MUSIC 208 Homework 3-4 - Due Unit 6.

Note: If you can't recreate the Lab setup on your laptop you may have to do portions of this homework in the Weitz Lab.

1. Create a Drum Machine Using Free Samples you find on the Internet

Save As: drumMachine.ck

Requirements:
You need 8 different samples, on for each finger of both hands, not thumbs.

Use any drum samples of your choice, acoustic drums, electronic drums, weird drums, etc.

You will map the 8 drum samples to the computer keyboard keys of your choice.

You must be able to play multiple samples simultaneously when two or more keys are depressed.

Practice a one minute drum loop and then record it into Audacity and save it as a wave file.

Submit to the Course Hand-in Folder

Your ChucK code, your eight drum samples, your Audacity wave file, and a short paragraph or two explaining what did and where you got the samples.

Possible Download sites:
Google search "free drum samples"
http://www.freesound.org/
http://www.producingbeats.com/Free-Audio-Samples-15-Sites-to-Find-Free-Loops-and-Samples
http://www.synthtopia.com/content/2010/02/05/10000-free-audio-samples/

2. Mangled Audio

Save As: mangled.ck

Choose any audio wave file you like and use the techniques for mangling the samples you learned about in Lab 3. Experiment with several types of effects, changing function parameters in real time, adding new shreds, etc. Then record a one minute segment of ChucK mangled audio into Audacity.

Submit to the Course Hand-in Folder

Your ChucK code, your original sample, your mangled Audacity wave file, and a short paragraph or two explaining what you did and where you got the original sample.

3. Play a One Octave C Major Scale in MIDI

Save As: playCMajor.ck

In Lab 4 we built a four octave chromatic scale by incrementing each MIDI note number by 1. If you start on Middle C and play the chromatic scale to the next C you'd use all MIDI note numbers from 60 to 72.

The One Octave Chromatic Scale Starting on C4

MIDI Note Number	Note Name
60	C4
61	Cs4 (s means sharp here) (equivalent to D flat in sound
62	D4
63	Ds4
64	E4
65	F4 (half step between E and F)
66	Fs4
67	G4
68	Gs4
69	A4 (A 440 Hz, the tuning reference)
70	As4
71	B4

72	C5 (start of next octave)

The C Major Scale

The C Major scale is the only scale that does not use any sharps or flats. The MIDI note numbers for the C major scale are: 60 62 64 65 67 69 71 72. In music theory you learn that a major scale follows this pattern between notes: whole step, whole step, half step, whole step, whole step, whole step, half step. A whole step is +2 and a half step is +1 from the previous note.

Write a ChucK program called playCMajor.ck that plays the C major scale in MIDI when you type the letters C D E F G A B C on the keyboard. The low C is MIDI note 60, the high C is MIDI note 72. You want note 60 when you type plain C and you want note 72 when you type Shift-C . Figure it out. Hint: Use kb.ck to find the msg.which value for the Shift key. Set a variable that tracks whether the Shift key is up or down and act accordingly.

Submit your completed playCMajor.ck file to the course Hand-in folder.

4. Play Different Types of Scales On Each Row Of The Computer Keyboard

Save As: fourRowScales.ck

From problem 3 you know that the C Major Scale uses these notes:
60   62   64   65   67   69   71   72

If you subtact 60 from each note you get this pattern.
0   2   4   5   7   9   11   12

To start in octave 3 (C3-B3) you'd add 48 to each note of the zero based pattern. To start in octave 5 (C5-B5) you'd add 72 to each note of the zero based pattern.

Keyboard Row 1 (1 2 3 4 5 6 7 8 9 0) will use the Pentatonic scale.

Keyboard Row 2 (q w e r t y u i o p) will use the Rock Blues scale.

Keyboard Row 3 (a s d f g h j k l ;) will use the Minor Blues scale.

Keyboard Row 4 (z x c v b n m , . /) will use the Japanese Scale.

Every scale begins in your choice of octave 3 or 4.

There are 10 notes in each scale. These are the patterns.

Pentatonic Zero Based Pattern

| −5 | -3 | 0 | 2 | 4 | 7 | 9 | 12 | 14 | 16 | // row 1 2 3 4 |

Rock Blues Zero Based Pattern

| −5 | -2 | 0 | 3 | 4 | 7 | 9 | 10 | 12 | 15 | // row q w e r |

Minor Blues Zero Based Pattern

| −5 | -2 | 0 | 3 | 5 | 6 | 7 | 10 | 12 | 15 | // row a s d f |

Japanese Scale Zero Based Pattern

| −5 | -4 | 0 | 1 | 5 | 7 | 8 | 12 | 13 | 17 | // row z x c v |

Make each row use a different instrument sound (patch change number). You can choose from any of the 128 available GM instruments.

Hint: Create an int variable called patchNum and set it to the patch number you want to use in the key down statements in the while loop.

Submit your completed fourRowScales.ck file to the course Hand-in folder.