



Python + MySQL

COMP3278B 2020

Objectives

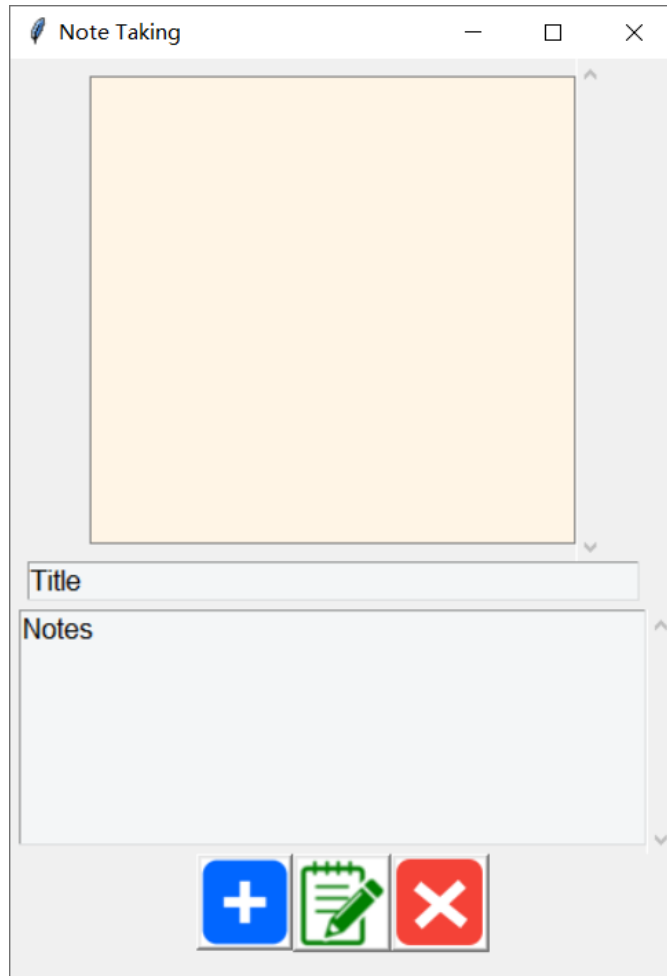
- To configure the MySQL web interface on the local machine.
- To perform various database operations, e.g. **Create Read Update Delete**, in python with MySQL backend.

Source

- Build a Note-Taking App with MySQL Backend in Python.

<https://levelup.gitconnected.com/build-a-note-taking-app-with-mysql-backend-in-python-927b4c5fad91>

Note-Taking App



- **Operations**

- Create
- Update
- Delete

- **Access to Database**

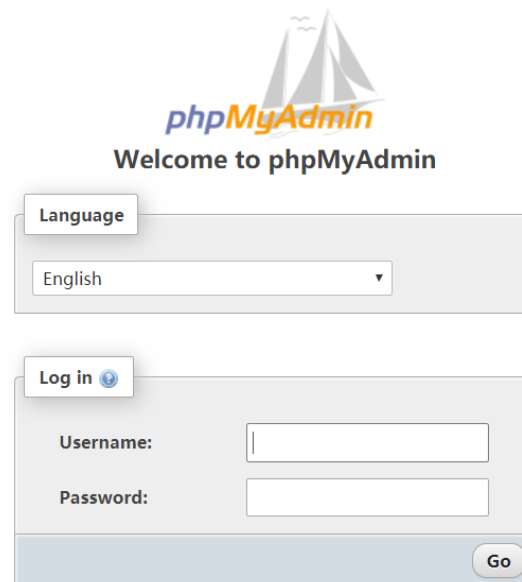
- Command line
- Web interface

Configure MySQL Web Interface (Windows)

- Internet Information Services (IIS) + php + MySQL + phpMyAdmin

<https://www.youtube.com/watch?v=IDrF1ciwXqQ>

<https://www.youtube.com/watch?v=E00SZ510X78>



The image shows the phpMyAdmin login interface. At the top, there is a logo of a sailboat with the text "phpMyAdmin" in blue and orange. Below the logo, it says "Welcome to phpMyAdmin". There are two main sections: a "Language" section with a dropdown menu currently set to "English", and a "Log in" section with input fields for "Username:" and "Password:". A "Go" button is located at the bottom right of the login section.

Configure MySQL Web Interface (Windows)

- **Step 1: Install IIS**

(1) Control Panel -> Programs -> Internet Information Services

(2) Choose **Web Management Tools** and **World Wide Web Services**

Note: Remember to choose **CGI** under World Wide Web Services / Application Development Features

Configure MySQL Web Interface (Windows)

- **Step 1: Install IIS – Test**
- Checking by entering “localhost” in your browser.



Configure MySQL Web Interface (Windows)

- **Step 2: Install php**
- Download: <https://windows.php.net/download/>

PHP 8.0 (8.0.2)

[Download source code](#) [23.96MB]

[Download tests package \(phpt\)](#) [13.29MB]

VS16 x64 Non Thread Safe (2021-Feb-03 19:17:50)

- [Zip](#) [25.33MB]
sha256: e59e7ca8bb70562a8d4b67b58fd8dd6e2fef06e9efe5060d562352e05cac56e1
- [Debug Pack](#) [24.29MB]
sha256: 9c0829f7d5db646ad3ac08610064162e1d38f83072bbadc057e5b23b4b10dd19
- [Development package \(SDK to develop PHP extensions\)](#) [1.16MB]
sha256: fca16fe221ee730091098be579a2c190940206be5cf3fetc5da8369b5dad340a

VS16 x64 Thread Safe (2021-Feb-03 19:23:38)

- [Zip](#) [25.43MB]
sha256: 9caed2c56eadb7ac51b02d9540e45fd9e9862cabfd5ce6f4f7547a2fd95e8df6
- [Debug Pack](#) [24.34MB]
sha256: 92809775f20955d809eac3bb0e6f94281d9f9e25d5998508542691ed4f4537a8
- [Development package \(SDK to develop PHP extensions\)](#) [1.16MB]
sha256: 0e4f394c44d2f51f598fba1ba8c27d5da1ecb7476797dde0a74d7ddb6b12611

Configure MySQL Web Interface (Windows)

- **Step 2: Install php**
- Copy “php.ini-development” and rename it as “php.ini”.
- Modify the file “php.ini”.

(1) extension_dir

```
764 ; Directory in which the loadable extensions (modules) reside.  
765 ; http://php.net/extension-dir  
766 ;extension_dir = "./"  
767 ; On windows:  
768 extension_dir = "D:\php\php8\ext"
```

(2) date.timezone = Asia/Shanghai

```
968 [Date]  
969 ; Defines the default timezone used by the date functions  
970 ; http://php.net/date.timezone  
971 date.timezone = Asia/Shanghai
```


Configure MySQL Web Interface (Windows)

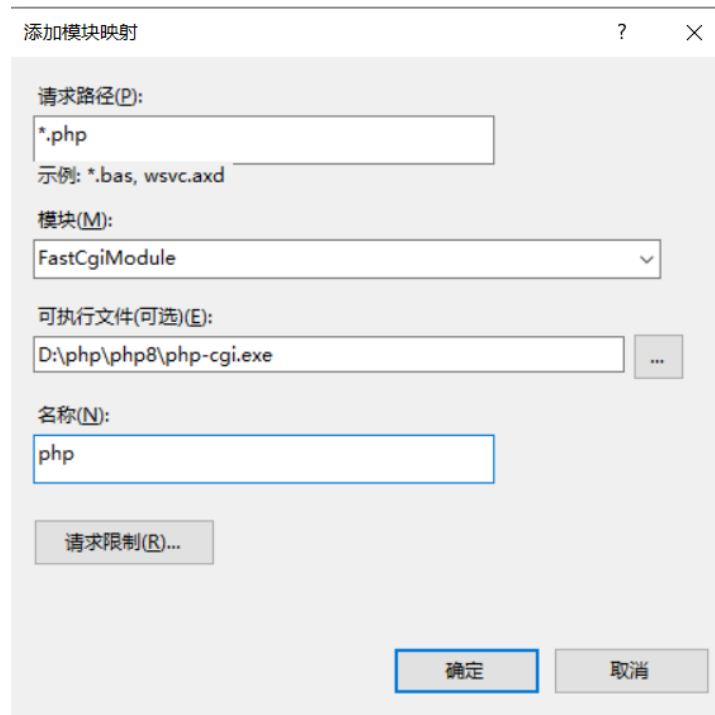
- **Step 2: Install php**

(3) extension_dir

```
914 ; Notes for Windows environments :
915 ;
916 ; - Many DLL files are located in the extensions/ (PHP 4) or ext/ (PHP 5+)
917 ;   extension folders as well as the separate PECL DLL download (PHP 5+).
918 ;   Be sure to appropriately set the extension_dir directive.
919 ;
920 ;extension=bz2
921 ;extension=curl
922 ;extension=ffi
923 ;extension=ftp
924 ;extension=fileinfo
925 extension=gd
926 ;extension=gettext
927 ;extension=gmp
928 ;extension=intl
929 ;extension=imap
930 ;extension=ldap
931 extension=mbstring
932 ;extension=exif      ; Must be after mbstring as it depends on it
933 extension=mysqli
934 ;extension=oci8_12c  ; Use with Oracle Database 12c Instant Client
935 ;extension=oci8_19  ; Use with Oracle Database 19 Instant Client
936 ;extension=odbc
937 ;extension=openssl
938 ;extension=pdo_firebird
939 extension=pdo_mysql
940 ;extension=pdo_oci
941 ;extension=pdo_odbc
942 ;extension=pdo_pgsql
943 ;extension=pdo_sqlite
944 ;extension=pgsql
945 ;extension=shmop
```

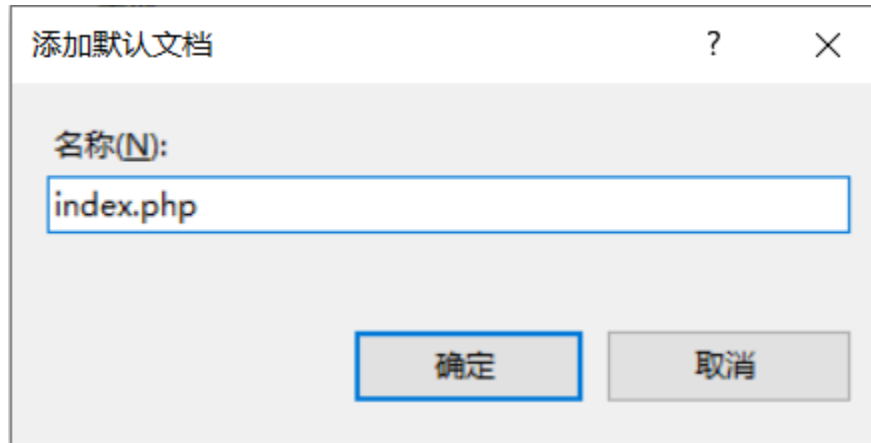
Configure MySQL Web Interface (Windows)

- **Step 2: Install php – Add Module Mapping**
- IIS -> Handler Mappings -> Add Module Mapping



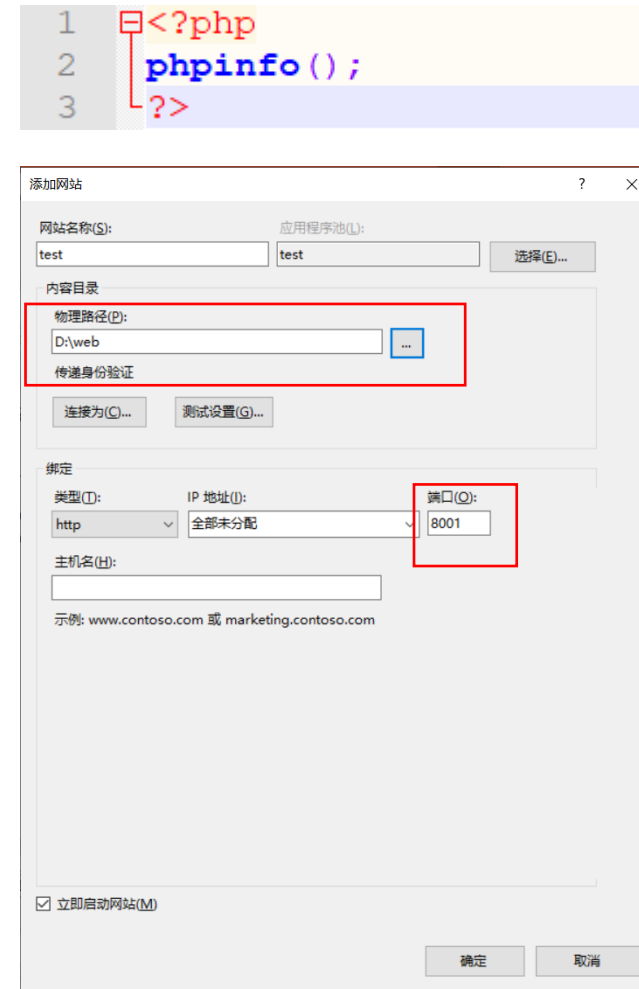
Configure MySQL Web Interface (Windows)

- **Step 2: Install php – Add Default Document**
- IIS -> Default Document -> Add Default Document




Configure MySQL Web Interface (Windows)

- **Step 2: Install php – Test**
- Create a file “web/index.php”
- IIS -> Sites -> Add Sites



Configure MySQL Web Interface (Windows)

- **Step 2: Install php – Test**
- Checking by entering “localhost:8001” in your browser.

PHP Version 8.0.2 	
System	Windows NT DESKTOP-HLUTEHJ 10.0 build 18362 (Windows 10) AMD64
Build Date	Feb 3 2021 18:29:10
Build System	Microsoft Windows Server 2016 Standard [10.0.14393]
Compiler	Visual C++ 2019
Architecture	x64
Configure Command	cmd /c "nololo /e:script configure.js --enable-snapshot-build --enable-debug-pack --disable-zts --with-pdo-oci=c:\php-snap-build\dep-aux\oracle\x64\instantclient_19_9\sdk,shared" --with-oci8-12c=c:\php-snap-build\dep-aux\oracle\x64\instantclient_12_1\sdk,shared" --with-oci8-19=c:\php-snap-build\dep-aux\oracle\x64\instantclient_19_9\sdk,shared" --enable-object-out-dir=../obj/ --enable-com-dotnet=shared" --without-analyzer" --with-pgo"
Server API	CGI/FastCGI
Virtual Directory Support	disabled
Configuration File (php.ini) Path	no value
Loaded Configuration File	D:\php\php8\php.ini
Scan this dir for additional .ini files	(none)
Additional .ini files parsed	(none)
PHP API	20200930
PHP Extension	20200930
Zend Extension	420200930
Zend Extension Build	API420200930,NTS,VS16
PHP Extension Build	API20200930,NTS,VS16
Debug Build	no
Thread Safety	disabled
Zend Signal Handling	disabled
Zend Memory Manager	enabled
Zend Multibyte Support	provided by mbstring

Configure MySQL Web Interface (Windows)

- **Step 3: Install MySQL**
- Please refer to the tutorial 2.
- **Step 4: Install phpMyAdmin**
- Download: <https://www.phpmyadmin.net/>
- IIS -> Sites -> Add Sites

添加网站

网站名称(S): phpmyadmin 应用程序池(L): phpmyadmin 选择(E)...

内容目录

物理路径(P): D:\phpMyAdmin\phpMyAdmin-5.0.4-all-languages ...

传递身份验证

连接为(C)... 测试设置(G)...

绑定

类型(T): http IP 地址(I): 全部未分配 端口(O): 8002

主机名(H):


示例: www.contoso.com 或 marketing.contoso.com

☒ 立即启动网站(M)

确定 取消

Configure MySQL Web Interface (Windows)

- **Step 4: Install phpMyAdmin**
- Entering “localhost:8002” in your browser to open the phpMyAdmin.



Welcome to phpMyAdmin

Language

English ▼

Log in ⓘ

Username:

Password:

Go

Database Operations

- Create Database

```
def db_create_db(conn):  
    mycursor = conn.cursor()  
    query = "CREATE DATABASE IF NOT EXISTS db_notes"  
    mycursor.execute(query)
```

- Create Table

```
def db_create_table(conn):  
    db_create_db(conn)  
    conn.database = "db_notes"  
    mycursor = conn.cursor()  
    query = "CREATE TABLE IF NOT EXISTS tb_notes (" \  
            "note_id INT AUTO_INCREMENT PRIMARY KEY, " \  
            "title VARCHAR(255) NOT NULL, " \  
            "note VARCHAR(2000) NOT NULL) "  
    mycursor.execute(query)
```


Database Operations

- Insert Data

```
def db_insert_note(conn, title, note):  
    conn.database = "db_notes"  
    mycursor = conn.cursor()  
    query = "INSERT INTO tb_notes (title, note) VALUES (%s, %s)"  
    val = (title, note)  
    mycursor.execute(query, val)  
    conn.commit()          # required for every transaction/queries  
                           that modifies table data  
    return mycursor.lastrowid
```

Database Operations

- Read Data

```
def db_select_all_notes(conn):  
    conn.database = "db_notes"  
    query = "SELECT * from tb_notes"  
    mycursor = conn.cursor()  
    mycursor.execute(query)  
    return mycursor.fetchall()  
  
def db_select_specific_note(conn, note_id):  
    conn.database = "db_notes"  
    mycursor = conn.cursor()  
    mycursor.execute("SELECT title, note FROM tb_notes WHERE  
note_id = " + str(note_id))  
    return mycursor.fetchone()
```

Database Operations

- Update Data

```
def db_update_note(conn, title, note, note_id):  
    conn.database = "db_notes"  
    mycursor = conn.cursor()  
    query = "UPDATE tb_notes SET title = %s, note = %s WHERE  
            note_id = %s"  
    val = (title, note, note_id)  
    mycursor.execute(query, val)  
    conn.commit()
```

Database Operations

- Delete Data

```
def db_delete_note(conn, note_id):  
    conn.database = "db_notes"  
    mycursor = conn.cursor()  
    query = "DELETE FROM tb_notes WHERE note_id = %s"  
    adr = (note_id,)   
    mycursor.execute(query, adr)  
    conn.commit()
```