CS 2033: Web Systems

Exam Two: Practice

This is a practice exam for Exam Two. Exam Two is a practical exam that will test your knowledge, ability, and skill in creating a **server-side PHP application** that implements a **Model-View-Controller** design pattern. For this exam you will need to:

- Demonstrate the ability to create and debug programs using the PHP programming language.
- Demonstrate your knowledge of the Model-View-Controller design pattern and implement a simple web application that adheres to this pattern in design, naming, functionality, and request-response flow.
- Demonstrate your basic knowledge of SQL queries and interfacing with MySQL database using PHP.
- Demonstrate your basic knowledge of HTML, CSS, and the Bootstrap CSS framework to structure and format the views in your application.
- Demonstrate your ability to implement, test a working MVC application that adheres to MVC design and naming conventions.

You are provided with the basic directory structure and file names for your application as well as a SQL database creation script to create your database. You must perform the following steps to create and test your application:

Task Overview

Create a **controller**, (*scientistController.php*) that is the target for all HTTP requests. Your application will simply display a **view** page containing a table that displays the contents of the scientists table on a web page (*listScientists*.php). The **model** will contain the *Scientist.php* class that models a row in the scientist DB table, and a DAO layer (*ScientistDAO.php*) that interfaces with the controller and the database.

1. Create the Scientist.php class.
2. Create the ScientistDAO.php class.
3. Create the listScientists.php page.
4. Create the scientistController.php class.
5. Test and troubleshoot your application to ensure that it implements the MVC pattern correctly and provides a listing of the scientists.

Criteria	Excellent (100%)	Satisfactory (80%)	Needs Improvement (50%)	Points
PHP Programming & MVC Implementation 15 pts.	Successfully implements PHP code with no errors, fully adheres to MVC design, and uses correct naming conventions.	PHP code functions with minor errors; MVC design mostly followed with some naming or structure issues.	PHP code or MVC structure has major issues, with significant errors or gaps in implementation.	
Model Creation (Scientist.php) **15 pts.**	Scientist class models a DB row accurately, with appropriate properties and methods.	Class models DB row with minor issues in properties or methods.	Class structure is incorrect or incomplete; missing essential properties or methods.	
DAO Layer (ScientistDAO.php**) 15 pts.**	DAO layer interfaces smoothly with DB and controller; SQL queries are correct and efficient.	Mostly functional DAO layer; minor issues with SQL or database interfacing.	DAO layer has major issues, impacting functionality or database interaction.	
Controller (scientistController.php) **15 pts.**	Controller handles HTTP requests effectively; integrates model and view seamlessly.	Controller is mostly functional with minor request handling or integration issues.	Controller has major flaws, impacting request handling or component integration.	
View Creation (listScientists.php) **15 pts.**	Data displayed clearly in a structured table with correct use of HTML/CSS and Bootstrap.	Data displays correctly with basic styling; minor layout issues.	Data display is incorrect or lacks structure; limited or ineffective use of HTML/CSS or Bootstrap.	
Testing & Troubleshooting 25 pts	Application thoroughly tested and fully functional, with minimal issues.	Application mostly functional with minor issues; testing somewhat effective.	Minimal testing performed; application has unresolved bugs.	