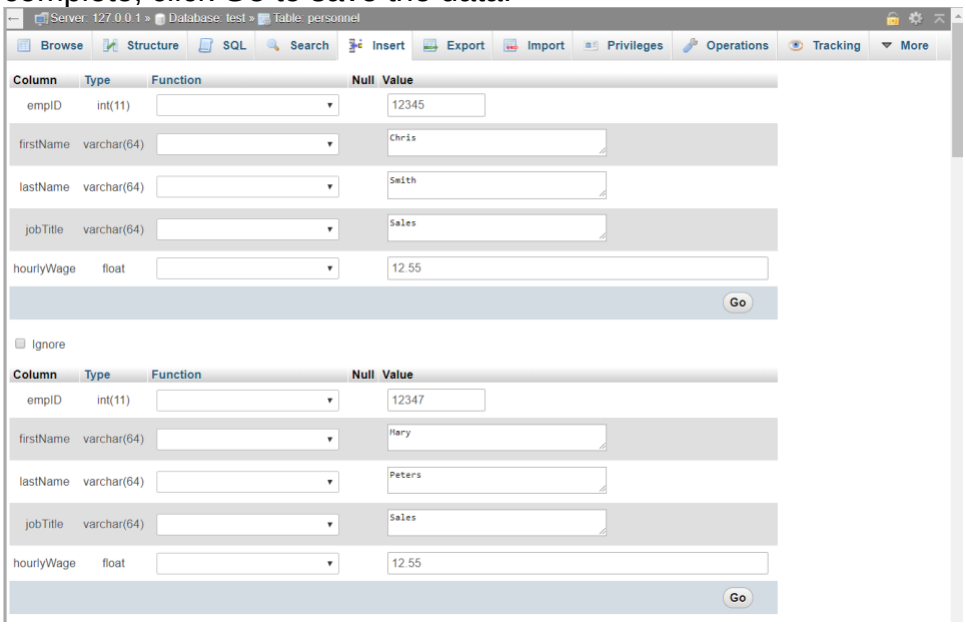
25. Now it's time to add the data. Starting with the **personnel** table …



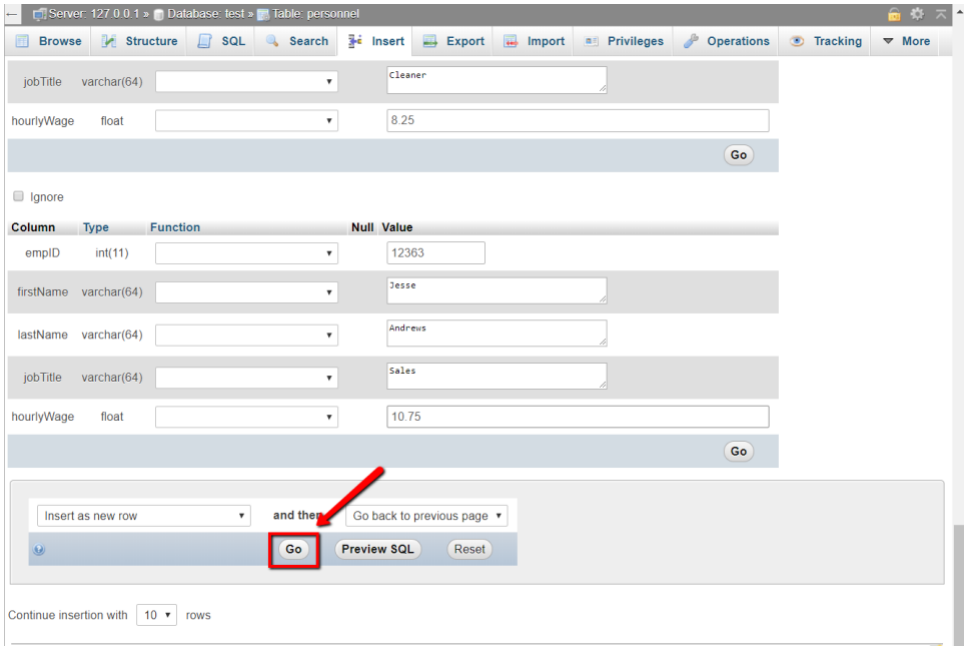
26. When the data entry page opens, use the **Continue insertion with # rows** drop-down menu to increase the number of entries to **10** to get 10 empty slots for data.



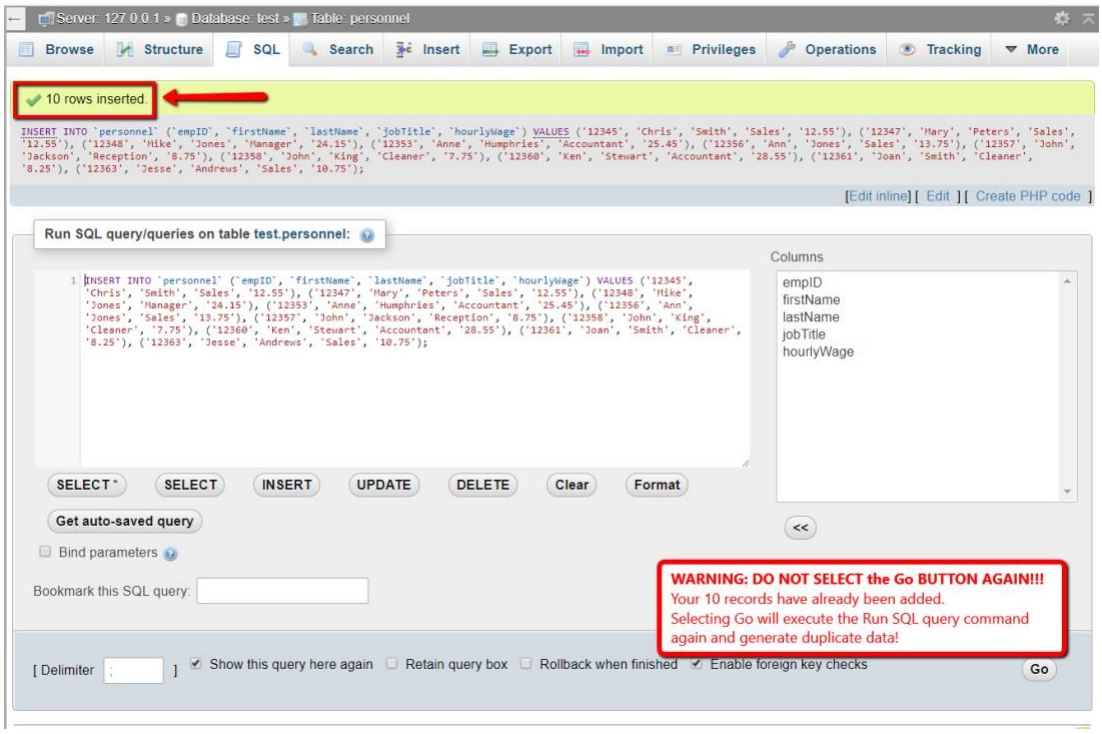
27. Enter the personnel data provided in the Table Data section. When all 10 entries are complete, click **Go** to save the data.



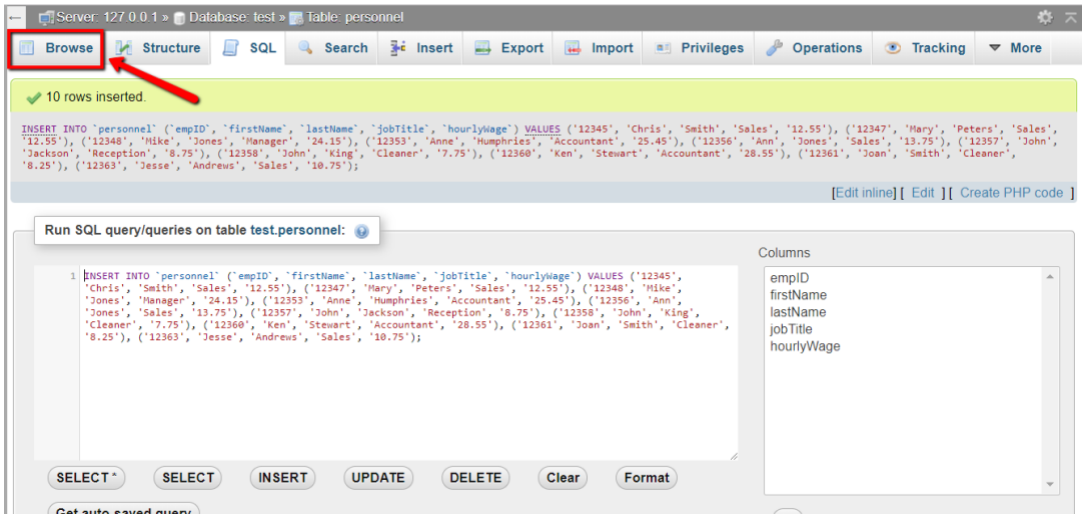
… more data entries …

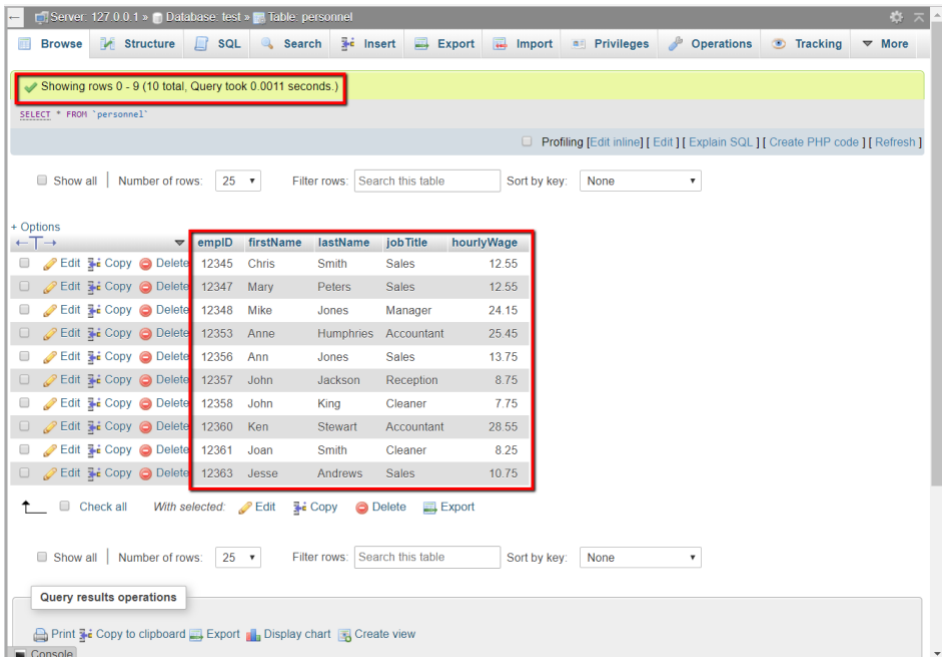


28. The resulting screen should include a confirmation message indicating the successful addition of 10 rows of data. DO NOT PRESS **GO** HERE!

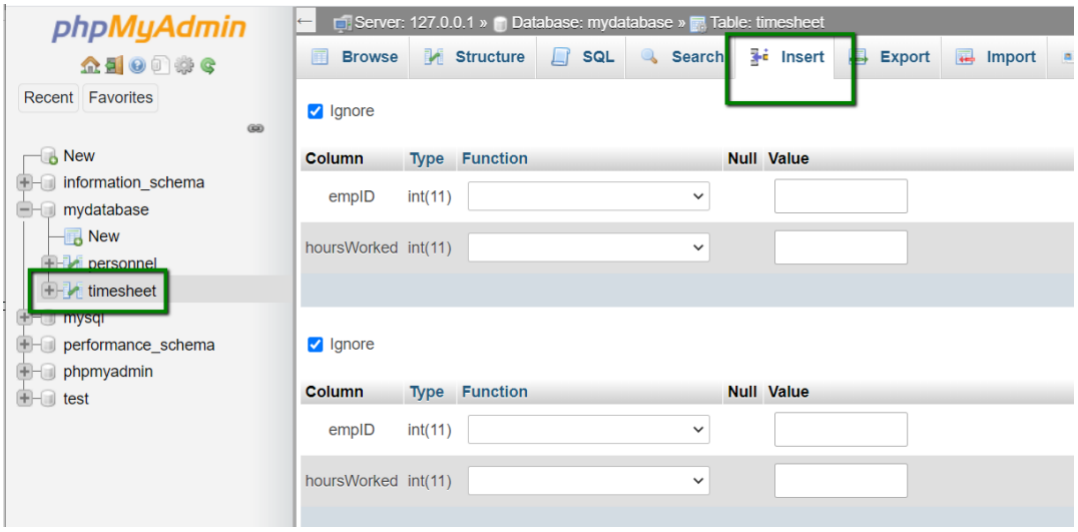


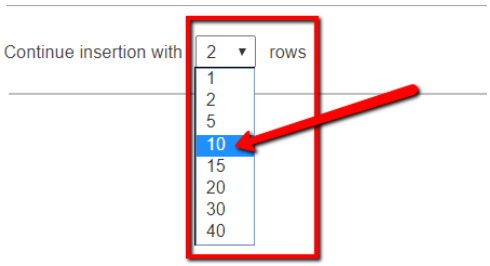
29. Select the Browse tab to see/review the **personnel** data you entered.



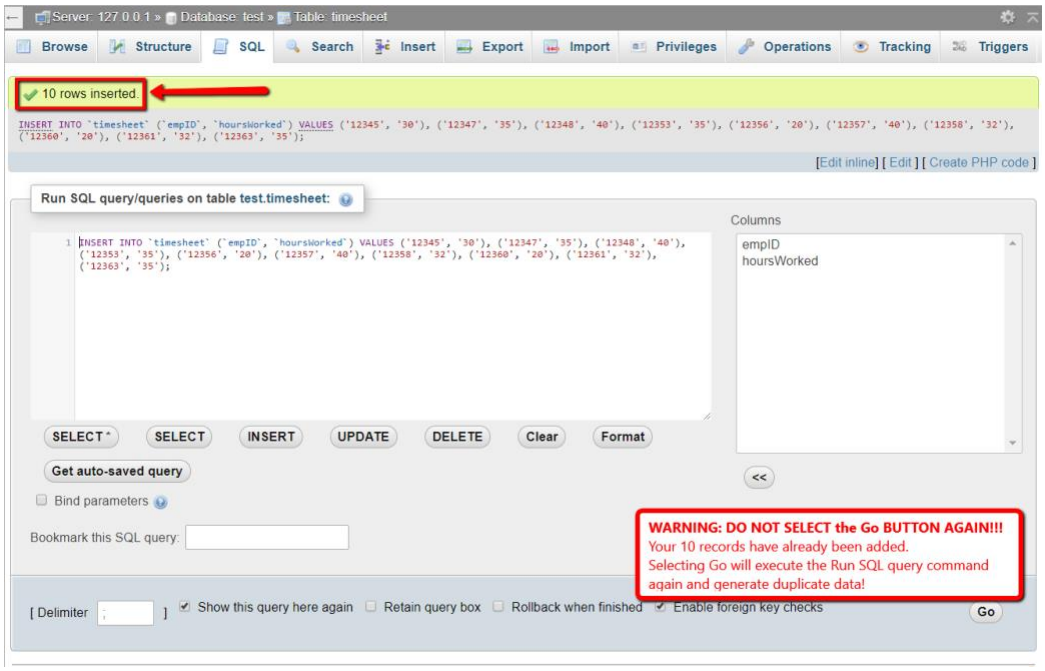


30. Now, add the timesheet data following the same procedure used for personnel. Start by selecting **timesheet** and allow for 10 rows of data.

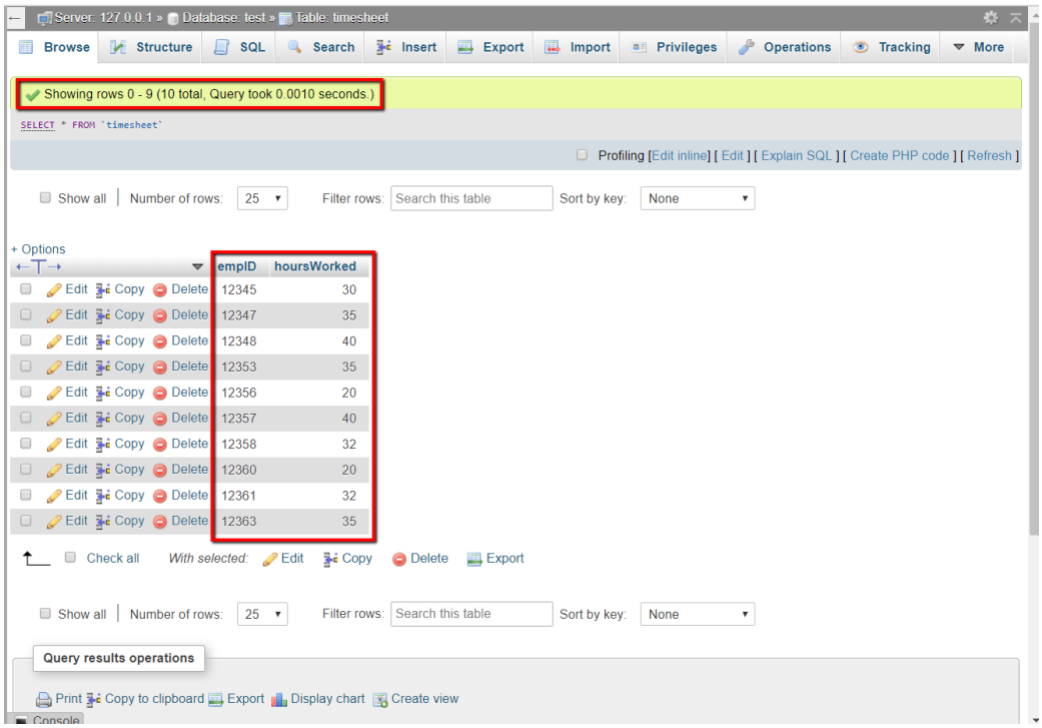




31. The resulting screen should include a confirmation message indicating the successful addition of 10 rows of data. REMEMBER: DO NOT PRESS **GO** HERE!



32. Select the Browse tab to see/review the **timesheet** data you entered. The data information should look like this:

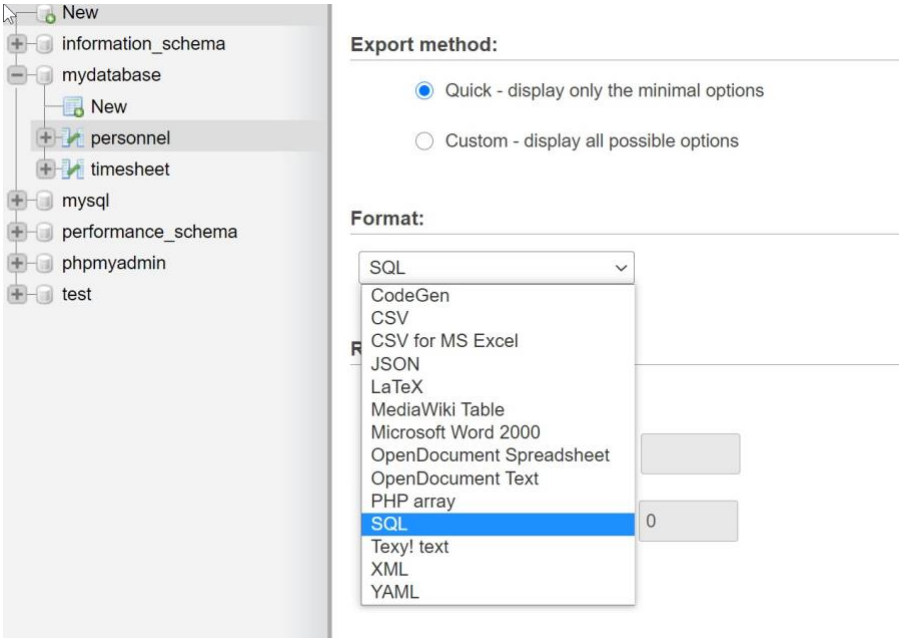


You have now successfully created the database **mydatabase**. This database will be used in future labs, so it is important to create the database, tables and indexes correctly!

SUBMISSIONS REQUIRED:

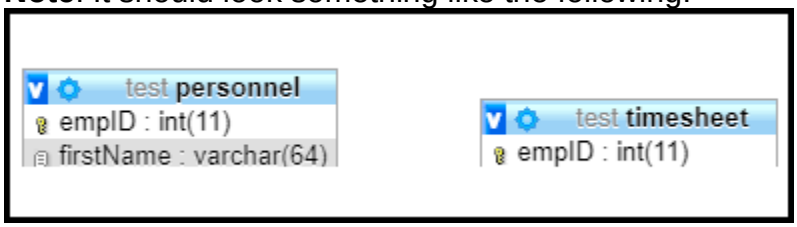
Creating files for submission:

1. *lastname*_12_mydatabase.respective extension (docx or sql)
   a. Select the **mydatabase** database in the left navigation area.
   b. Select the **Export** tab.
   c. Change the **Format** to SQL (can be used as backup later) or Word and select **Go**.



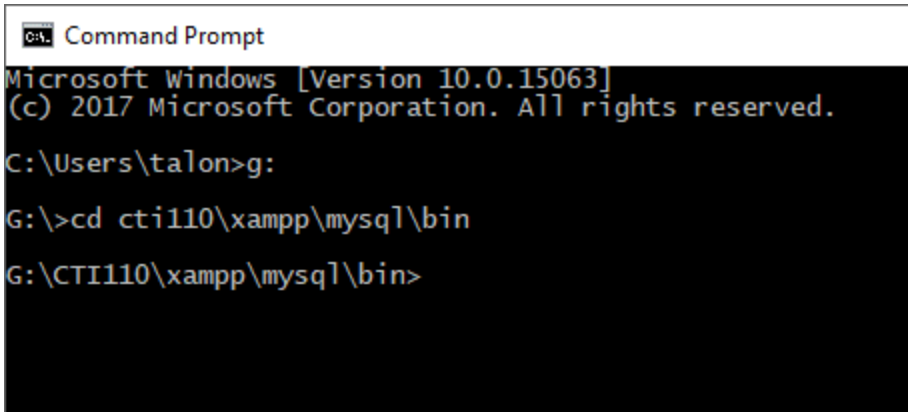
   d. Upload the file in Blackboard.

2. *lastname*_12_designer.pdf
   a. Select the **mydatabase** database in the left navigation area.
   b. Select the **Designer** tab.
   c. Take a snapshot and paste it into a Word document.
   Note: It should look something like the following:



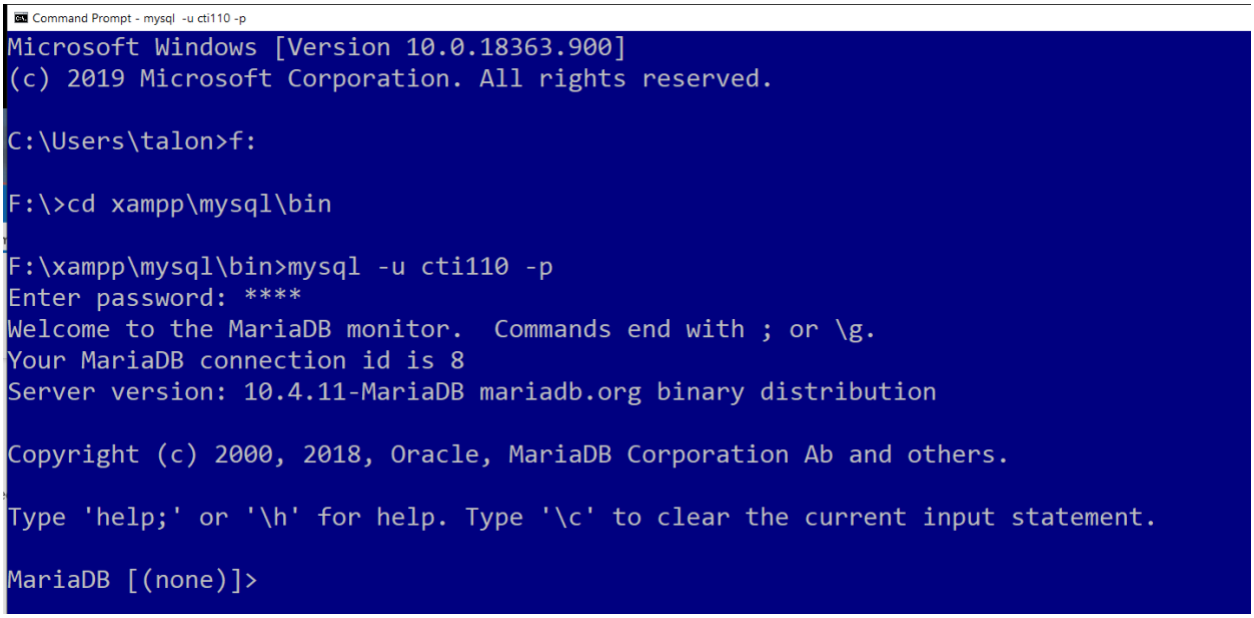
   d. Save the file as *lastname_11_designer.pdf*
   e. Upload the file in Blackboard.

3. *lastname*_login.docx
   a. Launch your command line interface.
   You may press the Windows logo key plus the 'r' key (i.e. hold down Windows logo key + 'r' key) and type 'cmd'.
   b. Your Windows command link window pops up.
   c. Assume your thumb drive is on g: drive, and XAMPP has been installed in folder CTI110.
      a. Change your drive from C: to g: drive
      b. Change directory by typing **cd cti110\xampp\mysql\bin** as shown in the following:



   You can now access MySQL by typing: **mysql –u cti110 –p**
   When prompted for a password, enter the password mentioned above (**wtcc**).

   d. Take a snapshot and paste it into a Word document.
   Note: It should look something like the following:



e. Save the file as *lastname*_login.docx
f. Upload the file in Blackboard

GRADING RUBRIC FOR ASSIGNMENT

Database (mydatabase), Table (personnel), Table (timesheet) setup correctly
Data for personnel and timesheet is setup correctly
Data Type for all Fields set up correctly
Primary and Unique keys set up correctly
User Account set up correctly