Introduction

This project was to construct a working model of the classic Simon Says game using Arduino programming. The game will display a light pattern randomly starting with one light and incrementing by one if the player pushes the corresponding button associated with those lights. For my custom model, the game begins by flashing all the lights simultaneously three times. If the player hits the wrong button each button will go off, one next to the other, in a pattern also for three occurrences. After the user loses, the game will automatically start over with flashing all the lights three times. I have attached my schematic for the LEDs and the buttons at the end.

Process - Hardware

For this assignment, I began by drawing a schematic that illustrates the pull-down method for this project. I also showed that I was using a parallel system for the LEDs. It demonstrates that each I/O pin will connect to a resistor that is connected to an LED. The schematic also shows that I decided to use the pull-down method when piecing together the buttons on the breadboard. Next, I worked on constructing a working model through a website known as Tinkercad.com. This allowed me to build a working model that would simulate the physical model I would soon create. The LED's resistors were set to 220 ohms, and the resistors for the buttons were set at 10,000 ohms.

Process - Software

When writing the code for the Simon Says game, I used basic programming skills such as loops, if-statements, arrays, and functions. For this project, I incorporated three Arduino IDE objects for recognizing and using the LEDs and the buttons. Those objects were pinMode, digitalRead, and digitalWrite. Additionally, I used serial.print to test my code for scope issues among other things.

Component List

Here is the list of components I needed in order to construct the Simon Says game using the Arduino IDE.

- Arduino
- Resistors (8)
- LEDs (4)
- Buttons (4)
- Wires (18)
- Breadboard
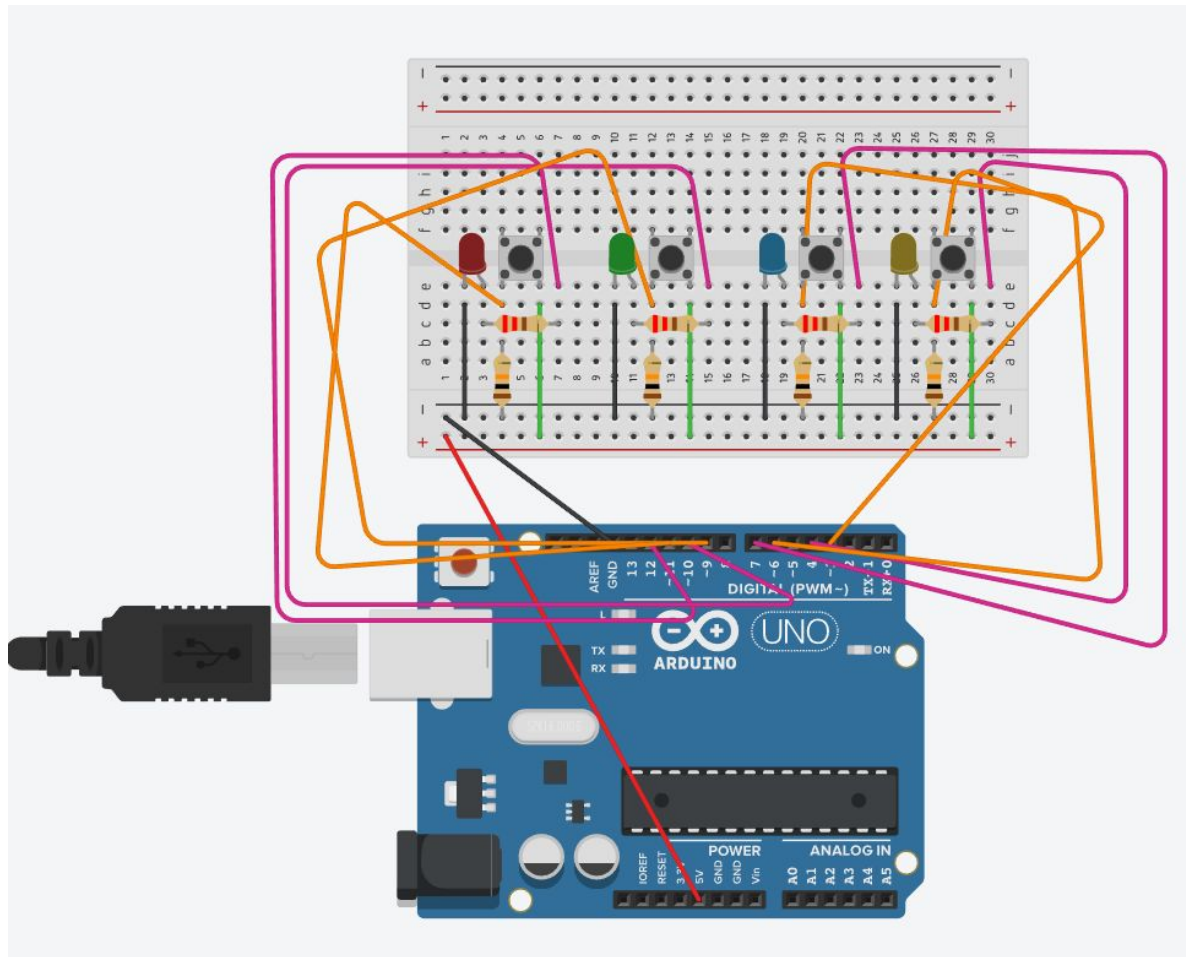
Simmon Says
Schematic

Pull-Down