Lab: Deranged Alphabet

Description:

In this lab you will use your knowledge of the Standard Template Library (STL) List Class and Strings to create a deranged alphabet based on the keyword that a user enters. A substitution cipher can use a deranged alphabet to weakly encrypt plaintext messages.

I placed comments with numbers to show you the area that you will have to modify. I also commented out for-loops and if-else structures so that the code would compile and run. You will have to uncomment and complete these areas to get everything working.

I have provided the partially completed deranged_lab.cpp code and a Makefile that works with the code file.

There are three example executions of the program below.

What you have to do:

1. Using a for-loop, you will add the letters 'a' through 'z' to the alphabet list. For part one it is useful to remember that the char data type is nothing more than an unsigned integer value. It is possible to convert a char to an int and vice versa.

```
cout << "Char of 65 = " << char(65) << endl; // outputs A
cout << "Int of B = " << int('B') << endl;   // outputs 66
```

2. Iterate through the keyword characters and remove each from the alphabet list.

3. You will use a reverse iterator in the for-loop to go through the keyword string characters in reverse. Use the provided reference for help.
http://www.cplusplus.com/reference/string/string/rbegin/

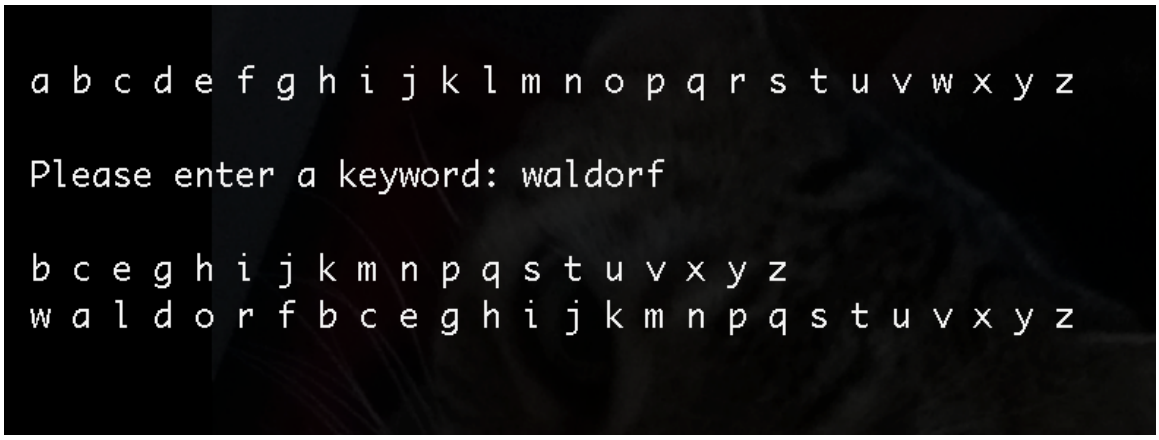
4. Check the character in the keyword to see if it is already in the alphabet. You will be using the `find()` function from the STL algorithm library. This function returns an iterator to the item that matches the search criteria. If there is no match the iterator points to the end of the structure (list, vector, etc).

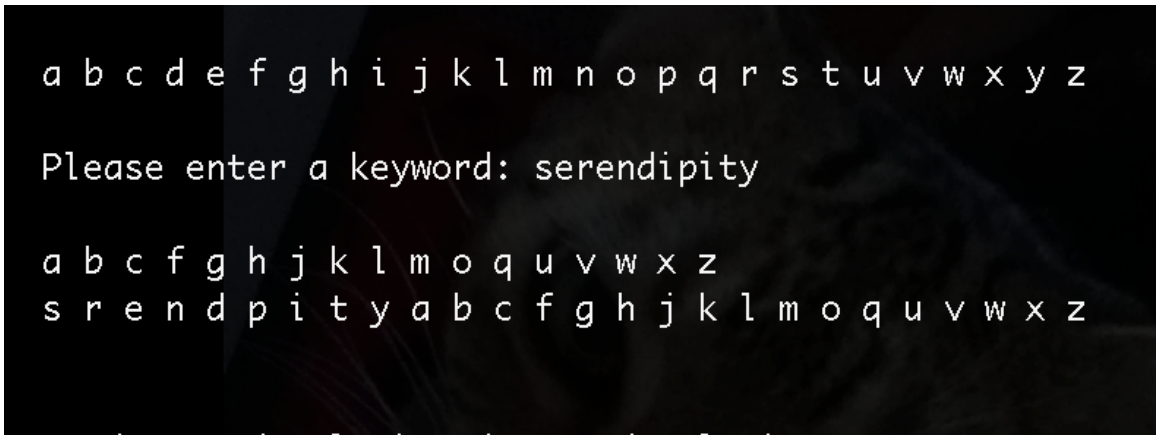
The function requires three arguments when it is called. The first is an iterator for where to start searching, the second is an iterator for when to stop searching, and the last is the search value.

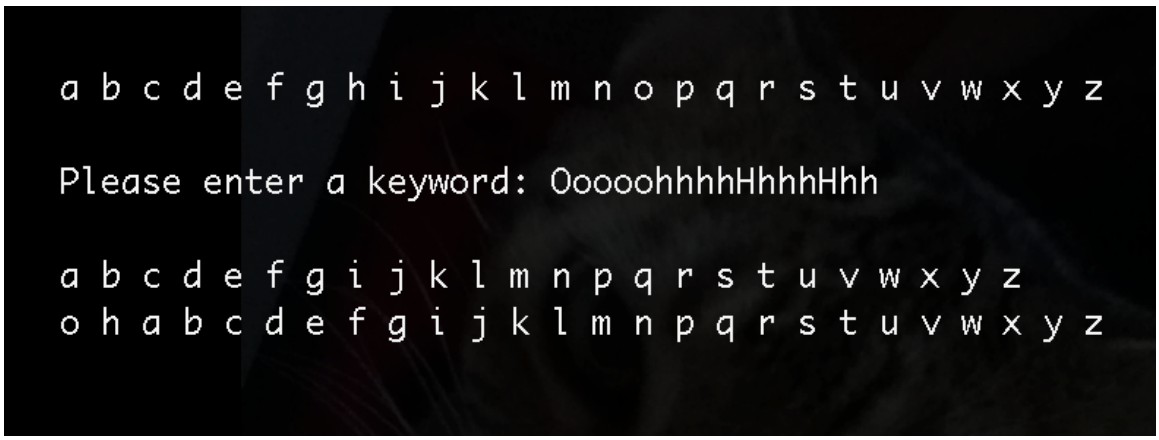
For more information here is a reference:
http://www.cplusplus.com/reference/algorithm/find/

5. If the search value was not found add the value to the alphabet.

Examples of Output:







Goals:

Learning more about C++ STL Lists and Strings

Deliverables:

None