

Lab-4a: connect-db. Probably after watching the demo-app online, to help clarify the db connection issues

See the end of these instructions for some of the most common errors you may encounter with "sql module not found".

Connecting to a MySQL database.

VIDEO: lab-connect-db

Be sure that you have installed

```
mysql-connector-python      (if you didn't install this, you may be okay)
mysql-connector
msqlclient
Flask-MySQLdb
Flask-SQLAlchemy
```

These were probably installed while you were watching the FlaskDemoIntro ppt slides.

The slides and the Setup lab detail some issues that may arise, and how you might address them.

You can always check by typing `pip list` in your Anaconda environment.

In order to complete this lab, you need to have a "user" table in your company database on localhost.

If you completed DemoApps (text) app #4, then you probably have one.

**If you do not have a User table in your company database, then please create one with the following structure:
(Or, if you simply want to start "clean", you can "drop" your existing user table, and then create this one:)**

Below is the original SQL that may or may not work for you.

```
CREATE TABLE user (id INT NOT NULL AUTO_INCREMENT, username
VARCHAR(20) NOT NULL , email VARCHAR(120) NOT NULL , image_file
VARCHAR(20) NOT NULL DEFAULT "default.jpg" , password varchar(60),
PRIMARY KEY (id));
```

**Note the auto_increment key!!
Populate with a few records**

In PHPMyAdmin, Click on the company database (not on one specific table). In the SQL window, insert the above SQL.

If your user table already exists, you should "drop" the user table first.

If the database won't let you drop your user table because it has foreign key references, the first rename your existing user table to something else, then create this new user table.

Alternatively, you can drop the posts that reference existing users.

MariaDB may not like this. The word "user" in MariaDB is a special word. So it is conflicting with the word Table.

This doesn't mean that you can't have a table named user, and since the application that we are working with has a table named user, we want that table.

You may also not have success putting the word "user" inside of quotation marks. It then doesn't like AUTO_INCREMENT. So here is what I did, and I tried it a few times with different databases, and it worked for me:

```
CREATE TABLE user1 (id INT NOT NULL AUTO_INCREMENT, username
VARCHAR(20) NOT NULL , email VARCHAR(120) NOT NULL , image_file
VARCHAR(20) NOT NULL DEFAULT "default.jpg" , password varchar(60),
PRIMARY KEY (id));
```

**Note the auto_increment key!!
Populate with a few records**

This successfully creates a table named user1.

I then renamed the table from user1 to user. After user1 table exists, in the SQL window for the Company database, **ALTER TABLE user1 RENAME TO user.**

This worked for me.

Important for Mac/MAMP users: (and optional "can't hurt" Windows users:)

In your connections parameters, you will (most likely) be using a host of '127.0.0.1' instead of 'localhost'

This is due to the way that the Mac handles socket mapping with respect to localhost vs. 127.0.0.1

Therefore, you have to make sure that your username has privileges on your database for 127.0.0.1

Recall that during Orientation, you were instructed to setup a user in PHPMyAdmin with full privileges.

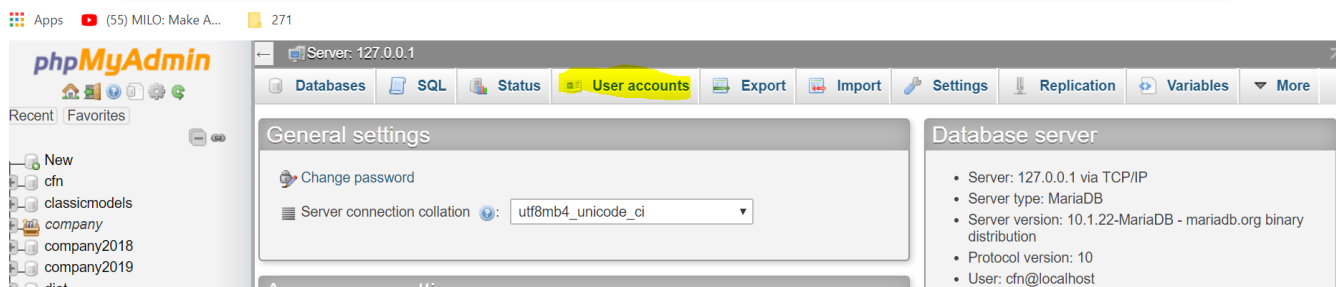
You set that up for localhost. Notice that I have set up cfn with access via localhost.

But notice that root also has access through 127.0.0.1 (and on the Mac, I don't think that's automatic).

	User name	Host name	Password	Global privileges	User group	Grant	Action
<input type="checkbox"/>	Any	%	No	USAGE		No	Edit privileges Export
<input type="checkbox"/>	Any	localhost	No	USAGE		No	Edit privileges Export
<input type="checkbox"/>	cfn	%	Yes	ALL PRIVILEGES		Yes	Edit privileges Export
<input type="checkbox"/>	cfn	localhost	Yes	ALL PRIVILEGES		Yes	Edit privileges Export
<input type="checkbox"/>	pma	localhost	No	USAGE		No	Edit privileges Export
<input type="checkbox"/>	root	127.0.0.1	No	ALL PRIVILEGES		Yes	Edit privileges Export
<input type="checkbox"/>	root	:::1	No	ALL PRIVILEGES		Yes	Edit privileges Export
<input type="checkbox"/>	root	localhost	Yes	ALL PRIVILEGES		Yes	Edit privileges Export

You want to set up your user (in my case cfn) to have all privileges access via 127.0.0.1 also.

To do this, make sure that you have clicked on User Accounts:



Then, click on Edit privileges for the user you want to modify (in my case cfn)

	User name	Host name	Password	Global privileges	User group	Grant	Action
<input type="checkbox"/>	Any	%	No	USAGE		No	Edit privileges Export
<input type="checkbox"/>	Any	localhost	No	USAGE		No	Edit privileges Export
<input type="checkbox"/>	cfn	%	Yes	ALL PRIVILEGES		Yes	Edit privileges Export
<input checked="" type="checkbox"/>	cfn	localhost	Yes	ALL PRIVILEGES		Yes	Edit privileges Export

<input type="checkbox"/>	pma	localhost	No	USAGE	No	Edit privileges	Export
<input type="checkbox"/>	root	127.0.0.1	No	ALL PRIVILEGES	Yes	Edit privileges	Export
<input type="checkbox"/>	root	::1	No	ALL PRIVILEGES	Yes	Edit privileges	Export
<input type="checkbox"/>	root	localhost	Yes	ALL PRIVILEGES	Yes	Edit privileges	Export

Check all
 With selected:
 Export

Click on Login Information

Server: 127.0.0.1

Databases
 SQL
 Status
 User accounts
 Export
 Import

Global
 Database
 Change password
 Login Information

Edit privileges: User account 'cfn'@'localhost'

Note: You are attempting to edit privileges of the user with which you are currently logged in.

Global privileges ☒ Check all

Change localhost to 127.0.0.1. But notice that you are actually adding a new user so you are not losing the ability of your user to access through localhost too!

Login Information

User name: Use text field: ▼

Host name: Local ▼

Password: Do not change the pa: ▼ Strength:

Re-type:

Authentication Plugin Native MySQL authentication ▼

Generate password: Generate

Create a new user account with the same privileges and ...

☒ ... keep the old one.

☐ ... delete the old one from the user tables.

☐ ... revoke all active privileges from the old one and delete it afterwards.

... delete the old one from the user tables and reload the privileges afterwards.

Be sure to click "Go" at the bottom of the page. (not shown here, but it's there)

Assignment: Before coming to class, run through these 7 short examples (files included), and submit a screen shot of each one of the examples, showing your own access to your own database or, in the case of a remote DB, simply show a screenshot that you have run the example.

Connect to a local db (on localhost, e.g., through XAMPP or other localhost installation)

No flask, no web connection, just showing the connection:

01 `python-mysql-connect.py` (edit, don't open) **substitute your username and pwd**
Make sure your localhost (e.g. XAMPP/MAMP) is running **screenshot connection to db at 14:30 in video**
Mac/ MAMP: In the mysql.connector.connect, where it specifies the parameters, add port='8889'

Connect to a remote db (e.g., on cnaiman.com)

No flask, no web interface, just showing the connection:

02 `python-mysql-connect-remote.py`

Connect to remote db, select and print our results

No flask, no web GUI, no python graphics, just connect, query and display results

03 `python-mysql-connect-remote-select.py` **screenshot (discussion starting at 18:23)**
you will have to make changes for the screen shot

Connect to a remote db, select and print results, using flask and mysql.connector

using correct folder structure, env.bat, run.bat; not using special flask-mysqldb

`test-flask-db-remote` (folder) **screenshot (discussion 31:23 - 32:25)**
04 `test-folder-DB.py` (file) **change SQL query, output row and single field**
run from within Anaconda (if using), flask run, or, if you have a run.bat file setup, just "run".

Connect to a local db, select and print results, using flask and mysql.connector

using correct folder structure, env.bat, run.bat; not using special flask-mysqldb

`test-flask-db-local` (folder)
05 `test-folder-DB.py` (file)
run from within Anaconda (if using), flask run, or, if you have a run.bat file setup, just "run".
You must also have up and running XAMPP, or whatever localhost you are using.

you may have to pip install PyYAML and pip install ruamel-yaml

But do a pip list first--they may already be there!

change your connection string to your credentials
(no screenshot needed)

pip install flask-mysqldb

You may not have Users and Posts in your company database. Those tables were not there originally.

My database does have Users and Posts, because I added them during the lectures.

So you may want to add those tables (with Autonumber IDs) if you want to follow along. (see above)

06 **Simple-CRUD-Flask**

add DictCursor to app.config

change template to extract dictionary entries

submit screenshots of that

update the yaml file!

use the template users-dict.html

be sure to uncomment app.config (line 13)

07 Simple-CRUD-Flask-Department

(Note that these are using regular SQL INSERT clauses. Normally, we'd want to use SQLAlchemy for this.)

We want to use regular SQL queries for the SELECT queries. **update the yaml file!**

<https://stackoverflow.com/questions/48730683/connect-python-to-flask-mysqldb>

When you run some of these programs, you may get an error similar to "mysql module not found"

The most common reasons are:

- In your Anaconda prompt (terminal window) type `pip list`, and make sure all of your packages are installed.
- Always run from inside Anaconda, from within the same environment in which you installed the packages.
In the videos, I am seen running directly from IDLE. But you most likely didn't configure things that way.
You can run using Spyder for the non-Flask program. Spyder is part of your Anaconda environment.
In some versions of Spyder (recent upgrades), it doesn't run Flask programs properly.
So you may have to navigate within your Anaconda prompt (terminal window) as shown in the videos.
- If you are running against localhost, the example programs may say "cfn:naiman"
You have to update that to the username and password for your own localhost.
- Even on Windows, you may have to type "`python programname .py`"
You really shouldn't have to, but if Python was upgraded recently,
it's possible that you can't just type `programname .py`