

· ASSIGNMENT 01 ·

Electronics and Arduino

Week 1

Question 1: Easy

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

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).

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.

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').

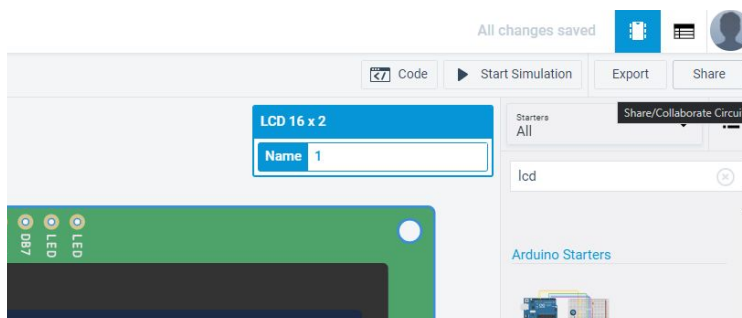
Instructions for submitting the assignment

Submission Guidelines

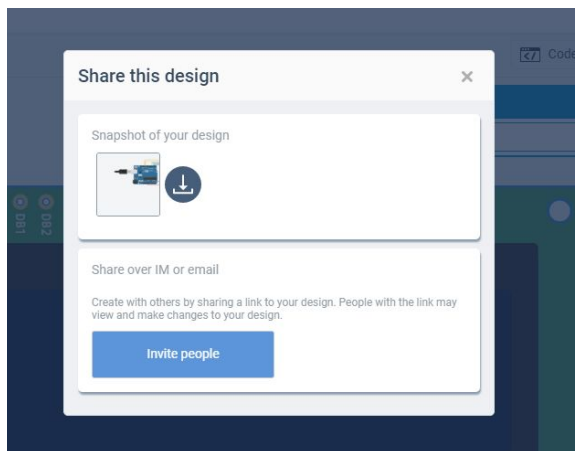
1. A **Google Doc** containing the links to each TinkerCAD circuit should be submitted as the mode of assignment on Google Classroom.
2. The **deadline** for submitting the assignment is **17.05.2020 (23:59 hours)**. Late submissions would not be entertained.
3. All the circuits you've tinkered with should be given **public access** for the instructors to check and provide feedback.
4. Solutions to the assignments would be posted in the morning of 18.05.2020
5. You may post your doubts on Slack. But please do not share your circuits on it, or ask for the solutions.

How to share a TinkerCAD project

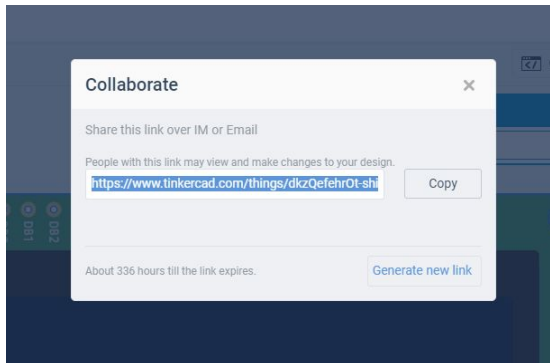
1. While editing your design, click on the *Share* button on the top right.



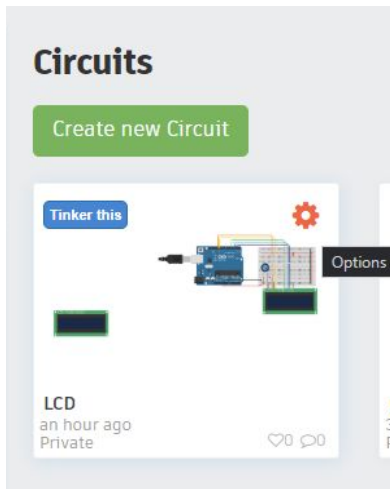
2. In the dialog box that opens, click "*Invite people*".



3. Copy the link shown.



4. Additionally, make the design public. Do this by going to your [dashboard](#).
5. Hover over the circuit you want to share, and click the options icon (as shown below), and then click properties.



6. In the properties dialog box, under “Privacy”, choose ‘public’ in the list as shown below.

