

# Combinational Logic Blocks

Calvin Reese  
cjreese@fortlewis.edu

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## 1 Introduction

This HW, started learning arduino with LEDs, Buttons and 7 Segment displays.

## 2 Materials and Methods

The tutorial for making these examples are in [http://www.yilectronics.com/Tutorials/Arduino\\_Basics/Tutorial\\_3\\_SSDs/Tutorial\\_3\\_SSDs.html](http://www.yilectronics.com/Tutorials/Arduino_Basics/Tutorial_3_SSDs/Tutorial_3_SSDs.html)

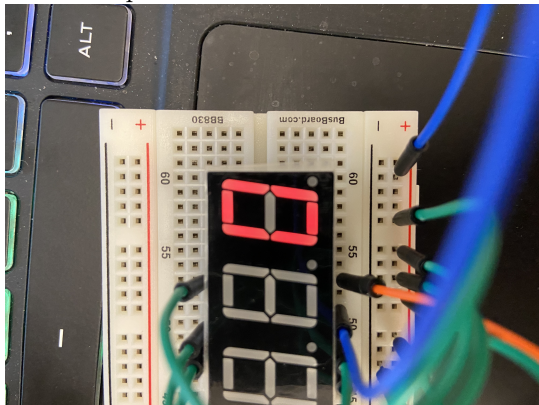
## 3 Results

### 3.1 Task 1

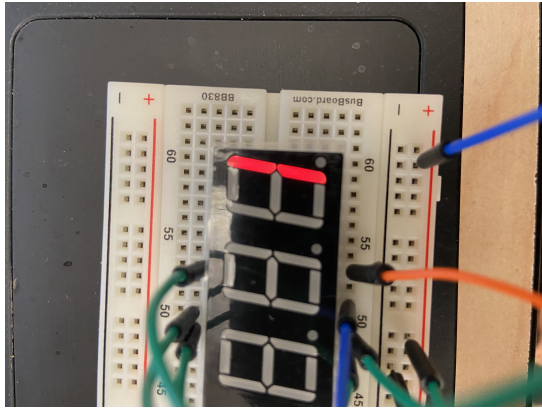
LED and Button Competency: <https://youtu.be/p5-Iohqsx74>

### 3.2 Task 2

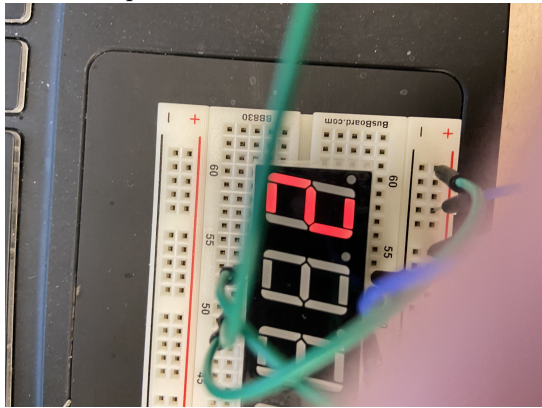
Manual Input 0



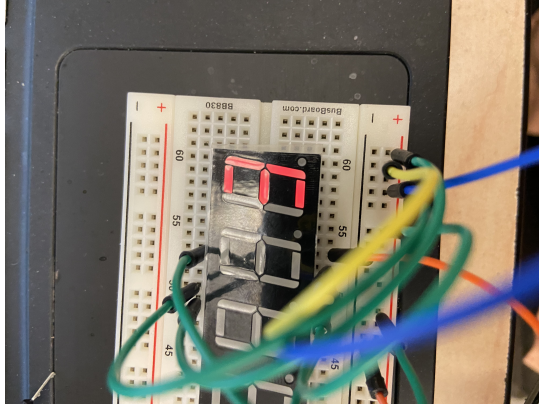
Manual Input 1



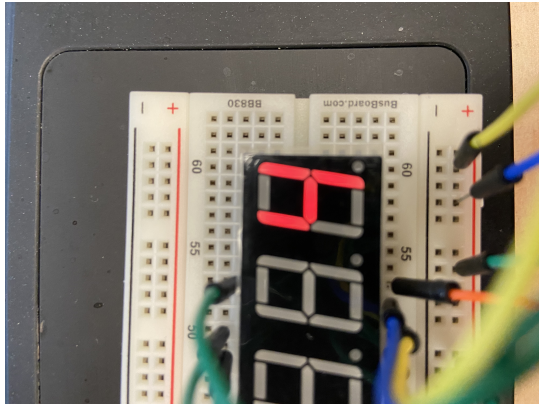
Manual Input 2



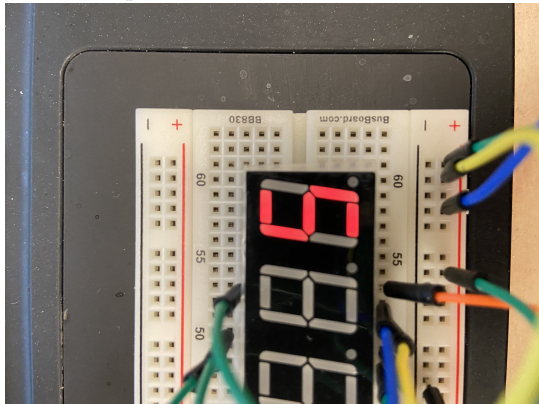
Manual Input 3



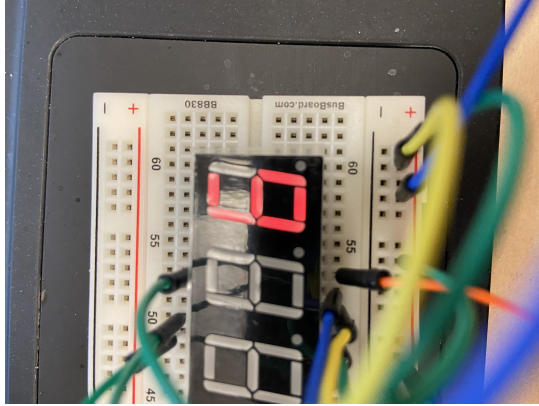
Manual Input 4



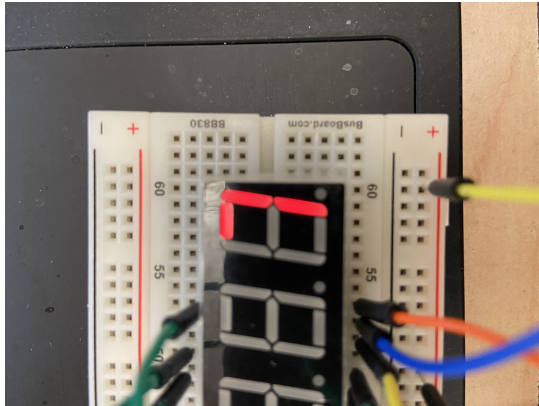
Manual Input 5



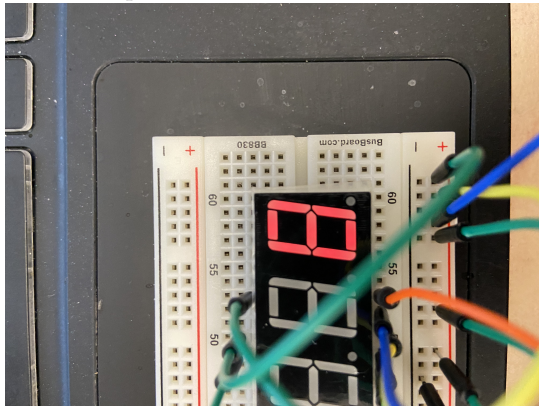
Manual Input 6



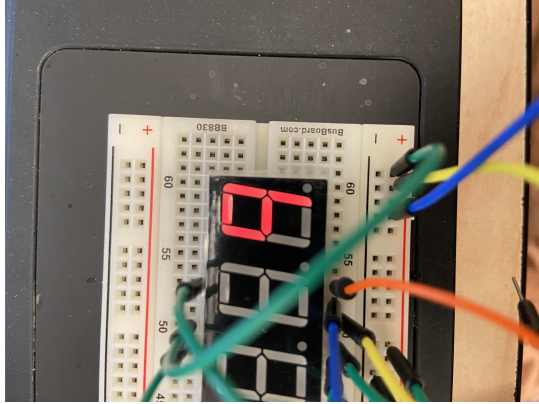
Manual Input 7



Manual Input 8



## Manual Input 9



Using your code, I was able to test the SSD: <https://youtu.be/1LfIvyKR7Fs>

```
// SSD, single, counts, LSBFIRST, revised 9/18/2022
int latchPin=11;// RCLK
int clockPin=9;// SRCLK
int dataPin=12;//SER
byte SSDs=0x3F; // in binary, it is 0011 1111, which only turns off G and
H, will display 0
void setup()
pinMode(latchPin,OUTPUT);
pinMode(dataPin,OUTPUT);
pinMode(clockPin,OUTPUT);
void loop()
SSDs=0x60; //1
updateShiftRegister();
delay(500);
SSDs=0xDA; //2
updateShiftRegister();
delay(500);
SSDs=0xF2; //3
updateShiftRegister();
delay(500);
SSDs=0x66; //4
updateShiftRegister();
delay(500);
SSDs=0xB6; //5
updateShiftRegister();
delay(500);
SSDs=0xBE; //6
```

```
updateShiftRegister();
delay(500);
SSDs=0xE0; //7
updateShiftRegister();
delay(500);
SSDs=0xFE; //8
updateShiftRegister();
delay(500);
SSDs=0xF6; //9
updateShiftRegister();
delay(500);
SSDs=0xFC; //0
updateShiftRegister();
delay(500);
void updateShiftRegister()
digitalWrite(latchPin,LOW); // disable latch/pass
shiftOut(dataPin,clockPin,LSBFIRST,SSDs);
digitalWrite(latchPin,HIGH); // rising edge latches/passes data through
```

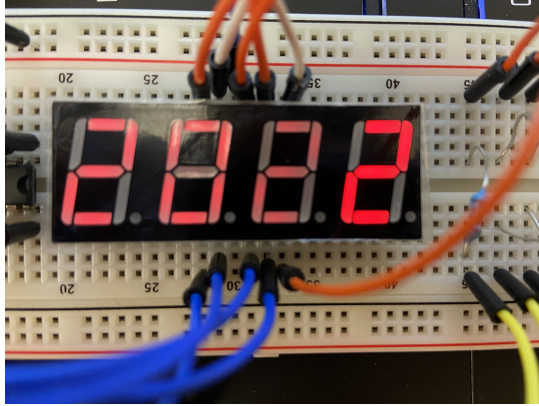
7 Segment Output: <https://youtu.be/pWz6CHhxcKY>

```

//2022 digital display
int latchPin=11;// RCLK
int clockPin=9;// SRCLK
int dataPin=12;//SER
byte SSDs=0x3F; // in binary, it is 0011 1111, which only turns off G and
H, will display 0
void setup()
pinMode(latchPin,OUTPUT);
pinMode(dataPin,OUTPUT);
pinMode(clockPin,OUTPUT);
pinMode(4,OUTPUT);
pinMode(5,OUTPUT);
pinMode(6,OUTPUT);
pinMode(7,OUTPUT);
void loop()
digitalWrite(4,LOW);
SSDs=0x5B; //2
updateShiftRegister();
delay(1);
digitalWrite(4,HIGH);
digitalWrite(5,LOW);
SSDs=0x3F; //0
updateShiftRegister();
delay(1);
digitalWrite(5,HIGH);
digitalWrite(6,LOW);
SSDs=0x5B; //2
updateShiftRegister();
delay(1);
digitalWrite(6,HIGH);
digitalWrite(7,LOW);
SSDs=0x5B; //2
updateShiftRegister();
delay(1);
digitalWrite(7,HIGH);
void updateShiftRegister()
digitalWrite(latchPin,LOW); // disable latch/pass
shiftOut(dataPin,clockPin,MSBFIRST,SSDs);
digitalWrite(latchPin,HIGH); // rising edge latches/passes data through

```

2022 Output:



## 4 Discussion

The LED Section was essentially review since I have been playing with Arduinos since High School. I hope that you are willing to accept some previous work I did since it is more complicated than what you asked for and included all the point discussed on the tutorial. The 7 segment display was also easy, just tedious.