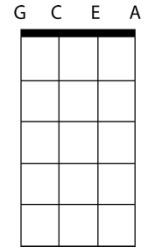


Weekly Assignment 03

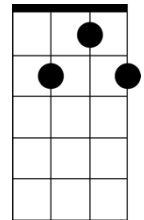
Last updated: Sep 11, 2017 4:20 PM

Write an app to help users learn their ukulele chords.

The ukulele is a fretted, four-stringed musical instrument that originated in the Hawaiian Islands. The strings are tuned as shown in the image at the right, and the strings are numbered 4, 3, 2, and 1 from left to right; the vertical lines represent the strings, the thin horizontal lines represent the frets, and the thick horizontal line represents the nut (the bar above the first fret, near the instrument head).



Fretboard diagrams such as these are used to help players see particular chord patterns. At the right is an image that depicts the G7 chord. The dots tell the player where to place her/his fingers to play the chord.



Your app will present the user with different chord images along with three possible names for the chord, and the user will try to pick the correct name for the chord.

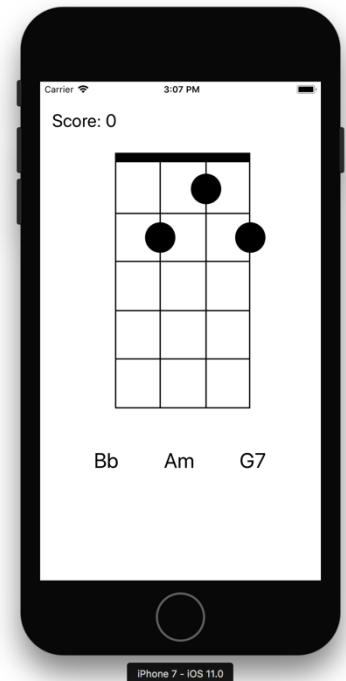
1. Create a new, Swift 4 project in Xcode 9-beta. Name the project `W03_ lastName_ firstName` where *lastName* is the part of your name that OSU considers to be your last name, and *firstName* is your first name. (This is the product naming convention we will use for all weekly assignments.)
2. Set the app to run on an iPhone 7.
3. In the *Apps and Resources* section of the BrightSpace site, you will find a PNG file that depicts an empty fretboard. Use this image as a basis for your chord images. In a program such as Photoshop or [the GIMP](#), create a filled circle to represent the dots on the fretboard.
4. Create an array of labeled tuples. Each tuple contains five pieces of information that describe a chord:
 - The name of the chord (a String) – Note names are capital; minor chords are labeled with an “m”, such as A minor (“Am”); sharps are labeled with a hash, such as C sharp (“C#”); and flats are marked labeled with a “b”, such as B flat (“Bb”).
 - The fret number of the player’s finger on the fourth string (an Int) – 0 represents an open string (no finger on the string), as seen on the fourth string of the G7 chord,

depicted above; 1 represents a finger at the first fret; 2 represents a finger at the second fret; and so forth

- The fret number of the player's finger on the third string (an Int).
- The fret number of the player's finger on the second string (an Int).
- The fret number of the player's finger on the first string (an Int).

Your array should contain at least 12 different tuples. (There are many sites on the Web that illustrate common ukulele chords.)

5. When the app begins, it looks like the image shown at the right.
 - At the top is a label that shows the current score. The user gets one point for each correctly-identified chord.
 - Below the score is an image that depicts a chord. Choose a random tuple from the array, display the empty fretboard, and then display dots at the appropriate positions to depict the chord represented by the tuple.
 - Below the fretboard are three labels; one label contains the name of the chord depicted above, and the other two contain different chord names randomly chosen from the array of tuples. The left-to-right order of these three chord names also is randomized.
6. The user drags one of the three labels onto the fretboard image. (The label should move with the user's finger.) When the user lifts his/her finger, display a message below the row of labels:
 - If the user correctly identified the chord, display a message something like, "Correct!" or "Good job!", and increase the score by one.
 - If the user incorrectly identified the chord, display a message something like, "Sorry, the correct answer was X", where X is the correct chord name.
7. After this, when the user taps on the screen, go back to step 5 for another chord.
8. The app has no termination condition; it continues to run until the user closes it.



General Notes

- Feel free to modify font family, font size (as I did in the image, above), font color, or the background color of any UI components. (Be tasteful in your choices.)

Submitting Your Solution

- Zip your project folder into a single file, go to the course BrightSpace site, navigate to the *Dropbox* page, and submit the zip file in the folder that corresponds to this assignment.