Solutions

Assignment 1

Question 1: Easy

You already tried blinking an LED with Arduino. Now make the LED fade in and out smoothly (like this).

Solution:
https://www.tinkercad.com/things/9b6gd6N624z

Question 2: Medium

Make a circuit consisting of an Arduino, a pushbutton, and an RGB LED. Upon pressing the button, the LED should cycle through a range of colours including red, blue, green, pink, yellow, and turquoise. You may use the `setColor()` function mentioned in Lesson 2. (Use the debounce method for reading button presses).

Solution:
https://www.tinkercad.com/things/7fMUdyDn3dt

Question 3: Hard

In lesson 1, you were introduced to the 74HC93 circuit, which counted up in binary from 0000 to 1111. Achieve the same functionality, but using an Arduino; i.e. it should display a 4-bit binary number (using LEDs) that increments on the press of a pushbutton.

Solution:
https://www.tinkercad.com/things/2l0sCNH6vvO

Bonus Question

The Arduino reads a value entered by the user on the serial port. The value should be <256, i.e. it should be an 8-bit positive integer. If it isn't, display an error message. If it is, display the number as binary using LEDs. (i.e. an ON LED represents '1' and an OFF LED represents '0').

Solutions:
https://www.tinkercad.com/things/76X33tIyXO9