Programming Portfolio

Your assessment for this unit is based on the completion of a **programming portfolio**, together with a **pathways project**. Through your completion of the (freely available) Python tutorials on the Codecademy site and other activities, you will demonstrate the following:

**Key knowledge**

* stages of the problem-solving methodology
* data types and methods of representing and storing text, sound and images
* methods of representing solution designs
* techniques for manipulating data and information
* naming conventions for files and objects
* testing and debugging techniques, including construction of test data
* characteristics of logically constructed electronic journals

**Key skills**

* represent design specifications using appropriate methods
* apply techniques for manipulating data and information using a programming or scripting  language
* apply testing techniques using test data
* record in an electronic journal the new knowledge and skills applicable to each programming or scripting task, and evaluate how well they were applied



Your programming portfolio is an electronic record of your progress in learning a variety of programming techniques. You **must include** the following:

1. A screen shot showing the highest level of your **progress** through the Codecademy Python tutorials.
2. A **flow chart** showing the program control structure of one program (you will probably want to use Lucid Chart to make your flow chart!)
3. A **reflection** on your experience of learning to program. You should include (but not necessarily be limited by) the prompts below.
	1. How easy/difficult was the Codecademy website to use?
	2. Did you enjoy learning to program?
	3. What was the biggest challenge to overcome?
	4. What gave you the greatest sense of achievement?
4. Your **answers** to the following questions about programming techniques.
	1. **Define** the term *variable*. Give an example of how variables can be used in programming.
	2. **List and give an example** of each of the *data types* you used in Python.
	3. **Name** one *control structure* you used in your programming **and explain** how it controlled the order that instructions were carried out in a program. You may choose to use a diagram in your explanation if you wish.
	4. **Define** the term *debugging*.
	5. **Explain** the difference between a *syntax error* and a *logic error*.
	6. Look at the code snippet below and **suggest** some test data that would prove whether the code contained a logic error.



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Data** | **Expected Result** | **Test Date** | **Actual Result** | **Action**  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

* 1. **Predict** the outcome of testing the code snippet above.

**Portfolio structure**

Some suggestions to ensure that your programming portfolio is well organized:

* Use a title
* Use sub-headings
* Use dates as sub-headings if entries are recorded chronologically
* Use a header or footer to identify the purpose & author of the document
* Label pictures and diagrams with *meaningful* captions
* Annotate diagrams to highlight key features – especially if the diagram is used to support an explanation

**Assessment**

You must submit *both* the **Pathways Project** and the **Programming Portfolio** to satisfactorily complete the outcome for this unit.

Your programming will be graded as follows:

|  |  |
| --- | --- |
| **Python tutorial** | **Grade** |
| *16. Exam statistics* – attempted or completed | A+ |
| *13. Battleships* - attempted or completed | A |
| *11. Student becomes the teacher* - completed | B+ |
| *10. A day at the supermarket* - completed | B |
| *8. Taking a vacation* - completed | C+ |
| *6. Pyg Latin* - completed | C |
| *5. Conditional and control flow* - attempted or completed | D+ |
| *4. Date and time* - completed | D |
| *3. Strings and console output* - attempted or completed | E+ |
| *2. Tip calculator* - completed | E |
| No progress attempted | UG |