Te Hoe Rorohiko
Department of Computing

CH3866 Bachelor of Information and Communication Technologies

BCPR301 Advanced Programming

Assessment One
Interpreter

Semester One 2017

Due date: Wednesday, 22 March 2017

Time: 10 am

Student Name/ ID .....

Ara and its division 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.

Submissions received late will be subject to a penalty of 10% of the student's mark per working day.

This assignment is worth 10% of the total marks for this course.
This paper has three (3) pages including the cover sheet.

Ara
Institute of Canterbury
Ara rau, taumata rau

This assessment relates to the following learning aim 2:

"To ensure students have the knowledge and experience to effectively learn a new programming language."

Problem domain:

Create a Python 3 program being able to read, store and display data in a given format in different ways by using Python package(s).

EMPID	Gender	Age	Sales	BMI	Salary	Birthday
[A-Z][0-9]{3}	(M|F)	[0-9]{2}	[0-9]{3}	(Normal | Overweight | Obesity | Underweight)	[0-9]{2,3}	[1-31]-[1-12]-[0-9]{4}

Note that real-world data is often not perfect. It means that you should check/ wash the input data before storing and displaying them.

You MUST supply (i.e., <u>ZERO mark if not</u>):

1 A class diagram of your proposed program. And

2 A help file details for your line-oriented command interpreter and these must be approved by the lecturer <u>before</u> you start the coding for this assessment. And

3 Your program must be able to do all the tasks mentioned in the section of Problem domain. Please note that here displaying data does not mean simply outputting the data as a 2D table. And

4 Your code MUST comply with the Python style (i.e., being able to pass PEP8 check). And

5 A document to list (for each component claimed for marks in your program): a) the ownership (i.e., done by you or someone else?); b) self-reflection on robustness[1]; and c) self-reflection on the completeness and implementation. And

6 You must carry out version control in a repository during your development process. And

7 A filled self-marking sheet.

[1] **Robustness**. The degree to which a system continues to function in the presence of invalid inputs or stressful environmental conditions.

Your quality goal is to create a ROBUST system.

- You CAN work with your classmates for this assessment, as pair programming teams. You should clearly identify the component you worked on. Marks will also depend on if your code exists in the program that your team submits at the end.

- Note that only your OWN work will be awarded marks. When marking the assignment, you will be asked to explain in front of the class how your code works.

- You can select which component you work on from the list provided below. You will be marked on a 0 – 1.5 scale for each component for which you present original source code. Your total marks will be the sum of the marks for each component.

    1) Support command-line arguments
    2) Has a line-oriented command interpreter based on cmd
    3) Display command line help of available commands
    4) Change options
    5) Validate your selections
    6) Provides object-persistence/ object serialization using either pickle or shelve
    7) Load data from a file
    8) Raises exceptions and provides exception handling
    9) Amount of error trapping & handling
    10) Provide doctests
    11) Provide unittests
    12) Breadth of test coverage
    13) Can deal with directories and file locations
    14) Pretty print, i.e., displaying data in bar chart, pie chart, etc.
    15) Can save and read data from a database

- This assignment will be marked out of 15.