LAB-01

CSE2020

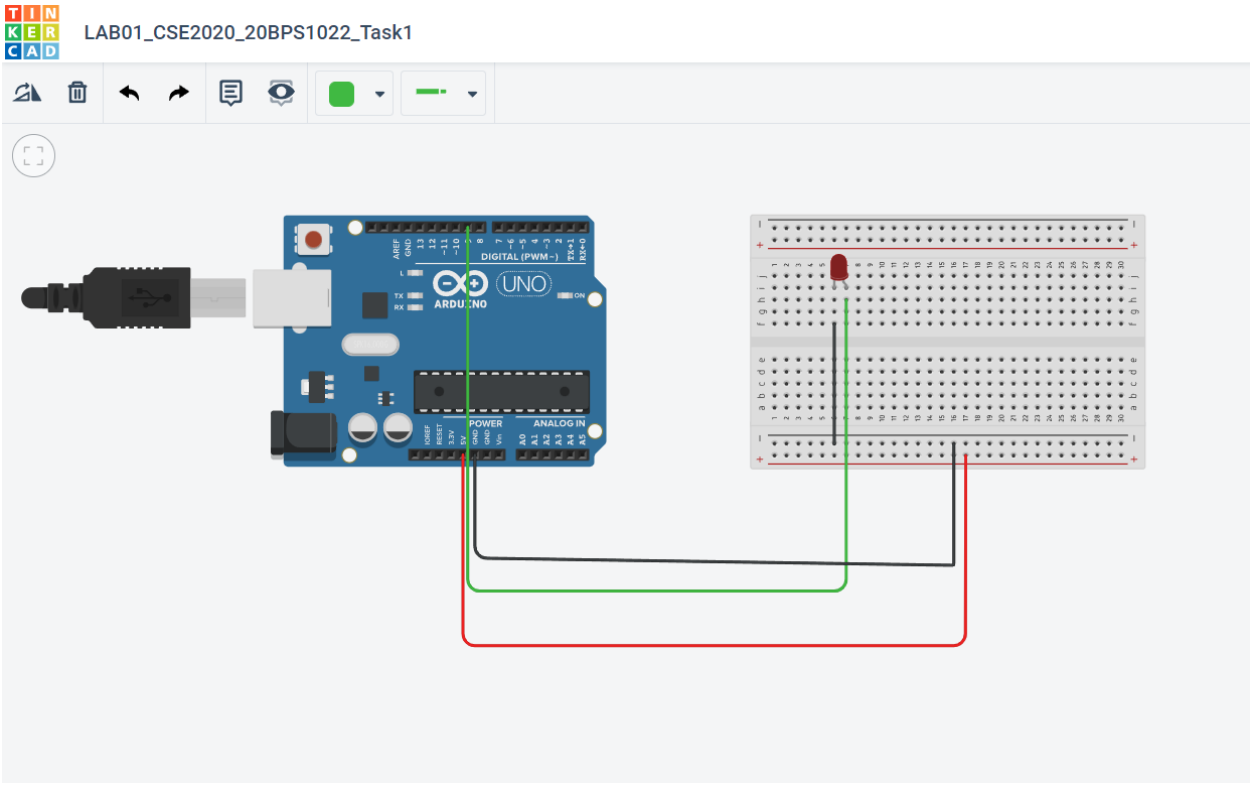
INTRODUCTION TO CPS LAB

Name: Preyash

Reg No.: 20BPS1022 **Date: January 10, 2022**

Task 1: **Single LED on/off connected in breadboard**

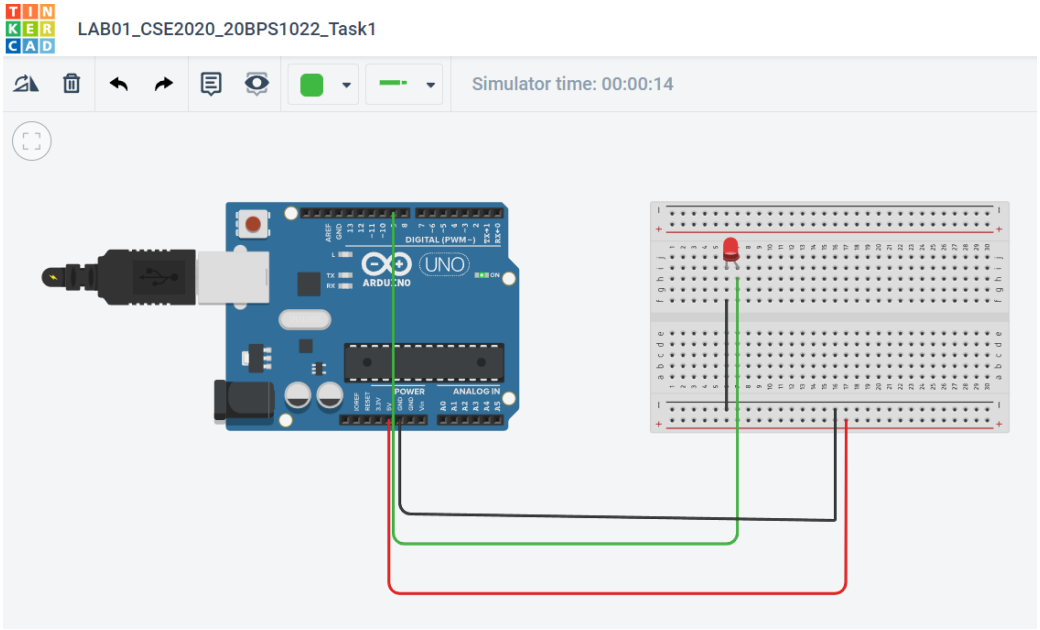
Circuit:



Code:

```
// C++ code
void setup()
{
  pinMode(9, OUTPUT);
}
void loop()
{
    delay(1000); // Wait for 1000 millisecond(s)
    digitalWrite(9, HIGH);
            delay(1000);
            digitalWrite(9, LOW);
}
```

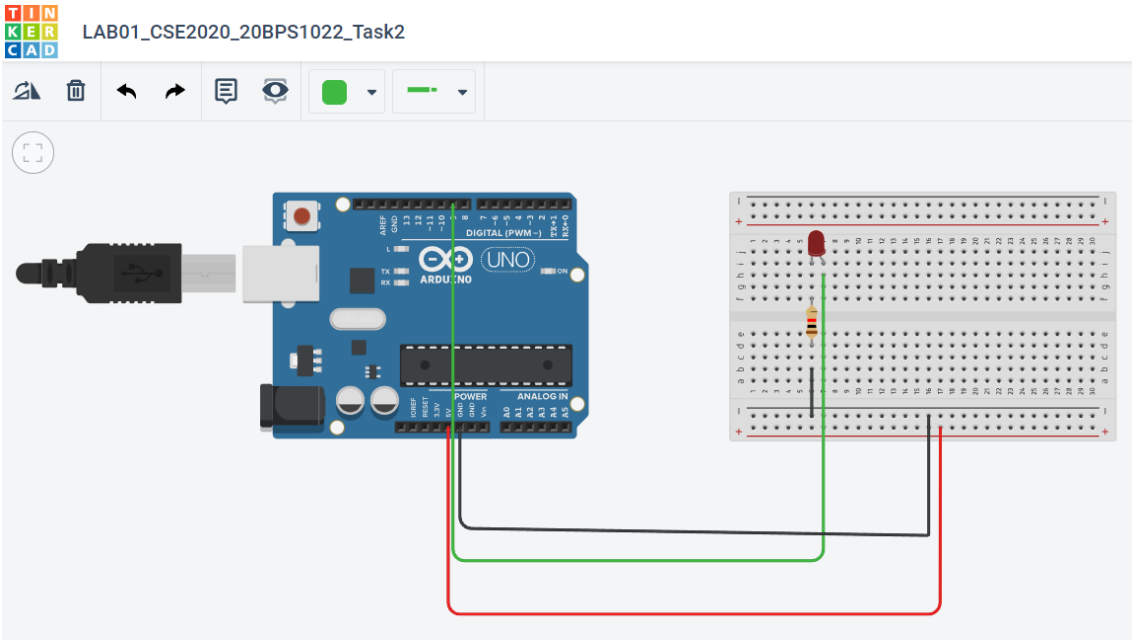
Output:



Link: https://www.tinkercad.com/things/42WhK8pZ58L-lab01cse202020bps1022task1/editel

Task 2: Single LED on/off connected in breadboard in Tinker CAD.

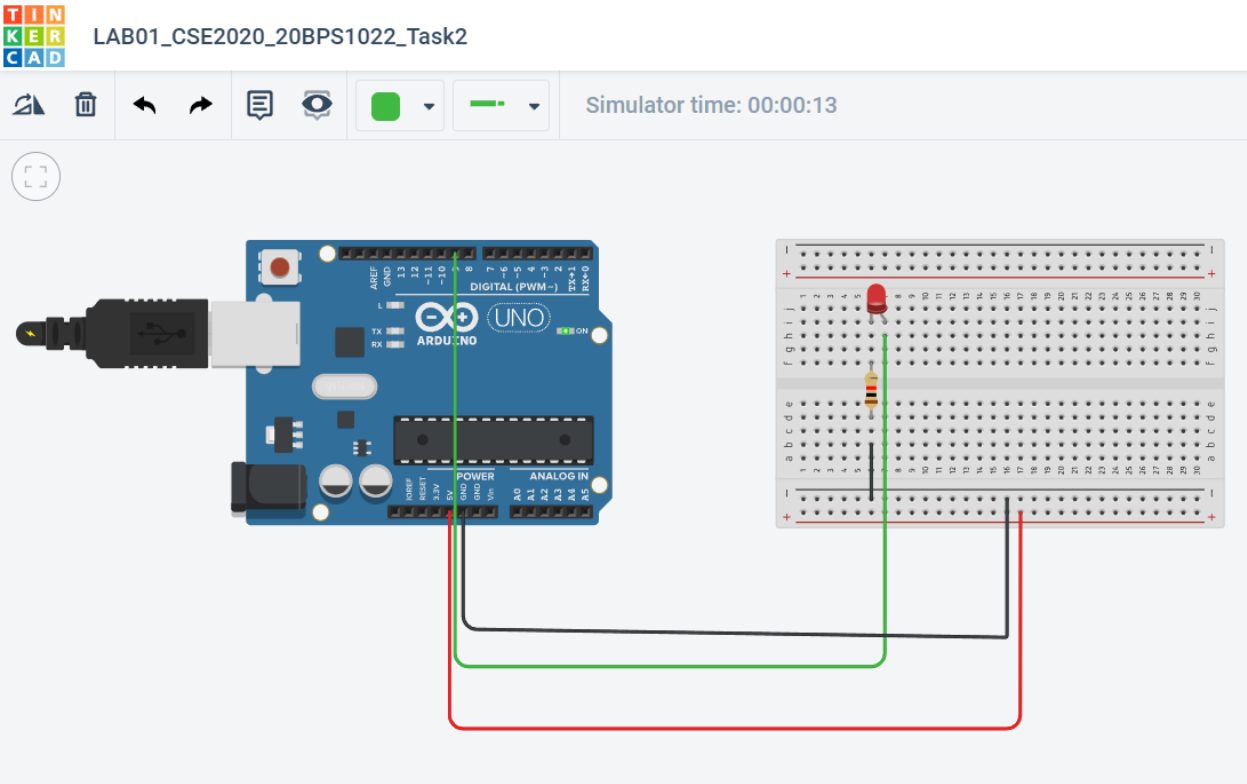
Circuit:



Code:

```
// C++ code

void setup()

{

  pinMode(9, OUTPUT);

}

void loop()

{

    delay(1000); // Wait for 1000 millisecond(s)

    digitalWrite(9, HIGH);

     delay(1000);

     digitalWrite(9, LOW);

}
```

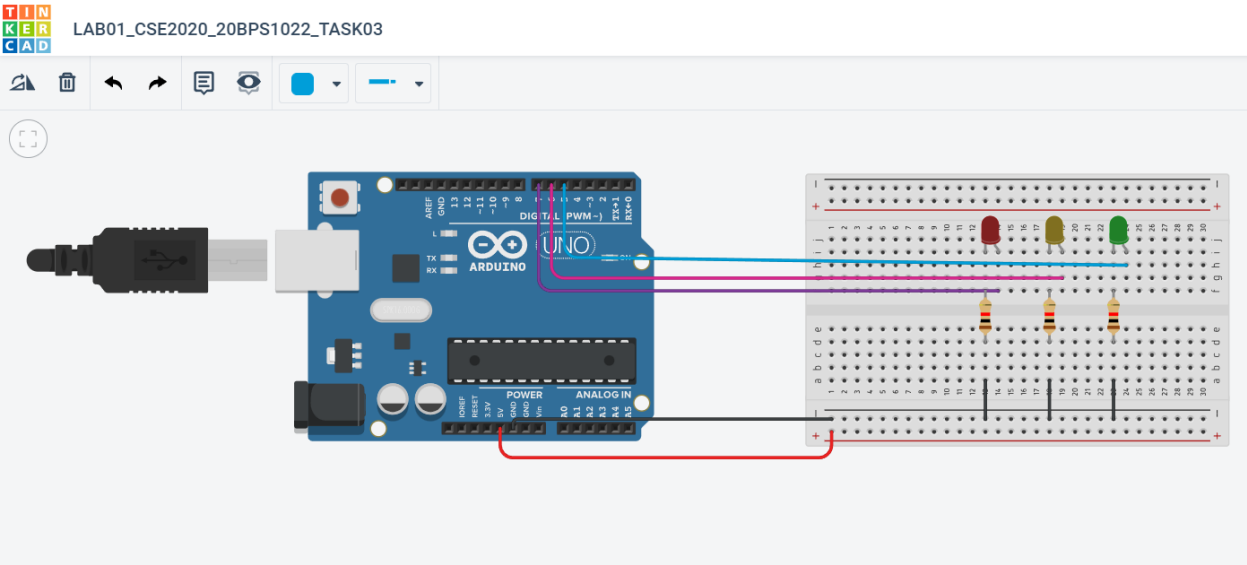
Output:



Link: https://www.tinkercad.com/things/3C5txwcAYEx-lab01cse202020bps1022task2/editel

Task 3: **Three LED with different color connected with resistor in breadboard (on/off) in Tinker CAD .**

Circuit:

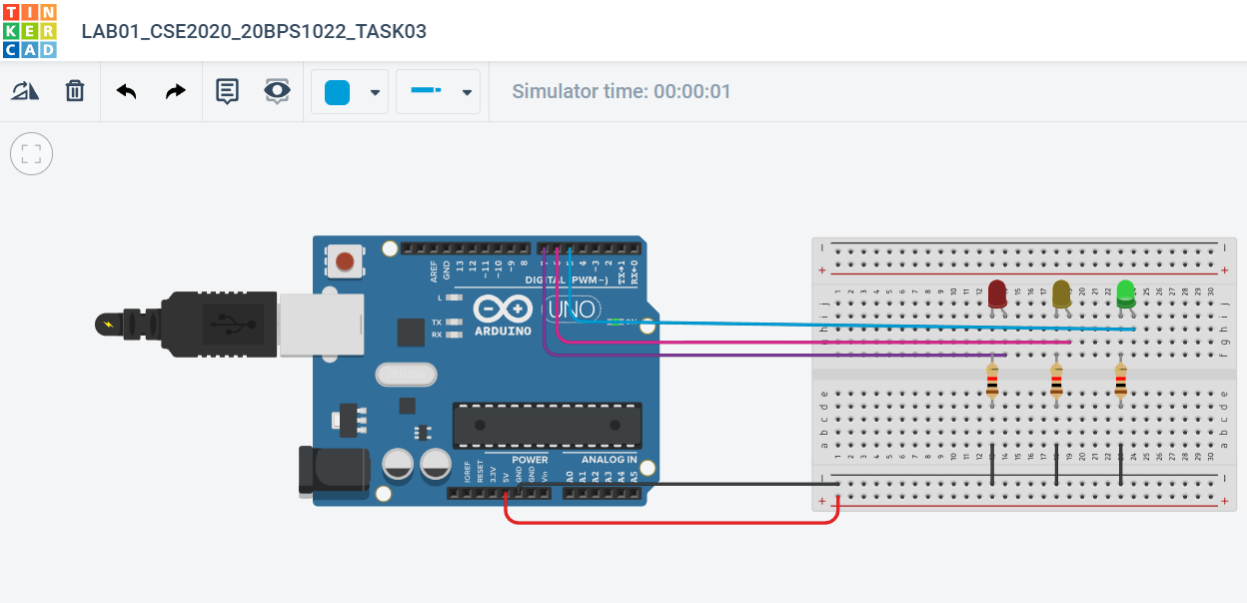


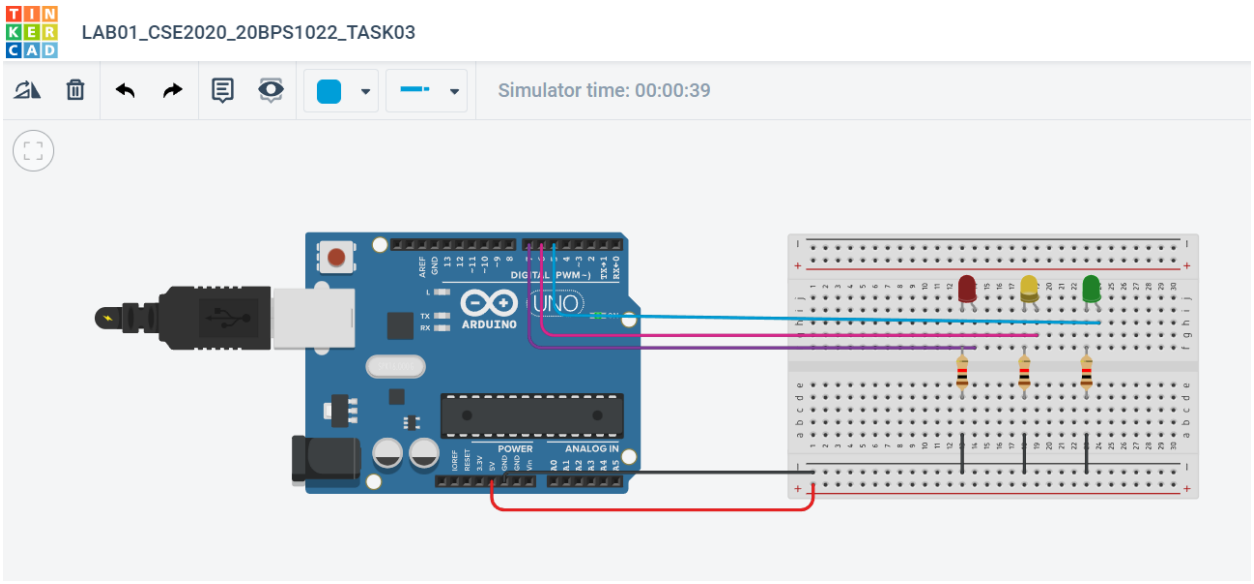
Code:

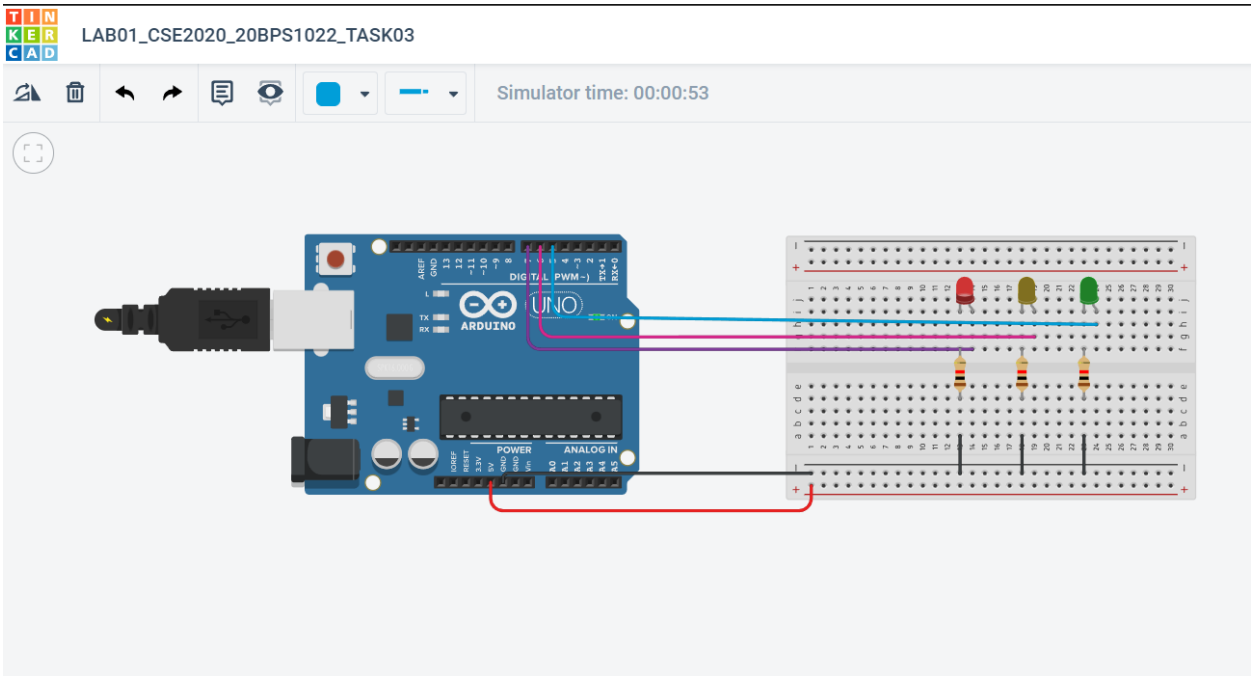
```
// C++ code
void setup()
{
  pinMode(5, OUTPUT);
  pinMode(6, OUTPUT);
  pinMode(7, OUTPUT);
}
void loop()
{
    delay(1000); // Wait for 1000 millisecond(s)
    digitalWrite(5, HIGH);
```

```
    delay(1000);
    digitalWrite(5, LOW);
    delay(1000); // Wait for 1000 millisecond(s)
   digitalWrite(6, HIGH);
    delay(1000);
    digitalWrite(6, LOW);
    delay(1000); // Wait for 1000 millisecond(s)
   digitalWrite(7, HIGH);
    delay(1000);
    digitalWrite(7, LOW);
}
```

Output:





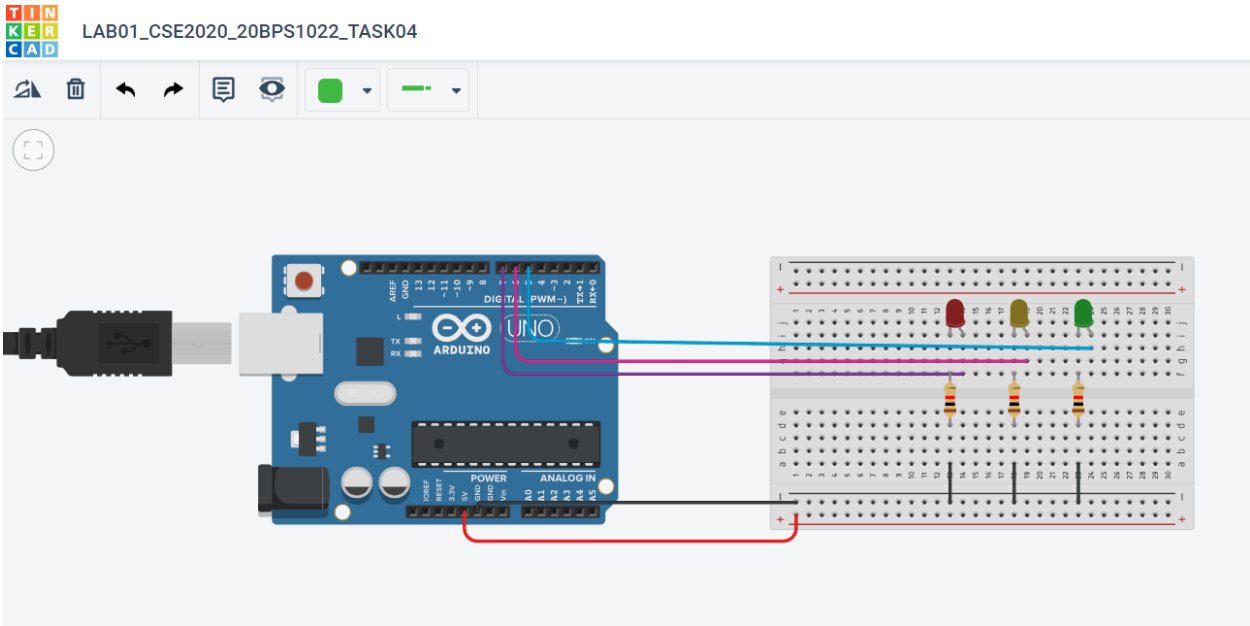


Link:

https://www.tinkercad.com/things/fgsGIMrFpPp-incredible-maimu-wluff/editel?tenant=circuits

Task 4: **Between on/off of each LED, display a message for each LED.**

Circuit:

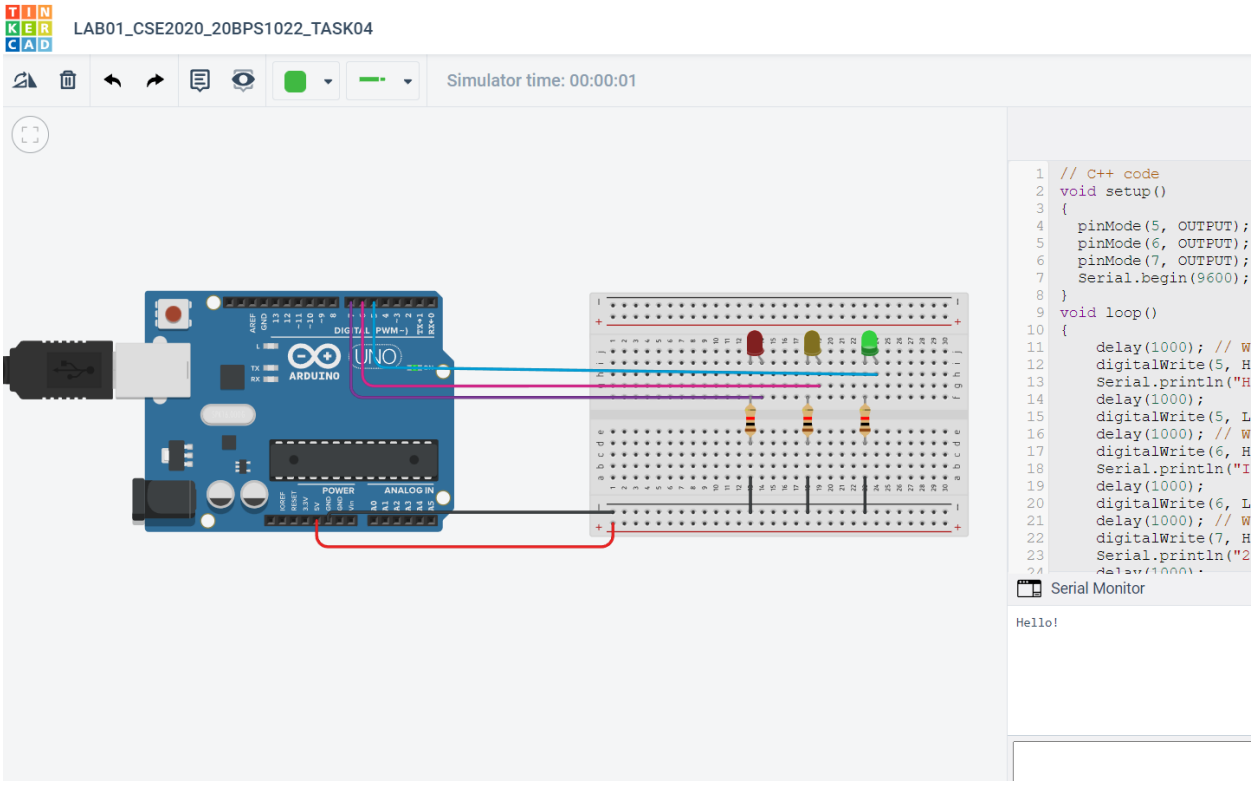


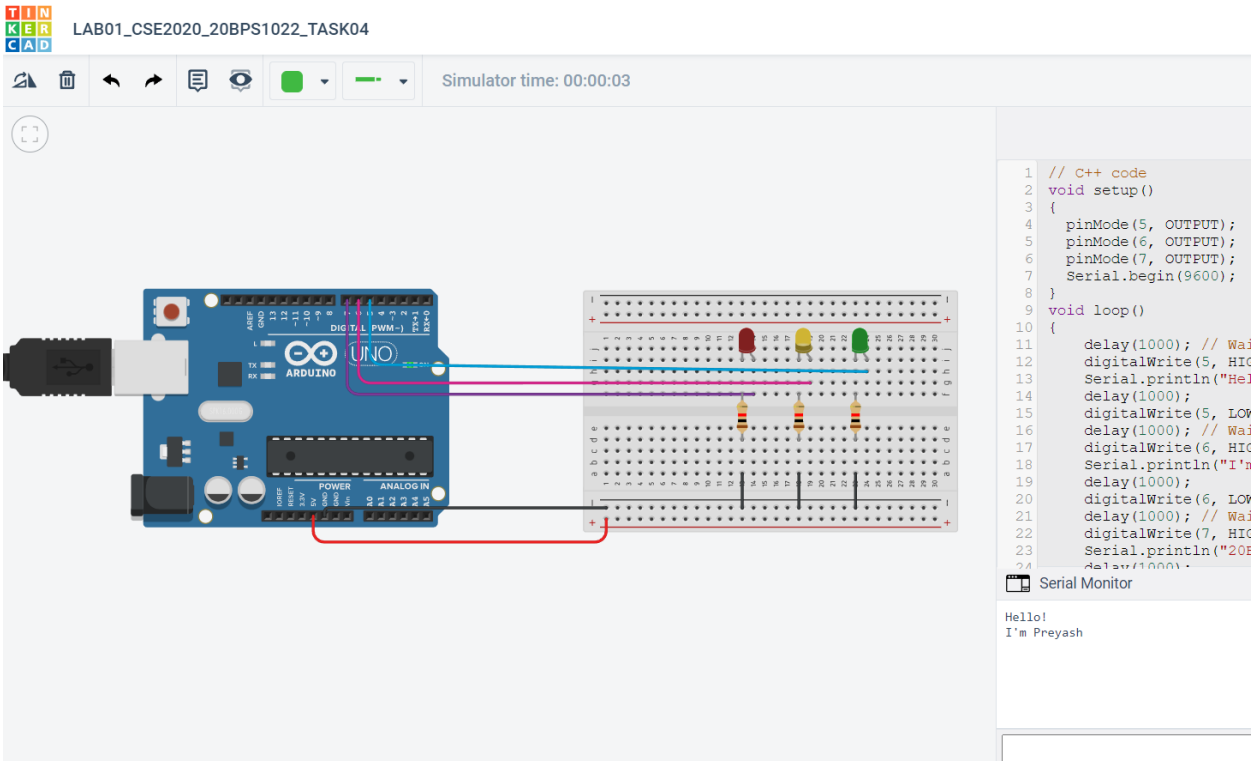
Code:

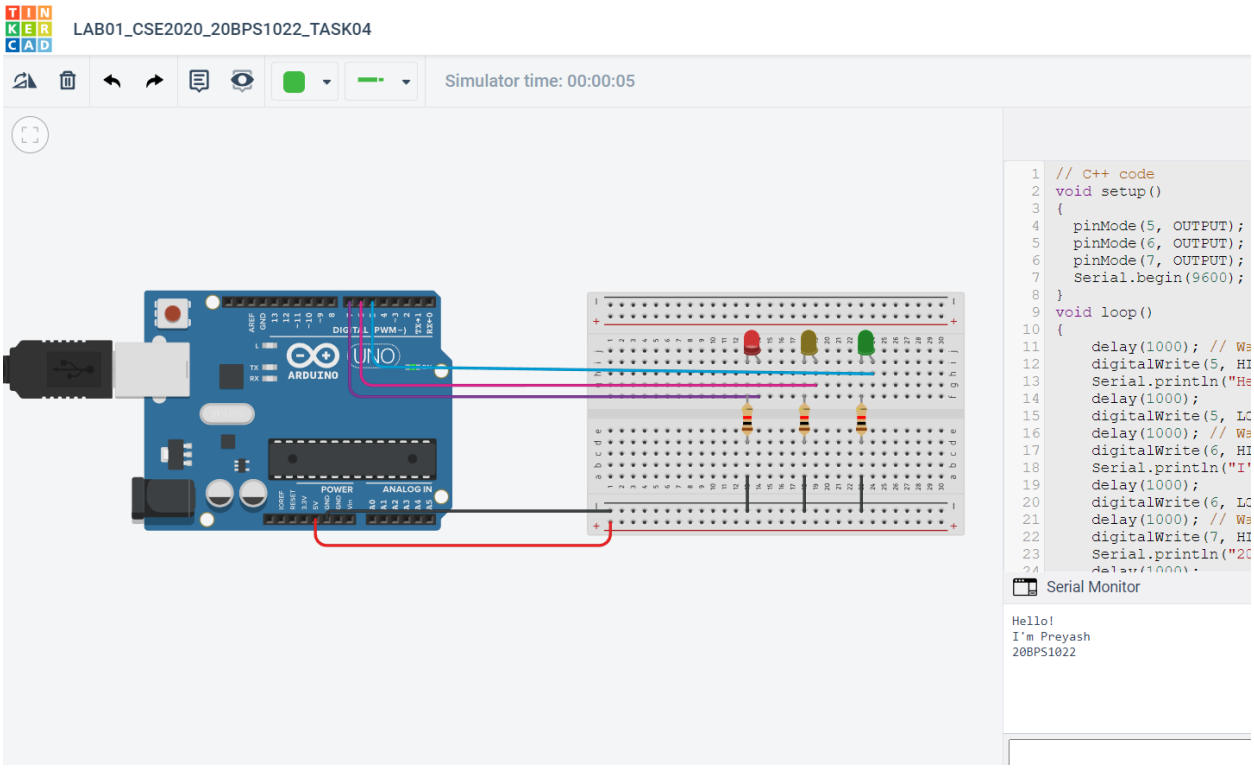
```
// C++ code
void setup()
{
  pinMode(5, OUTPUT);
  pinMode(6, OUTPUT);
  pinMode(7, OUTPUT);
  Serial.begin(9600);
}
void loop()
{
    delay(1000); // Wait for 1000 millisecond(s)
    digitalWrite(5, HIGH);
          Serial.println("Hello!");
```

```
        delay(1000);
        digitalWrite(5, LOW);
        delay(1000); // Wait for 1000 millisecond(s)
    digitalWrite(6, HIGH);
        Serial.println("I'm Preyash");
        delay(1000);
        digitalWrite(6, LOW);
        delay(1000); // Wait for 1000 millisecond(s)
    digitalWrite(7, HIGH);
    Serial.println("20BPS1022");
        delay(1000);
        digitalWrite(7, LOW);
}
```

Output:





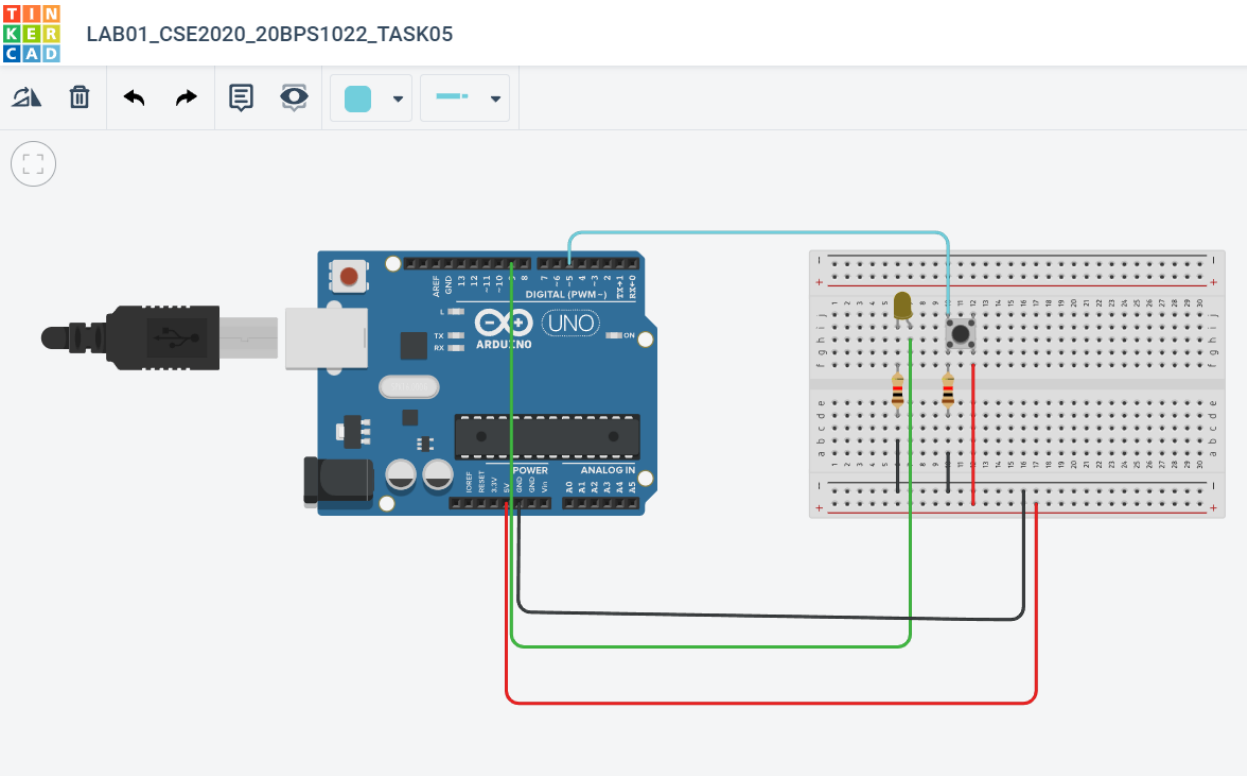


Link:

https://www.tinkercad.com/things/hso01393Cf6-lab01cse202020bps1022task04/editel

Task 5: Add a pushbutton to the breadboard with 1 LED connected with resistor. Whenever u push the button, LED should turn on, in Tinker CAD.

Circuit:

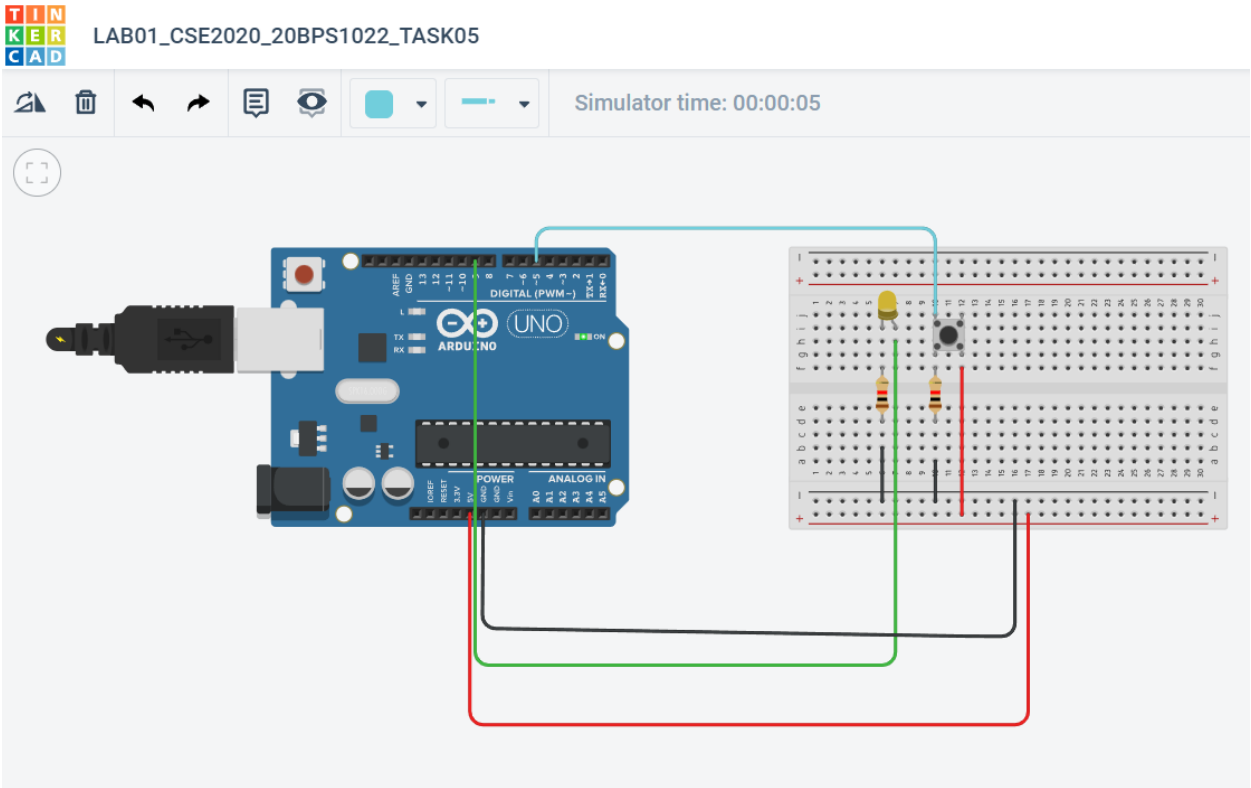


Code:

```
int button =0;
void setup()
{
pinMode(5,INPUT);
pinMode(9, OUTPUT);
}
void loop()
{
// read the state of the pushbutton
button = digitalRead(5);
// check if pushbutton is pressed. if it is, the
```

```
// button state is HIGH
if (button == HIGH) {
digitalWrite(9, HIGH);
delay(1000);
} else {
digitalWrite(9, LOW);
}
delay(1000); // Delay a little bit to improve simulation performance
}
```

Output:

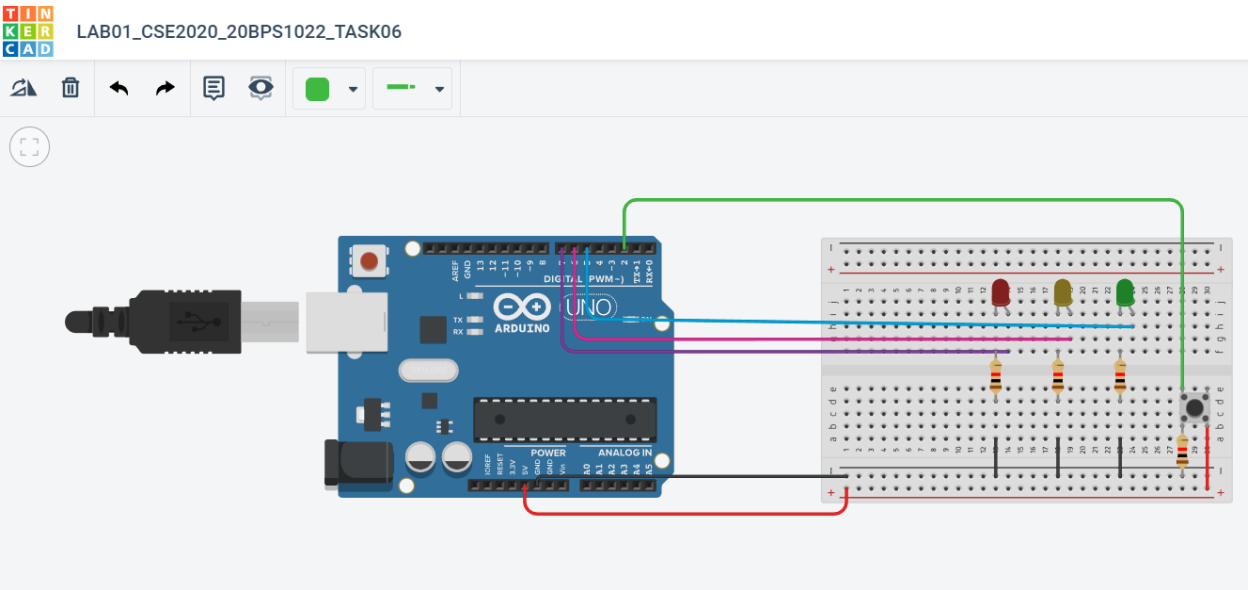


Link:

https://www.tinkercad.com/things/4C2Git940b5-lab01cse202020bps1022task05/editel

Task 6: Add a pushbutton to the breadboard with 3 LED connected with corresponding resistor. Whenever u push the button, LED should turn ON in sequence. Like, first time push the button, 1st LED will turn ON, second button press, 2nd LED will turn ON, 3rd time push the button, 3rd LED will turn ON.

Circuit:



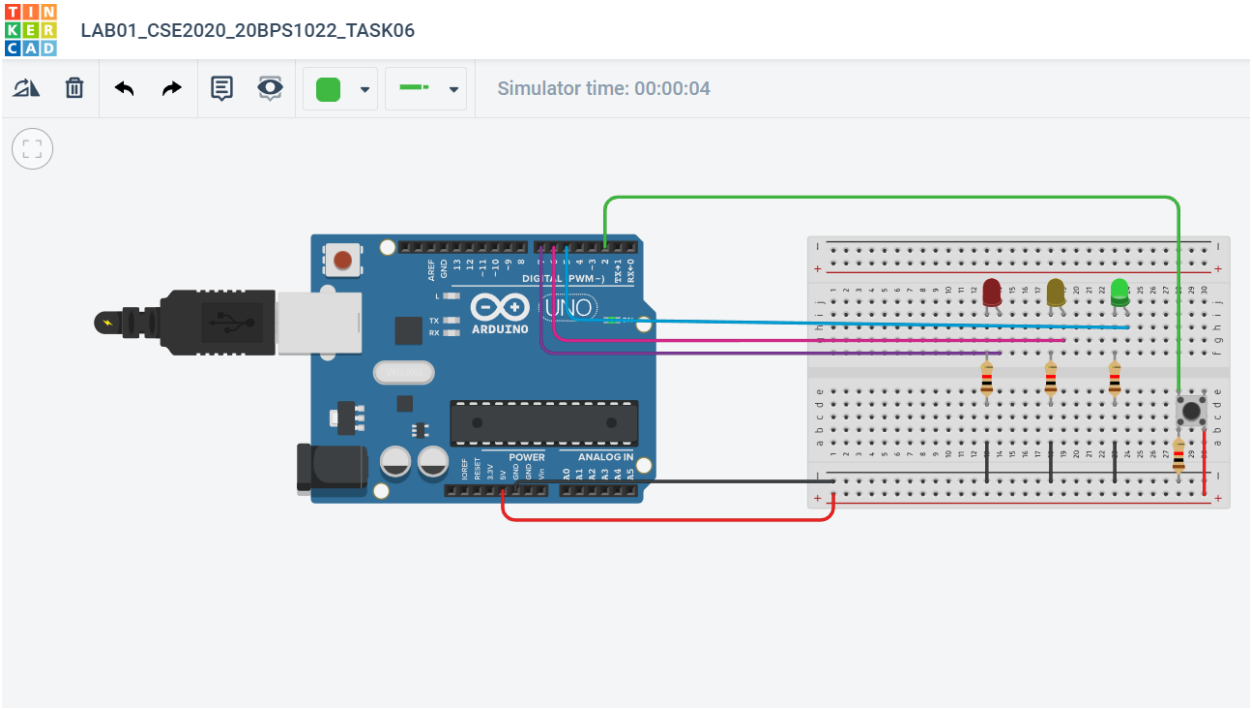
Code:

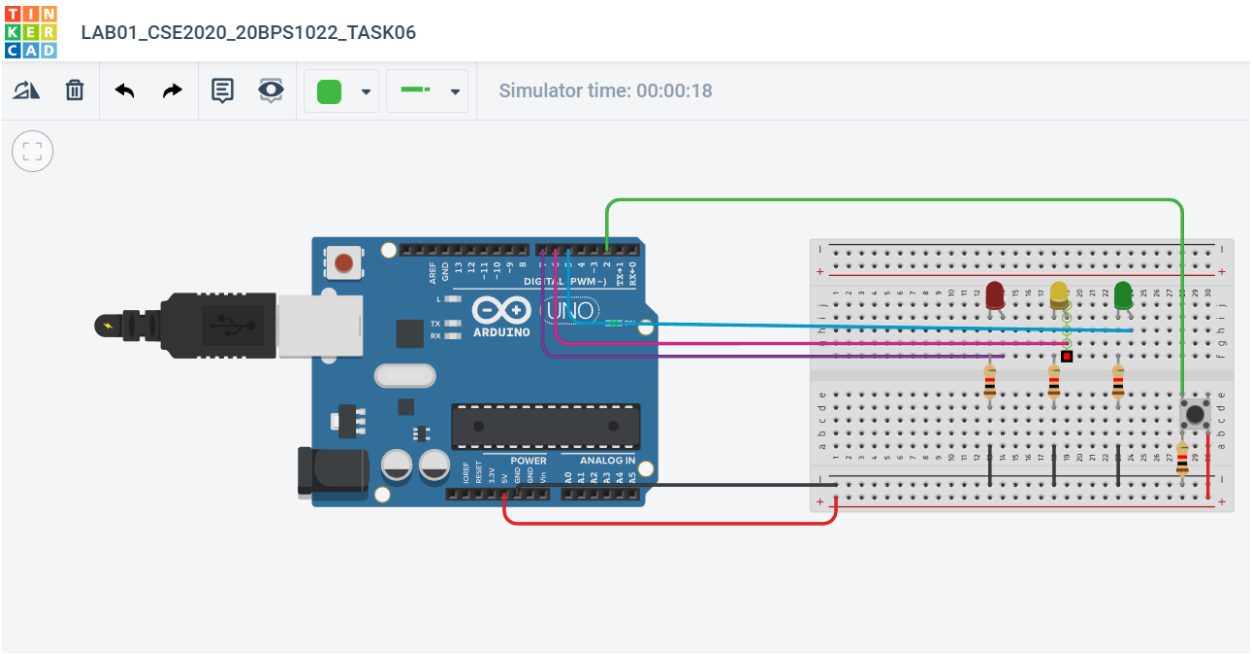
```
int LED1=5;

int LED2=6;

int LED3=7;

int button =0;

int c=0;

void setup()

{

pinMode(LED1, OUTPUT);

pinMode(LED2, OUTPUT);

pinMode(LED3, OUTPUT);

pinMode(4,INPUT);

}
```

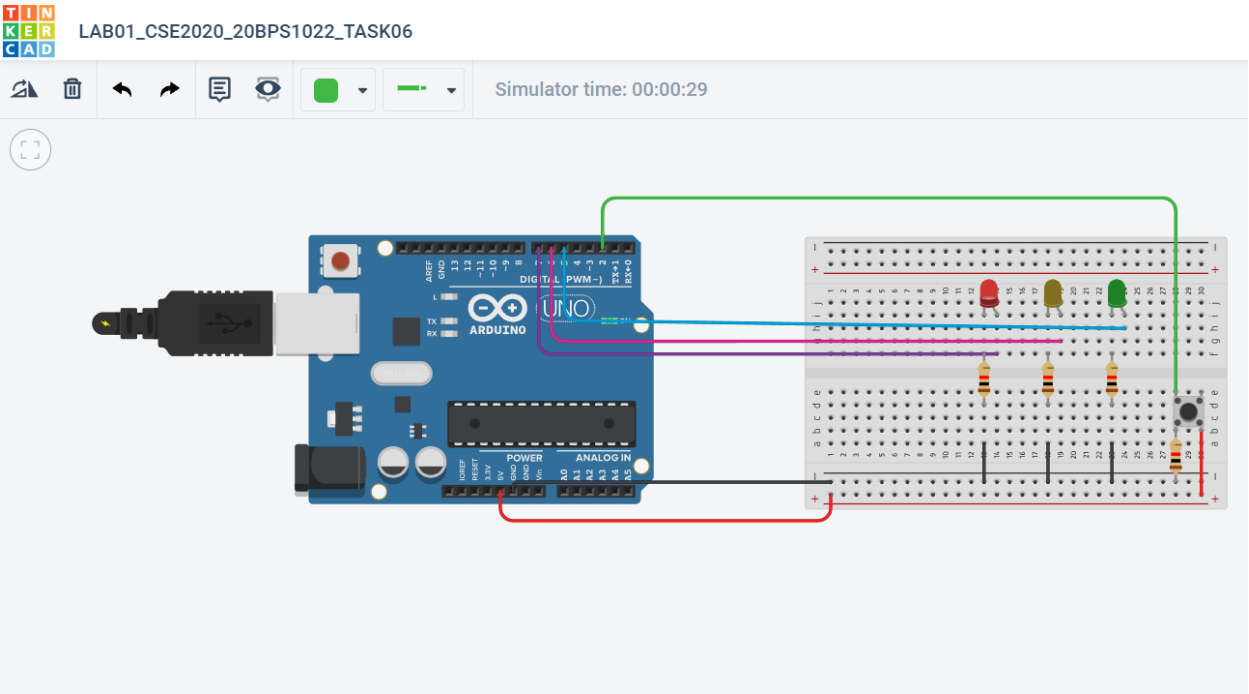
```
void loop()
{
if(digitalRead(2)&&c==0)
{
digitalWrite(LED1, HIGH);
digitalWrite(LED2, LOW);
digitalWrite(LED3, LOW);
delay(1000);
c++;
}
if(digitalRead(2)&&c==1)
{
digitalWrite(LED1, LOW);
digitalWrite(LED2, HIGH);
digitalWrite(LED3, LOW);
delay(1000);
c++;
}
if(digitalRead(2)&&c==2)
{
digitalWrite(LED1, LOW);
digitalWrite(LED2, LOW);
digitalWrite(LED3, HIGH);
delay(1000);
c=0;
}
delay(10);
```

}

Output:


LAB01_CSE2020_20BPS1022_TASK06
Simulator time: 00:00:04
ARDUINO
UNO


LAB01_CSE2020_20BPS1022_TASK06
Simulator time: 00:00:18
ARDUINO
UNO



Link:

https://www.tinkercad.com/things/i5OQtLvIM5G-lab01cse202020bps1022task06/editel