IELM 230. Intro to MySQL, setting up your account

Objectives of the lab:

- Setting up your ITSC account to run MySQL
- Learn using phpMyAdmin for interactively working with MySQL
- Creating tables in MySQL

Standard PHP reference website: *http://www.php.net/manual/en/langref.php*
PHP quick reference: *http://www-ielm.ust.hk/dfaculty/ajay/courses/ielm230/labs/php_quick_ref.html*
Standard MySQL Website: *http://www.mysql.com*
The phpMyAdmin web site: *http:/www.phpmyadmin.net/*

Reference:
What is MySQL?

MySQL is a multithreaded, multi-user, SQL (Structured Query Language) Database Management System (DBMS). Programming languages which can access MySQL databases include: C++, C#, Java, Perl, PHP and so on. Each of these uses a specific application interface, or API. The combination of MySQL and PHP can be used for very powerful web-DB applications. In addition, they are free, so they are very popular.	

What is phpMyAdmin?

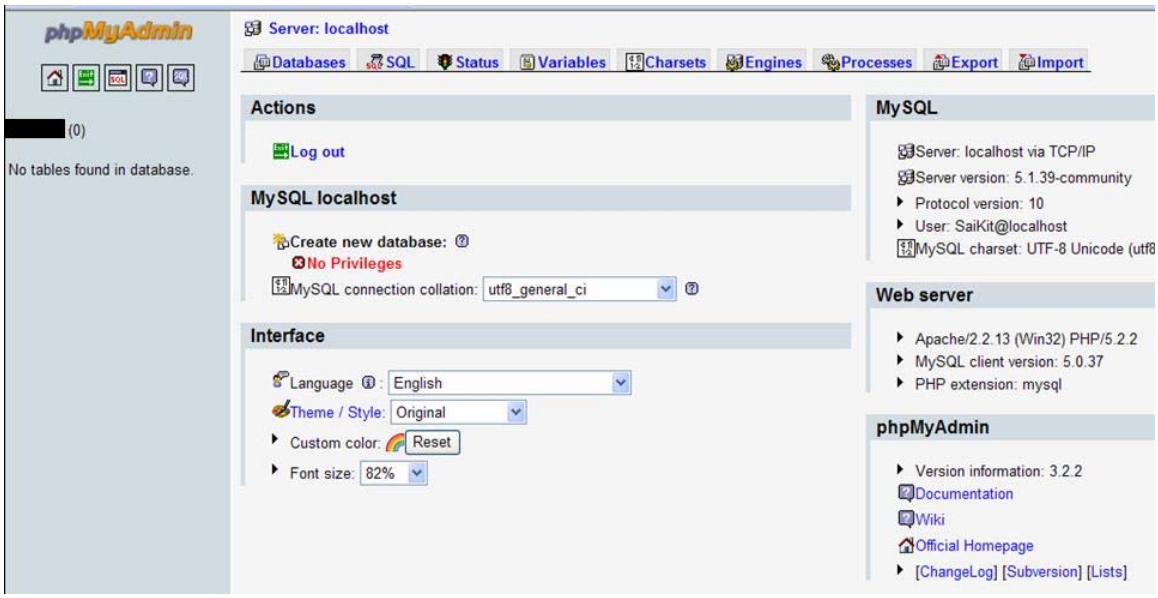
phpMyAdmin is an open source web application, written in PHP for managing MySQL databases. Currently it can create and drop databases, create/drop/alter tables, delete/edit/add fields, execute any SQL statement, manage keys on fields, manage privileges, export data into various formats and is available in 50 languages.	

STEP 1. We will set up a database server running *MySQL server*. An account is opened on the server for each student: you will receive the account name and default password from the TA. You can connect to and maniupulate your database in two ways:
(1) Use phpMyAdmin to manage your MySQL database directly.
(2) Use PHP programming language to write a CGI program on a web server (namely: the iHome server) that can directly access your MySQL database.
You will learn and use both methods.

How to login to phpMyAdmin?

1> Go to the URL: http://iez126.ielm.ust.hk/phpMyAdmin/main.php
2> Login by using the username and the password you received in your email.

3> After logging in, you will see the default welcome screen for phpMyAdmin:



STEP 2. Creating tables in your MySQL database.

You will learn three ways to create tables.

1. Using the GUI of phpMyAdmin program.
2. Using a SQL "CREATE TABLE …" command issued from phpMyAdmin GUI.
3. Using a CGI program to connect to your MySQL DB, and sending the command from your CGI program

Before you create any table(s), **please do your planning**:

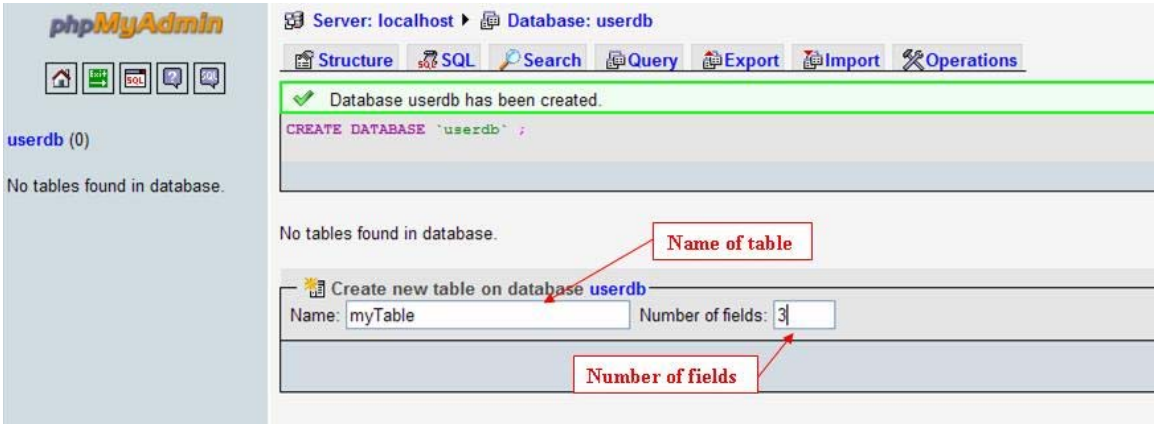
- Names of all the tables.
- All the attributes for each table
- The domain constraint(s) for each attribute
- The primary key for each table
- The referential constraints (Foreign keys)

Conventions: Try to use a consistent convention for all names that you will assign. For example:
All table names: First letter capitalized with no underscores: e.g. Employee, WorksOn,…
All attribute names: lower case with underscores: name, ssn, birth_date, …
All constraint names: lower case, underscored; for example, a foreign key constraints from Employee to Department table → fk_employee_department.

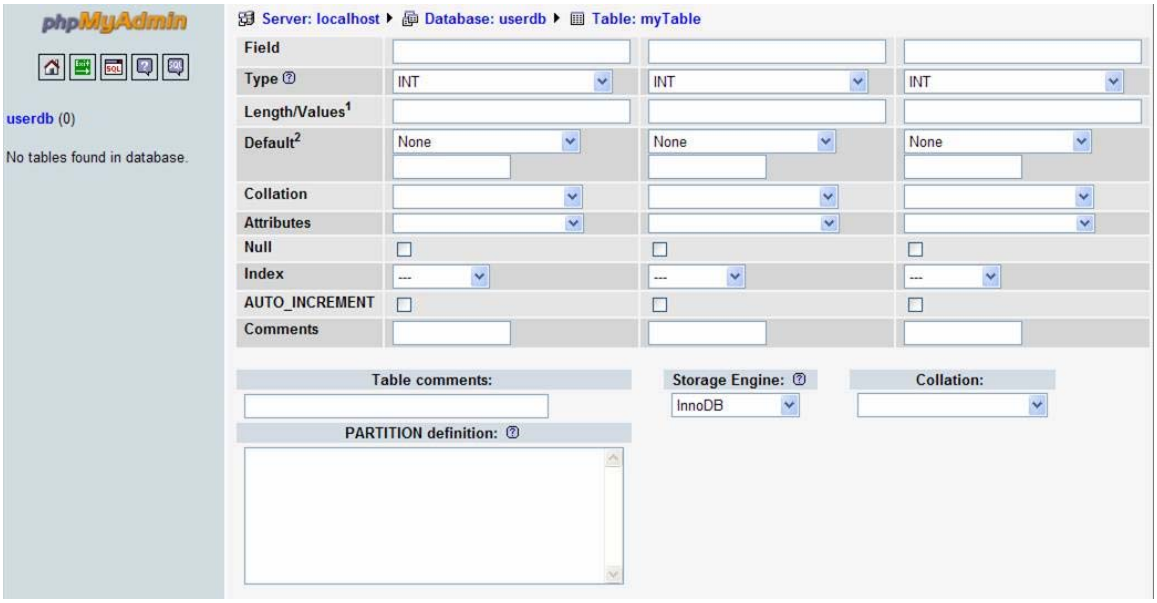
What Data Type to Use ?
For all integer values, use Type = INT
For all real numbers, use Type = FLOAT
For all text fields, use Type = VARCHAR, and Length = 50 (or some other reasonable number)
For Dates (e.g. Birth Date), use Type = DATE

1. How to use phpMyAdmin to create your own table?

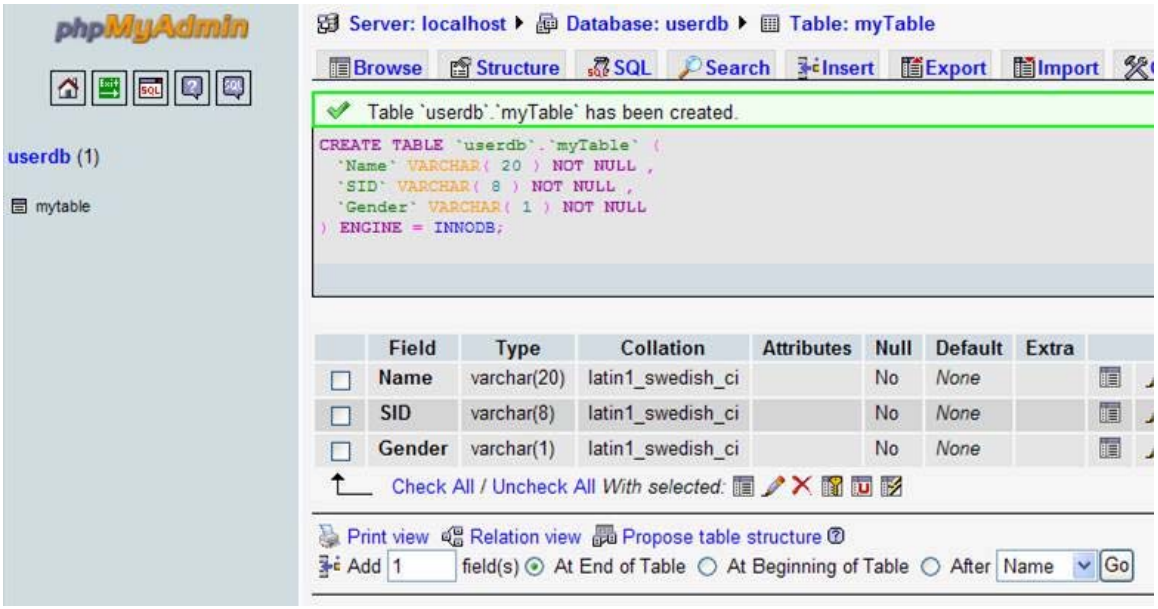
1> Login in to phpMyAdmin, click on the database name on the left-hand-side
2> Enter the table name and number of fields, then click go



3> Enter name of the field and specify the type, length, set the primary key, etc.



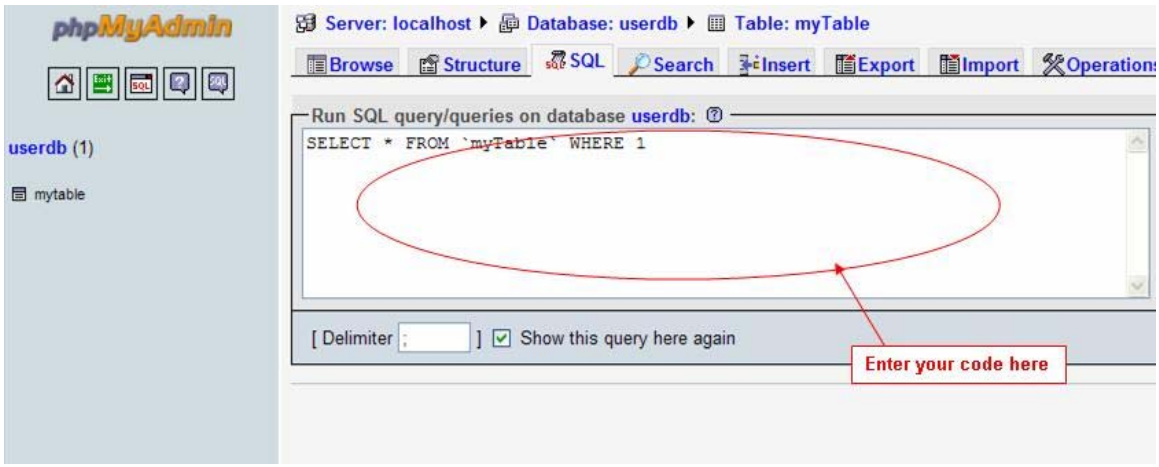
4> You have just made a table in your database.



The example here created a table called "**myTable**" with 3 fields: "**Name**", "**SID**" and "**Gender**". It uses SID as the primary key, as indicate by the underline.

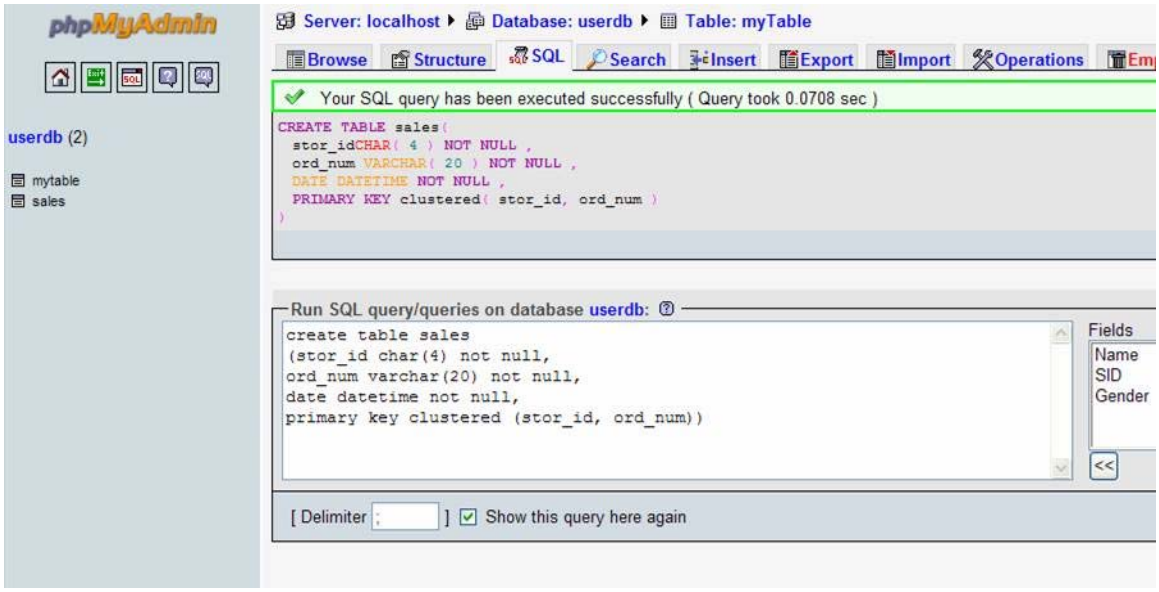
2. How to use SQL command to create your own table?

1> Click "SQL" in the middle
2> Type your SQL query in the box



Example 1:

```
create table sales
(stor_id char(4) not null,
ord_num varchar(20) not null,
date datetime not null,
primary key clustered (stor_id, ord_num))
```



Note: The keyword clustered is needed since the primary key has more than one attribute.
If the primary key has only one attribute, you don't need the word "**clustered**" as seen in some examples later.

Example 2:

```
create table salesdetail
(stor_id char(4) not null,
ord_num varchar(20) not null,
title_id int not null references titles(title_id),
qty smallint default 0 not null,
discount float not null,
constraint salesdet_constr
        foreign key (stor_id, ord_num) references sales(stor_id, ord_num))
```

Note:
1> You can specify default values on attributes (that is, if a record is created without this value specified, then the value is set to the default, as in the case of attribute qty.
2> There is one referential constraint on the attribute **`title_id`**. It refers to the attribute **`title_id`** in a table called **titles**. Such a constraint may be set if the attribute being referred (**title_id**) is not the primary key for the referred table (**titles**).
3> We shall only use referential constraints that are foreign keys.
4> Each constraint must have a unique name

3. How to write PHP program to create your own table?

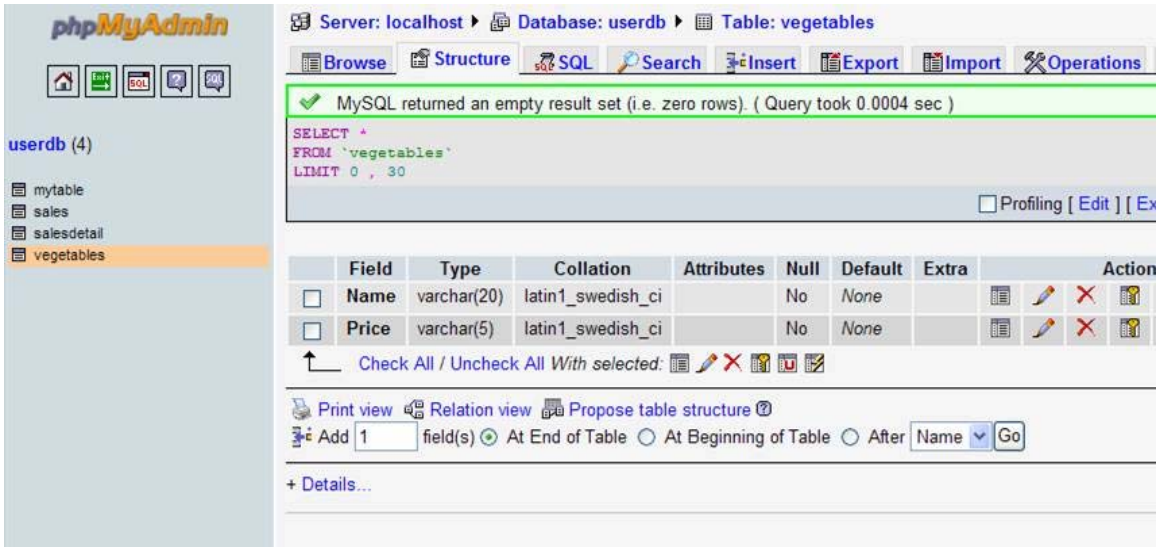
1> Create your html form and PHP files and put them on the ihome server
2> Run your program

Sample PHP program:

```
#!/usr/local/bin/php --

<html>
<head>
<title> IELM 230, PHP file creating table </title>
</head>
<body bgcolor=#DDDDDD>
<p>

<?php

echo "Start la~~";
echo "<hr>";

$link = mysql_connect("YOUR DB SERVER", " YOUR_LOGIN", " YOUR_PASSWORD")
or die("Could not connect : " . mysql_error());
echo "Connected successfully~";
echo "<hr>";

$db = mysql_select_db("YOUR_DATABASE") or die("Could not select database");
echo "Database selected successfully~";
echo "<hr>";

$query = "CREATE TABLE vegetables (Name varchar(20) not NULL, Price varchar(5) not
NULL)";
$result = mysql_query($query) or die("Query failed: " . mysql_error());
echo "Table created successfully~";

mysql_close($link);

?>
</body>
</html>
```

~~~~~~~ End of the file ~~~~~

You can log in to your MySQL server using phpMyAdmin to see that this table is created successfully:



Acknowledgements: Lab notes made by Fan Sai Kit for IELM.
~~~~~~~