

Year 11 Digital Solutions 2019

fIA3: Folio – Data Programming for an Online Shop

April 2019


Investigation – Folio (25%) – FORMATIVE

This instrument is designed to allow students to explore aspects of an existing digital problem in terms of learning outcomes from UNIT2, Digital Solutions v1.2. It echoes aspects of the summative item that does a similar job in Unit 4, however has been scaled back to match time allocation and skill base. Exploring concepts, as part of a system already proposed, is thought to provide a valuable context that will facilitate more powerful connection to solutions, and lessen the lead-time needed to get into a new problem space.

Unit Objectives:

The assessment instrument is used to determine student achievement in the following objectives:

1. recognise and describe programming elements, data and useability principles, and data management processes
2. symbolise and explain information, ideas and data flow relationships within and between systems related to programming problems
3. analyse problems and information related to the WEB technology context
4. determine solution requirements and prescribed and self-determined criteria of a programming problem
5. synthesise information and ideas to determine possible digital solutions
6. generate user interface and prescribed programmed components of the prototype digital solution
7. evaluate impacts, components and solutions against criteria to make refinements and justified recommendations
8. make decisions about and use mode-appropriate features, language and conventions for particular purposes and contexts.

	<i>St Joseph's College, Gregory Terrace</i>	<i>fIA3</i> <i>Formative Assessment</i>
	Student name:	Student number:
	Teacher name: Mr Peter Whitehouse	
	Date handed out: Term 2, Week 4	Date due: Term 2, Week 8

Subject	Digital Solutions
Technique	Investigation - Folio
Unit	Unit 2 – Application and Data Solutions
Topic	Topic 1 – Data-driven problems and solution requirements Topic 2 – Data and Programming techniques Topic 3 – Prototype data solutions

Details			
Conditions			
Duration	4 weeks		
Mode	Multimodal	Length	Length: <ul style="list-style-type: none"> • 4-6 A3 pages • 1-2 A4 pages of code with annotations • 1-2 minute demonstration of functionality
Individual/group	Individual	Other	<ul style="list-style-type: none"> • Reference list and appendices are not included in word count • Authentication strategies implemented as indicated
Resources available	Course materials, online tutorials, Supplied Stimulus (Student's fIA1 technical Proposal), Teacher supplied stimulus		
Context			
The core of an online business is basic database transactions controlled by a responsive interface. In this item students will develop prototype data-rich solutions to specified transactions, demonstrating functionality and exploring release issues of a possible final solution.			
Task			
<p>You were tasked in fIA1 to propose a simple Online Shop. In that task you proposed but did not actually code a solution. In this task, you will be required to implement, to a prototype level, nominated sub-systems of that simple online shop system. You will get a chance to critically evaluate the effectiveness and security of your solutions and present them in a manner that demonstrates your understanding.</p> <p>The sub-systems you are required to focus on are:</p> <ol style="list-style-type: none"> 1. User authentication – a user profile, including management of password and personal details 2. Product Browsing and Adding to a shopping cart 3. Viewing the shopping cart <p>All of these aspects will interact simply with a single database. You will construct your sub-systems using MeekroDB, MySQL, PHP and Bootstrap</p>			
To complete this task, you must:			

Part A: Data-driven problem analysis and solution requirements

- Identify and justify simple Database storage to accommodate the nominated subsystems. You would consider this a Data Design. Synthesise reasonable sample data and algorithms (using Pseudocode) to plan functionality for each sub-system
- Isolate and annotate Interface designs for each of these elements. These designs should correspond to the features you are implementing
- Determine prescribed and self-determined criteria that will be used to measure success

Part B: Programmed prototype solution

- Generate coded components that separately demonstrate the nominated sub-systems
- Incorporate accessibility and usability principles in your solutions
- Evaluate the accuracy of code after testing and identify errors and actions to make improvements

Part C: Security and efficiency of your prototype

- Evaluate against prescribed and self-determined criteria the success of your sub-systems and their relationship to the imagined system as a whole. Consider functionality, usability and efficiency of your sub-systems.
- Explain measures taken to ensure user data is secure, justify in terms of types of attack and resilience of your method to attack. Explain improvements that could be made to improve security.

Stimulus

Stimulus consists of the student's own fIA1 – Technical Proposal for a simple online shop. This item develops nominated aspects of this proposal. Additional stimulus, code samples and discussion are available from the course website (<http://www.wonko.info/ds/>) and through consultation with the teacher.

The class teacher will provide feedback and assistance as required.

Checkpoints

- Term 2, Week 7 – Complete draft submission
- Term 2, Week 8 – Final submission into Moodle

Assessment objective/s

1. recognise and describe programming elements, data and usability principles, and data management processes
2. symbolise and explain information, ideas and data flow relationships within and between systems related to programming problems
3. analyse problems and information related to the selected technology context
4. determine solution requirements and prescribed and self-determined criteria of a programming problem
5. synthesise information and ideas to determine possible digital solutions
6. generate user interface and prescribed programmed components of the prototype digital solution
7. evaluate impacts, components and solutions against criteria to make refinements and justified recommendations
8. make decisions about and use mode-appropriate features, language and conventions for particular purposes and contexts.

Criterion	Marks Allocated	Result
Retrieving and Comprehending Assessment Objectives 1,2	6	
Analysing Assessment Objectives 3,4	7	
Synthesising and Evaluating Assessment Objectives 5,6,7	8	
Communicating Assessment Objective 8	4	
Total	25	

Feedback

Authentication strategies

- You will be provided class time for task completion.
- You produce a unique response by developing data solutions relative to your technical proposal
- You will provide documentation of your progress at indicated checkpoint
- You must acknowledge all sources
- Your teacher will collect and annotate a draft by end of Term 2, Week 7
- Your teacher will conduct interviews after submission to clarify or explore aspects of your response.

Scaffolding

Your response must include:

- Headings that organise and communicate the iterative phases of the Digital Solutions problem-solving process
- Source referencing, using in-text referencing for any techniques/code starters used
- 2 A3 pages presenting data-driven problem analysis and solution requirements
- 3 A3 pages presenting programmed prototype solution, including 1-2 A4 pages of sample code annotated
- 1 A3 page on security and efficiency of your prototype
- A 1-2 minute screen capture video of the working sub-systems.