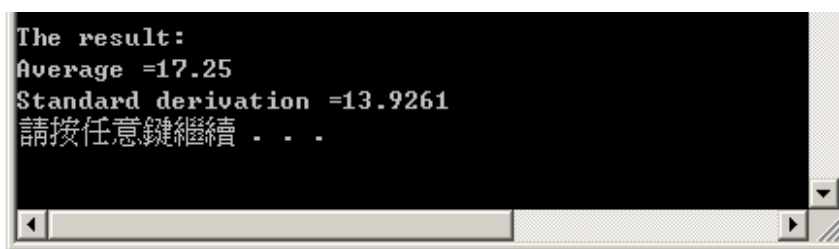# Lab Assignment 3
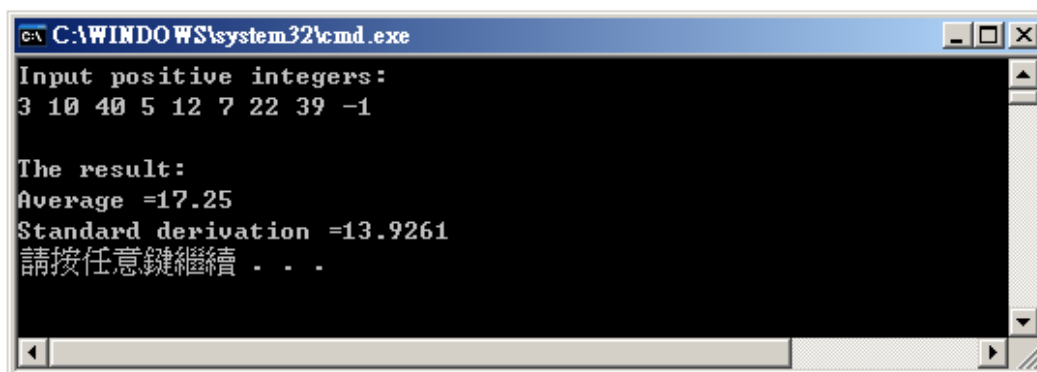
Exercise 1 (40%): (a) Write two functions: one named `average` and the other named `standardDev`. Both functions take two parameters: the first one is an array parameter of an array of `int` and the second one is a `size_t` that refers to the size of the array. The `average` function will return a `double` that is the average of these integers. The `standardDev` function will return a `double` that is the standard derivation of these integers (in case you forgot the definition of standard derivations, check <u>google</u>). Initialize an array in the main program, for example, {3, 10, 40, 5, 12, 7, 22, 39} and the run looks like:

```
The result:
Average =17.25
Standard derivation =13.9261
請按任意鍵繼續 . . .
```

(b) Repeat (a) but now write the `average` and `standardDev` functions with a single parameter: the `vector` of int. In the main function, allow users to input as many positive integers as one wishes and use -1 to signify the end of inputs. Pass the input vector into the `average` and `standardDev` functions and print the outcomes. A sample run looks like:

```
C:\WINDOWS\system32\cmd.exe                          _ □ ×
Input positive integers:
3 10 40 5 12 7 22 39 -1

The result:
Average =17.25
Standard derivation =13.9261
請按任意鍵繼續 . . .
```

Exercise 2 (40%): Write a program to find how many times a word has appeared in a file. When you perform the counting, make sure the results are insensitive to case and punctuation. For example, we treat `her Her her. HER!!!` the same. Use `Alice_story1.txt` available from the course website to test your implementation. Below is a sample run:

```
Enter the word to be found in Alice_story1.txt (! to quit): her
The word her has appeared 4 times in Alice_story1.txt

Enter the word to be found in Alice_story1.txt (! to quit): Her.
The word Her. has appeared 4 times in Alice_story1.txt

Enter the word to be found in Alice_story1.txt (! to quit): it
The word it has appeared 3 times in Alice_story1.txt

Enter the word to be found in Alice_story1.txt (! to quit): IT
The word IT has appeared 3 times in Alice_story1.txt

Enter the word to be found in Alice_story1.txt (! to quit): DaDDy
The word DaDDy has appeared 1 times in Alice_story1.txt

Enter the word to be found in Alice_story1.txt (! to quit): !
```