

DASC 5333 Database Systems for Data Science
CSCI 4333 Design of Database Systems
Spring 2025
Homework #6

Web Database Development with MySQL, PyMySQL and Python

You should have already installed XAMPP so you can have Apache on your computer for development. Follow the steps in the class lecture notes to ensure that Apache supports Python CGI. XAMPP configuration in Mac is more error-prone. If you use Mac, be sure that you start early.

You are strongly encouraged to use Python 3.10 or below for development in your local computer.

Use the Swim DB: <https://dcm.uhcl.edu/yue/courses/joinDB/Spring2025/notes/swim/Swim.html>.

Your program file name should be `h6.py`. Submit your homework, `h6.py.txt`, through Canvas. The extension `.txt` in your submission to Canvas is added to your work, `h6.py`. Port and upload `h6.py` to the DCM server for the TA to grade. Your URL should be `http://dcm.uhcl.edu/<<your_web_account>>/h6.py`. You should put your URL in a comment in `h6.py` immediately following the she-bang line if there is a she-bang line. If there is not a she-bang line, it should be the first line. For example:

```
# Program url: http://dcm.uhcl.edu/<<your_web_account>>/h6.py
```

Specification

Write a Python CGI application, `h6.py`. It may accept one HTTP parameter, *eid*, which is an event id: `eventId`. The Web application initially displays information about all events in the database categorized by event titles in the following format. Study the following format, especially the highlight parts, to ensure that your application will reproduce it.

```
http://.../h6.py
```

the Web application displays all meets and their events in the following manner:

The screenshot shows a web browser at the URL `localhost/python/joindb/s2025/h6.py`. The page content is as follows:

Kinds of events in meets.

Event (100M Breaststroke) in # of meets: 1.

1. ['Shell Trial' at CLHS.](#)

Event (100M Butterfly) in # of meets: 2.

1. ['Shell Trial' at CLHS.](#)
2. ['UHCL Open' at UHCL.](#)

Event (100M Freestyle) in # of meets: 2.

1. ['Shell Trial' at CLHS.](#)
2. ['UHCL Open' at UHCL.](#)

Event (200M Backstroke) in # of meets: 1.

1. ['Clear Lake Contest' at CLHS.](#)

Event (200M Freestyle) in # of meets: 2.

1. ['UHCL Open' at UHCL.](#)
2. ['Shell Trial' at CLHS.](#)

Event (50M Breaststroke) in # of meets: 1.

1. ['Clear Lake Contest' at CLHS.](#)

Event (50M Butterfly) in # of meets: 2.

1. ['Shell Trial' at CLHS.](#)
2. ['UHCL Open' at UHCL.](#)

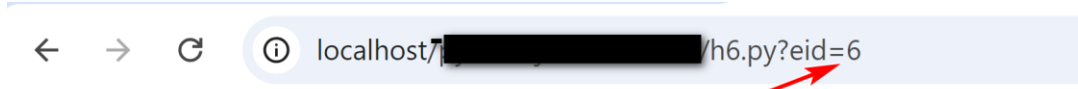
Annotations in yellow boxes with red arrows pointing to the page content:

- No HTTP input parameter**: Points to the browser's address bar.
- For each event title, the title, number of meet appearance, and a link to the event in the meet is displayed.**: Points to the event headers and their respective lists.
- 100M Freestyle in Shell trial has an eid of 6.**: Points to the first link in the 100M Freestyle event list.

If the link for 'Shell Trial' at UHCL for 100M Freestyle is clicked, it will lead to

`http://.../h6.py?eid=6`

which shows:

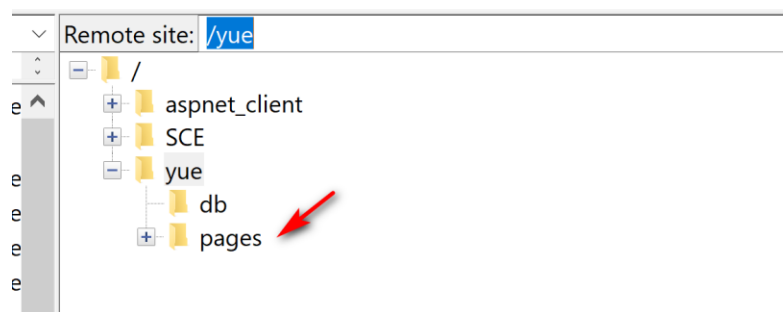


Swimmers in event #6

1. Billy Khan has 2 caretakers:
 1. Jim Khan (alternate)
 2. Azalea Khan (primary)
2. Nina Khan has 3 caretakers:
 1. Jim Khan (alternate)
 2. Azalea Khan (alternate)
 3. Joseph Khan (primary)
3. Philip Johnson has 1 caretakers:
 1. Elizabeth Johnson (primary)

Show caretakers of swimmers.

Host the Python application in your dcm account by uploading your Python program to the pages folder within your account by using FTP. For example, for my account, upload h6.py to the pages folder of your DCM directory:



You can then be able to access through the link <http://dcm.uhcl.edu/yue/h6.py> (after replacing yue by your course Web directory name).

Note that DCM server may have problems in using dbconfig.py and dbconfig.ini. You should use the following version of dbconfig.py:

```
import configparser
from pathlib import Path

# simplistic and no error handling.
def get_mysql_param(filename='dbconfig.ini', section='mysql'):
    config = configparser.ConfigParser()
    file_path = (Path(__file__).parent / filename).resolve()
    config.read(file_path)

    return config[section]
```

Your MySQL credential at the DCM server should exactly be:

dbconfig.ini:

```
[mysql]
host: localhost
```

```
user: dbguest  
password: uhcl__dbguest  
database: swim
```

The MySQL account *dbguest* has been created with read privilege to both *toyu* and *swim* databases in the DCM server.