Writeup for Lab on Input of values into an Array CPS 171 Fall 00 J. Remen

This lab is to be done in groups of 2 or 3.

Your task is to write a program to read integer numbers from a datafile into an array until a sentinel of 0 is reached. Echo the data as it is read, print a count of how many data values are in the array (excluding the sentinel) and be sure to leave the input file marker ready to read the value after the sentinel. The program should be able to deal with a max of 6 numbers in the array (plus the sentinel). The goal here is to write "robust" code that can handle different data files without allowing the program to read beyond the end of the array.
A sample main program is on the back of this page- you may get it from the network file http://www.hal9k.com/cps171/arraylab_cpp.htm You must create your own data files using the examples below and write the function GetData

Sample datafiles follow (the program should be able to handle any of these):

Example 1
if the datafile contained 15 28 13 16 0 123 456
the program should say that there are 4 data values in the array and leave the input file marker ready to read the number 123

Example 2
if the datafile contained 15 28 13 16 25 0 123 456
the program should say that there are 5 data values in the array and leave the input file marker ready to read the number 123

Example 3
if the datafile contained 15 28 13 16 25 37 0 123 456
the program should say that there are 6 data values in the array and leave the input file marker ready to read the number 123

Get the program working on these 3 data files first, then proceed to the next stage.

Example 4
Modify (or expand) the program so that if the user made an error and put more than 6 numbers before the sentinel of 0 in the datafile, the program will put the first 6 into the array and pass over the extras up to the 0, leaving the input file marker ready to read the next value.

e.g. if the datafile contained 15 28 13 16 25 37 43 14 16 0 123 456
the program should say that there are 6 data values in the array, print error messages for the 43, 14 and 16, and leave the input file marker ready to read the number 123

Hand in a printout of the program - with all group members names on it - and a run using datafile number 4.

See over

```
// arraylab.cpp  Example for cps171  Oct 96  J. Remen  - main program only
// Updated for Visual C++ Fall 00
// Reads numbers into an array until a sentinel of 0 is reached and counts
// how many are in the array (excluding the sentinel).
// Program attempts to deal with datafiles with different numbers of
// good data values before the sentinel, and leaves the input marker
// positioned to read the value after the sentinel in the file.
#include <fstream>
#include <iostream>
using namespace std;
                                    // Max number of good data values
allowed
const int MAX_SIZE = 6;
                                    // Function prototype
void GetData (ifstream& infile,  int nums[], int& count);

int main()
                  // Array declared big enough to hold all the data
                  // but not the sentinel
{
   int nums[MAX_SIZE], count, next;
                                              // Open datafile
   ifstream infile;
   infile.open("arraylab.dat");
   if (!infile) {
       cout << "Trouble opening data file\n" ;
       return 1;
      }
                       // Call function to get the data into the array
                       // and return the count
   GetData (infile, nums, count);
   cout << "Back in main, count is " << count << endl;
                  // Illustrate that the input file marker is at the
                              // correct position
   infile >> next;
   cout << "The next number in the datafile after the sentinel is "
              << next << endl;
   return 0;
}
                                // Function definition goes here
```