**eCommerce Final Exam – Fall 2022**

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| **Grading** |  |
| **Question 1: True or False** | **/4** |
| **Question 2: Short Answers** | **/10** |
| **Question 3: Trace your Application** | **/11** |
| **Question 4: Application Modification and Testing** | **/25** |
| **Total** | **/50** |

**Carefully read and follow all instructions. Open book. No collaboration allowed.**

# Instructions

Complete this exam document with Questions 1, 2, 3, and 4 answered and your name clearly filled. Submit your complete exam solution in .zip format: place your **solutioned exam** copy (this document with your answers) along with your practical exam solution (htdocs resulting from question 4) in the **htdocs folder**, compress the entire folder and subfolders in .zip format and submit it via OMNIVOX, in the *Final Exam* assignment box.

***You are responsible for the exam that you are submitting. Before the end of the exam time, double-check that you have submitted the correct version of your solutions by downloading your submitted material and verifying that this the correct version of your exam. Only the last submitted submission will be graded so you can resubmit if you made a mistake.***

***Exam material provided: this document.***

# Question 1: True or False (4 points)?

Between the parentheses provided, indicate whether the following proposition is (T)rue or (F)alse.

1. The MVC programming pattern ensures proper separation of concerns. (T)
2. In PHP, magic methods are used to explicitly execute things that are unbelievable. (F)
3. cURL is a programmatic browser that is available in PHP to access external data services. (T)
4. SESSION identifiers are stored in cookies sent by browsers at each request. (T)

# Question 2: Short Answers (10 points)

a) (4 points) Explain how the validation process works in our framework, starting at the call of the model method up to its return. Include details of how the validation method gets called and how it works.  
**Model methods that require the validation to run have the protected access modifier set to force the call to them to go through the \_\_call method of the Model base class. The \_\_call method invokes the validation method that, in turn, instantiates the validator classes for each object property where validation attributes are set. The isValidData method of each such instance is called to test the data in the property. If the value is valid, then true is returned otherwise false with any error message in the ValidationResult object returned (just true or false in previous version). The validationResults are collected in a ValidationResults object for user feedback, or in the older version, the validation stops on the first invalid property.**

b) (2 points) How can we determine whether or not a user record has 2-factor authentication set up?  
**These user records jhave a non-null secret\_key attribute set up.**

c) (2 points) Summarize in a single sentence what the code does:

session\_start();  
foreach($\_POST as $key => $val)  
 setcookie($key, $val, 0, '/');  
**Place all data submitted through the post method in a cookie with the same name as user in submission ($key) and containing the same value.**

d) (2 points) Explain in your words the relationship between i18n and l10n.  
**Internationalization is the process of making an application localizable – it can be displayed in multiple locales. Localization is the process of providing a locale for adaptation to local cultural standards. The locales are loaded and applied in the internationalized application.**

# Question 3: Trace your Application (11 points).

Tracing is the process of reading and interpreting your application code line by line, in the order that instructions are executed, given specified inputs. Our application code lies in the .htaccess file and in all our PHP files.

**At random from your project**, select a controller function that calls a model method to write to your database. What is the fully qualified class name and method name?

\app\controllers\Animal method create

Trace the execution of this function starting at the URL and HTTP request from the browser to invoke this method – not forgetting request processing, address translation, and routing – and all the way to the HTTP response(s). **If there are 2 branches to your method, explain the entire process that covers both branches.**

**From the localhost/Animal/index/[client\_id], the URL localhost/Animal/create/[client\_id] is called through the “new animal” hyperlink. The request goes to Apache that translates the request to localhost/index.php?url=Animal/create/[client\_id], which is the entry point of the application. The request gets parsed and routed to the \app\controllers\Animal controller class, and create method, with the [client\_id] parameter passed. Now the method can run.**

**The method runs by first showing the view that contains the form because nothing was submitted. The user can input all information and then submit the form. The request is sent to the same URL with POST data in the headers. The same address translation and routing process described above applies.**

**The second time, the method runs into the branch for $\_POST[‘action’] that is set. The new animal record is created, the picture is saved to its permanent location, the animal object is populated with its data as well as the file name and client\_id. The animal object is saved to the database. The application redirects back to localhost/Animal/index**.

# Question 4: Application Modification and Testing (25 points)

Install the application provided from github to the htdocs folder:

git clone https://github.com/paquettm/ecomA22S2.git .

Import its database. Make sure that the proper extension(s) are activated in your php.ini configuration file. Fix any bugs you may find. Run “composer install” to reestablish missing dependencies.

Modify the provided application as follows:

1. (5 points) Implement and apply an access filter to ensure that users with the 'admin' and 'employee' roles have access to all methods of the Vet and Animal controller class methods.
2. (5 points) Make modifications so that the user can manage animals from the client (owner) details view. Remove the “my pets” hyperlink. Keep the modification as simple as possible. Furthermore move the client edit hyperlink to this details view.
3. (5 points) Remove all 2-factor authentication database fields and code, including the libraries used.
4. (5 points) Apply i18n and l10n procedures so the Web app can be viewed in English and French (you will not be marked on the quality of French). An updated document is published, with changes highlighted.
5. (5 points) Test the animal adding feature of the Web app using the Codeception framework:  
   a) Write a Feature file containing one scenario, b) generate the code snippets, and c) complete the tests so that you can run an automated test covering the feature. Describe your process complete with commands below:  
   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_