Homework 1

100 Points

One Dimensional Arrays

22B_H_1A.cpp – Binary Search: Find and fix errors
22B_H_1B.cpp – Insertion Sort: Find and fix errors
Pr8-3_BinS.cpp – Binary Search: Code Review
22B_H_1C.cpp – Search a Sorted List of Strings

Project: Searching a Sorted List of Strings

Write a language translation program that permits the entry of a word in English and prints the corresponding word in another language. The input file dictionary.txt contains up to 128 lines. On each line there is word in English followed by its translation in Hawaiian. You may assume that each line contains exactly two words and that the English words in the file are in alphabetical order, as shown below:

```
above luna
below lalo
bird  manu
branch lala
canoe wa'a
```

Create the input file using data on the next page. Read data from the input file into two parallel arrays. Use arrays of maximum size 128. In case the input file contains data for more than 128 names, print an error message such as "The file contains more than 128 lines!" and terminate the program.

Change the Binary Search function to search the parallel arrays, then test it in a loop as it is shown in **Program 8-3**. Prompt the user to enter a word in English, such as **bird** then call the Binary Search function to search for **bird**. If found, display the Hawaiian word for bird: **manu**, otherwise display an error message.

Keep track of the number of successful searches for each student in another array. When done searching, write the arrays to an output file named results.txt, as shown below.

```
 5 below lalo
11 bird manu
 1 canoe wa'a
```

The first number on the first line, 5, shows that there were 5 searches for **below**, the first number on the second line, 11, shows that there were 11 searches for **bird**, and so on. Notice that the words that were not searched for, such as **branch** are not saved to the output file.

Next Page

Grading

Program 1A	– 15Points
Program 1B	– 20
Program Pr8-3_BinS	– 10
Program 1C	– 50
Self Assessment Report	– 5

Grading Program 1C – 50

Read data from file into arrays	– 10Points
Binary Search	– 10
Call Binary Search in a loop	– 10
Frequency array	– 10
Write arrays to a file	– 10

Run each program once and save the output at the end of the source file as a comment. Compress the source files, input and output files (if any), and the report, and upload the compressed file: 22B_LastName_FirstName_H1.zip

Self Assessment Report: Write a short report, (see 22B_H_1Report.docx form) briefly explaining your code and containing an assessment of your implementation based on the above grading criteria.

Create the input file dictionary.txt using the following data:

Next Page

```
above luna
below lalo
bird manu
branch lala
canoe wa'a
club hui
coconut niu
compose haku
day la
easy ma'alahi
father makuakane
float lana
forest ulula'au
garden mala
garland lei
gift makana
hello aloha
huge nunui
kitchen lumikule
large nui
listen ho'olohe
market makeke
moon mahina
mother makuahine
name inoa
parent makua
pay uku
porch lanai
practice ho'oma'ama'a
rice laiki
room lumi
sand one
seaweed manauea
shark mano
sky lani
star hoku
student haumana
thanks mahalo
they lakou
think mana'o
tired maluhiluhi
triggerfish humuhumunukunukuapua'a
turtle honu
twenty iwakalua
watch uaki
wave nanea
wind makani
work hana
year makahik
```

Sample Output:

Welina!
Welcome!
This program translates English words to Hawaiian.

What is the input file's name?
dictionary.txt

Please enter a word in English: triggerfish
"triggerfish" in Hawaiian is "humuhumunukunukuapua'a"

Do you want to search again? (y/n): y
Please enter a word in English: computer
Sorry, we do not have "computer" in our dictionary.

Do you want to search again? (y/n): y
Please enter a word in English: bird
"bird" in Hawaiian is "manu"

Do you want to search again? (y/n): y
Please enter a word in English: triggerfish
"triggerfish" in Hawaiian is "humuhumunukunukuapua'a"

Do you want to search again? (y/n): y
Please enter a word in English: triggerfish
"triggerfish" in Hawaiian is "humuhumunukunukuapua'a"

Do you want to search again? (y/n): n

Your search history has been saved into an output file named "results.txt".

Sample Output File:

```
1 bird manu
3 triggerfish humuhumunukunukuapua'a
```