EXERCISE #1

Write a user-defined function that performs the followings:

(a) Your user-defined function is: “word_recognizer”.
(b) Your user-defined function takes an array of characters (i.e., “a character string”) that is set up in “main”.
(c) Your user-defined function recognizes each word (separated by at least one “ “ while space using “strtok”.
(d) Your user-defined function counts and returns the number of the words recognized to “main”.
(e) Your user-defined function initializes the master character string by an empty message.
(f) The following “base” source code file can be downloaded from the CS145 course home.

Note: There is a sample program for “strtok” at
www.tutorialspoint.com/c_standard_library/c_function_strtok.htm

```cpp
#include <iostream>       // for cout
#include <cstring>        // for strcpy and strtok
using namespace std;      // the same as above

void main ()
{
    char my_Text_Message[2000];
    int nNum_words;

    strcpy(my_Text_Message, "High School Students Explore the Possibilities of a Future in Healthcare during SIUE’s Collaborative Healthcare Diversity Camp. Healthcare is an expansive and continuously evolving industry, which benefits from a diverse workforce.");

    // here, call "word_recognizer"
    cout << "Number of the words detected: " << nNum_words << endl;
    cout << "The master character string: " << my_Text_Message << endl;

    return;
}
```
EXERCISE #2 (the programming homework due 11:30AM, 7/13, 2018)

Write a user-defined function module that performs “Bubble Sort” (in the ascending order) for an array that consists of a certain number of integers, plus the followings:

(a) Your user-defined function is: “bubble_sort”.
(b) Your bubble-sort function takes two input parameters: an array of integers and the array size (the number of the integers in the array).
(c) Your bubble-sort returns: ‘0’ if the integer array is already sorted, ‘1’ if the integer array is not sorted at the beginning, but it is now sorted.
(d) Your user-defined function is called from “main” as shown below (“function_bubble_base.txt”):

```cpp
#include <iostream>       // for cout
using namespace std;     // the same as above

#define    N      5

void main()
{
    int nNumbers[N];       // the array of integers
    int status;                    // status flag
    int i;                              // loop counter

    nNumbers[0] = 1;
    nNumbers[1] = -5;
    nNumbers[2] = 5;
    nNumbers[3] = 12;
    nNumbers[4] = 16;

    status = bubble_sort(nNumbers, N);

    if (status == 0)  
        {  cout << "the integer array is already sorted" << endl;  }
    else if (status == 1)  
        {  cout << "the integer array is successfully sorted" << endl;  }

    for (i = 0; i < N; i++)
        { cout << nNumbers[i] << ';'; }
    cout << endl;

    return;
}
```

# include <iostream>       // for cout
using namespace std;     // the same as above

#define    N      5

void main()
{
    int nNumbers[N];       // the array of integers
    int status;                    // status flag
    int i;                              // loop counter

    nNumbers[0] = 1;
    nNumbers[1] = -5;
    nNumbers[2] = 5;
    nNumbers[3] = 12;
    nNumbers[4] = 16;

    status = bubble_sort(nNumbers, N);

    if (status == 0)  
        {  cout << "the integer array is already sorted" << endl;  }
    else if (status == 1)  
        {  cout << "the integer array is successfully sorted" << endl;  }

    for (i = 0; i < N; i++)
        { cout << nNumbers[i] << ';'; }
    cout << endl;

    return;
}