

ME 133 Winter 2022

Lab 4: *Simon Says*

Feb 3, 2022

Due: 2/10/2022

Submit a zip file named `yourFirstName-Lab1.zip` on Canvas with your code, a lab report (following the format in syllabus), and a short video proving the working hardware-software integration.

Exercise 1

Coding together

We will look at how to reproduce sound with a small speaker (piezo-buzzer). See **here** for a reference, with tones.

Assignment

This assignment is meant to test what we have learned so far with buttons, LEDs and conditionals. The task is to create your own version of the game Simon: [https://en.wikipedia.org/wiki/Simon_\(game\)](https://en.wikipedia.org/wiki/Simon_(game))

The device creates a series of tones and lights and requires a user to repeat the sequence. If the user succeeds, the series becomes progressively longer and more complex. Once the user fails or the time limit runs out, the game is over.

To do this, have four LEDs and four buttons (one button associated to each LED). When the game starts, show a random light sequence of the four LEDs; the user then has to press the buttons in the same sequence. If it is right then generate a new, longer, sequence. Otherwise start over. Associate a different note to each LED (and, hence, button) and play that tone every time the LED lights up (and that button is pressed). Print a user score on the serial monitor.