MSc Artificial Intelligence Python Primer

Unit 5 Worksheet

**Aims and Objectives**

1. Learn about Exception Handling
2. Learn about Logging in Python
3. Learn about Built-in Python Functions
4. Learn about File Handling in Python

**Introductory Tasks**

* Download the ***Unit 5 Jupyter Notebook*** to your local drive. The Notebook can be found on Blackboard (in Python Primer >> Unit 5 – Miscellaneous)
  + 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 chapter of the ***Beginners Guide to Python 3 Programming*** core text-book:
  + Error and Exception Handling

NOTE: .pdf versions of these chapters can be found on Blackboard (in Python Primer >> Unit 5 – Miscellaneous)

**Optional Extra Tasks**

* Commonly, logging is used in conjunction with exception handling to allow more information to be recorded when an exception occurs. The following tutorial provides more information on how to use logging with Python: <https://realpython.com/python-logging/>
* The Jupyter Notebook describes the most popular built-in functions but should not be seen as a definitive list. The following links provide more information about all built-in functions available in Python.
  + <https://docs.python.org/3/library/functions.html>
  + <https://www.w3schools.com/python/python_ref_functions.asp>
  + <https://python-reference.readthedocs.io/en/latest/docs/functions/>

**Advanced Tasks**

* When trying to identify software bugs, it can be very useful to use a debugger. You should investigate ways that you can use a debugger within your Jupyter Notebook to aid this process. To get started, look at the following link:
  + <https://docs.python.org/3/library/pdb.html>

**Assessment Details**

* In the ***Unit 5 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**

* Built-in Python Exceptions: <https://docs.python.org/3/library/exceptions.html>
* Python Errors and Exceptions Tutorial: <https://docs.python.org/3/tutorial/errors.html>
* Python Exceptions Tutorial: <https://realpython.com/python-exceptions/>
* Python Exception Handling Tutorial with Examples: <https://www.softwaretestinghelp.com/exception-handling-in-python/>
* Logging in Python: <https://realpython.com/python-logging/>
* Built-in Functions #1: <https://docs.python.org/3/library/functions.html>
* Built-in Functions #2: <https://www.w3schools.com/python/python_ref_functions.asp>
* Built-in Functions #3: <https://python-reference.readthedocs.io/en/latest/docs/functions/>
* Python Debugger: <https://docs.python.org/3/library/pdb.html>