# CSCI 4000 Assignment 4

Total estimated time for this assignment: 12 hours (if you are a good programmer)

The main programming language for this assignment should be **PHP** (mixed with HTML and CSS). If you do not use **PHP**, you will get **0 points**. For this assignment, you must use **PDO** (PHP Data Object) to interface with the MySQL database. If you do not use PDO, you will receive 0 points for almost all questions.

When you see "Richard Ricardo" or "richardricardo" in the examples and screen captures, change it to **<your name>**.

When you see "Richard" or "richard" in the example screen captures, change it to **<your first name>**. If you do not put **<your name>** / **<your first name>** in the above mentioned fields, you will get **0 points** for the question(s).

No two students should submit webpages with exactly the same code, content, layout, or color combination. If found, both students will get 0 points.

Create a folder on your hard disk, name the folder **lastname\_firstname\_assignment4**. Save all the files from this assignment in this folder.

Use XAMPP web server solution stack package to help debugging PHP code. It will make your debugging process easier. All php files must not produce any error, or any warning (-2 points for each error, each warning). Your program must run. A program that does not run will get at most 50% of the possible points. All files must begin with a comment that identifies the author, the course code, and the program date (-2 points each question if found missing). All html, css and php files must be clearly documented (commented). Points will be taken off (-2 points each question) for insufficient comments (<!-->, /\* \*/, //).

- Before adding PHP code, all html files must pass html validation at <u>http://validator.w3.org/</u> without any error (and with only 1 warning).
- When you view page source in a web browser, <!DOCTYPE html> must be at the top of every page. In other words, all pages must be written in HTML5. (-20 points if not)
  - You can put php code before <! DOCTYPE html>.
  - You cannot put html code before <!DOCTYPE html>.
- All css files must pass css validation at <u>http://jigsaw.w3.org/css-validator/</u> without any **error**. (-2 points for each error/warning, only 1 warning is allowed for html validator)

Question 1 – Database: PHP Chapter 4, eg009 and knowledge of SQL (20 points) Estimated time: 3 hours

- Save question 1 files in folder "lastname\_firstname\_assignment4": (2 points)
  - create\_db.sql
- Create a text file create\_db.sql, write sql statements in the file to
  - Create a MySQL database richard\_ricardo\_student\_db. (2 points)
  - In the database, create 2 tables. (2 points)
    - major
    - student

- Create the following fields (columns) for the tables (refer to examples below for details).
  - major table: majorID, majorName (2 points)
  - student table: studentID, majorID, firstName, lastName, gender (2 points)
- Do foreign key referencing, to maintain referential integrity (3 points)
  - One student can only have one major.
    - One major can be used (enrolled) by many students.
    - majorID is the primary key of the major table.
    - studentID is the primary key of the student table.
    - majorID is a foreign key of the student table, for any values of majorID appearing in the student table, these values must also appear in the major table.
- Insert test records to major table and student table. (3 points)
- Create a MySQL database username **richardricardo1** with password **richardisgreat**, with data privileges (select, insert, update, delete) for the **richard\_ricardo\_student\_db** database. (4 points)
- All above must be done by SQL statements in the text file create\_db.sql. (0 points if not)
- Load create\_db.sql in XAMPP > phpMyAdmin to create the above mentioned database.
- Note: In the real world, do NOT put sql files in a website folder. Keep it offline and safe.

### Example: "richard ricardo student db" database and the tables

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### Example: "major" table structure

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## Example: "student" table structure

# Example: records in "major" table

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### Example: "records" in student table

Example: data privileges for user richardricardo1

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Recent Favorites	Global Database Change password Login Information
+ information_schema + kungfu_panda_shop + mysql	Edit Privileges: User 'richardricardo1'@'localhost'
+ performance_schema	Database specific privileges
phpmyadmin	Database Privileges Grant Table-specific privileges Action
ichard_ricardo_student_db	richard_ricardo_student_db_select, insert, upelate, deltete No No 🔊 Edit Privileges 🙇 Revoke
major     student	Add privileges on the following database: Use text field:
+ test	Go

Question 2 – Display: PHP Chapter 4, eg009 and knowledge of SQL (35 points)

**Estimated time: 4 hours** 

- Save question 2 files in "lastname firstname assignment4": (4 points)
  - o index.php
  - o main.css
  - o richard\_ricardo\_database.php
  - o richard\_ricardo\_database\_error.php
- Create web page(s) that displays the default information (example shown).
- The initial page and related outputs should look like the examples shown below.
- Create your page(s) using "richard ricardo's kung fu school" as the page title(s) (<title> tag). (2 points)
- Save the first page as index.php. (1 point)

- Create file richard ricardo database.php (php code only, no html code) to connect to database
  - Use PDO (PHP Data Object) to interface with your MySQL database.
  - Connect to the **richard\_ricardo\_student\_db** MySQL database (created in Q1), using username **richardricardo1** with password **richardisgreat**.
  - Use try {} catch () {} exception handling to detect if the connection is successful.
  - If the connection is not successful, show an error page richard ricardo database error.php.
- Create a css file named **main.css** to format all pages by creating your own layout (no two students should have the same layout). You should use **the same css file** to format all questions. (6 points)
- index.php
  - Uses richard ricardo database.php to connect to the database.
  - The sidebar on the left displays a list of majors from the "major" table (created in Q1).
  - The main portion of the page lists the students from the "student" table (created in Q1), for that major.
  - o If a user wants to view the students in another major, the user can click on the link for that major.
  - The display on the main portion of the page changes accordingly as shown in examples.

Example: richard\_ricardo\_database.php (shows nothing, only has php code) (3 points) localhost/my\_php/ricardo\_richard\_assignment4/richard\_ricardo\_database.php v C || 🗋 + Trovi search P 🔖 🏠 📋

Example: richard\_ricardo\_database\_error.php (shows this if something is wrong with database connection) (4 points)



Student L	ist					
Majors	Computer	Science				
<u>Computer</u> <u>Science</u>	Student ID	First Name	Last Name	Gender		
Electrical	1	PO	BLACK	М	Delete	
Engineering Business	2	SHIFU	HOFFMAN	М	Delete	
<b>Business</b>	3	TIGRESS	JOLIE	F	Delete	
	4	JENNIFER	YUH	F	Delete	
	<u>Add Student</u> List / Add Ma					

Example: index.php (first major is selected/clicked) (15 points)

Richard Ri	cardo Kur	ng Fu Sch	ool - St	udents	5	
Student Li	st					
Majors	Electrical E	ngineering				
<u>Computer</u> <u>Science</u>	Student ID	First Name	Last Name	Gender		
Electrical	6	MONKEY	CHAN	М	Delete	
<u>Enqineerinq</u> Business	8	MANTIS	ROGEN	М	Delete	
	<u>Add Student</u> List / Add Ma	<u>tior</u>				
			© 2	014 richard r	ricardo kung	fu school

Student L	ist					
Majors	Business					
<u>Computer</u> Science	Student ID	First Name	Last Name	Gender		
Electrical	9	CRANE	CROSS	М	Delete	
Engineering Business	10	OOGWAY	KIM	М	Delete	
JUSINESS	11	PING	HONG	М	Delete	
	<u>Add Student</u> List / Add Ma	<u>iior</u>				

Question 3 – Delete Student: PHP Chapter 4, eg009 and SQL (20 points)

**Estimated time: 3 hours** 

- Save question 3 files in folder "lastname\_firstname\_assignment4". (2 points) o richard\_ricardo\_delete\_student.php
- The initial page and related outputs should look like the examples shown below.
- Create your page(s) using "richard ricardo's kung fu school" as the page title(s) (<title> tag). (2 points)
- When a user click on a "Delete" link on index.php, (16 points)
  - the user should be directed to richard ricardo delete student.php.
    - richard\_ricardo\_delete\_student.php uses richard\_ricardo\_database.php to connect to the database.
    - $\circ$  the selected student record will be deleted from the database table "student".
    - index.php will be shown again with updated records.

Student L	ist				
Majors	Computer	Science			
<u>Computer</u> <u>Science</u>	Student ID	First Name	Last Name	Gender	
Electrical	1	PO	BLACK	М	Delete
<u>Engineering</u> <u>Business</u>	2	SHIFU	HOFFMAN	М	Delete
<u>Dusiness</u>	3	TIGRESS	JOLIE	F	Delete
	4	JENNIFER	YUH	F	Delete
	<u>Add Student</u> List / Add M				

Example: index.php, before deletion, click on the delete button on Student ID 4

### Example: After deletion, student ID 4 was deleted localhost/my\_php/ricardo\_richard\_assignment4/richard\_ricardo\_delete\_student.1 ♥ ♥ | ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑

Student	List				
Majors	Computer	Science			
<u>Computer</u> Science	Student ID	First Name	Last Name	Gender	
lectrical	1	PO	BLACK	М	Delete
<u>Engineering</u>	2	SHIFU	HOFFMAN	М	Delete
<u>Business</u>	3	TIGRESS	JOLIE	F	Delete

**Estimated time: 4 hours** 

### Question 4 – Add Student: PHP Chapter 4, eg009 and SQL (25 points)

• Save question 4 files in folder "lastname\_firstname\_assignment4". (2 points)

- o richard\_ricardo\_add\_student\_form.php
- richard\_ricardo\_add\_student.php
- richard\_ricardo\_error.php
- The initial page and related outputs should look like the examples shown below.
- Create your page(s) using "richard ricardo's kung fu school" as the page title(s) (<title> tag). (2 points)
- When a user click on "Add Student" link on index.php, (21 points)
  - the user should be directed to richard ricardo add student form.php.
    - a link "View All Students" giver the user option to go back to index.php.
    - richard\_ricardo\_add\_student\_form.php uses richard\_ricardo\_database.php to connect to the database.
    - A dropdown list will show all majors by retrieve records from "major" database table (created in Q1).
    - o After the user keyed in new student data, and press the submit (Add Students) button,

richard\_ricardo\_add\_student.php will be used to add student record to the "student" database table, and index.php will be shown again with updated records.

- richard\_ricardo\_add\_student.php uses richard\_ricardo\_database.php to connect to the database.
- If the user left any textbox empty, richard\_ricardo\_error.php page will be shown.

Example: richard ricardo add student form.php

Richard	Richardo Kung Fu School - Add Student
Add Stu	dent
Major:	Computer Science v
First Name:	Computer Science Electrical Engineering
Last Name:	Business
Gender:	Male v
	Add Student
View All Stu	<u>idents</u>
	© 2014 richard richardo kung fu sch

	d_ricardo_add_student_form.php, user input richard_assignment4/richard_ricardo_add_student_fo ⊽ C □ Trovi search P ↓ 兪 ☆ @
Richard	Richardo Kung Fu School - Add Student
Add Stu	dent
Major:	Computer Science 🗸
First Name:	JENNY
Last Name:	CHAN
Gender:	Female V
	Add Student
View All Stu	<u>idents</u>
	© 2014 richard richardo kung fu school

Example: after successfully adding student record localhost/my\_php/ricardo\_richard\_assignment4/richard\_ricardo\_add\_student.ph <br/> <br/> C <br/> 🔎 🕹 🏠 🏠 🗎

Student I Majors	List Computer :	Science				
Computer Science	Student	First Name	Last Name	Gender		
Electrical	1	PO	BLACK	М	Delete	
Engineering	2	SHIFU	HOFFMAN	М	Delete	
<u>Business</u>	3	TIGRESS	JOLIE	F	Delete	
	12	JENNY	CHAN	F	Delete	
	<u>Add Student</u> List / Add Ma	aior				

Example: richard\_ricardo\_error.php page: If any textbox is left empty, richard\_ricardo\_error.php page will be shown.

$calhost/my_php/ricardo_richard_assignment4/richard_ricardo_add_student.ph \ \forall \ C^{t} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	J ▼ Trovi search 🏸 🖡 🏠 🔯 🗉
<b>Richard Ricardo Kung Fu School</b>	
Error	
Invalid (missing) name. Check all fields and try again.	
<u>View All Students</u>	
	© 2014 richard ricardo kung fu school

### Question 5 Extra Credit – List / Add Major: (20 points) Estimated time: 4 hours

Save question 5 files in folder "lastname\_firstname\_assignment4". (1 point)

- o richard\_ricardo\_major\_list.php
- richard\_ricardo\_delete\_major.php
- o richard\_ricardo\_add\_major.php
- The initial page and related outputs should look like the examples shown below.
- Create your page(s) using "richard ricardo's kung fu school" as the page title(s) (<title> tag). (1 point)
- When a user click on a "List / Add Major" link on index.php, (2 points)
  - the user should be directed to richard\_ricardo\_major\_list.php.
  - o richard\_ricardo\_major\_list.php uses richard\_ricardo\_database.php to connect to the database.
  - records from the "major" table will be displayed.
- When the user click on "Add" button without keying in anything, richard\_ricardo\_error.php page (created in Q4) will be shown. (4 points)
- When the user key in some major, and click on "Add" button, (4 points)
  - the user should be directed to richard ricardo add major.php.
    - o richard\_ricardo\_add\_major.php uses richard\_ricardo\_database.php to connect to the database.
    - user input will be added to "major" database table.
    - o richard ricardo major list.php will be shown again with updated records.
  - When the user click on a "Delete" link on richard ricardo major list.php, (8 points)
    - the user should be directed to richard\_ricardo\_delete\_major.php.
    - richard\_ricardo\_delete\_major.php uses richard\_ricardo\_database.php to connect to the database.
    - o the selected major record will be deleted from the database table "major".
    - o richard ricardo major list.php will be shown again with updated records.
    - Due to foreign key referencing, user should not be able to delete any "major" record with "student" record linked to it (Q1).

Major List		
Name		
Computer Science	Delete	
Electrical Engineering	) Delete	
Business	Delete	
Add Major		
1ajor Name:	Add	

Example: richard ricardo error.php (user click on "Add" without textbox input) localhost/my\_php/ricardo\_richard\_assignment4/richard\_ricardo\_add\_major.php 
C

Richard Ricardo Kung Fu School
Error
Invalid (empty) major data. Check all fields and try again.
<u>View All Students</u>
© 2014 richard ricardo kung fu school

Major List				
Name				
Computer Science	Delete			
Electrical Engineering	Delete			
Business	Delete			
Add Major				

# Example: richard ricardo major list php (user input "biology")

Example: richard ricardo major list.php (after user input) localhost/my\_php/ricardo\_richard\_assignment4/richard\_ricardo\_add\_major.php VC 👂 💺 🏠 👌 📋 💽

lame			
Computer Science	Delete		
lectrical Engineering	Delete		
Business	Delete		
Biology	Delete		
dd Major			
ajor Name:	Add		
· · · · · · · · · · · · · · · · · · ·	Ado		

Major List			
Name			
Computer Science	Delete		
Electrical Engineering	Delete		
Business	Delete		
Biology	Delete		
Add Major Major Name:		Add	
		Add	

Example: richard\_ricardo\_major\_list.php (user to click on "Delete" next to "biology")

Example: richard\_ricardo\_major\_list.php (show updated records)

Delete		
Delete		
Delete		
Delete		
Add		

### Important:

- 1. If you do not put **<your name>** / **<your first name>** in the above mentioned fields (as shown in the examples), you will get **0 points** for the question(s).
- 2. No two students should submit webpages with exactly the same code, content, layout, or color combination. If found, both students will get **0** points.

- 3. Before adding PHP code, all html files must pass html validation at <u>http://validator.w3.org/</u> without any **error** (and with only 1 warning). Use the validator's "File Upload" tab to check each file.
  - a. If you want to validate a PHP file after adding PHP code, you can temporarily rename the \*.php file to \*.htm file.
  - b. When you view page source in a web browser, <!DOCTYPE html> must be at the top of every page. In other words, all pages must be written in HTML5. (-20 points if not)
  - c. If any html error is found, 2 points will be deducted for each error. Please validate the files before adding PHP code.
- 4. All css files must pass css validation at <u>http://jigsaw.w3.org/css-validator/</u> without any **error**.
- 5. If your files do not pass the html and css validations, **2 points will be deducted** for **each html or css error** found (no deduction for php error at html validation).
- 6. Document (comment) your HTML files (<!-- ->), CSS files (/\* \*/), and PHP files (/\* \*/ OR //). Points will be taken off for insufficient comments (<!-- ->, /\* \*/, //).

### **Submission instructions:**

- You need to test all document(s).
- Do screen capture(s) of the **input** and the related **output(s)**. Use any graphic editing software (e.g. Microsoft Paint, Adobe Fireworks, GIMP, or Microsoft Expression Design etc) to cut out the browser output (from the screen capture), paste them into a word document.
- Provide 2 different test cases for each question. In other words, for each question, you may need to have 2 input screen captures and 2 related output screen captures.
- Do NOT need to do screen capture(s) of html validation results and css validation results for this assignment.
- Save the word document as a pdf file.

### You need to submit the following:

1. A pdf file containing the screen capture(s) of the web browser input and output pages, name the file **lastname\_firstname\_assignment4.pdf**.

2. All html file(s), php file(s), css file(s), and other related files (e.g. image files). Zip your file folder (lastname\_firstname\_assignment4) into a single zip file (or rar file) lastname\_firstname\_assignment4.zip. In the above example, the zip file should contain the following files and subfolders. If there is any image, there should be a \images\ subfolder.

- lastname\_firstname\_assignment4\create\_db.sql
- lastname firstname assignment4\index.php
- lastname\_firstname\_assignment4\main.css
- lastname firstname assignment4\richard ricardo add major.php (extra credit)
- lastname firstname assignment4\richard ricardo add student.php
- lastname\_firstname\_assignment4\richard\_ricardo\_add\_student\_form.php
- lastname firstname assignment4\richard ricardo database.php
- lastname firstname assignment4\richard ricardo database error.php
- lastname\_firstname\_assignment4\richard\_ricardo\_delete\_major.php (extra credit)
- lastname\_firstname\_assignment4\richard\_ricardo\_delete\_student.php
- lastname\_firstname\_assignment4\richard\_ricardo\_error.php
- lastname firstname assignment4\richard ricardo major list.php (extra credit)

Please submit the above mentioned **two files** (.pdf and .zip) to D2L digital dropbox.

### Grading guidelines (programming questions):

Your programs will be judged on several criteria, which are shown below.

- Correctness (50%): Does the program compile (run) correctly? Does the program do what it's supposed to do?
- Design (20%): Are operations broken down in a reasonable way (e.g. classes and methods)?
- Style (10%): Is the program indented properly? Do variables have meaningful names?
- Robustness (10%): Does the program handle erroneous or unexpected input gracefully?
- Documentation (10%): Do all program files begin with a **comment** that identifies the author, the course code, and the program date? Are all the classes, methods and data fields clearly **documented** (commented)? Are unclear parts of code **documented** (commented)? (Some items mentioned may not apply to some languages)

A program that does not compile (run) will get at most 50% of the possible points.