Journal Report 11

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Irina Lee
Computer Systems Research Lab
Period 1, White

Daily Log

Monday December 2

Since I changed the format of piece I'm using in Sibelius from just treble clef to "Piano" (treble and bass clef), the MIDI text file format changed as well. I modified my "parse midi text file" method to accommodate the new format. The music arr array remains exactly the same as before.

Tuesday December 3

As I began expanding my algorithm's capabilities to handle chords, I realized that I had to change the data structure used to handle note number values from ints to arrays because I could no longer assume that the music was monophonic. Polyphonic music is when multiple notes are played at one point in time, requiring an array to keep track of multiple notes played at one time. This change creates logistical problems in many areas of my code because of the data structure switch, and I spent the period working on modifying my "parse midi text file."

Thursday December 5

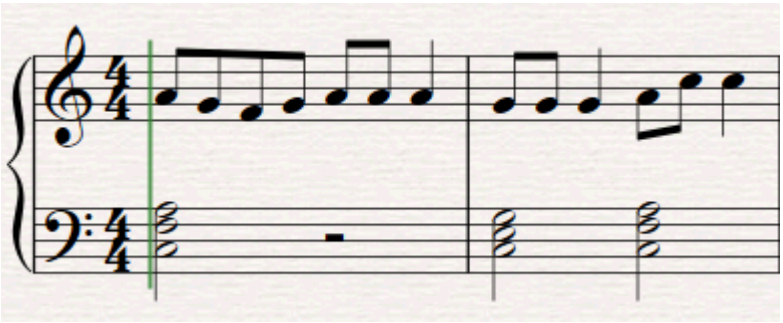
I completed the task of generating arrays for the right and left hand of a piece. Parsing the information from the MIDI file and sorting into right/left arrays proved more difficult than expected, because the MIDI file does not distinguish between the two. For notes, I had note numbers greater than or equal to 60 (or middle C) go to the right hand, and the rest go to the left hand. I will modify this to be more sophisticated next week. The most challenging part of this task was actually the rests. To begin with, rest information isn't explicitly included in the MIDI file, so being able to tell whether a rest should be placed in the left or right hand took the most time. I ended up using a system of booleans to solve the problem.

Timeline

Date	Goal	Met
November 22nd	Be able to finger all 12 arpeggios	The algorithm can finger 7 arpeggios (C,G,D,A,E,B,F)
November 29th	Implement a decision-making process for whether the algorithm should apply the ”motif” or ”normal” method to finger, and within the ”motif” method, be able to correctly gauge the ”optimal motif”	I realized that my motif algorithm was not sophisticated enough for evaluation, so I expanded its capabilities to be able to finger pieces with different hand positions.
December 6th	Be able to analyze and finger chords in preparation to finger left hand	–
December 15th	Assimilate the new data structure into my motif algorithm and finger chords	–
December 22nd	Winter Goal: Finger a piece with two hands using the motif algorithm. Be able to generate 2 viable fingerings for a piece.	–

Reflection

This week, I completely revamped my method of parsing MIDI text files and changed the data structure I use to keep track of note values. My algorithm is beginning to handle polyphonic pieces in two hands. Below is an excerpt from the piece ”Mary Had A Little Lamb” with the corresponding left and right hand arrays generated.



Right Hand Array: [[128, [69], None], [128, [67], None], [128, [65], None], [128, [67], None], [128, [69], None], [128, [69], None], [256, [69], None], [128, [67], None], [128, [67], None], [256, [67], None], [128, [69], None], [128, [72], None], [256, [72], None]]

Left Hand Array: [[512, [48, 53, 57], None], [512, [-1], None], [512, [48, 52, 55], None], [512, [48, 53, 57], None]]

With my algorithm able to generate left and right hand array, I made large strides toward my winter goal of being able to finger pieces in two hands. Next week, I will focus on assimilating the new data structure into my motif algorithm and fingering chords.