Hawaiian Words

Hawaiian words can be intimidating to attempt to pronounce. Words like humuhumunukunukuapua'a look like someone may have fallen asleep on the keyboard. The language is actually very simple and only contains 12 characters; 5 vowels and 7 consonants. You are writing a program that allows the user to enter a Hawaiian word and give the pronunciation of the word or words as output.

For instance, humuhumunukunukuapua'a phonetic guide would be Hoo-moo-hoo-moo-noo-koo- noo-koo-ah-poo-ah'ah

The 12 valid characters in the Hawaiian language are a, e, i, o, u, p, k, h, l, m, n, and w.

Consonants	
Consonants are fairly easy. The only exception with consonants are w's, which can be pronounced as a w or a v sound.	
p, k, h, l, m, n	Pronounced like the English versions.
w - start of word	Either pronounced as a w or a v sound. We shall pronounce it as a w sound.
w - after the letter 'a'	Either pronounced as a w or a v sound. We shall pronounce it as a w sound.
w - after 'i' or 'e'	Pronounced as a v sound.
w - after 'u' or o	Pronounced as a w sound.

Vowels	
a	sounds like ah. eg. Austin - ah-stin
e	sounds like eh. eg. egg - eh-gg
i	sounds like ee eg. bee
o	sounds like oh eg. obey - oh bay
u	sounds like oo eg. mood - m oo d

With these rules, we create a guide for some simple Hawaiian words. For instance, aloha would be pronounced as Ah-loh-hah.

The Catch That sounds pretty easy so far. We could just use the replace method to replace all a's with ah, all e's with eh, etc. Very few things are ever quite that easy. In a more complex word with many vowels grouped together, there are additional rules.

Vowel Groups	
ai	Sounds like eye. eg. Ice
ae	Sounds like eye. Same as ai
ao	Sounds like ow. eg. How
au	Sounds like ow. eg. House.
ei	Sounds like ay. eg. Hay
eu	Sounds like eh-oo
iu	Sounds like ew
oi	Sounds like oy
ou	Sounds like ow.
ui	Sounds like ooey. Like gooey.

The word keiki means child in Hawaiian. The ei isn't pronounced as separate vowels but would be pronounced as ay. Kieki sounds like kay-kee. The island of Maui would be pronounced as MOW-EE.

You'll notice that all groupings of vowels aren't represented. For instance, there is no combination for oa in a word. In cases like this each vowel is pronounced as individual vowel sounds. From the vowel sounds o is pronounced as oh and a as ah. So, oa would sound like oh-ah. The Hawaiian word Hoaloha means friend and would be pronounced as Hoh-ah-loh-hah.

There are words with more than 2 vowels in a row. These are approached in the same way. If aia is in a word, the ai would be said like eye. Then you'd pronounced the a as ah. aia thus sounds like eye-ah. Kaiapuni is the Hawaiian word for environment and is pronounced Keye- ah-poo-nee.
If there are more than 2 vowels in a row and the first 2 do not have a single sound, then you would say the first vowel normally, and then check to see if vowels 2 and 3 have a combined sound. The ua in Huaai does not have a sound. So, you'd just pronounced the u as oo, and then evaluate the aa. Since there is no sound for aa, you'd just pronounced the first a as ah, and then evaluate ai. The ai is said like eye. So, the word would be said as Hoo-ah-eye.

CIS123 Project

Final Submission Due: 4/26/2024 @ 11:59pm

Project Breakdown:

Milestone 1 (Due: 4/12/24 @ 11:59pm): Completed Algorithm

Deliverable: Submit your algorithm as a pdf or Word document

Milestone 2 (Due: 4/19/24 @ 11:59pm): Input Validation and Repeating Interaction

Deliverable: Submit your working C++ program file. Your code should validate correct Hawaiian words or print an error message. It should also ask if the user wants to enter another word or exit the program.

Milestone 3 (Due: 4/26/24 @ 11:59pm): Final Submission

Deliverable: Submit your working C++ program file. Your code should allow a user to enter a Hawaiian word and give the correct pronunciation of the word as output. The user should be able to repeat the process as many times as they like.

Requirements

● The program should validate that the word given by the user only has valid Hawaiian characters. Spaces and the apostrophe (') are valid as well.

● If a word is not valid, warn the user about offending characters and prompt for a Hawaiian word again.

● Spaces are breaks for words and should be kept intact.

● The apostrophe is a hard stop and should be kept in the word. A word with a'i is pronounced ah'ee. Without the apostrophe, it would be eye.

● Ask the user if they want to do another word. Valid responses are Y, YES, N or NO. If they want to play more, then they can enter another Hawaiian word. If no, then the program ends.

● For simplicity we will ignore accents in words. ā or â is simply an a.
● You won't be able to just use replace() function. You'll need to evaluate the characters entered one at a time according to the rules.
● Using toupper() or tolower() will change all the characters to the given case. This will make comparisons easier.

References

- http://www.oocities.org/olelo.geo/o-pronunciation.html#f
- http://to-hawaii.com/Hawaiian-dictionary.php

Program Execution Examples

Enter a Hawaiian word to pronounce ==> invalid
V is not a valid Hawaiian character

Enter a Hawaiian word to pronounce ==> aloha
ALOHA is pronounced Ah-loh-hah
Do you want to enter another word? Y/YES/N/NO ==> humuhumunukunukuapua'a
Enter Y, YES, N or NO
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> Kakahiaka
KAKAHIAKA is pronounced Kah-kah-hee-ah-kah
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> Mahalo
MAHALO is pronounced Mah-hah-loh
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> E komo mai
E KOMO MAI is pronounced Eh koh-moh meye
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> maui
MAUI is pronounced Mow-ee
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> kane
KANE is pronounced Kah-neh
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> HOALOHA
HOALOHA is pronounced Hoh-ah-loh-hah
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> makua
MAKUA is pronounced Mah-koo-ah
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> keikikane
KEIKIKANE is pronounced Kay-kee-kah-neh
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> humuhumunukunukuapua'a
HUMUHUMUNUKUNUKUAPUA'A is pronounced Hoo-moo-hoo-moo-noo-koo-noo-koo-ah-poo-ah'ah
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> keiki
KEIKI is pronounced Kay-kee
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> Hoaloha
HOALOHA is pronounced Hoh-ah-loh-hah
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> kaiapuni
KAIAPUNI is pronounced Keye-ah-poo-nee
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> wahine
WAHINE is pronounced Wah-hee-neh
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> iwa
IWA is pronounced Ee-vah
Do you want to enter another word? Y/YES/N/NO ==> y

Enter a Hawaiian word to pronounce ==> Huaai
HUAAI is pronounced Hoo-ah-eye
Do you want to enter another word? Y/YES/N/NO ==> n

Grading Rubric:

Criterion:	Total 125 points
Algorithm	Max 25 points
Program Compiles	Max 10 points
Input validation	Max 15 points
Looping w/sentinel: Phonetic Generation	Max 10 points
Looping: String processing	Max 10 points
Character handling: consonants	Max 5 points
Character handling: special characters	Max 5 points
Character handling: single vowels	Max 5 points
Character handling: 2+ vowels	Max 10 points
Character handling: vowel groups, 3+	Max 15 points
Formatting: Printing proper dashes, spaces, apostrophes, and styling (Capitalization, etc)	Max 15 points