

Testing aid for CSC 243 Java Programming Assignment 5, Spring 2010

Dr. Dale E. Parson, <http://faculty.kutztown.edu/parson>

1. Update the System.err.println statement in file ScrabbleToMidiBoardNoteVisualizer.java to look like this.

```
System.err.println("DEBUG VISUAL " + event.getTick() + " "  
+ chan + ":\t"  
+ textword.substring(start, end) + " "  
+ textword + "\t" + noteinfo + locreport);
```

That statement prints a message for every NOTEON and NOTEOFF message received by your **notifyMidiSynthEvent** method that looks like the following trace. You can comment out the println statement if you do not want to see this trace. Also, while the trace is running, entering **control-s** into the terminal window freezes the trace (and execution of the Java thread that is executing println), and **control-q** resumes the trace.

DEBUG VISUAL 1271532310193 **0: Z ZERO ON 1** octave = 5 **loc = H8**

DEBUG VISUAL 1271532310193 **1: R ZERO OFF 7** octave = 3 **loc = J8**

DEBUG VISUAL 1271532310193 **1: Z ZERO ON 2** octave = 2 **loc = H8**

DEBUG VISUAL 1271532310621 **0: Z ZERO ON 1** octave = 5 **loc = H8**

The long number is a timestamp for indicating when a note turns on or off; you can ignore this field. The next integer before the “:” is a **MIDI channel** (instrument number) 0 through 15 inclusive. This field is important because up to 16 instruments may play at a time, and if two instruments play the same letter at the same position at the same time (possibly using a different tone 0 .. 11), the lower channel is the one whose tone color you should display.

After the “:” comes the **letter being played**, which is the basis for your board animation. Following the word in which it resides comes **ON** or **OFF** for NOTEON or NOTEOFF, followed by its **tone 0 .. 11**, both of which you will use. Ignore the octave, but use the **location** of the letter on the board.

2. On the next page is the word-to-MIDI mapping GUI, along with some notes on using it to help with testing.

Channel on this GUI gives the MIDI channel that you are currently configuring (0..15). It corresponds to the channel before the “:” above. **Period** below it sets the note duration; set this to 0 to shut off that channel. Probably you want to test with only one channel enabled initially.

Each channel has its own **tempo** in beats per minute. You can modify the tempo for all channels together by clicking the **sync?** checkbox and then manipulating global tempo. **Channel tempo** applies only to the current channel.

Notes sets how many notes (letters) to play at one time on that channel. Set it to 1 for initial testing. Setting it to 0 plays all the letters in a word at one time for each word.

Accents gives a pattern of note strengths, and rests for 0. Set it to 4 or 8 1's like this "1:1:1:1:1:1:1" to get a continuous stream of notes on that channel.

Scale determines the range of tones 0 .. 11 that channel will generate. **Chromatic** gives all twelve values 0 .. 11 if you use all letters. **Root** gives only tone 0 at various octaves. **Rootfifth** gives two tones, **rootmajor** or **rootminor** gives 3, and either of the two **pentatonic** scales gives 5.

In addition to requiring a non-0 **period** setting to enable its channel, the **velocity** slider must be non-0 to enable its channel. It sets volume for that channel.

Click "**Apply**" or "**Apply Now**" (typically the latter) to trigger your parameter changes, or "**Cancel**" to discard them.

Good luck.

