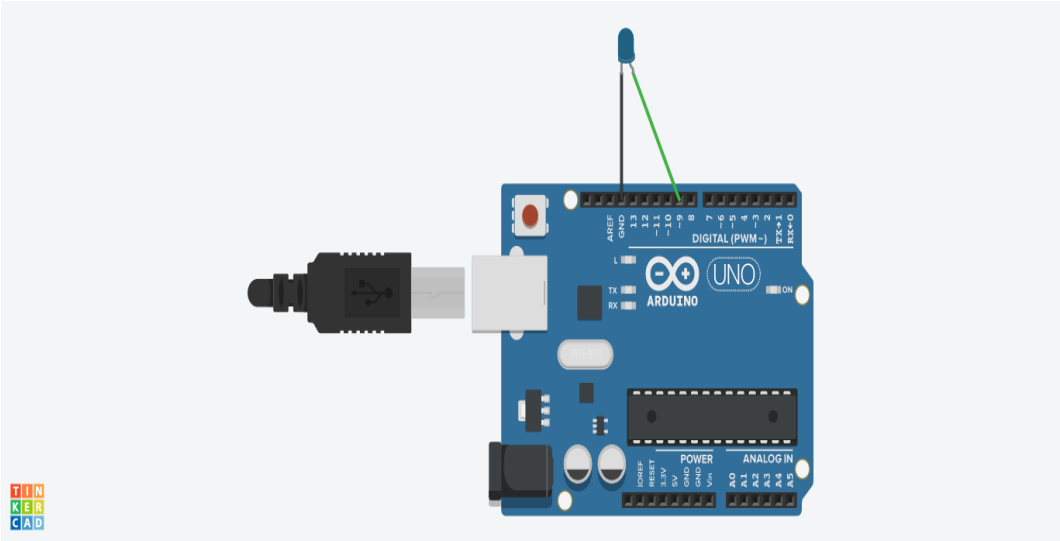
Program no : 01

Program Title : LED Blink

Hardware Required

1. Arduino Board
2. Led bulb
3. wires

Circuit Diagram

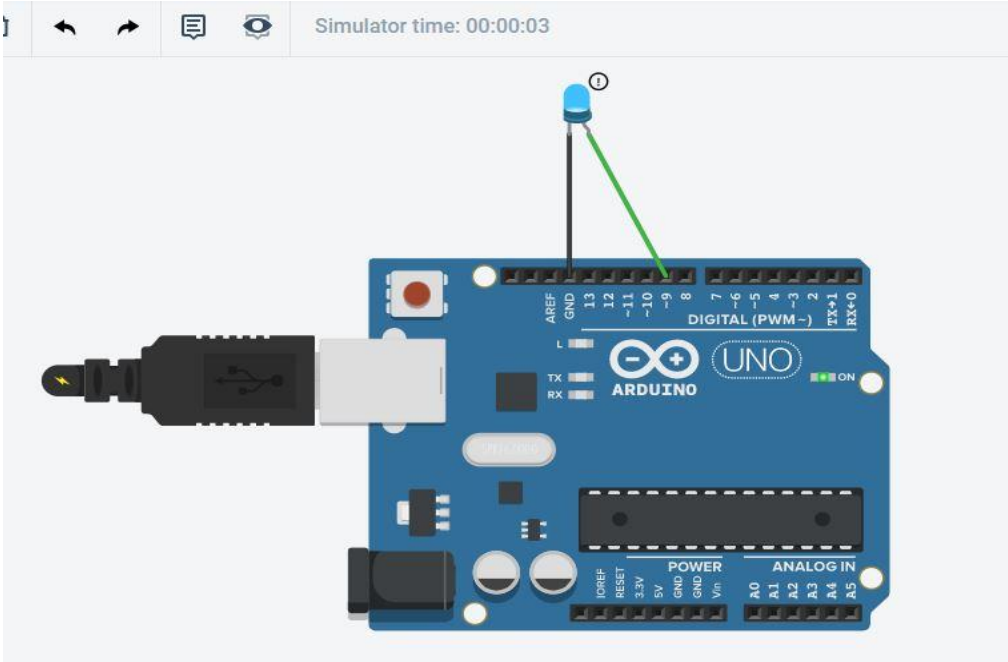


Code:

Text 1 (Arduino Uno R3)

```
int ledPin = 9;
void setup(){
}

void loop()
{
  for(int fadeValue = 0;fadeValue <=255;fadeValue += 5)
  {
    analogWrite(ledPin,fadeValue);
    delay(30);
  }
  for(int fadeValue = 255;fadeValue >= 0;fadeValue -= 5)
  {
    analogWrite(ledPin,fadeValue);
    delay(30);
  }
}
```

Observation /Output



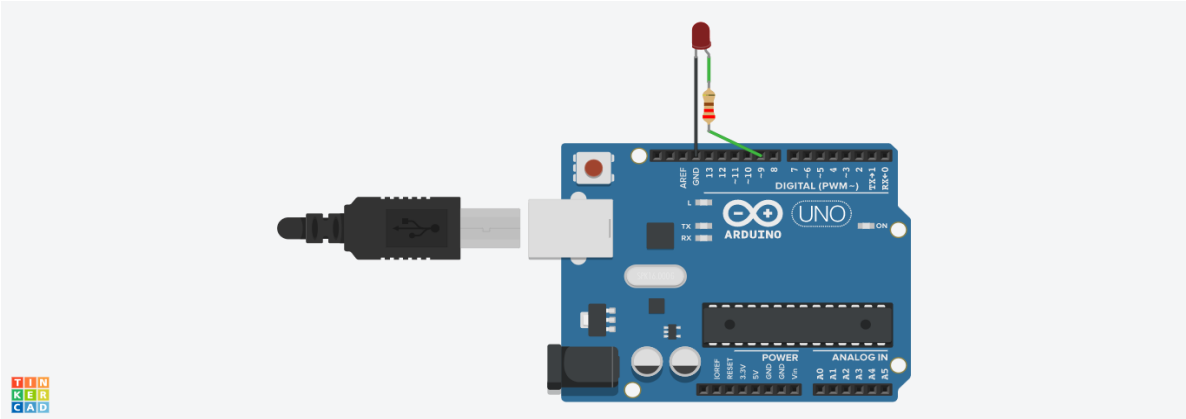
Program no : 02

Program Title : LED Fading

Hardware Required

1. Arduino Board
2. Led bulb
3. Wires
4. resistor

Circuit Diagram

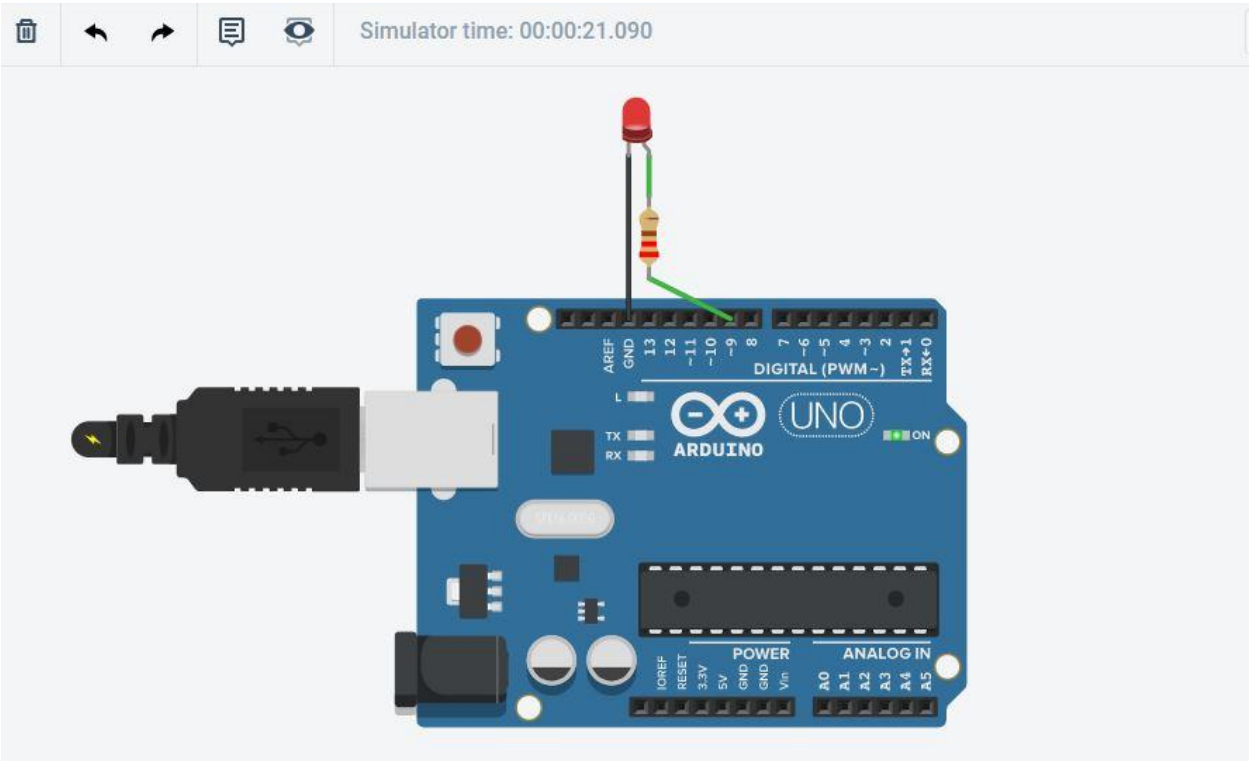


Code:

Text | 1 (Arduino Uno R3)

```
1  int brightness = 0;
2
3  void setup()
4  {
5    pinMode(9, OUTPUT);
6  }
7
8  void loop()
9  {
10   for (brightness = 0; brightness <= 255; brightness += 5) {
11     analogWrite(9, brightness);
12     delay(30);
13   }
14   for (brightness = 255; brightness >= 0; brightness -= 5) {
15     analogWrite(9, brightness);
16     delay(30);
17   }
18 }
```

Observation /Output



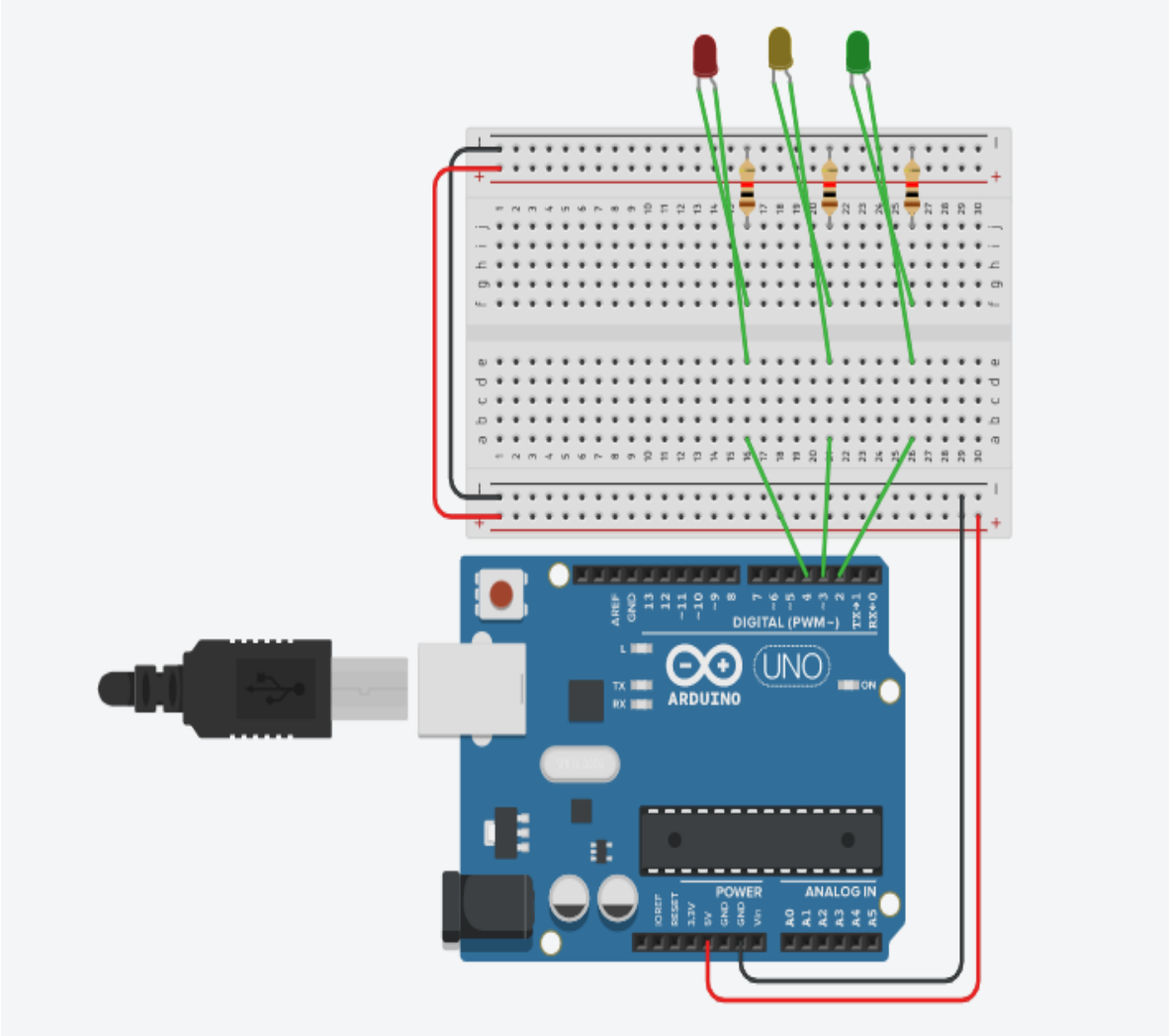
Program no : 03

Program Title : Traffic Light Controller

Hardware Required

1. Arduino Board
2. 3 Led bulb
3. Wires
4. 3 resistor
5. breadboard

Circuit Diagram



Code:

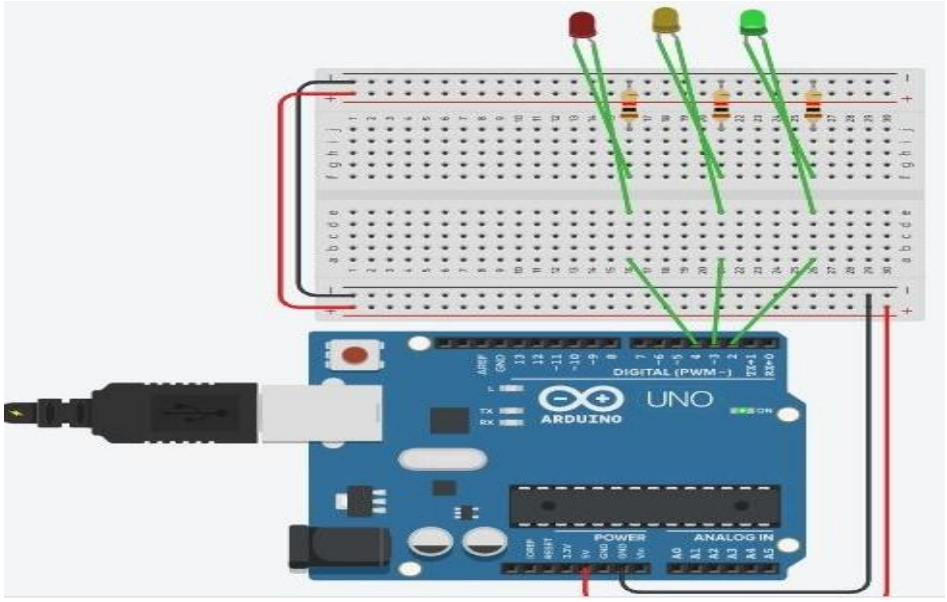
Text

```
int GREEN = 2;
int YELLOW = 3;
int RED = 4;
int DELAY_GREEN = 900;
int DELAY_YELLOW = 700;
int DELAY_RED = 900;


// basic functions
void setup()
{
  pinMode(GREEN, OUTPUT);
  pinMode(YELLOW, OUTPUT);
  pinMode(RED, OUTPUT);
}

void loop()
{
  red_light();
  delay(DELAY_RED);
  yellow_light();
  delay(DELAY_YELLOW);
  green_light();
  delay(DELAY_GREEN);
}
```

```

void green_light()sni
{
  digitalWrite(GREEN, HIGH);
  digitalWrite(YELLOW, LOW);
  digitalWrite(RED, LOW);
}

void yellow_light()
{
  digitalWrite(GREEN, LOW);
  digitalWrite(YELLOW, HIGH);
  digitalWrite(RED, LOW);
}

void red_light()
{
  digitalWrite(GREEN, LOW);
  digitalWrite(YELLOW, LOW);
  digitalWrite(RED, HIGH);
}
```

Serial Monitor

Observation /Output



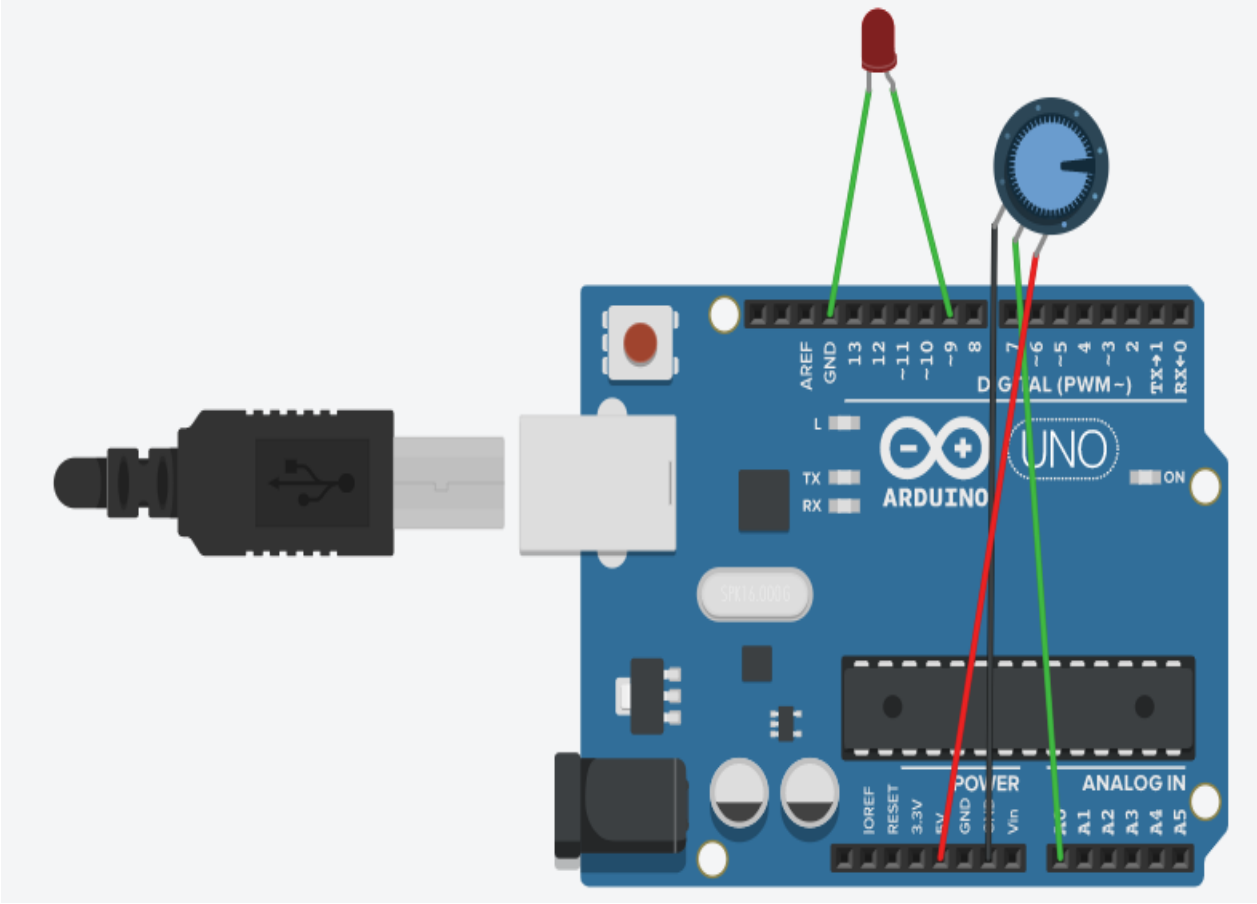
Program no : 04

Program Title : Potentiometer

Hardware Required

1. Arduino Board
2. Led bulb
3. Wires
4. Potentiometer

Circuit Diagram

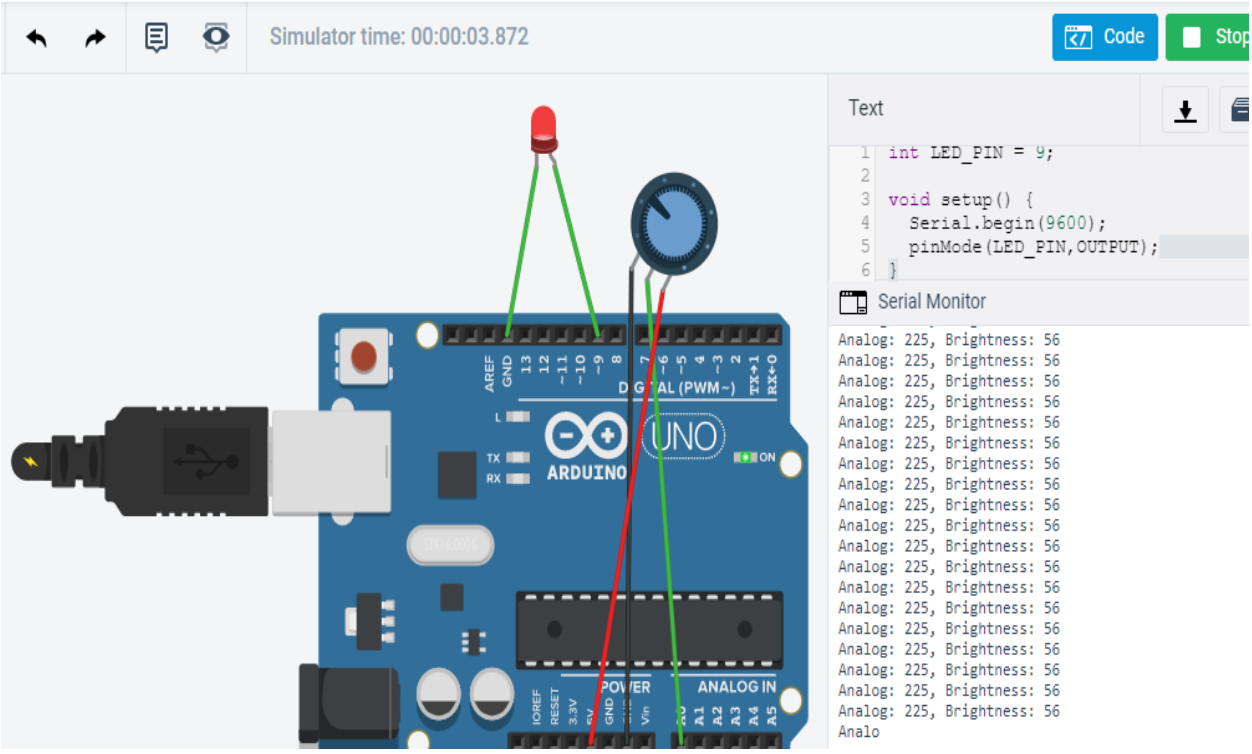


Code:

```
int LED_PIN = 9;

void setup() {
  Serial.begin(9600);
  pinMode(LED_PIN,OUTPUT);
}

void loop()
{
  int analogValue = analogRead(A0);
  int brightness = map(analogValue,0,1023,0,255);
  analogWrite(LED_PIN,brightness);
  Serial.print("Analog: ");
  Serial.print(analogValue);
    Serial.print(", Brightness: ");
    Serial.println(brightness);
  delay(100);
}

```

Observation /Output

er Wluff



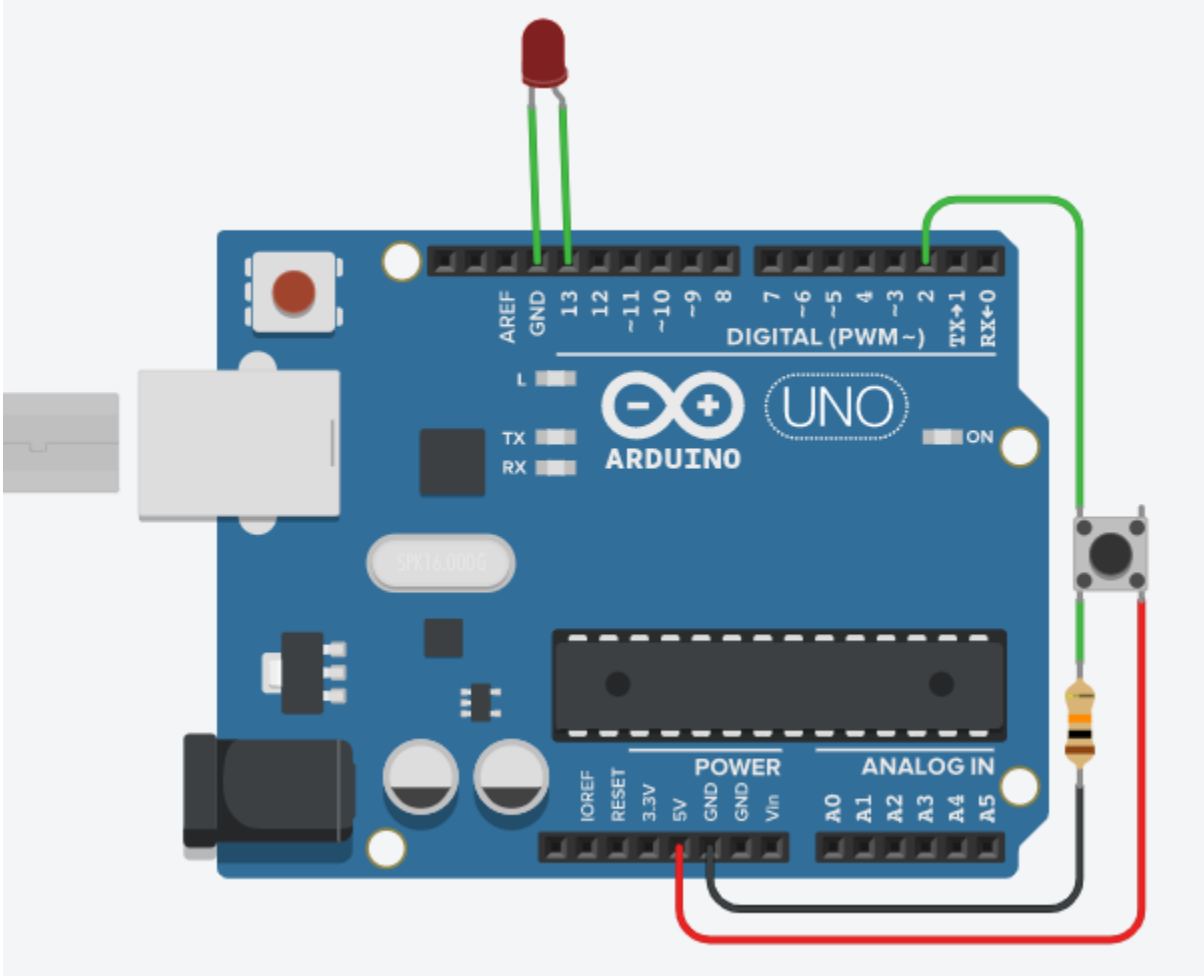
Program no : 05

Program Title : Push button

Hardware Required

1. Arduino Board
2. Led bulb
3. Wires
4. Resistor
5. Push button

Circuit Diagram



Code:

Text

```
int buttonState = 2;
int ledpin=13;
int buttonstate=0;
void setup()
{
  pinMode(2, INPUT);
  pinMode(13, OUTPUT);
}

void loop()
{
  buttonState = digitalRead(2);
  if (buttonState == HIGH) {

    digitalWrite(13, HIGH);
  } else {
    // turn LED off
    digitalWrite(13, LOW);
  }
  delay(10);
}
```

Observation /Output