School of Information and Computer Technology

Sirindhorn International Institute of Technology

Thammasat University

ITS331 Information Technology Laboratory I

Laboratory #8: PHP & Form Processing I

Objective: - To learn how to use phpMyAdmin

- To learn how to connect to MySQL and retrieve data from PHP

1 phpMyAdmin

Until now, interacting with a MySQL sever is done through the command-line client. Interacting with a MySQL server through a command-line interface is a little tedious as you do not have a WYSIWYG interface. Although using the command-line interface enables you to understand how MySQL client and its server interact, typing statements one by one may not be the most practical choice.

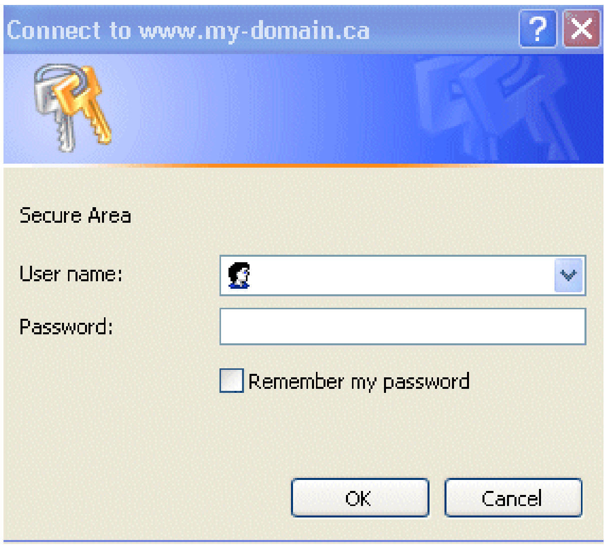
There are several graphical programs written in such a way that each button click maps to a MySQL statement. In this way, you can interact with the server with a GUI. Among several others, phpMyAdminis one of the most popular software in this category. phpMyAdmingives you an easy-to-use interface that allows you to create tables and run queries by filling in a little bit of information and then having the tables created for you.

1.1 AcessingphpMyAdmin

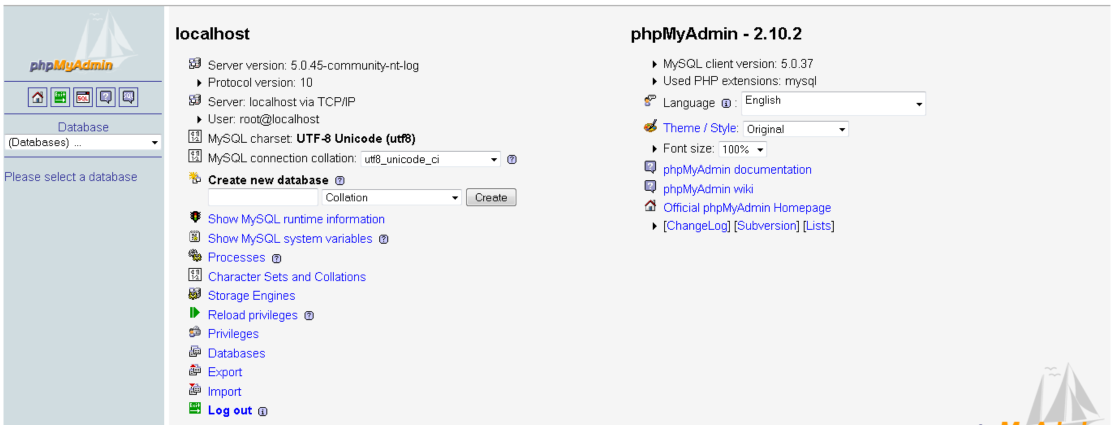
phpMyAdmin is web-based software used for creating and maintaining MySQL databases.After the installation (phpMyAdmin comes with AppServ), you can access to phpMyAdminwitha URL just like usual web pages. By default, the URL is

http://localhost/phpmyadmin/

When you go to the link above, a dialog box will prompt you for a username and password of an existing MySQL account.



Once you log in, a phpMyAdmin screen appears as shown next.



localhost

Server version: 5.0.45-community-nt-log
- Protocol version: 10

Server: localhost via TCP/IP
- User: root@localhost

MySQL charset: **UTF-8 Unicode (utf8)**

MySQL connection collation: utf8_unicode_ci

Create new database

Collation | Create

Show MySQL runtime information

Show MySQL system variables

Processes

Character Sets and Collations

Storage Engines

Reload privileges

Privileges

Databases

Export

Import

Log out

phpMyAdmin - 2.10.2

- MySQL client version: 5.0.37
- Used PHP extensions: mysql

Language: English

Theme / Style: Original

- Font size: 100%

phpMyAdmin documentation

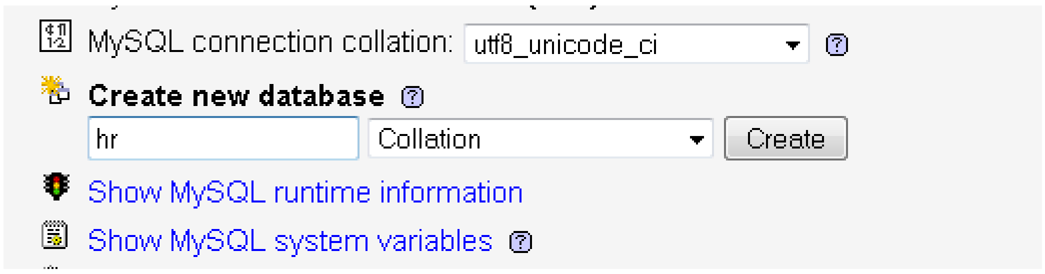
phpMyAdmin wiki

Official phpMyAdmin Homepage

- [ChangeLog] [Subversion] [Lists]

1.2 Creating Database

To create a database (may need a root access), type the desired database name into the box as followed



MySQL connection collation: utf8_unicode_ci

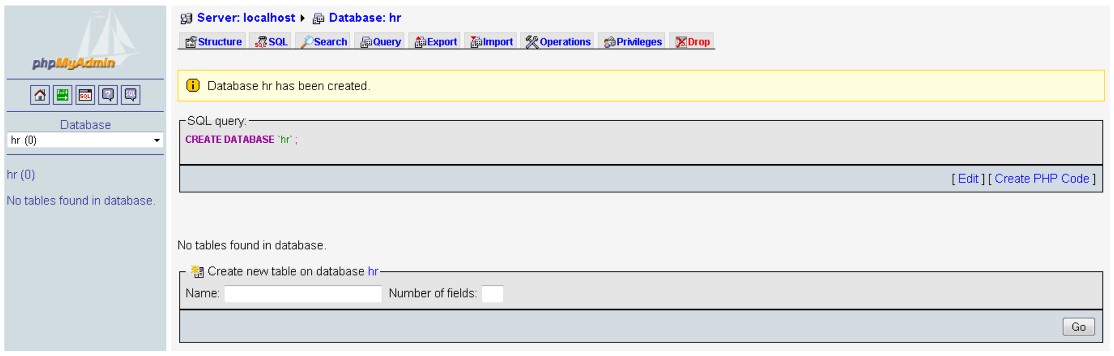
Create new database

hr | Collation | Create

Show MySQL runtime information

Show MySQL system variables

Click "Create" to create the database.



Server: localhost ▸ **Database: hr**

Database hr has been created.

SQL query:

```
CREATE DATABASE `hr` ;
```

[Edit] [Create PHP Code]

No tables found in database.

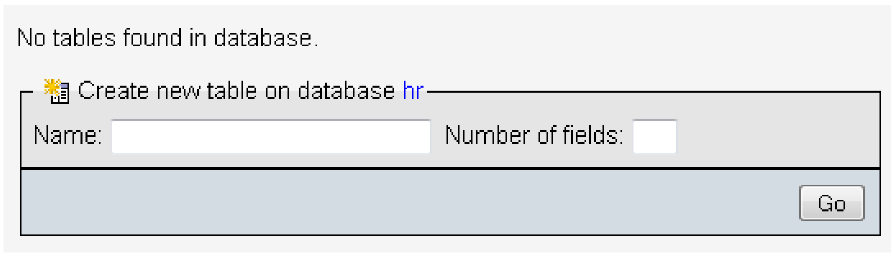
Create new table on database hr

Name: | Number of fields:

Go

1.3 Creating Table

The left-hand frame in phpMyAdmin is used for navigation.You will see your database displayed here (in this case called hr). As you create tables, they will show below this. Click on your database in the navigation frame and a new window will appear on the right hand side.



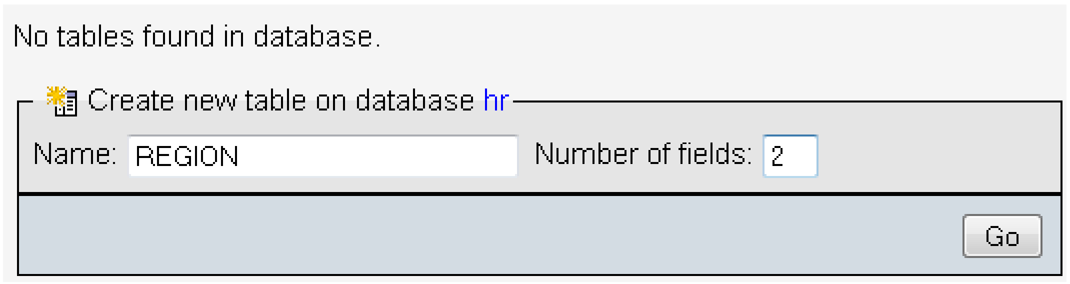
No tables found in database.

Create new table on database hr

Name: | Number of fields:

Go

We will create a table in the database, called "REGION". Use the "Create new table feature. Type in the name of the new table "REGION", and the number of columns 2 into "Fields:".

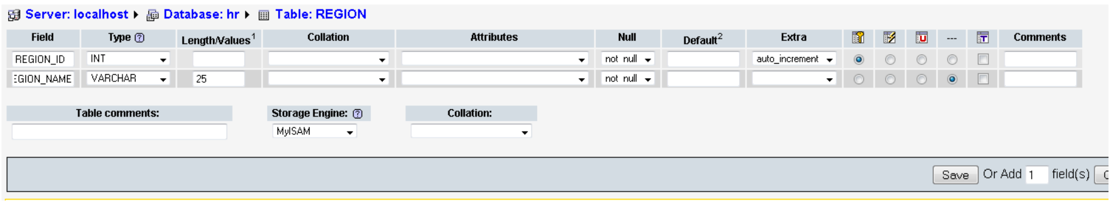


No tables found in database.

Create new table on database hr

Name:	REGION	Number of fields:	2

Then click "Go" and you should see something like this. The table title now appears under the database name.



Server: localhost ▸ Database: hr ▸ Table: REGION

Field	Type	Length/Values[1]	Collation	Attributes	Null	Default[2]	Extra				---		Comments
REGION_ID	INT				not null		auto_increment	●	○	○	○	☐	
:GION_NAME	VARCHAR	25			not null			○	○	○	●	☐	

Table comments:

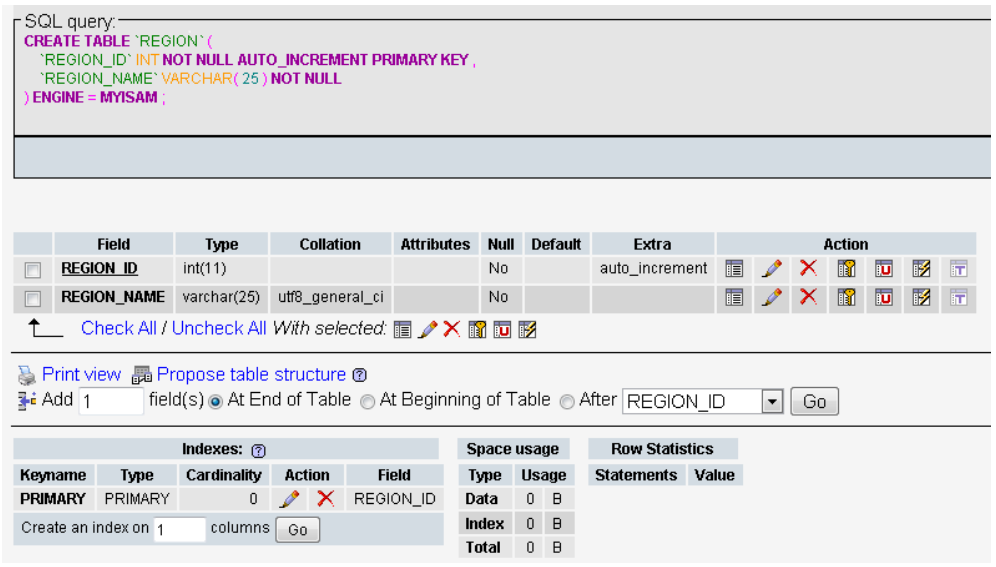
Storage Engine: MyISAM

Collation:

Now enter the names and attributes of our table fields. Enter the following information as above:

Field	Type	Length Values	Extra	Primary Key
REGION_ID	INT		Auto_increment	Yes
REGION_NAME	VARCHAR	25		

The Length value indicates the maximum allowable length of characters. There are many different values that can be set for Type. The "id" field, which will be used as a Primary key for this table, has been set to auto_increment. Thissaves you from having to type in the next number in sequence when you input new records.



SQL query:

```
CREATE TABLE `REGION` (
  `REGION_ID` INT NOT NULL AUTO_INCREMENT PRIMARY KEY ,
  `REGION_NAME` VARCHAR( 25 ) NOT NULL
) ENGINE = MYISAM ;
```

	Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐	REGION_ID	int(11)			No		auto_increment	
☐	REGION_NAME	varchar(25)	utf8_general_ci		No			

Check All / Uncheck All *With selected:*
Print view
Propose table structure
Add 1 field(s) ● At End of Table ○ At Beginning of Table ○ After REGION_ID Go

Indexes:

Keyname	Type	Cardinality	Action	Field
PRIMARY	PRIMARY	0		REGION_ID

Create an index on 1 columns Go

Space usage

Type	Usage	
Data	0	B
Index	0	B
Total	0	B

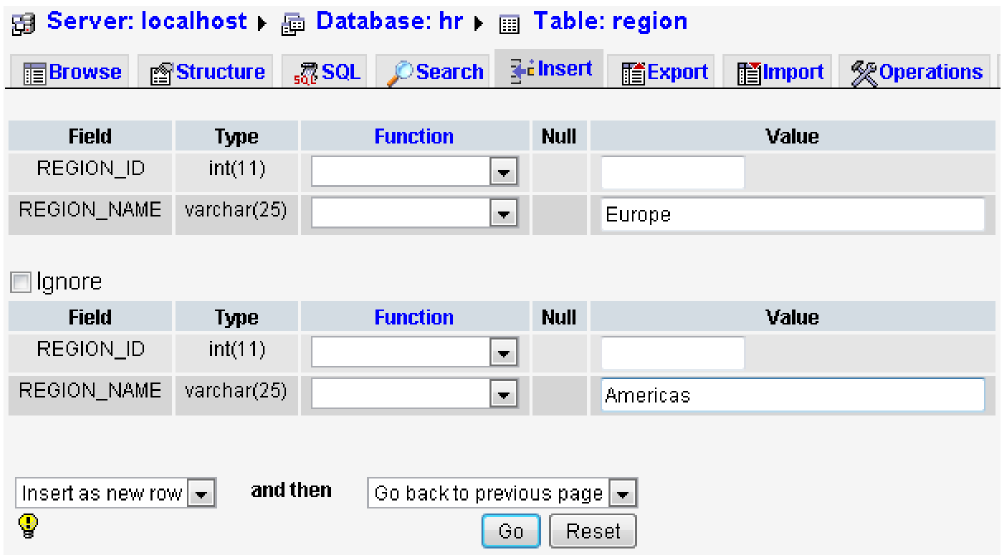
Row Statistics

Statements	Value

Congratulations! You have created your first table in phpMyAdmin. The corresponding SQL command for creating these fields is also displayed. Note that you can use **Drop** to delete a table or fields.

1.4 Inserting New Records

Click the tab labeled "Insert" and another window should appear, like this.



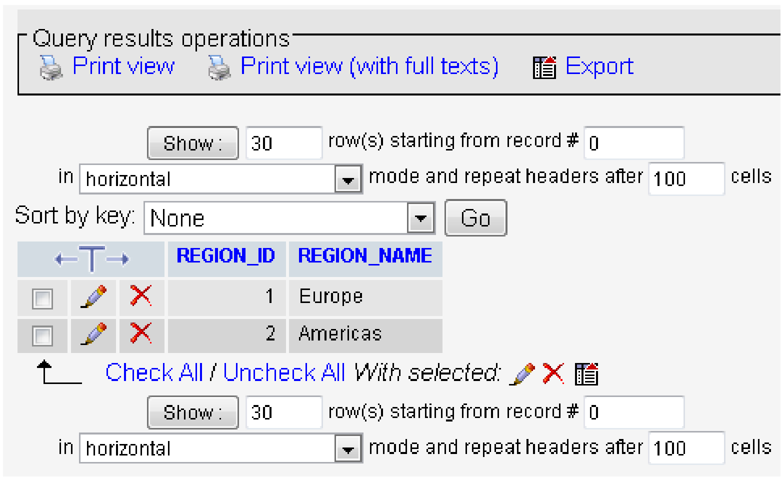
Field	Type	Function	Null	Value
REGION_ID	int(11)			
REGION_NAME	varchar(25)			Europe

Field	Type	Function	Null	Value
REGION_ID	int(11)			
REGION_NAME	varchar(25)			Americas

Type in the details for each of the fields for this record.The "id" column was set to auto_incrementso you do not need to enter a number.Now click Go and the record is saved to the region table. When you've finished entering several records into the table, you can check them by clicking on the Browse tab. You can click on individual records for editing or deleting.

1.5 Browse

Only the tables with existing records can be browsed. After you click on the Browse icon a new window with the records list will be opened.

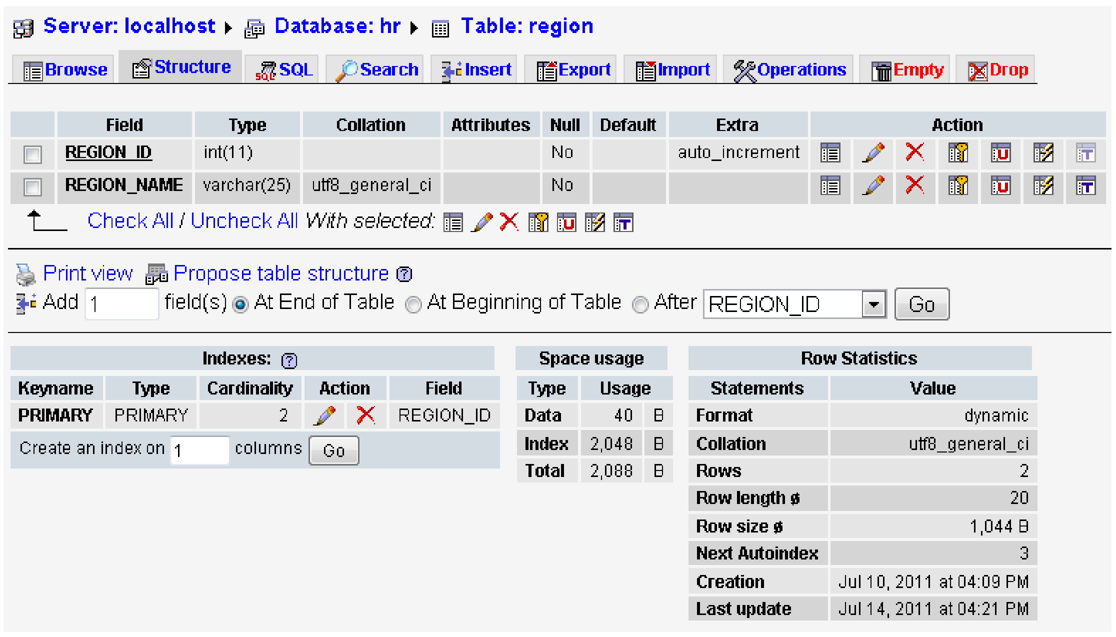

Query results operations
Print view
Print view (with full texts)
Export
Show :
30
row(s) starting from record #
0
in
horizontal
mode and repeat headers after
100
cells
Sort by key:
None
Go
Check All / Uncheck All With selected:

REGION_ID	REGION_NAME
1	Europe
2	Americas

By clicking on the **Pen** icon you can edit the chosen record. You will see the record structure and you can alter the values of the records.

1.6 Structure

In the Structure screen you will see the table structure.



	Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐	REGION_ID	int(11)			No		auto_increment	
☐	REGION_NAME	varchar(25)	utf8_general_ci		No			

Check All / Uncheck All *With selected:*

Print view Propose table structure

Add 1 field(s) ● At End of Table ○ At Beginning of Table ○ After REGION_ID Go

Indexes:

Keyname	Type	Cardinality	Action	Field
PRIMARY	PRIMARY	2		REGION_ID

Create an index on 1 columns Go

Space usage

Type	Usage	
Data	40	B
Index	2,048	B
Total	2,088	B

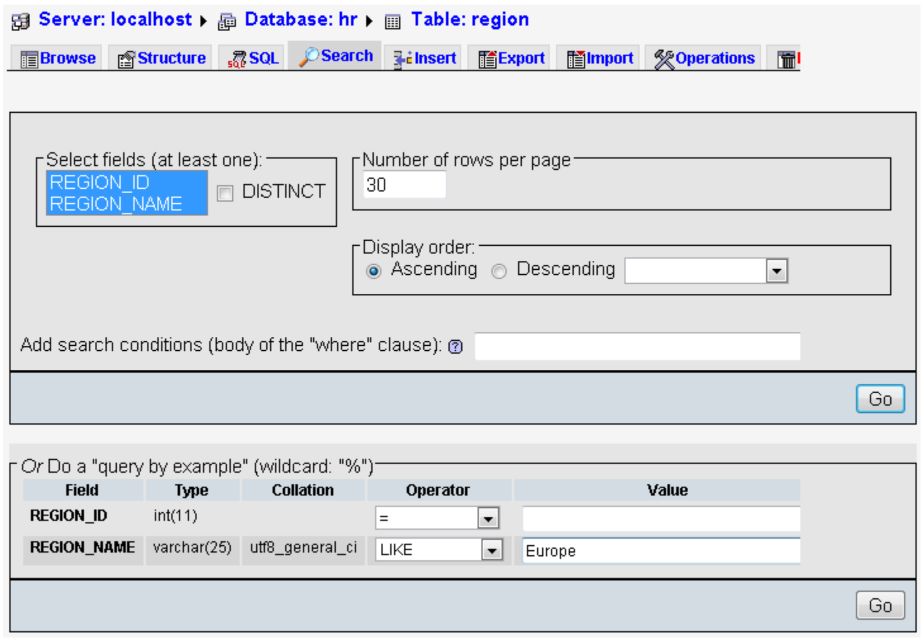
Row Statistics

Statements	Value
Format	dynamic
Collation	utf8_general_ci
Rows	2
Row length ø	20
Row size ø	1,044 B
Next Autoindex	3
Creation	Jul 10, 2011 at 04:09 PM
Last update	Jul 14, 2011 at 04:21 PM

You will see the fields' names, their types, collations, attributes, additional extra information, the default values and whether the fields' values can be NULL. You can browse for distinct values by clicking on the corresponding action icon. Also, you can edit a field's structure or delete a field. You can define different indexes: Primary, Unique, Index and Fulltext. This structure information is equivalent to the result after issuing "desc" command in the MySQL command-line client.

1.7 Search

Through the Search menu, you can generate a search query for the chosen table.



Select fields (at least one): REGION_ID REGION_NAME ☐ DISTINCT

Number of rows per page 30

Display order: ● Ascending ○ Descending

Add search conditions (body of the "where" clause):

Or Do a "query by example" (wildcard: "%")

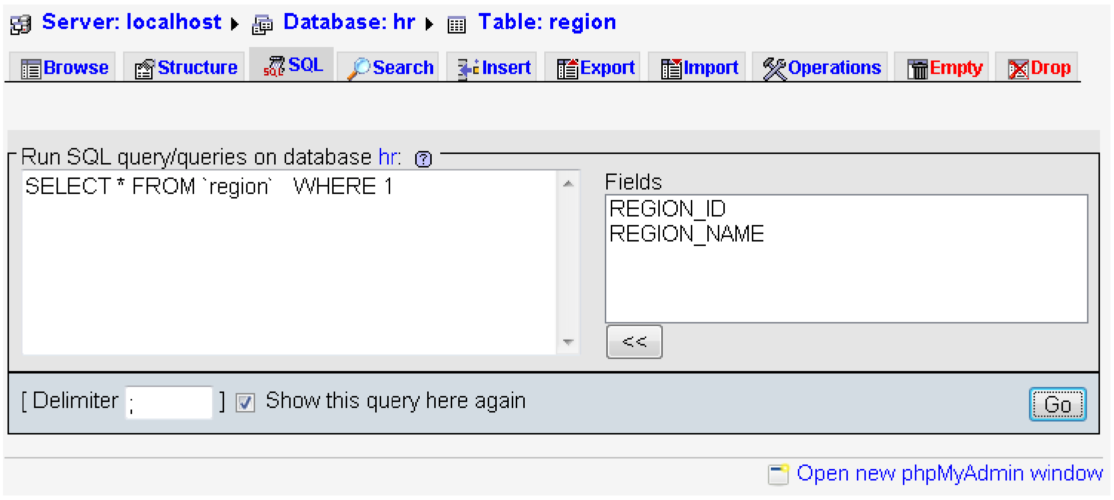
Field	Type	Collation	Operator	Value
REGION_ID	int(11)		=	
REGION_NAME	varchar(25)	utf8_general_ci	LIKE	Europe

You can either write the WHERE clause or you can use the "query by example" functionality. You should click on the **Go** button to execute the query.

For example, if you want to visualize all the records with a field value that starts with **a**, you should select the fields which you want to show. Pick the LIKE operator from the drop-down menu and enter in the corresponding field value **a%** (% stands for a wildcard string). Click on the **Go** button to see the result.

1.8 SQL

You can run a MySQL query through "SQL" Tab. There you should enter the entire SQL query code and click on the Go button to execute it.



Run SQL query/queries on database hr:

```
SELECT * FROM `region`   WHERE 1
```

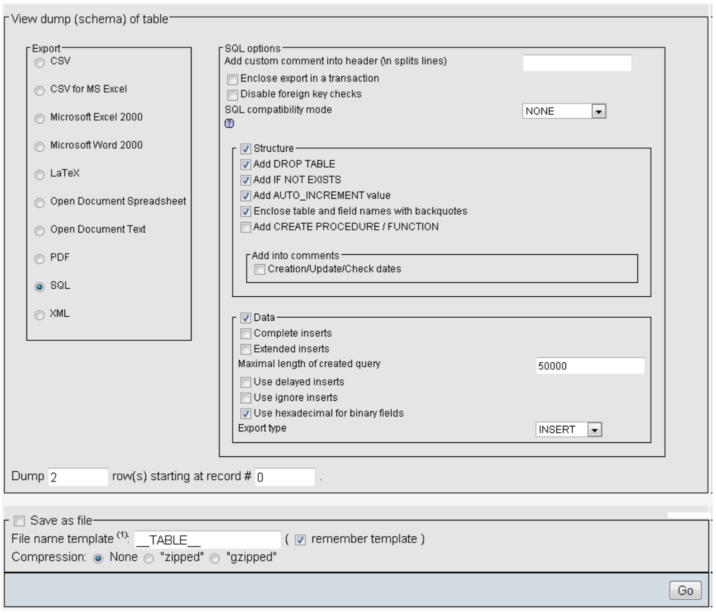
Fields
REGION_ID
REGION_NAME

[Delimiter ;] ✓ Show this query here again

You can find more details about the MySQL syntax in the official MySQL Documentation.

1.9 Backup the Database

You can create a backup of your database through the "Export" tab.


View dump (schema) of table

Export: CSV / CSV for MS Excel / Microsoft Excel 2000 / Microsoft Word 2000 / LaTeX / Open Document Spreadsheet / Open Document Text / PDF / [✓ SQL] / XML

SQL options
Add custom comment into header (\n splits lines)
☐ Enclose export in a transaction
☐ Disable foreign key checks
SQL compatibility mode: NONE

✓ Structure
✓ Add DROP TABLE
✓ Add IF NOT EXISTS
✓ Add AUTO_INCREMENT value
✓ Enclose table and field names with backquotes
☐ Add CREATE PROCEDURE / FUNCTION
Add into comments
☐ Creation/Update/Check dates

✓ Data
☐ Complete inserts
☐ Extended inserts
Maximal length of created query: 50000
☐ Use delayed inserts
☐ Use ignore inserts
✓ Use hexadecimal for binary fields
Export type: INSERT

Dump 2 row(s) starting at record # 0 .

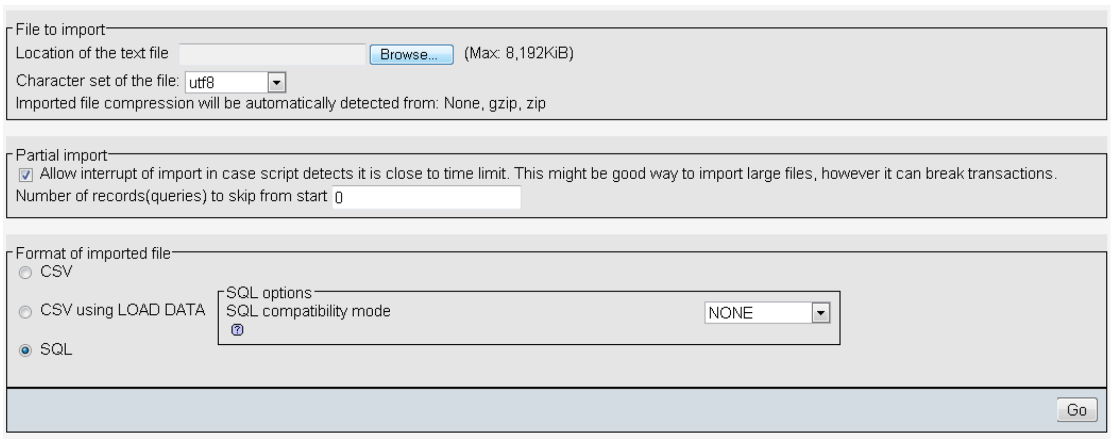
☐ Save as file
File name template (1): __TABLE__ (✓ remember template)
Compression: [✓ None] "zipped" "gzipped"

Select the tables you want to exported. Leave the radio button selection to the **SQL** option. The **Structure** and the **Data** check boxes should remain checked.Select the **Save as file** check box and then click on the **Go** button. An SQL dump file with your database structure and content will be generated.

If you have a large database with a lot of records, the server timeout value can be reached. In such a case you can export the database in several batches.

1.10 Restoring the Database

You can restore your database backup in the "Import" tab.



File to import
Location of the text file (Max: 8,192KiB)
Character set of the file: utf8
Imported file compression will be automatically detected from: None, gzip, zip

Partial import
[✓] Allow interrupt of import in case script detects it is close to time limit. This might be good way to import large files, however it can break transactions.
Number of records(queries) to skip from start 0

Format of imported file
CSV
CSV using LOAD DATA
[✓ SQL]

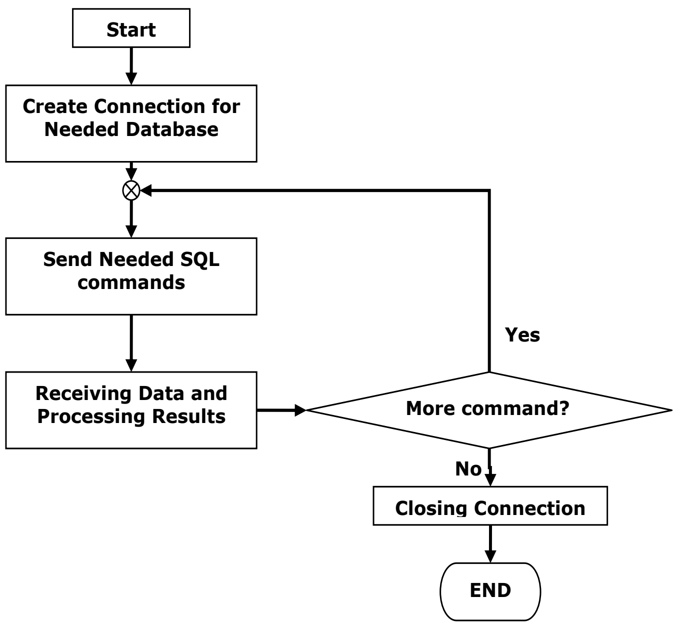
SQL options
SQL compatibility mode NONE

Click on the **Browse** button to select your database backup file from your local computer. Pick the charset of the file from the corresponding drop-down menu.

If the file is too big, the MySQL server timeout can be reached. In such a case you can interrupt the import action. Then you can continue with the data import defining the number of the queries to be skipped from the file beginning. In this way you will skip the imported queries and continue from the point of the interruption.

2 Connect from PHP to MySQL

A flow chart illustrating the use of PHP together with a database to make a client/server web application is shown as followed:


Start
Create Connection for Needed Database
Send Needed SQL commands
Receiving Data and Processing Results
More command?
Yes
No
Closing Connection
END

From the figure, we firstly have to establish a connection to the MySQL Server. After that, through the established connection, you can issue as many MySQL statements as needed to the MySQL server. In the end, the database connection is closed to free the used resource. The detail of each step in this work flow is described next.

2.1 Open a Connection

There are both procedural and object-oriented ways to connect to MySQL from PHP. In this lab, we will use the object-oriented way with *mysqli* extension. Opening a connection to MySQL is done by creating a new object of class mysqli as follows.

```
<?php
// In some cases, 127.0.0.1 may be needed instead of localhost
$mysqli = new mysqli('localhost','user','password','dbname');
if($mysqli->connect_errno){
echo $mysqli->connect_errno.": ".$mysqli->connect_error;
}
// All subsequent queries are done through $mysqli object.
// ...
$mysqli->close();
?>
```

The constructor of mysqli takes four arguments: the host to connect to (localhost in most cases), MySQL user, MySQL password, and the databasename. Often, the connection is closed automatically at the end of script execution. So, there is no need to explicitly close it. In a rare case where it is needed, `$mysqli->close()` may be used.

The property `connect_errno` returns the last error code number from the last call to connect. If there is no error, then zero is produced. Wrapping "if" around the `connect_errno` is a common pattern when establishing a connection to MySQL. The property `connect_error` is associated with `connect_errno`, and is the string description of the last connection error.

2.2 Send Queries to MySQL

Now that we have a connection to the database, we can now send some queries. To execute an SQL command in a PHP program, we call the method `query()` on the mysqli object. The following code illustrates how an SQL CREATE statement is sent with `query()`.

```
<?php
	$mysqli = new mysqli('localhost','user','password','dbname');
	if($mysqli->connect_errno){
		echo $mysqli->connect_errno.": ".$mysqli->connect_error;
	}

	$q='CREATE table product(p_id int unsigned not null auto_increment 
primary key, p_name varchar(30), p_price int)';
	if($mysqli->query($q)){
		echo 'CREATE was successful.';
	}else{
		Echo 'CREATE failed. Error: '.$mysqli->error ;
	}
?>
```

The method `query()` of class mysqli takes a query string as its argument and returns either a `mysqli_result` object on success for a SELECT, SHOW, DESC, and EXPLAIN query, or false on failure. For a query which does not require a result set (i.e., CREATE, INSERT, UPDATE, and DELETE), the method returns true on success.

Wrapping the `query()` call with an "if" statement is a common coding pattern as it attempts to query and performs the failure checking in one go. In the case of a failure, the property `$mysqli->error` will return the last error message associated with the latest query.

After the code is successfully executed, we would have a new table "product" in the database. The table has the following structure.

```
+---------+------------------+------+-----+---------+----------------+
| Field   | Type             | Null | Key | Default | Extra          |
+---------+------------------+------+-----+---------+----------------+
| p_id    | int(10) unsigned | NO   | PRI | NULL    | auto_increment |
| p_name  |varchar(30)       | YES  |     | NULL    |                |
| p_price | int(11)          | YES  |     | NULL    |                |
+---------+------------------+------+-----+---------+----------------+
```

It is simple to make a slight modification of the previous code to insert some rows to this table. Here is a code snippet which inserts four rows into the Product table we just created. We assume that `$mysqli` has already been created.

```
<?php
$recs=array(
	array('Pencil',10),array('Eraser',5),
	array('Mouse',600),array('Printer',4000)
);
foreach($recs as $r){
	$q="INSERT INTO product(p_name, p_price) VALUES('$r[0]', $r[1])";
	if(!$mysqli->query($q)){
		echo "INSERT failed. Error: ".$mysqli->error ;
		break;
	}
}
?>
```

In this example, we have the data in an array, where each element in this array is another array representing a row. The for loop just iterates through each element, constructs an insert query, and executes with `$mysqli->query()` as before. After the code is executed, the "Product" table looks like:

```
+------+--------------------+---------+
| p_id | p_name             | p_price |
+------+--------------------+---------+
|    1 | Pencil             |      10 |
|    2 | Eraser             |       5 |
|    3 | Mouse              |     600 |
|    4 | Printer            |    4000 |
+------+--------------------+---------+
```

2.3 Retrieve Result Sets from MySQL

In the case that the query is of type SELECT, SHOW, DESC, or EXPLAIN, `query()` will return a `mysqli_result` object on success, and return false on failure. Since in PHP anything that is not null or not 0 is considered true, wrapping an "if" statement around the call of `query()` will still work.

Here is a demonstration of how to retrieve a result set after executing "show tables" to list all tables in the database.

```
<?php
      if($result=$mysqli->query('show tables')){
            while($row=$result->fetch_array()){
                  echo$row[0].'<br>';
            }
            $result->free();
      }else{
            echo "Retrieval failed";
      }
?>
```

To understand the code above, it helps to recall that putting `show tables` in a command-line client would produce (assuming database name is "its331" and there are seven tables):

```
+-------------------+
| Tables_in_its331  |
+-------------------+
| Course            |
| Product           |
| Register          |
| Section           |
| Student           |
| employee_data     |
| employee_per      |
+-------------------+
```

In the code above, `$result` contains the `mysqli_result` object. A `mysqli_result` object should be imagined to contain the result which would be returned in a command-line client. In this case, `mysqli_result` object would contain the table above. Internally the `mysqli_result` object has its own pointer which points to one row of the result set at a time. Each call to `$result->fetch_array()` returns the row as an array and moves the pointer to the next row. The array is indexed in such a way that 0 will give the value of the first column, 1 will give the value of the second column, and so on. In the code above, since we have only one column (index 0), we simply get the values and print them out. In the last call to `fetch_array` a null value will be produced, and thus causes the loop to end. After the while loop, `$result->free()` is called to free the buffered result.

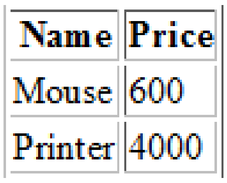
2.4 Display Result Sets in a Table

Continuing from the example of "product" table, let us try to retrieve some data and display it in an HTML table. The following code displays products and their prices which are greater than 100.

```
<?php
	$q="select p_name, p_price from product where p_price> 100; ";
	if($result=$mysqli->query($q)){
		echo '<table border="1">';
		echo '<tr><th>Name</th><th>Price</th></tr>';
		while($row=$result->fetch_array()){
			echo "<tr>";
			echo "<td>".$row['p_name']."</td>";
			echo "<td>".$row['p_price']."</td>";
			echo "</tr>";
		}
		Echo '</table>';
		$result->free();
	}else{
		Echo "Retrieval failed: ".$mysqli->error ;
	}
?>
```

The structure of the code is almost identical to the previous example except that we now print the result in an HTML table. In the previous example, `$row` is accessed by a numeric index. In fact, the method `fetch_array()` also allows the values in each row to be accessed by their column names as the keys in the returned associative array. In this particular example, `$row[‘p_name’]` would give the same value as `$row[0]`. Notice that `$mysqli->error` also works for a SELECT query, and will give an error message on a failure.

After the code is executed, the following table is obtained.



Name	Price
Mouse	600
Printer	4000

2.5 Get the Number of Rows

There are many circumstances where, besides the actual result set, the number of rows in the result set is needed. The class `mysqli_result` has a property `num_rows` for this purpose. The following code demonstrates how to use it. We assume `$mysqli` has already been constructed.

```
<?php
	$q="select p_id from product where p_name like 'P%'; ";
	if($result=$mysqli->query($q)){
		$count=$result->num_rows;
		Echo "There are $count products starting with P.";
		$result->free();
	}else{
		Echo "Query failed: ".$mysqli->error ;
	}
?>
```

In this example, we try to find the number of product names which start with ‘P’. The number can be obtained by referring to `$result->num_rows`.

There is another way to get only the number of rows. That is to query "select count(*) from Product where p_name like 'P%' ", and use fetch_array() to get the count value. If only the count is needed, then one may issue an SQL COUNT statement. However, if the actual result set is also needed, we recommend the first way which is to use $result->num_rows to get the count. In this way, both the result set and the count can be obtained.

2.6 Get the Number of Columns

Often, the number of columns is known in advance when the query is constructed. However, in the case that the query is dynamically constructed (i.e., columns to query depend on a user input), or the query has "*" for all columns, the number of columns may be unknown. The class mysqli_result has a property field_count for this purpose.

```
<?php
	$q="select * from Product limit 1;";
	if($result=$mysqli->query($q)){
		$count=$result->field_count;
		Echo "There are $count columns.";
		$result->free();
	}else{
		Echo "Query failed: ".$mysqli->error ;
	}
?>
```

In this example, we try to find the number of columns (fields) in the "Product" table. On a success, "There are 3 columns" will be printed out.

2.7 Seek a Row in the Result Set

The object mysqli_result containing the result set works by maintaining an internal pointer which points to the current row. Rows in the set are retrieved by moving this pointer (by calling $result->fetch_array()) sequentially from the beginning to the end. However, in some cases, we may be interested in only a particular row in the result set. This is when the method data_seek() of class mysqli_result comes in handy. For example, we want to find the product which has the third lowest price.

```
<?php
	$q='select p_name, p_price from product order by p_price limit 3;';
	if($result=$mysqli->query($q)){
		// Seek to the third row (row index starts from 0)
		$result->data_seek(2);
		$row=$result->fetch_array();
		Echo $row['p_name']." has the third lowest price which is
".$row['p_price'];
		$result->free();
	}else{
		Echo "Query failed: ".$mysqli->error;
	}
?>
```

In this example, we query the products and order them by their prices in ascending order. To get the product having the third lowest price, we move the internal pointer of $result to index 2 by using $result->data_seek(2). So, the next fetch by $result->fetch_array() will give the result of the third row. After executed, the output of this code is "Mouse has the third lowest price which is 600".

2.8 Properly Escape Query Strings

When inserting a new record, it is very common to construct an INSERT statement by concatenating the values input by the user. However, it is sometimes problematic when those values contain characters used in MySQL syntax. Here is an example which will produce a MySQL syntax error.

```
<?php
	$r=array("Idiot's Guide Book",1200);
	$q="INSERT INTO product(p_name, p_price) VALUES('$r[0]', $r[1])";
	if(!$mysqli->query($q)){
		echo "INSERT failed. Error: ".$mysqli->error ;
	}
?>
```

In the code above, we attempt to insert a new product called "Idiot's Guide Book" into the Product table. On the surface, the code looks fine. However, when executed, there will be a MySQL syntax error produced. The reason is that the value "Idiot's Guide Book" contains a single-quote which renders `$q` as

"INSERT INTO product(p_name, p_price) VALUES('Idiot's Guide Book', 1200)".

As can be seen, the single-quote in the value accidentally becomes a single-quote closing the string in the MySQL query.

To solve this problem, we can use the method `$mysqli->real_escape_string()` which will properly escape MySQL special characters.

```
<?php
	$r=array("Idiot's Guide Book",1200);
	$q="INSERT INTO product(p_name, p_price)
VALUES('".$mysqli->real_escape_string($r[0])."', $r[1])";
	if(!$mysqli->query($q)){
		echo "INSERT failed. Error: ".$mysqli->error ;
	}
?>
```

This time, $q will be

"INSERT INTO product(p_name, p_price) VALUES('Idiot\'s Guide Book', 1200)"

(note the backslash in front of the single-quote). The added backslash signals the MySQL that the following character is an actual value, not part of the syntax. With this code, the insertion is successful, and the Product table's records become

```
+------+--------------------+---------+
| p_id | p_name             | p_price |
+------+--------------------+---------+
|    1 | Pencil             |      10 |
|    2 | Eraser             |       5 |
|    3 | Mouse              |     600 |
|    4 | Printer            |    4000 |
|    5 | Idiot's Guide Book |    1200 |
+------+--------------------+---------+
```

3 Short Reference

In this section, we give a summary of selected commonly used methods and properties of `mysqli` and `mysqli_result` classes. Properties are denoted with a $. For full detail, see http://www.php.net/manual/en/book.mysqli.php

3.1 mysqli Class

- `mysqli::$affected_rows` — Gets the number of affected rows in a previous MySQL operation
- `mysqli::$client_info`— Returns the MySQL client version as a string
- `mysqli::$client_version` — Get MySQL client info
- `mysqli::close` — Closes a previously opened database connection
- `mysqli::$connect_errno` — Returns the error code from last connect call
- `mysqli::$connect_error` — Returns a string description of the last connect error
- `mysqli::$errno` — Returns the error code for the most recent function call
- `mysqli::$error` — Returns a string description of the last error
- `mysqli::$field_count` — Returns the number of columns for the most recent query
- `mysqli::get_client_info` — Returns the MySQL client version as a string
- `mysqli::$host_info` — Returns a string representing the type of connection used
- `mysqli::$server_info` — Returns the version of the MySQL server
- `mysqli::$server_version` — Returns the version of the MySQL server as an integer
- `mysqli::get_warnings` — Get result of SHOW WARNINGS
- `mysqli::$info` — Retrieves information about the most recently executed query
- **`mysqli::$insert_id`** — Returns the auto generated id used in the last query
- `mysqli::query` — Performs a query on the database
- `mysqli::real_escape_string` — Escapes special characters in a string for use in an SQL statement, taking into account the current charset of the connection
- `mysqli::select_db` — Selects the default database for database queries
- `mysqli::$thread_id` — Returns the thread ID for the current connection
- `mysqli::kill` — Asks the server to kill a MySQL thread

3.2 mysqli_result Class

- `mysqli_result::$current_field` — Get current field offset of a result pointer
- `mysqli_result::data_seek` — Adjusts the result pointer to an arbitary row in the result
- `mysqli_result::fetch_all` — Fetches all result rows as an associative array, a numeric array, or both
- `mysqli_result::fetch_array` — Fetch a result row as an associative, a numeric array, or both
- `mysqli_result::fetch_assoc`— Fetch a result row as an associative array
- **`mysqli_result::fetch_field_direct`** — Fetch meta-data for a single field
- `mysqli_result::fetch_fields` — Returns an array of objects representing the fields in a result set
- **`mysqli_result::fetch_object`** — Returns the current row of a result set as an object
- `mysqli_result::$field_count` — Get the number of fields in a result
- `mysqli_result::free` — Frees the memory associated with a result
- `mysqli_result::$num_rows` — Gets the number of rows in a result

Worksheet

1. Create database named "STAFF" and create two tables along with the specified fields. The following tables show the structure of STAFF database. Note that all fields, except primary key, must be set to allow NULL values.

USERGROUP Table

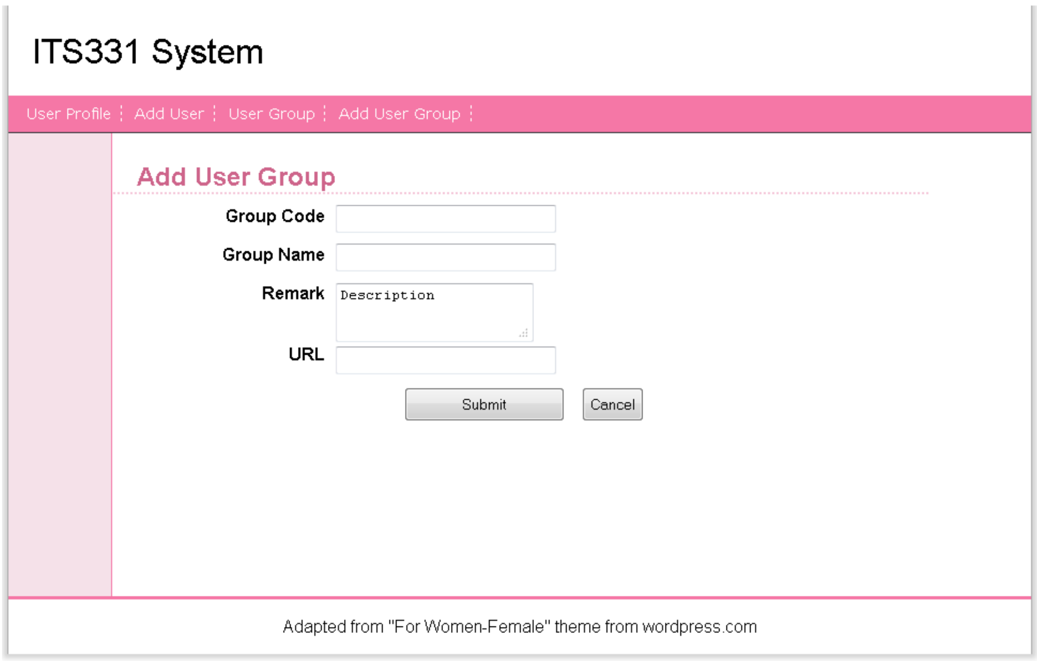
Field	Type	Length Values	Extra	Primary Key
USERGROUP_ID	INT		Auto_increment	Yes
USERGROUP_CODE	VARCHAR	50		
USERGROUP_NAME	VARCHAR	50		
USERGROUP_REMARK	VARCHAR	255		
USERGROUP_URL	VARCHAR	50		

USER Table

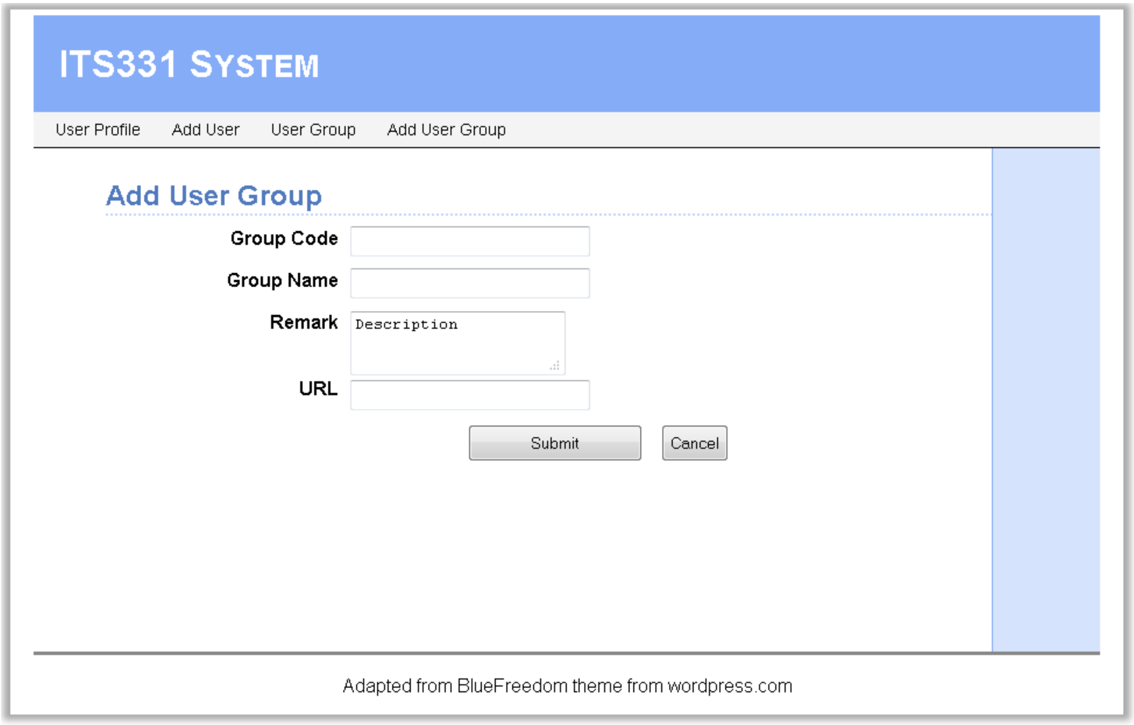
Field	Type	Length Values	Extra	Primary Key
USER_ID	INT		Auto_increment	Yes
USER_TITLE	VARCHAR	25		
USER_FNAME	VARCHAR	50		
USER_LNAME	VARCHAR	50		
USER_GENDER	VARCHAR	25		
USER_EMAIL	VARCHAR	50		
USER_NAME	VARCHAR	25		
USER_PASSWD	VARCHAR	25		
USER_GROUPID	INT			
DISABLE	INT			

2. Complete add_group.html so that data input in add_group.html is inserted into the USERGROUP table in the database. To check inserting data, go to PHPMyadmin, retrieve data in "USERGROUP" Table in "STAFF" database.

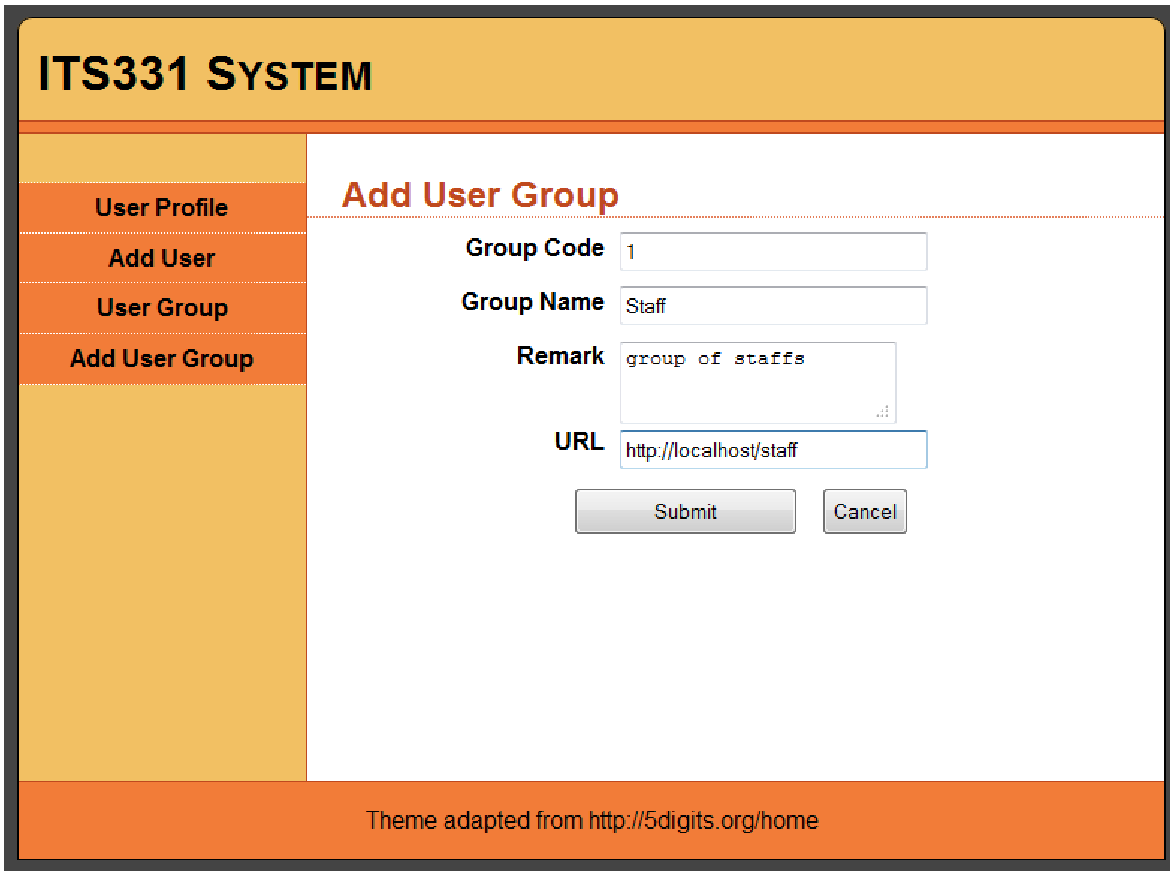
add_group.html (worksheet 1)



add_group.html (worksheet 2)



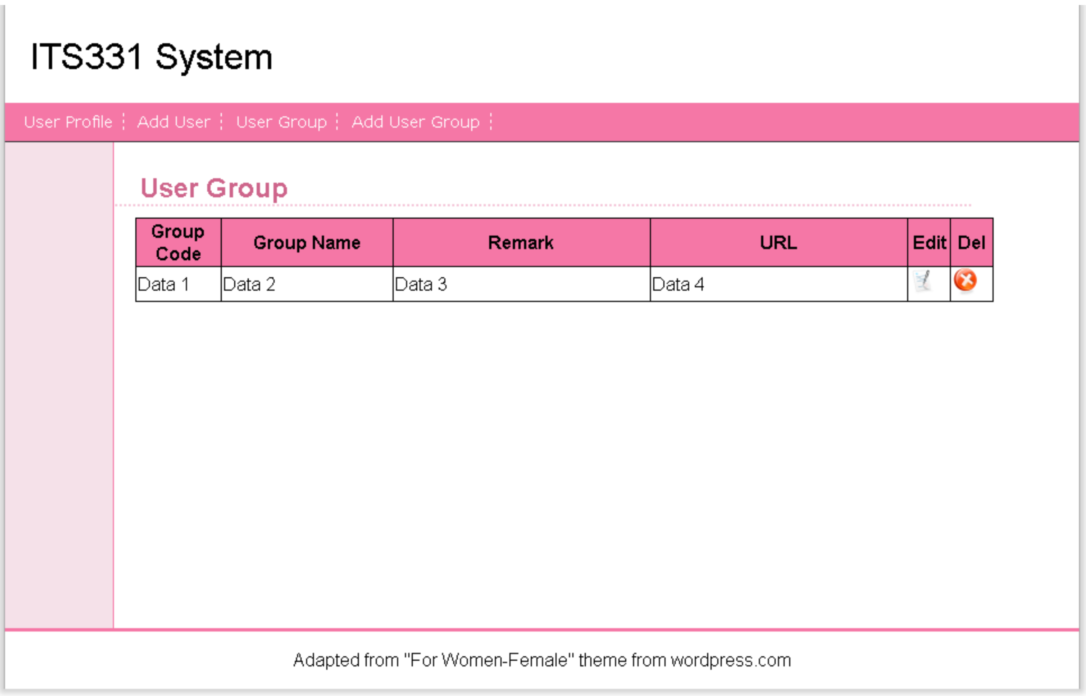
add_group.html (worksheet 3)



Group Code	1
Group Name	Staff
Remark	group of staffs
URL	http://localhost/staff

3. Complete group.php by retrieving data from USERGROUP table and display it in the form of table as shown in the following image. In case of no insertion data,

group.php (worksheet 1)


ITS331 System

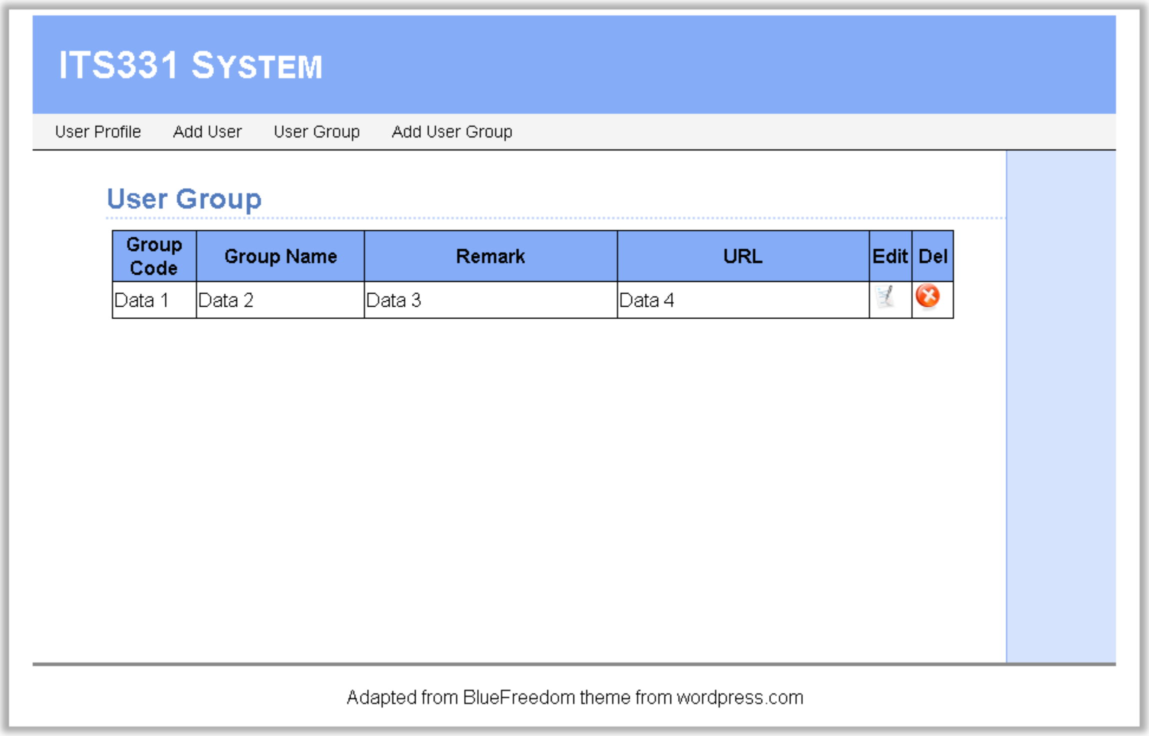
User Profile ¦ Add User ¦ User Group ¦ Add User Group ¦

User Group

Group Code	Group Name	Remark	URL	Edit	Del
Data 1	Data 2	Data 3	Data 4	✎	⊗

Adapted from "For Women-Female" theme from wordpress.com

group.php (worksheet 2)


ITS331 SYSTEM

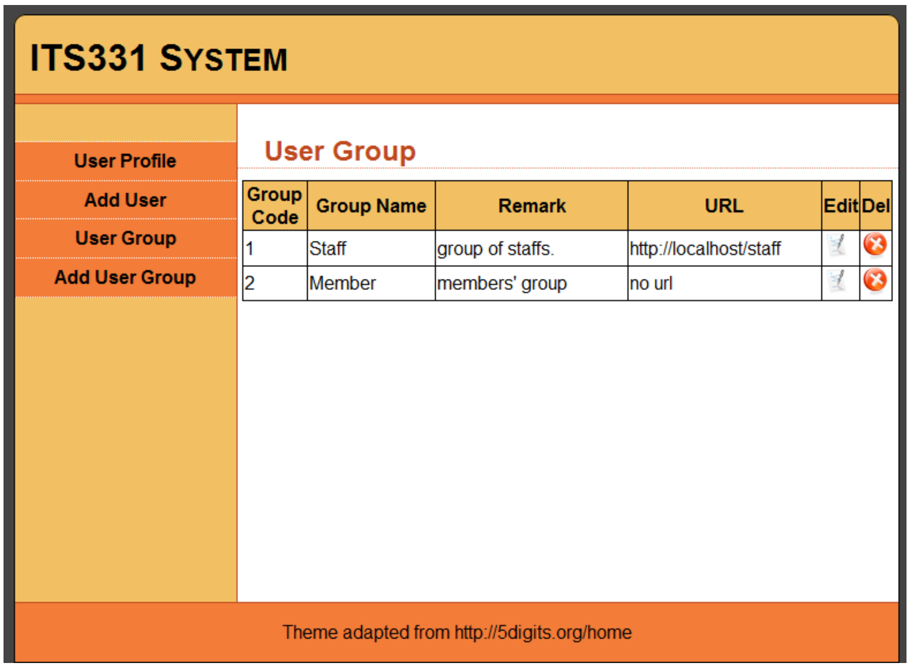
User Profile Add User User Group Add User Group

User Group

Group Code	Group Name	Remark	URL	Edit	Del
Data 1	Data 2	Data 3	Data 4	✎	⊗

Adapted from BlueFreedom theme from wordpress.com

group.php (worksheet 3)



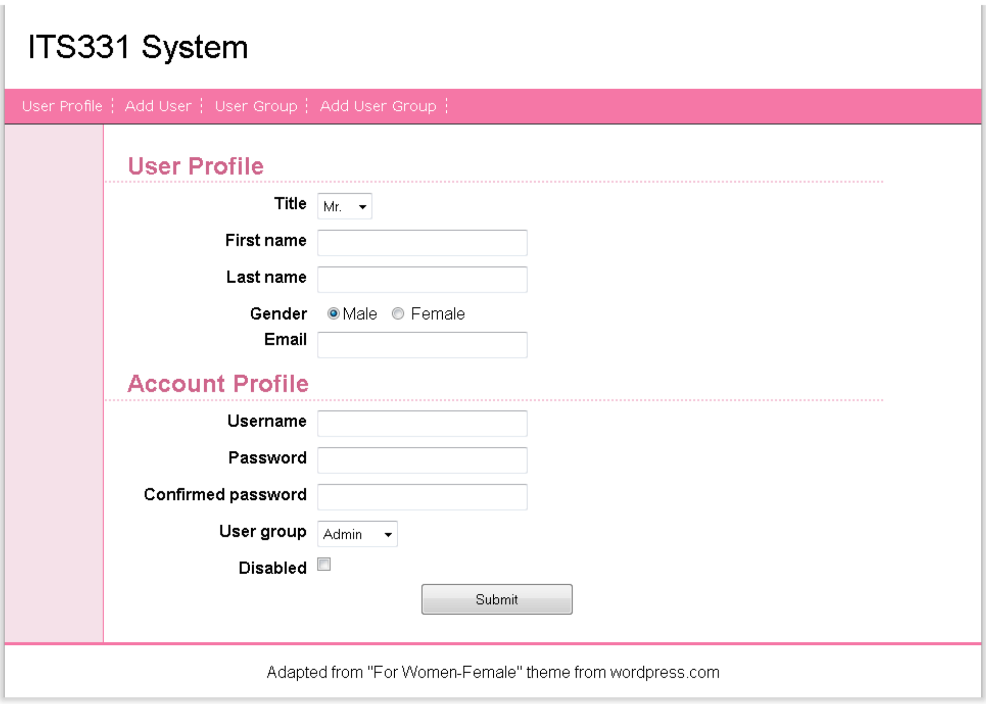
Group Code	Group Name	Remark	URL	Edit	Del
1	Staff	group of staffs.	http://localhost/staff	✎	✖
2	Member	members' group	no url	✎	✖

In group.php, if data is submitted from add_group.html (i.e., if the submit button is clicked), insert it to the USERGROUP table. Then, query the content from USERGROUP table, and display it in an HTML table as shown above. If there is no data submitted, then just query and display the data in an HTML (no insert).

Exercise

1. Complete add_user.php (page with form to add new users) so that data input in add_user.html is inserted into the USER table in the database. To check inserting data, go to PHPMyadmin, retrieve data in "USER" Table in "STAFF" database.

add_user.php (worksheet 1)



ITS331 System

User Profile ¦ Add User ¦ User Group ¦ Add User Group ¦

User Profile

Title	Mr.
First name	
Last name	
Gender	● Male ○ Female
Email	

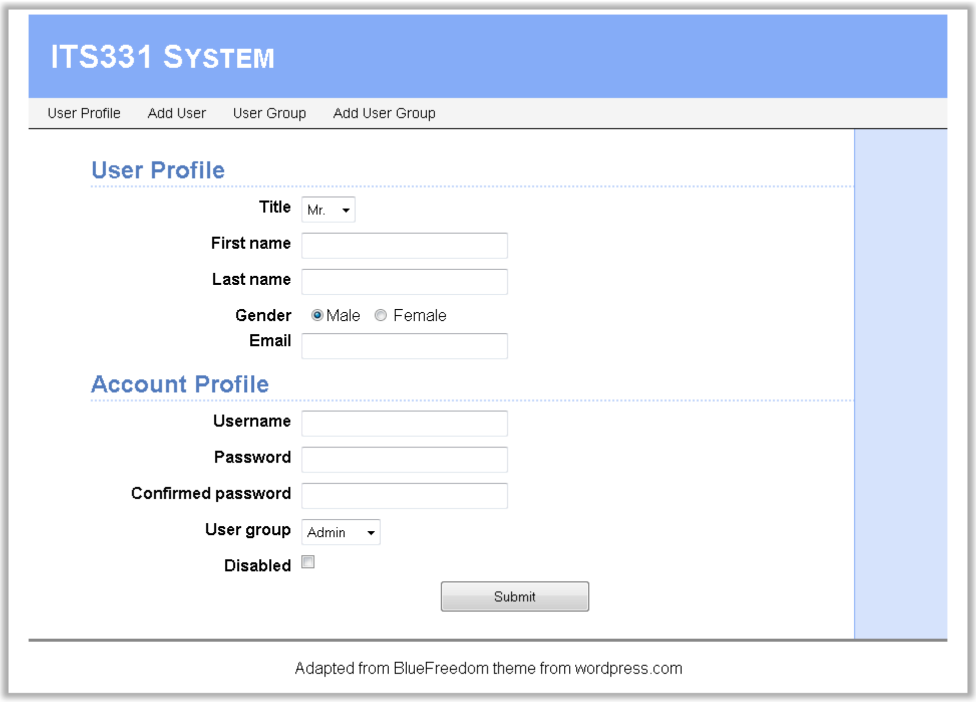
Account Profile

Username	
Password	
Confirmed password	
User group	Admin
Disabled	☐

Submit

Adapted from "For Women-Female" theme from wordpress.com

add_user.php (worksheet 2)



ITS331 System

User Profile Add User User Group Add User Group

User Profile

Title	Mr.
First name	
Last name	
Gender	● Male ○ Female
Email	

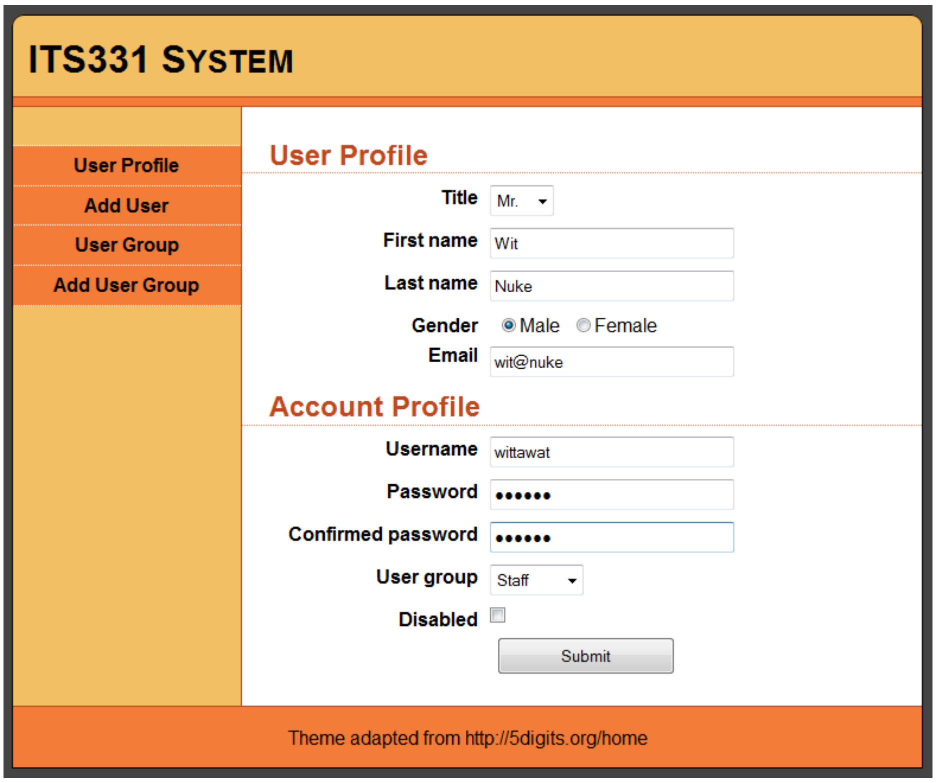
Account Profile

Username	
Password	
Confirmed password	
User group	Admin
Disabled	☐

Submit

Adapted from BlueFreedom theme from wordpress.com

add_user.php (worksheet 3)


ITS331 SYSTEM

User Profile
Add User
User Group
Add User Group

User Profile

Title	Mr.
First name	Wit
Last name	Nuke
Gender	● Male ○ Female
Email	wit@nuke

Account Profile

Username	wittawat
Password	••••••
Confirmed password	••••••
User group	Staff
Disabled	☐

Submit

Theme adapted from http://5digits.org/home

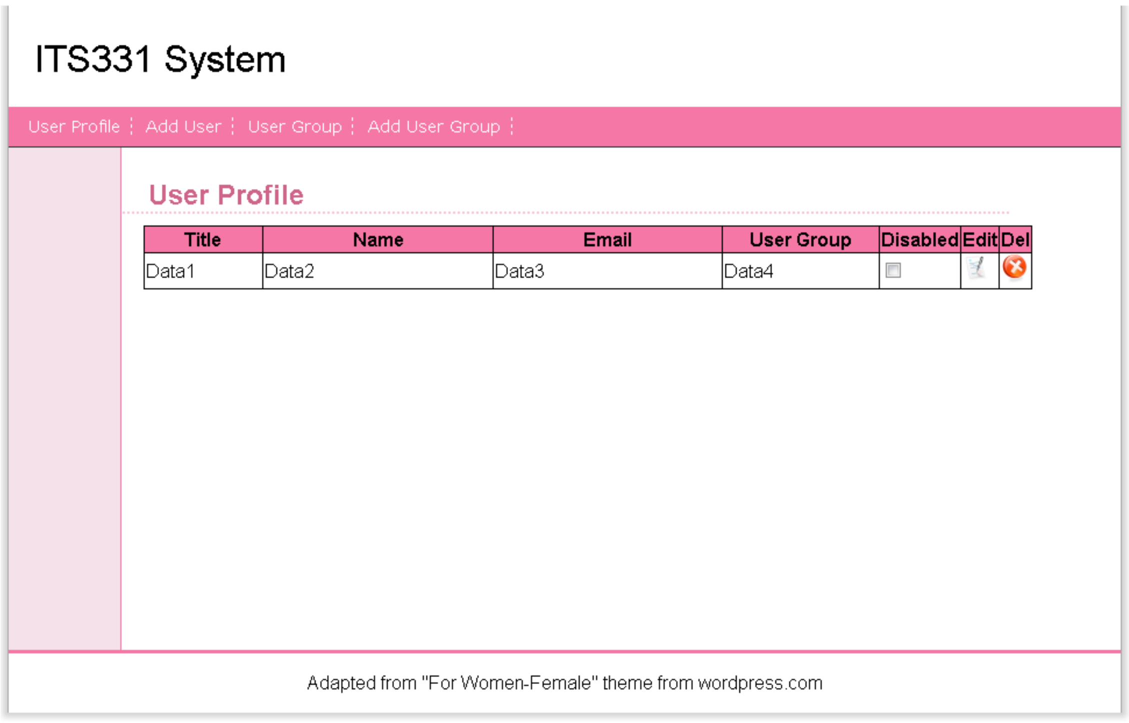
The choice names in the combo box for "User Group" must be the actual data in the table USERGROUP (i.e., "USERGROUP_NAME" column in USERGROUP table). However, the choice values must be from "USERGROUP_ID" column.

Recall that the choices of a combo box are created with an <option> tag. In this case, the following code may be used to make the combo box.

```
<select name="usergroup">
<?php
      $mysqli = new mysqli('localhost','…','…','STAFF');
      $q='select USERGROUP_ID, USERGROUP_NAME from USERGROUP;';
      if($result=$mysqli->query($q)){
            while($row=$result->fetch_array()){
                  echo '<option value="'.$row[0].'">'.$row[1].'</option>';
            }
      }else{
            echo 'Query error: '.$mysqli->error;
      }
?>
</select>
```

2. Complete user.php by retrieving data from USER table and display it in the form of table as shown in the following image. Note that User Group must show in form of USERGROUP_NAME from USERGROUP table.

user.php (Worksheet 1)



ITS331 System

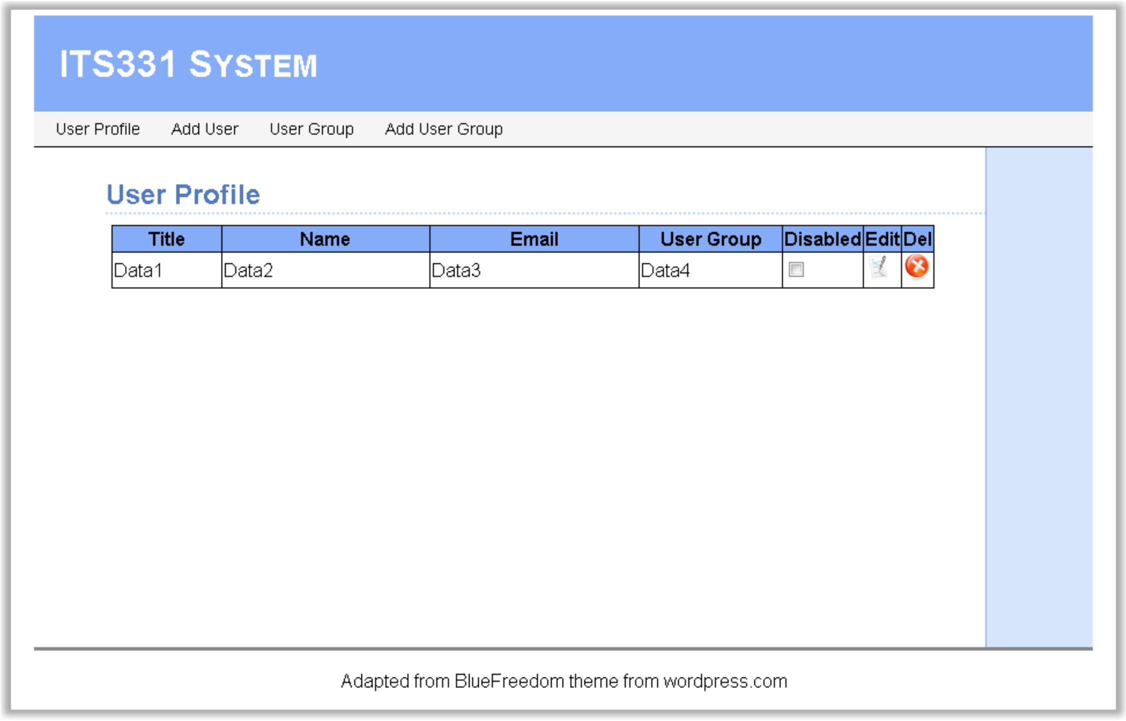
User Profile ¦ Add User ¦ User Group ¦ Add User Group ¦

User Profile

Title	Name	Email	User Group	Disabled	Edit	Del
Data1	Data2	Data3	Data4	☐	✎	⊗

Adapted from "For Women-Female" theme from wordpress.com

user.php (Worksheet 2)



ITS331 SYSTEM

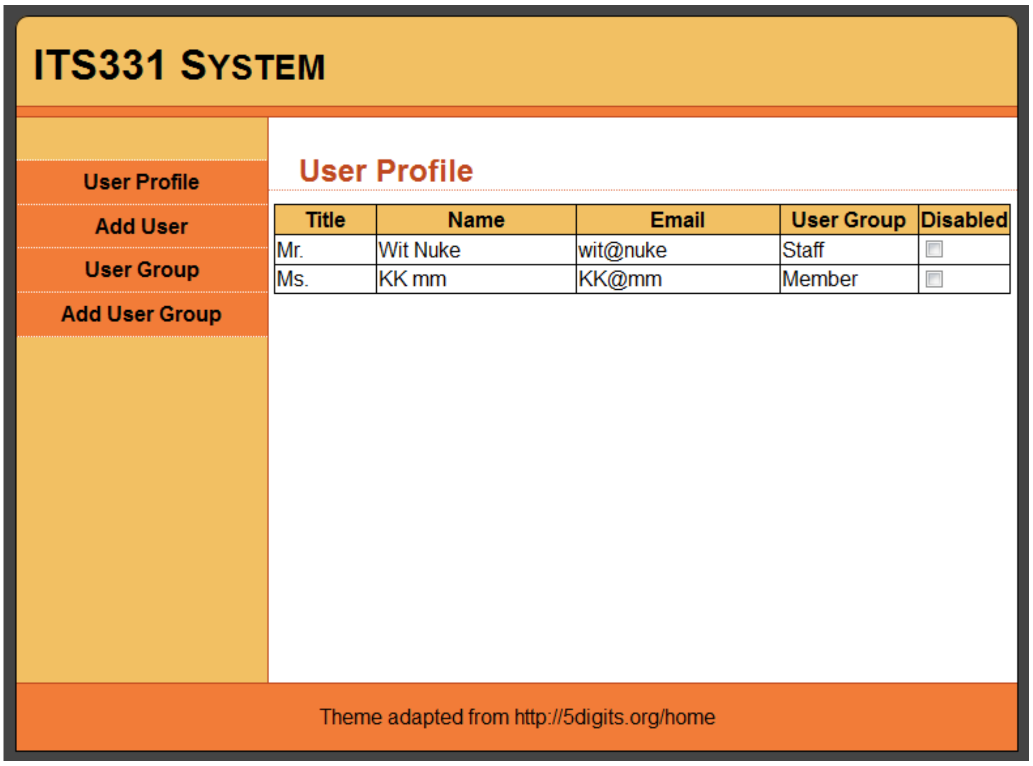
User Profile Add User User Group Add User Group

User Profile

Title	Name	Email	User Group	Disabled	Edit	Del
Data1	Data2	Data3	Data4	☐	✎	⊗

Adapted from BlueFreedom theme from wordpress.com

user.php (Worksheet 3)



User Profile

Title	Name	Email	User Group	Disabled
Mr.	Wit Nuke	wit@nuke	Staff	☐
Ms.	KK mm	KK@mm	Member	☐

In user.php, if there is data submitted from add_user.php (i.e., if the submit button is clicked), insert it to the USER table. Then, query the content from USER table, and display all users in an HTML table as shown above. If there is no data submitted, then just query and display the user data in an HTML (no insert).