I210 Information Infrastructure I

Final Project

Developing a database-driven Web Application with PHP and MySQL

Fall 2020

1. **Project Description**

   This team project involves the design and development of a functional database-driven PHP Web application, similar to those e-commerce Web sites on the Internet. The application should be capable of performing the four basic database operations: create, retrieve, update, and delete. The data layer of the Web application should be implemented with a MySQL database. This project will demonstrate your ability of conveying a project from the idea phase to implementation, your skills working in a team, and your mastery of procedural programming with PHP and data integration with MySQL. This project makes up 30% of your grade in this class.

2. **Project Team**

   This is a team project. Each team may freely choose three or four members from the same class section.

3. **Web Site Theme and Content**

   You will need to choose a theme for your site. You need to decide what information to include on the Web site. Although you are free to choose any content for you site, the following types of materials are not allowed:

- Illegal and copyrighted materials
- Pornography
- Materials that are disgusting or make people feel uncomfortable

   Followings are several suggested themes that you may choose to use. You may certainly choose the theme of your own. Check out the sample projects from previous semesters at http://www.indiana.edu/~i210/students/.

   Example project ideas:
   1) Shopping site
   2) DVD and CDs rentals
   3) Online banking system
   4) Library lending system
   5) Music bands
   6) Sports teams

4. **Web Site Organization**

   a. Name the home page file *index.php*.

   b. A common banner and logo should appear on every page. Link the logo to the home page *index.php*. Make your site look consistently.

   c. Build a clear and efficient navigation system for the site.

   d. Organize files in folders. For example, put all images in the Images folder.

   e. Make sure you do not use absolute file paths.

5. **Minimum Requirements for features. It is highly encouraged to go beyond the minimum requirements.**

   a. Displaying inventory.

   b. Displaying details of a specific product/item.

   c. Searching inventory with one or more key words.

   d. Adding a product into the shopping cart.

   e. Displaying shopping cart content.

   f. Login/logout. Two levels of authentication: user level and administrator level.

   g. Data validation with HTML5: required fields, data types, and data format.

   h. Adding new data into the database

   i. Updating existing data in the database

   j. Deleting existing data from the database.

6. **Minimum Technical Requirements. It is highly encouraged to go beyond the minimum requirements.**

   a. At least ten Web pages.

   b. Use an external style sheet to format a common style for the site.

   c. HTML5 types and the **required** attribute.

   d. Filter and sanitize external data from user's inputs and database.

   e. Modularize your code with functions and file inclusion.

   f. The Web site must integrate with a MySQL database.

   g. Use at least two of the following methods to manage state information: hidden fields, query strings, cookies, or sessions.

   h. User authentication and authorization.

7. **Documentation**

   A short explanatory document must accompany your Web site. The document must describe both the technical and non-technical aspects of your Web site. It must include a flow chart to clearly represent the structure of the site. Please refer to the documentation template for details. In addition to the cover page, the document should be, at a minimum, three full pages in length. When writing, use proper conventions of English language, including grammar, spelling, punctuation, etc. Style your document as a professional document. Set the margins of your document to 1 inch on all sides. Double-space the text of

your document, and use a legible font (e.g. Times new Roman). The font size should be 11 or 12-point.

8. Presentation and Promotion

Each team will need to present and promote your Web site to the whole class at different stages. The presentation should be between 10 to 15 minutes long. Make PowerPoint slides, handouts if necessary. Think of yourself as a market person and think how you want to promote your site.

9. Tentative Schedule

Stage	Due date and time	Deliverable
I: initial plan	Friday, Nov.6, 11:59 PM	Proposal uploaded on Canvas.
II: database	Thursday, Nov. 12	Present the database in class.
III: first draft	Thursday, Nov. 19	Present the first draft of your website in class.
IV: second draft	Thursday, Dec. 3	Present the second draft of your website in class.
V: third draft	Thursday, Dec. 10	Present the third draft of your website in class.
VI: final version	Monday, Dec. 14 11:59 PM	All Web files, .sql file, and documentation uploaded on Canvas, and peer evaluation form is uploaded to Canvas too.

a. Stage I – initial plan: write a short proposal describing your team members, the content of your site, Web pages, features, and intended audience. In addition to the cover page, the proposal should be, at a minimum, one full page in length. When writing, use proper conventions of English language, including grammar, spelling, punctuation, etc. Style your proposal as a professional document. Set the margins of your document to 1 inch on all sides. Double-space the text of your proposal, and use a legible font (e.g. Times new Roman). The font size should be 11 or 12-point.

b. Stage II – database design: design and create a MySQL database for your application. At this stage, the database must meet the following minimum requirements. You may add additional tables and data in later stages.

- The database must contain at least two tables.
- All tables should contain two or more fields. Total number of fields in all tables should be at least seven.
- Tables must be related, meaning that each table must contain a common field with another table.

- Primary keys must be set for all tables.
- There must be at least one auto-increment field.
- All tables should be populated with no less than 5 rows of sample data.

c. Stage III – first draft of your web site: the following is the minimum and needs to be completed in the first draft:
   - The home page of the whole site. It can just be a static web page.
   - A dynamic web page that displays your products/items from a database table.
   - A dynamic web page that displays details of a selected product/item.

d. Stage IV— second draft of your Web site: minimum requirements include adding, updating, and deleting MySQL data in PHP.

e. Stage V – third draft of your Web site. For the third draft, you need to add the shopping cart and search feature to your site. At the minimum, the shopping cart should allow multiple products to be added to the cart and the shopping cart content can be displayed. The search should allow a user to find items with one or more terms.

   And please try to finish all functionalities that are not be finished during the State V, including user registration and login functionalities. At this point, your Web site should meet all technical and feature requirements and be styled properly.

f. Stage VI – final version of your Web site: Be sure your turn in all files of your Web site, the .sql file for the database, .docx file for documentation and peer evaluation form.

10. Grading and Evaluation

This project will be evaluated for its professionalism, functionality, and completeness. The project includes coding, documenting, and presenting the Web site. The table below shows the grading schema. There are three scores: team score, peer score (%), and individual score. Each team will receive a score at each stage. The sum of all scores is the team score. Based on the peer evaluation results, a peer score will be assigned to each team member. The individual score of each member will be the team score adjusted with the peer score. An individual score cannot exceed 100.

Activities	**Points**
Initial plan and proposal	5
Database	5
First draft	10
Second draft	10
Third draft	10
Final version	50
Documentation	10
Total	100

Here is an example. Team A received 90 points for the team score. This is the team score. Team member John and Cathy received 20 and 24 points, respectively, from peer evaluation and the team's average peer evaluation score is 22. Therefore, the peer scores assigned to John and Cathy would be 91% and 109%, respectively. So the individual score for John would be 82 and for Cathy would be 98.

********** *A Bit of Warning* **********

This project will provide you with the opportunity to apply everything you have learned in class over the semester to a real-world project. It will be a comprehensive and complex Web application. It demands dedication and will take you many weeks to complete. You may feel overwhelming and may worry that you don't have enough knowledge to complete the project. You may also dislike the fact that this is a group project. All these feelings are normal and many students had them in the past semesters. Feedback from former students indicated the majority likes the project and agrees this is an excellent learning experience.

Literature has shown collaborative learning offers many advantages. By working in a team, members will be able to play to their strengths and support the others on their weak points. A group setting also better simulates a real-world experience since most professional Web sites or other professional projects require a team working together.

To help you manage it, the project is broken into pieces so you won't feel it as a whole is too daunting.

==========++++ WORK HARD. WORK CREATIVELY. +++==========