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

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.

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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.

phpMyAdmin

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.

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ph	MyAdmin	
Welcor	me to phpMyAdmi	n
Language English		
Log in @ Username:		_
Password:		
		Go

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

phpMyAdmin	G Server: localhost	
	Patabases 🚜 SQL 🗘 Status 📓 Variables 🕄 Charsets 👹 Engines 🎭 Pa	rocesses DExport Definition
	Actions	MySQL
No tables found in database.	■Log out	Server: localhost via TCP/IP Server version: 5.1.39-community
	MySQL localhost	Protocol version: 10
	℃Create new database: ⑦ ② No Privileges	▶ User: SaiKit@localhost ∰MySQL charset: UTF-8 Unicode (r
	웹MySQL connection collation: utf8_general_ci ♥	Web server
	Interface	Apache/2.2.13 (Win32) PHP/5.2.2
	S Language 10 : English	 MySQL client version: 5.0.37 PHP extension: mysql
	Custom color Reset	phpMyAdmin
	► Font size: 82% ▼	 Version information: 3.2.2 Documentation
		Wiki
		Gificial Homepage
		[ChangeLog] [Subversion] [Lists]

STEP 2. Creating tables in your MySQL database.

You will learn three ways to create tables.

- Using the GUI of phpMyAdmin program.
 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 \rightarrow 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

phpMyAdmin	🔀 Server: localhost 🕨 👜 Database: userdb									
	🖀 Structure 🧔 SQL 🖉 Search @Query @Export @Import %Operations									
	✓ Database userdb has been created.									
userdb (0)	CREATE DATABASE 'userdb' ;									
No tables found in database.										
	No tables found in database. Name of table									
	Create new table on database userdb									
	Name: myTable Number of fields: 3									
	Number (Calls									
	INUMDER OF TIELDS									

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

	Field	1					
	Туре 🕜	INT	~	INT	×	INT	*
erdb (0)	Length/Values ¹						
tables found in database.	Default ²	None	~	None	~	None	~
	Collation		~		~		~
	Attributes		¥		~		~
	Null						
	Index	💌				💌	
	AUTO_INCREMENT						
	Comments]		
	Ta	able comments:		Storage Engi	ne:	Collation:	
				InnoDB	~		*
	PART	ITION definition: (2)					
			~				

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

	E	rowse	Structure	SQL PS	Search	3-iInser	t 🎬	Export	Impor	1 2	1
	1	Table 'use	erdb`.`myTable	has been creat	ted.						
userdb (1) mytable	CREA' 'Na 'SI 'Ge) EN(TE TABLE me' VARCE D' VARCE ender' VA GINE = IN	'userdb'.'m HAR(20)NC AR(8)NOT RCHAR(1)N NODB;	YTable`(TT NULL , NULL , NULL , NULL							
		Field	Туре	Collation	Att	tributes	Null	Default	Extra		
		Name	varchar(20)	latin1_swedish	n_ci		No	None			
		SID	varchar(8)	latin1_swedish	n_ci		No	None			
		Gender	varchar(1)	latin1_swedish	n_ci		No	None			
	t	Check	All / Uncheck	All With selecte	ed: 🔳 🥖	XPU					
	Pr 3-i Ad	int view গ dd 1	BRelation view field(s) ⊙ At	w 🗊 Propose ta End of Table 🤇	able struc) At Beg	ture @ inning of 1	Fable	After	Name 💌	Go	

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

phpMyAdmin	Server: lo	calhost 🕨 🗗 🛛	Database:	userdb 🕨 🏢	Table: my	Table		
	Browse	Structure	sa SQL	Search	≩ ∉Insert	Export	Import	% Operation:
	Run SQL q	uery/queries o	n databas	e userdb:				224
userdb (1)	SELECT *	FROM 'myTabl	te' WHERI	E 1				
冒 mytable							>	9
	[Delimiter] 🗸 S	how this qu	uery here agai	in	Enter y	our code he	re
						N.		1

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))

phpMyAdmin	Server: lo	calhost 🕨 👜	Database:	userdb 🕨 🗉	Table: my	Table					
	Browse	Structure	ST SQL	Search	3-iInsert	Export	Import	% Operations	Em		
	Vour SC	L query has be	en execute	d successful	y (Query to	ok 0.0708 se	c)				
userdb (2)	CREATE TABLE stor_idCHA ord_num VA DATE DATET	E sales(LR(4) NOT NU RCHAR(20) N THE NOT NULL	NOT NULL .								
E sales)	.i clustered(stor_id,	ord_num /							
	-Run SQL qu	uery/queries o	n databas	e userdb: @				= 3			
	create tal	ble sales						~	Fields		
	(stor_id	char(4) not	null,						Name		
	ord_num v	archar(20)	not null	,					SID		
	date date	time not nu.	11,						Gender		
	primary ke	ey clustered	a (scor_	ia, ora_nu	um))						
								×	<<		
	[Demmer].	100	snow this q	uery nere aga	ort						
	ST										

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))

phpMyAdmin	S S	erver: locall	host 🕨 👜 Da	atabase: userdb 🕨	🖩 Table: sa	lesdeta	ail			
		rowse	Structure	SQL Dearch	- Insert	E	xport	Import	%	Opera
	1	MySQL retu	rned an empty	y result set (i.e. zero	rows). (Que	ry took	0.0004 se	c)		
userdb (3)	SELEC FROM	CT * `salesdeta F 0 30	il'							
mytable									Profili	na í Ea
 sales salesdetail 								<u> </u>		51-
		Field	Туре	Collation	Attributes	Null	Default	Extra		
		stor_id	char(4)	latin1_swedish_ci		No	None			P
		ord_num	varchar(20)	latin1_swedish_ci		No	None			1
		title_id	int(11)			No	None			P
		qty	smallint(6)			No	0			D
		discount	float			No	None			P
	t_	_ Check Al	I / Uncheck A	ll With selected: 🔳	/ × 🛯 🗖	13				
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	+ Deta	ails								

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>
```

<?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:

phpMyAdmin	S Se	erver: lo	calhost 🕨 🗗	Database: userdb	F Table	: veget	ables							
	B	rowse	Structure	SQL PSea	arch 🔤 ins	ert [Export	Imp	Import % Operation					
	MySQL returned an empty result set (i.e. zero rows). (Query took 0.0004 sec)													
userdb (4)	SELEC FROM	T * `vegeta	bles'											
mytable sales									Pr	ofiling	[Edi	t][Ex		
salesdetail vegetables		Field	Туро	Collation	Attributos	Null	Dofault	Evtra				Action		
		Name	varchar(20)	latin1_swedish_ci	Attributes	No	None	LAUG		I	×			
		Price	varchar(5)	latin1_swedish_ci		No	None			Ì	×			
	t_	Check	k All / Uncheck	All With selected:	T / X 🛙	U								
	🦣 Pr ≩i Ac	int view Id 1	€ Relation vie field(s) ⊙ A	ew 👼 Propose tabl	e structure @ At Beginning	of Table	O After	Name	- Go]				
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