**COMP130 HW9: File processing
instructor: John MacCormick**

Question 1. (10 points) Create a text file named quotes.txt, and save it in the folder you are using for writing Python code in this assignment. Enter at least five quotations into the file. Quotations can be from books, movies, TV shows, songs, or any other source that interests you. Feel free to show some creativity and make a selection of your favorite quotations. But if you wish to save time, you can also choose a selection of quotations from the ones given at the end of this assignment. For each quotation, put the quote itself on one line. On the next line, put the name of the entity to which the quote is attributed. For example, the first few lines of the file might be:

A toad does not run in the daytime for nothing

Chinua Achebe

Leave all thought of expectation to the weather man

Bic Runga

...

To confirm you have completed this question, paste the content of your file into your submission document.

Question 2. (5 points) Write a Python function print\_first\_line() that opens the quotes.txt file, reads and prints the first line of the file, and then closes the file.

Question 3. (5 points) Write a function print\_all\_lines() that prints out all of the lines in the quotes.txt file.

Question 4. (10 points) Write a function print\_num\_lines\_and\_chars() that prints the total number of lines and the total number of characters in your quotes.txt file.

Question 5. (5 points) Write a fruitful function count\_questions() that returns the number of questions in your quotes.txt file. You may assume that any line containing a question mark is a question.

Question 6. (15 points) Write a fruitful function count\_occurences(word) that returns the number of occurrences of the string parameter word in your quotes.txt file. Note that if the word occurs multiple times in the same line, it must be counted multiple times.

Question 7. (10 points) Write a Boolean function contains\_quote\_by(entity) that returns True if at least one of the quotes in your quotes.txt file is attributed to the given entity parameter, and False otherwise. The entity need not match exactly to count as a match -- it is sufficient for the entity parameter to be a substring of the entity listed in the quotes.txt file. For example, “Austen” matches the entity “Jane Austen”; and “Xuan” matches the entity “Ho Xuan Huong”.

Question 8. (15 points) Write a program that writes a file containing four columns of data in CSV format. The four columns are:

* x
* x^2
* x^3
* x^4

The file should have a header row labeling the columns and then one row for each integer $x$-value from 0 to 100. The first few rows of the file should be:

x,x^2,x^3,x^4

0,0,0,0

1,1,1,1

2,4,8,16

...

Suggestion: open your file in Excel to check that it looks correct.

***Selection of quotations which can be used for question 1 if desired:***

* Chinua Achebe: A toad does not run in the daytime for nothing
* Bic Runga: Leave all thought of expectation to the weather man
* Pink Floyd: Long you live and high you fly
* Chimamanda Ngozi Adichie: Most of all, do not be angry
* Jane Austen: But how shall we prove anything?
* Linda Alcoff: What I seek now is no longer a home, but perhaps a lighthouse
* Latanya Sweeney: I warn against doing nothing
* Ho Xuan Huong: Hey sisters, do you know
* David Hilbert: We know that every age has its own problems
* Radiohead: I may be paranoid, but not an android

Total points on assignment: 75