

# Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

Date:24/03/2021

Name: B.Pravena	SRN: PES2UG19CS076	Section: B
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Week# \_\_\_\_7\_\_\_\_

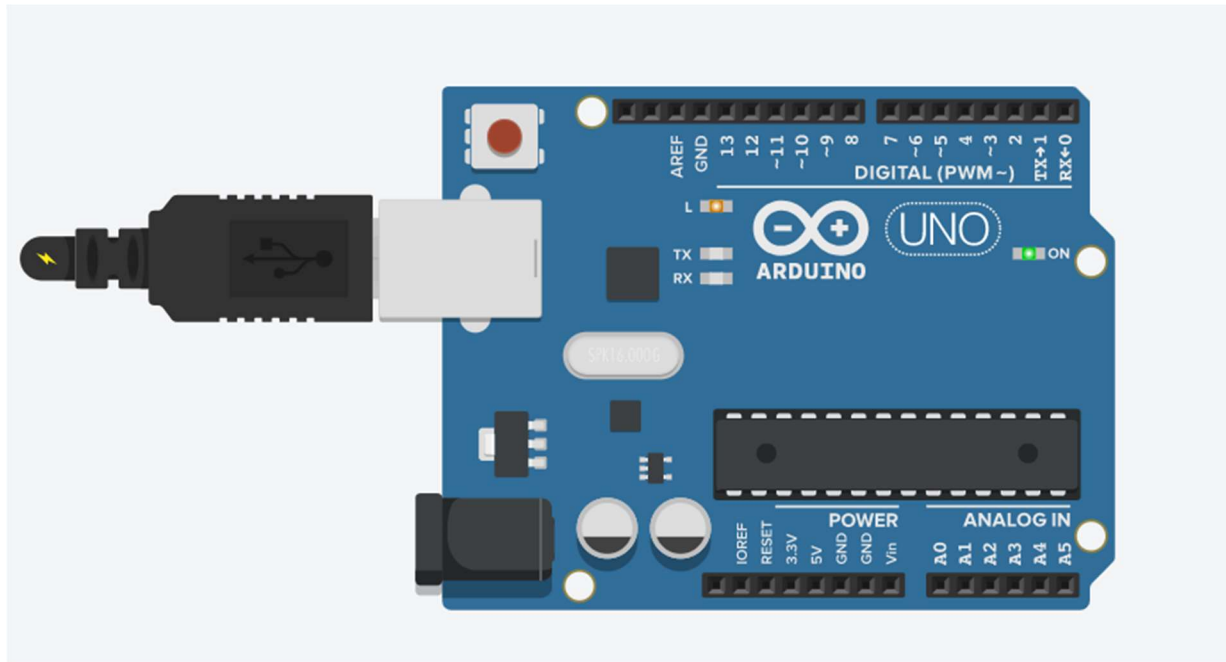
Program Number: \_\_\_\_1\_\_

## 1. A) Implement a Tinkercad simulation to turn on and off the Arduino's on-board LED.

Arduino Code -:

```
Text [v] [Download] [Save] [Run] 1 (Arduino Uno R3)
1 void setup()
2 {
3     pinMode(13, OUTPUT);
4 }
5 void loop()
6 {
7     digitalWrite(13, HIGH);
8     delay(1000);
9     digitalWrite(13, LOW);
10    delay(1000);
11 }
```

Output Screen Shot -:



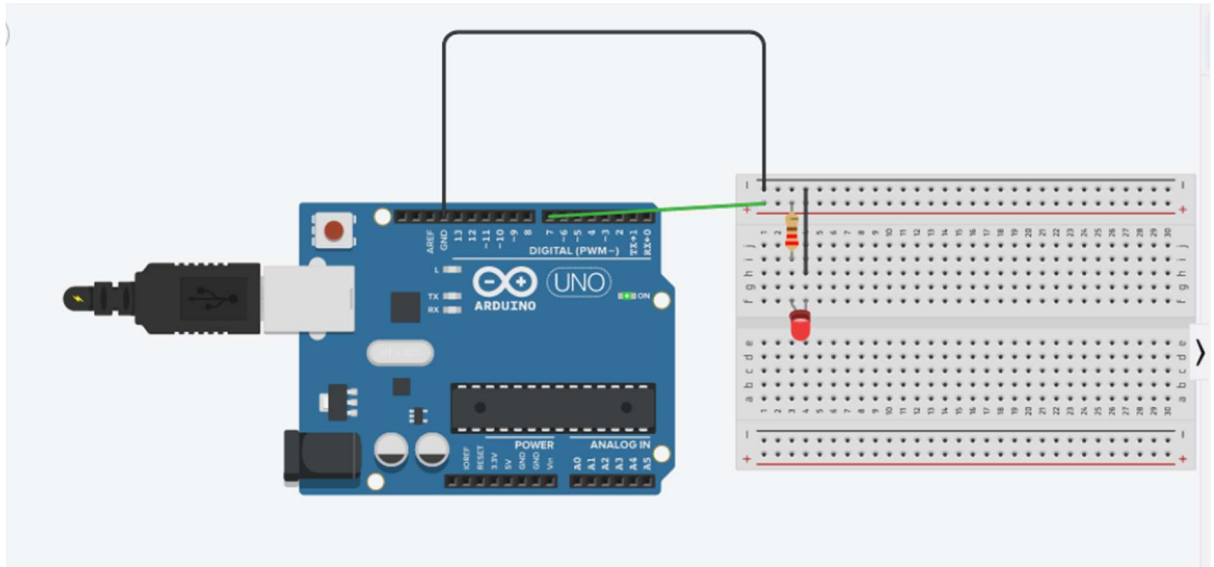
**B) Implement a Tinkercad simulation to turn on and off an external LED connected to the Arduino board**

Arduino Code -:

```
Text [Dropdown] [Download] [Save] [Run] 1 (Arduino Uno R3) [Dropdown]

1  int delayTime=2000;
2  int redLED=7;
3
4  void setup()
5  {
6      pinMode(redLED, OUTPUT);
7
8  }
9
10 void loop()
11 {
12     digitalWrite(redLED,HIGH);
13     delay(delayTime);
14     digitalWrite(redLED,LOW);
15     delayTime=delayTime-100;
16     delay(delayTime);
17 }
```

Output Screen Shot -:



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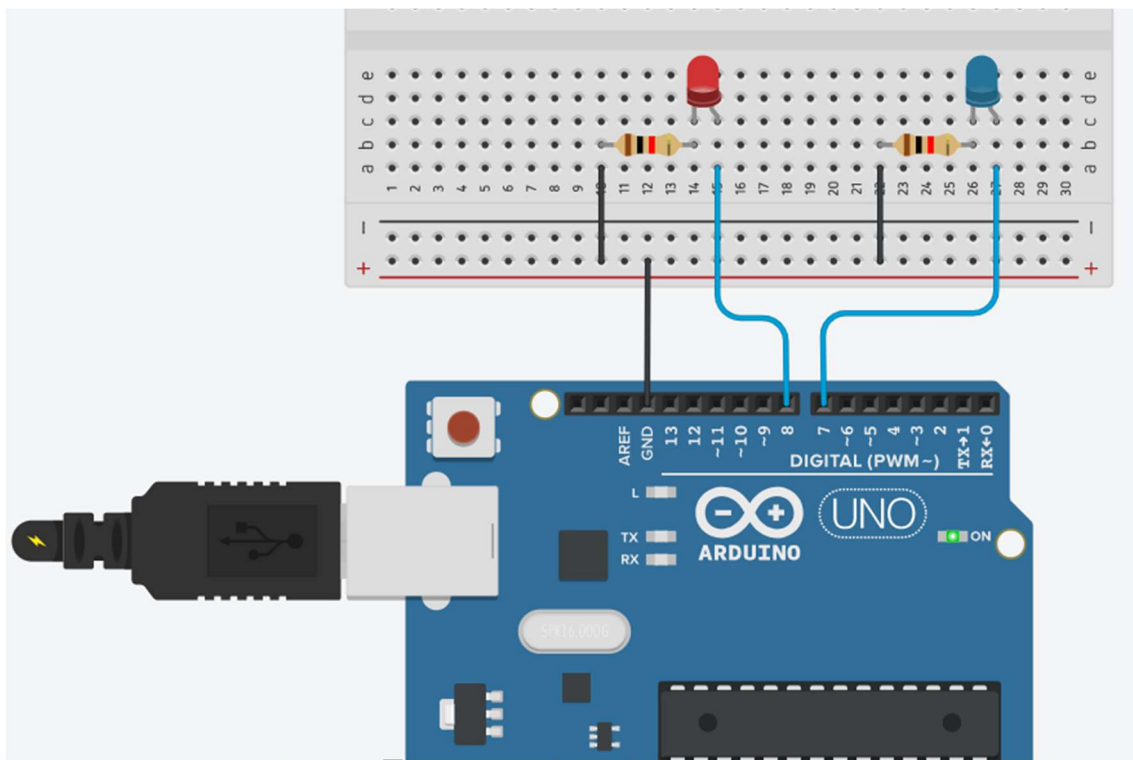
Week# 7 Program Number: 2

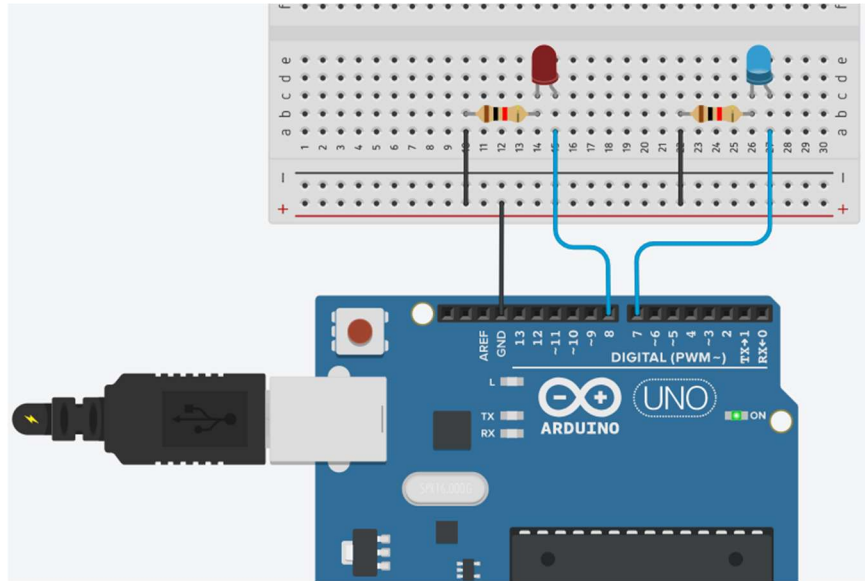
**Implement a Tinkercad simulation to alternately turn on and off two external LEDs connected to the Arduino board**

## Arduino Code -:

```
Text 1 (Arduino Uno R3)
1  int delayTime=2000;
2  int flag=1;
3
4  int redLED=7;
5  int blueLED=8;
6
7  void setup()
8  {
9      pinMode(redLED, OUTPUT);
10     pinMode(blueLED, OUTPUT);
11 }
12
13 void loop()
14 {
15     if(flag==1)
16     {
17         digitalWrite(redLED,HIGH);
18         digitalWrite(blueLED,LOW);
19         flag=0;
20     }
21     else
22     {
23         digitalWrite(blueLED,HIGH);
24         digitalWrite(redLED,LOW);
25         flag=1;
26     }
27
28     delay(delayTime);
29 }
30 }
```

## Output Screen Shots -:





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Week# \_\_\_\_7\_\_\_\_

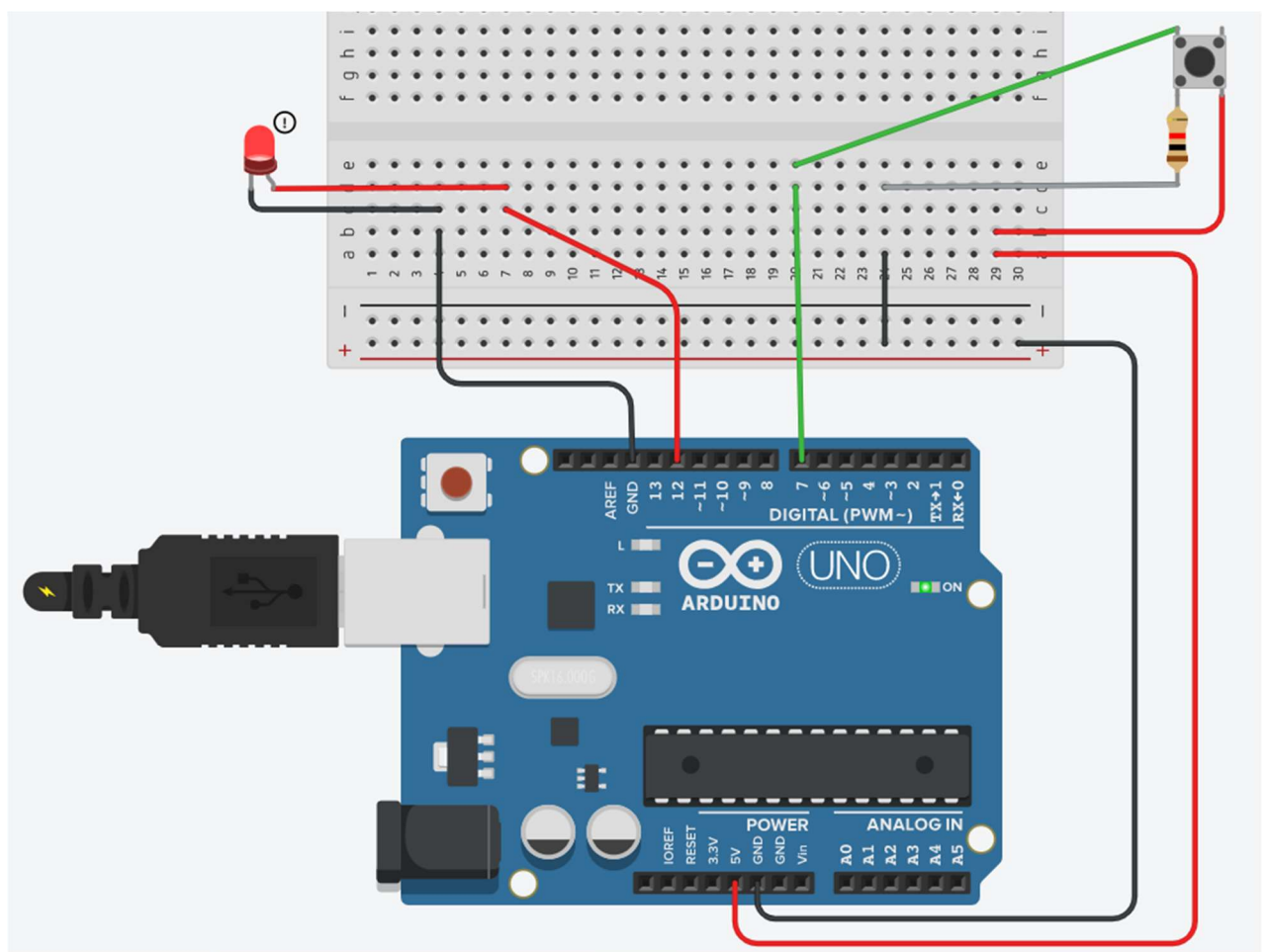
Program Number: \_\_\_\_3\_\_\_\_

**Implement a Tinkercad simulation to use a pushbutton to control an LED.**

## Arduino Code -:

```
Text
1  int btn_state;
2  int led=12;
3  int push_btn=7;
4
5  void setup()
6  {
7      pinMode(led, OUTPUT);
8  }
9
10 void loop()
11 {
12     btn_state = digitalRead(push_btn);
13     if(btn_state==1)
14         digitalWrite(led, HIGH);
15     else
16         digitalWrite(led, LOW);
17     delay(20);
18 }
```

## Output Screen Shot -:



## 2. Microprocessor and Computer Architecture Laboratory

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Week# 7

Program Number: 4

**Implement a Tinkercad simulation to demonstrate fading of an LED (zero to maximum brightness slowly)**

Arduino Code

```
Text
1  int LED=9;
2  int brightness=0;
3  int fading=5;
4  void setup()
5  {    pinMode(LED, OUTPUT);
6  }
7  void loop()
8  {analogWrite (LED, brightness);
9
10 brightness=brightness + fading;
11 delay(25);
12 if(brightness==0 || brightness== 255)
13 {
14 fading= -fading;
15 }
16 }
```

Output Screen Shot -:

