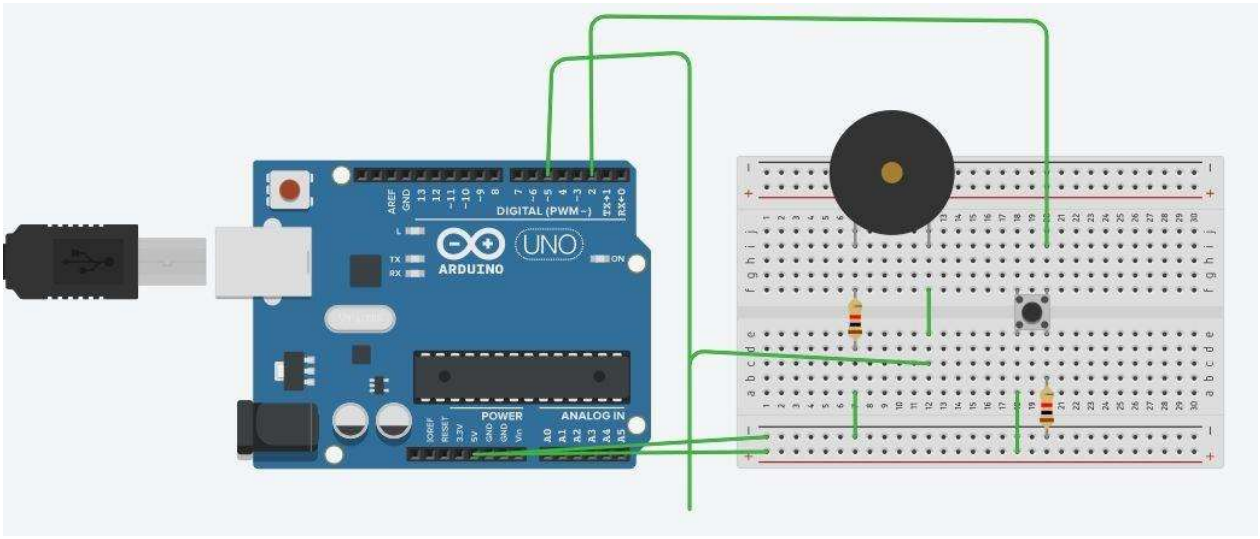
COMP 1045 Lab 7

Circuit diagram: Today we will be using the buzzer connected to pin 5 and a button connected to pin 2.



Level 1: Copy and paste the source code to check if your buzzer works.

```
int buzzerPin = 5 ; //The buzzerPin is connected to pin 5 of the Arduino.
int button1Pin = 2; //The SW1 button is connect to pin 2 of the Arduino.

void setup() { //The Setup function runs once.
  pinMode(buzzerPin, OUTPUT); //Setup red LED pin as an output pin.
  pinMode(button1Pin, INPUT); //Setup button1 pin as an input pin.
}

void loop() { //The loop function runs forever.
  if (digitalRead(button1Pin) == HIGH) { //Check to see if button1 is pressed.
    tone(buzzerPin, 1000,50);          //Play a tone of 1000Hz for 50 milliseconds.
     }
}
```

Level 2: We will create a library, in the online version just copy and paste at top of code.

```
/************************************************
 * Public Constants
 ************************************************/

#define NOTE_B0  31
#define NOTE_C1  33
#define NOTE_CS1 35
#define NOTE_D1  37
#define NOTE_DS1 39
#define NOTE_E1  41
#define NOTE_F1  44
#define NOTE_FS1 46
#define NOTE_G1  49
#define NOTE_GS1 52
#define NOTE_A1  55
#define NOTE_AS1 58
#define NOTE_B1  62
#define NOTE_C2  65
#define NOTE_CS2 69
#define NOTE_D2  73
#define NOTE_DS2 78
#define NOTE_E2  82
#define NOTE_F2  87
#define NOTE_FS2 93
#define NOTE_G2  98
#define NOTE_GS2 104
#define NOTE_A2  110
#define NOTE_AS2 117
#define NOTE_B2  123
#define NOTE_C3  131
#define NOTE_CS3 139
#define NOTE_D3  147
#define NOTE_DS3 156
#define NOTE_E3  165
#define NOTE_F3  175
#define NOTE_FS3 185
#define NOTE_G3  196
#define NOTE_GS3 208
#define NOTE_A3  220
#define NOTE_AS3 233
```

```
#define NOTE_B3  247
#define NOTE_C4  262
#define NOTE_CS4 277
#define NOTE_D4  294
#define NOTE_DS4 311
#define NOTE_E4  330
#define NOTE_F4  349
#define NOTE_FS4 370
#define NOTE_G4  392
#define NOTE_GS4 415
#define NOTE_A4  440
#define NOTE_AS4 466
#define NOTE_B4  494
#define NOTE_C5  523
#define NOTE_CS5 554
#define NOTE_D5  587
#define NOTE_DS5 622
#define NOTE_E5  659
#define NOTE_F5  698
#define NOTE_FS5 740
#define NOTE_G5  784
#define NOTE_GS5 831
#define NOTE_A5  880
#define NOTE_AS5 932
#define NOTE_B5  988
#define NOTE_C6  1047
#define NOTE_CS6 1109
#define NOTE_D6  1175
#define NOTE_DS6 1245
#define NOTE_E6  1319
#define NOTE_F6  1397
#define NOTE_FS6 1480
#define NOTE_G6  1568
#define NOTE_GS6 1661
#define NOTE_A6  1760
#define NOTE_AS6 1865
#define NOTE_B6  1976
#define NOTE_C7  2093
#define NOTE_CS7 2217
#define NOTE_D7  2349
#define NOTE_DS7 2489
#define NOTE_E7  2637
#define NOTE_F7  2794
```

```
#define NOTE_FS7 2960
#define NOTE_G7  3136
#define NOTE_GS7 3322
#define NOTE_A7  3520
#define NOTE_AS7 3729
#define NOTE_B7  3951
#define NOTE_C8  4186
#define NOTE_CS8 4435
#define NOTE_D8  4699
#define NOTE_DS8 4978
```

Level 2 continued: Copy the following code inside the main loop:

```
tone(buzzerPin, NOTE_B4,408);
delay(408);
tone(buzzerPin, NOTE_A4,408);
delay(408);
tone(buzzerPin, NOTE_G4,408);
delay(408);
tone(buzzerPin, NOTE_A4,408);
delay(408);
tone(buzzerPin, NOTE_B4,408);
delay(408);
tone(buzzerPin, NOTE_B4,408);
delay(408);
tone(buzzerPin, NOTE_B4,408);
```

Level 3: Create or find a song online and use arrays to store the notes and durations. Then add a light show. The lights can be linked to a specific tone or you can just make a random colour.

Level 4: Menu system. Create a menu on the monitor that gives the user an option between 3 songs. Have each song and the menu stored in different methods where the only line in your main function is runMenu();