Te Hoe Rorohiko
Department of Business and Digital Technologies

Bachelor of Information and Communication Technologies
Graduate Diploma of Information and Communication Technologies

BCDE224 Best Programming Practices
             (Server-Side Programming – PHP)

Assignment THREE
Portfolio

Semester Two 2023

Due date: Friday 17 November 2023

Time: 9.00am

This is an **INDIVIDUAL** assessment.

Ara and its faculty members reserve the right to use electronic means to detect and help prevent plagiarism. Students agree that when submitting this assignment, it may be subject to submission for textual similarity review to Turnitin.com.

This assignment is worth 50% of the total marks for BCDE224.
The pass criteria for the course requires at least 50% in this assessment.
You may selected tasks from the available sections up to the maximum for a section.

More detailed marking guides for the sections of this assessment will appear on the DE224 moodle site.

This assessment has six (6) pages including the cover sheet.

The aim of this course is to develop student competence in a programming language to an industry‑recognised standard, so they produce commercially viable software.

On successful completion of this course the student will be able to:
1. Demonstrate ability to code to industry standards.
2. Demonstrate ability to implement a prototype system.
3. Apply knowledge of standards and tools to build complex systems.

This assignment addresses the learning objective: "Apply knowledge of standards and tools to build complex systems.".

For this assignment, you will for a given problem domain, plan and produce subsequent iterations that refine a solution system. The portfolio must explain and evaluate the process by which the system was refined. The portfolio must demonstrate that the system functionality and performance meet requirements.

- create a portfolio that explains what you learned as you Made Stuff Go.
- design, code and test a program.
- create test data and import real-world data.
- write software that passes automated tests.
- plan and document how you went about developing the software.
- explain how the code and the designs are fit-for-purpose.
- You may only submit code that you have written all by yourself for this assignment.
- You may use another student's code but must acknowledge the author.

Brief overview of the project

The client requires an E-Commerce portal to facilitate the online buying and selling of products among the registered buyers and sellers of the portal.

You must create a solution which will include all the Must Do features:

Must dos (items to achieve minimum viable product/prototype):

Business Portal	Business Accounts	Company Admin	I want to create a business account for my business
			I want to read my business account
			I want to update my business account
			As a user admin, I want to upload a logo to my business account
			As a user admin, I want to connect my business account with activated sellers and buyers from my business
			As a business admin, I want to add the Buyer/Seller account to my business
Seller Portal	Profile Management (CRUD)	Seller	As a seller, I want to create a user profile
			As a seller, I want to read my user profile
			As a seller, I want to update my user profile
			As a seller, I want to be connected with my business account
	Item Management		As a seller, I want to list a new item to sell
			As a seller, I want to read my item
			As a seller, I want to view a list of all my items
Buyer Portal	Profile Management (CRUD)	Buyer	As a buyer, I want to create a profile
			As a buyer, I want to read my profile
			As a buyer, I want to be connected with my business account
	Purchasing Items		As a buyer, I want to view all items available for me to buy
			As a buyer, I want to view individual items to see their details
			As a buyer, I want to click a 'buy now' to purchase an item

Once the required features are complete you may wish to address the stretch goals

Could Dos (will only deliver if possible) :

Seller Portal	As a seller, I want to update my item
	As a seller, I want to search for an item in my list of items
Buyer Portal	As a buyer, I want to update my profile

A demonstration of the 'completed' features.

- A must-have 'feature' with proof of 'Must Do' features working   (25 marks)
- Secure   (5 marks)
- Has technical features   (5 marks)

FEATURES   25 MARKS

Implement the following 'Most-do' features. Show the MUST-have features are working for the E-Commerce portal.

Your final presentation must provide:
- a BEHAT definition of feature that includes the item
- a demonstrate (video) of a scenario working for that feature.
- Code for the item
- Proof that the code meets PHP coding standards

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SECURITY   5 MARKS

Analyse issues in server-side programming with respect to best practice, and issues that exist in a server-side programming environment. Demonstrate security features for the solution.

MUST have a secure login process and NOT "store passwords in plain text"

(2 marks)

The following selected vulnerabilities come from the OWASP "Top 10 Web Application Security Risks" https://owasp.org/Top10/.
You must present a summary of the defences you have implemented against the top three web application vulnerabilities

For each of the three attacks
• explain the attack
• identify where the attack could be used against your site
• demo how the attack being used against an unsecured version of your site
• display code in conforming to OWASP guidelines that protects against the attack
• demo the attack failing against a secured version of your site

(3 marks)

• Injection
https://owasp.org/www-project-top-ten/2017/A1_2017-Injection

• Broken Authentication
https://owasp.org/www-project-top-ten/2017/A2_2017-Broken_Authentication

• Sensitive Data Exposure
https://owasp.org/www-project-top-ten/2017/A3_2017-Sensitive_Data_Exposure

TECHNICAL   5 MARKS

• Makes a database of 3-4 tables AT FIRST
• Gets data and inserts data
• Modify existing data
• Simple (select * or a few fields query) and display
• Complex query and display

(5 marks)

SOLID

An analysis of and reflection on programming values (SOLID)

Select ONE different modules of code (classes) YOU have written (15+ lines) and explain the good principles behind the code. Provide good/valid examples of how the class or classes implements each of the five S O L I D Principles

- Define the principle
- Show an UML class diagram of your code
- Show your code
- Explain why your code satisfies the principle
- State what else you could have done that would have violated the principle
- Speculate on what could be done to further improve the code

https://en.wikipedia.org/wiki/SOLID
this source references other articles

https://www.youtube.com/watch?v=oar-T2KovwE
talk starts at 24:00

(10 marks)

LESSONS LEARNED

At the end of the course, you should reflect on your experience in the course. You should write a short essay of approximately 600 words on your experience with developing a PHP application.

This essay will be marked using the SOLO Taxonomy.
http://www.mbms.org.uk/faculties/science/assets/SOLO/solo-taxonomy-explained-full.jpg

(5 marks)