

# ITEC324

## Programming Assignment 3 (50 points)

**[Multithreading Project]** Write a program WordLetterCount that counts the number of words and the number of alphabet letters in input files.

- Your program must be able to receive a list of filenames through a GUI input window.
- For each input file, you must create and start one thread to:
  - count the number of words and the number of letters in the file;
  - display a GUI output window designated for the one input file; and
  - display the result (*i.e.*, the number of words and the number of letters) as well as the contents of the entire input file in the GUI output window.

Note: Depending on the number of input files, you need to display the same number of GUI output windows.

**Submission:** you must submit the zip file (.zip) of your source codes (.java files) to D2L. This assignment doesn't need UML diagrams.

**Extra points (15 points):** Please create one output file named "results.txt" which all the threads write:

- (1) the number of words and the number of letters in an input file and
- (2) the thread id

as shown in the following example. When a thread completes the counting, it will write the result to the output file. Thus, the order between threads can be shuffled.

Thread 0: the file "<your one input file name>" has <the number of words in the input file> words and <the number of letters in the input file> letters.

Thread 3: the file "<your another input file name>" has <the number of words in the input file> words and <the number of letters in the input file> letters.

Thread 1: the file "<your another input file name>" has <the number of words in the input file> words and <the number of letters in the input file> letters.

Thread 4: the file "<your another input file name>" has <the number of words in the input file> words and <the number of letters in the input file> letters.

Thread 2: the file "<your another input file name>" has <the number of words in the input file> words and <the number of letters in the input file> letters.