

Hawaiian Words

Author : Kendall Bingham binghamkl@umkc.edu (binghamkl@umkc.edu)

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. This assignment has the students taking a string of a Hawaiian word and outputting the phonetic version.

This project was assigned to CS101 students within the first 6 weeks of their semester. It would be a fairly easy set of rules to change and adapt into fictional languages. The program they were asked to write would continually prompt the user for a Hawaiian word. It would warn the user if the word contained any invalid symbols or characters. If the word was valid, then it would output the phonetic pronunciation for the word. The phonetic output would break up the syllables with a – after each vowel sound. They would then query the user if they desired to continue.

Some sounds are pronounced differently depending on their position. For instance a w is pronounced as a v sound if it is after an i or an e, but is a w sound elsewhere. So they weren't just looking at the current character, but also had to look to see what the previous character if there was one. The rest of the consonants (p, k, h, l, m, n) are pronounced the same as their English counterparts.

The vowels (a, e, i, o, u) have a given sound when by itself, but when grouped they can have different sounds. i has a ee sound like in bee, and u has an oo sound like mood. However, and iu together sounds like ew, while ui sounds like ooey in gooey. This required the student to look at the next character and group them if they had a combined sound.

Student Skills

This was a CS101 program given less than halfway through semester in Python

- String manipulation. Iterating over strings as well as checking the character in front and behind for certain instances
- Loops



Phonetic Guide

Consonants

p, k, h, l, m, n	Pronounced like the English versions.
w - start of word	Either pronounced as a w or a v. We will pronounce it as a w
w - after the letter 'a'	Either pronounced as a w or a v. We will pronounce it as a w
w - after 'i' or 'e'	Pronounced as a v sound
w - after 'u' or 'o'	Sounds like w

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
---	-----------------------------------

Vowel Groups	
ai	sounds like eye. eg. Ice
ae	sounds like eye. eg. Ice
ao	sounds like ow. eg. How
au	sounds like ow. eg. How
ei	sounds like ay. eg. Hay
eu	sounds like eh-oh
iu	sounds like ew. eg. Chew
oi	sounds like oy. eg. Soy
ou	sounds like ow. eg. How
ui	sounds like ooey. eg Gooley

Example Words and correct output	
Word	Correct Output
aloha	Ah-loh-hah
Kakahiaka	Kah-kah-hee-ah-kah
Mahalo	Mah-hah-loh
E komo mai	Eh koh-moh meye
maui	Mow-ee
kane	Kah-neh
humuhumunukunukuapua'a	Hoo-moo-hoo-moo-noo-koo-noo-koo-ah-poo-ah'ah

Assignment File

File Description	Link
------------------	------

File Description	Link
Student Assignment	.docx (Program 3 - Hawaiian Word Pronunciation) .pdf (Program 3 - Hawaiian Word Pronunciation.pdf)

Meta Data

Summary	Students develop a program to produce the phonetic for a Hawaiian word.
Topics	String iteration and manipulation, loops, functions.
Audience	Beginning CS1 students with exposure to strings and loops.
Difficulty	This is an easy to medium difficulty level, about the difficulty of converting Roman Numerals to decimal.
Strengths	<ul style="list-style-type: none"> • Lots of practice with string manipulation. • Fun to daydream about hawaii while tackling this problem. Students like comparing their results to some online dictionaries of the words • Part of the assignment was to validate they only entered valid characters and combinations of characters. Giving them opportunity to divide and conquer with functions.
Weaknesses	<ul style="list-style-type: none"> • Students want to use replace function. There are a couple of exceptions where replace would not work, however it is best to simply ban the use of a replace method and require them to iterate on the strings
Dependencies	<ul style="list-style-type: none"> • String manipulation • Loops
Variants	<ul style="list-style-type: none"> • Can be easy to find other languages to use, not just hawaiian. Spring 2018 I used it with Dothroki from "Game of Thrones" • Can be used with the IPA phonetic guide • Its been suggested to use this with sound files of individual sounds and have the program stitch sound files together.