- **ADSR**
  - Changes to the attack, decay, sustain, and release should each be accurately reflected in the synthesizer sound output (Both Screen and MIDI) and wave visualizer
  - Each ADSR text box should only accept decimal values from 0.0 to 0.5
    - Any non-numeric characters and numbers outside the range should be handled
    - The Sustain should accept any value from 0 to 1
    - Changing the value in the text box should also change the knob position according to the new value and vice versa
- **Oscillators**
  - Changes to any component of any oscillator should be accurately reflected in the synthesizer sound output (Both Screen and MIDI) and wave visualizer
  - Each amplitude text box should accurately reflect changes to the bar above it and vice versa
    - The text input should only accept numeric values from 0.0 to 1.0
    - Any non-numeric characters and numbers outside the range should be handled
  - Each frequency text box should accurately reflect changes in the knob above it and vice versa
    - The text input should only accept numeric values from 0.25 to 4.0
    - Any non-numeric characters and numbers outside the range should be handled
- **Gain**
  - Changes to the gain should be accurately reflected in the synthesizer sound output (Both Screen and MIDI) and wave visualizer
  - The text box should only accept decimal values from 0.0 to 1.0
    - Any non-numeric characters and numbers outside the range should be handled
    - Changing the value in the text box should also change the knob position according to the new value and vice versa
- **MIDI**
  - Keys pressed on a MIDI keyboard should be highlighted in the UI and play the sounds accurately based on all the values in the rest of the program including microtonal mappings
  - Changing a microtonal mapping should change the sound output of the MIDI keyboard in real time
  - Changing oscillator, ADSR, or gain values should change the sound output of the MIDI keyboard in real time