

# 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.



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## Grading

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

<b>Grading</b> 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:



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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