MSc Artificial Intelligence Python Primer

Unit 2 Worksheet

**Aims and Objectives**

1. Learn about comparison and logical operators
2. Learn about if, elif, and else statements
3. Learn about for and while loops
4. Learn how to read an input and print debugging

**Introductory Tasks**

* Download the ***Unit 2 Jupyter Notebook*** to your local drive. The Notebook can be found on Blackboard (in Python Primer >> Unit 2 – Flow Control)
  + Once you have downloaded this Notebook, open the *Anaconda Navigator* and launch the *Jupyter Notebook* application and open the downloaded Notebook file
  + There are exercises for you to complete throughout the Notebook. These are clearly marked Worksheet Exercises
* Read the following two chapters of the ***Beginners Guide to Python 3 Programming*** core text-book:
  + Flow of Control Using If Statements
  + Iteration/Looping
* NOTE: .pdf versions of these chapters can be found on Blackboard (in Python Primer >> Unit 2 – Flow Control)

**Optional Extra Tasks**

* In the ***Unit 2 Jupyter Notebook***, we take an introductory look at truth tables:
  + Take a look at this resource for more information Propositional Logic <https://brilliant.org/wiki/propositional-logic/>
  + This resource provides more information on De Morgan’s Law <https://brilliant.org/wiki/de-morgans-laws/>
* One of the exercises embedded within the ***Unit 2 Jupyter Notebook*** asks you to make use of the Python random library.
  + Try looking at the documentation for this library at: <https://docs.python.org/3/library/random.html>
  + Experiment with some of the other methods available in this library
* Review the module reading list for other sources of information to supplement your understanding of flow control.

**Advanced Tasks**

* The workbook briefly touches on using the print function for debugging:
  + Take a look at this resource that uses the logging library to provide better debug messages: <https://www.digitalocean.com/community/tutorials/how-to-use-logging-in-python-3>
* You can use Visual Studio Code as an alternative workflow for Jupyter and Git
  + Try working with [Jupyter Notebooks in Visual Studio Code](https://code.visualstudio.com/docs/python/jupyter-support)
  + Try working with [Git in Visual Studio Code](https://code.visualstudio.com/docs/editor/versioncontrol#_git-support)

**Assessment Details**

* In the ***Unit 2 Jupyter Notebook***, you will see several exercises that are written in ***bold italic*** type. These exercises are to be formatively assessed by the module team.
* In fact, the following units have assessed exercises embedded within them: 1-3 & 5-6
* Exercises are worth 2, 3 or 4 marks. There are 50 marks available for all assessed exercises.
* You are expected to provide solutions to these exercises in the **Python\_Primer\_Submission** **Jupyter Notebook** (available on Blackboard in the Python Primer folder)
* Once completed you should submit this Jupyter Notebook to the Blackboard link provided in the Python Primer folder on Blackboard
* The module team will mark your solutions at regular intervals during the first two weeks of term.

**Useful Links and Resources**

* Python Expressions: <https://docs.python.org/3/reference/expressions.html>
* Python Flow Control: <https://docs.python.org/3/tutorial/controlflow.html>
* Python Simple Statements: <https://docs.python.org/3/reference/simple_stmts.html>
* Python Compound Statements: <https://docs.python.org/3/reference/compound_stmts.html>
* Python random library <https://docs.python.org/3/library/random.html>
* Jupyter Notebooks in Visual Studio Code: <https://code.visualstudio.com/docs/python/jupyter-support>
* Git in Visual Studio Code: <https://code.visualstudio.com/docs/editor/versioncontrol#_git-support>