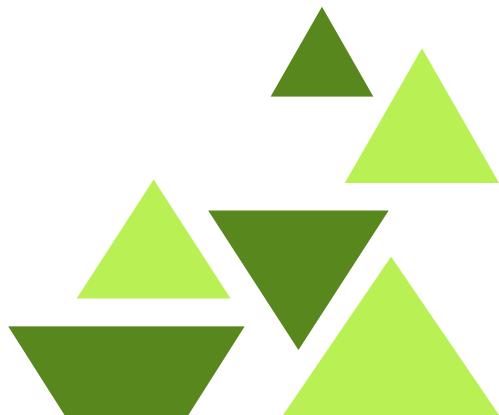




# SMART TECHNOLOGY

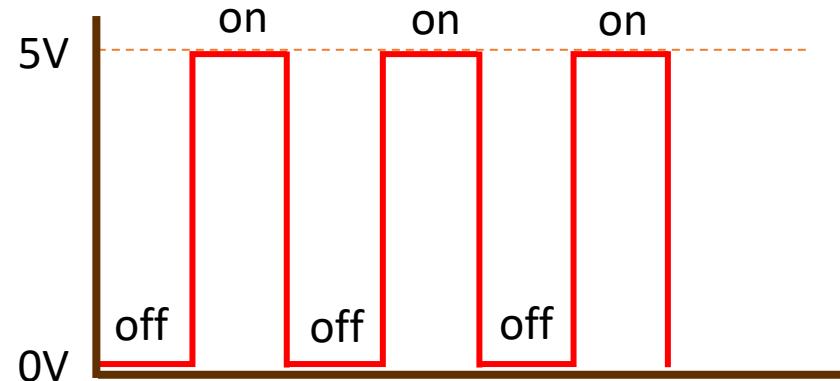


# **LECTURE**

---

# **1**

# • Signal Types



Digital signal



Analog signal

- Some Digital Signal app



**Fire detection sensor**



**Movement  
detection sensor**

- Some Analog Signal app



**Variable resistance**



**Light Sensor**



**Smoke Sensor**

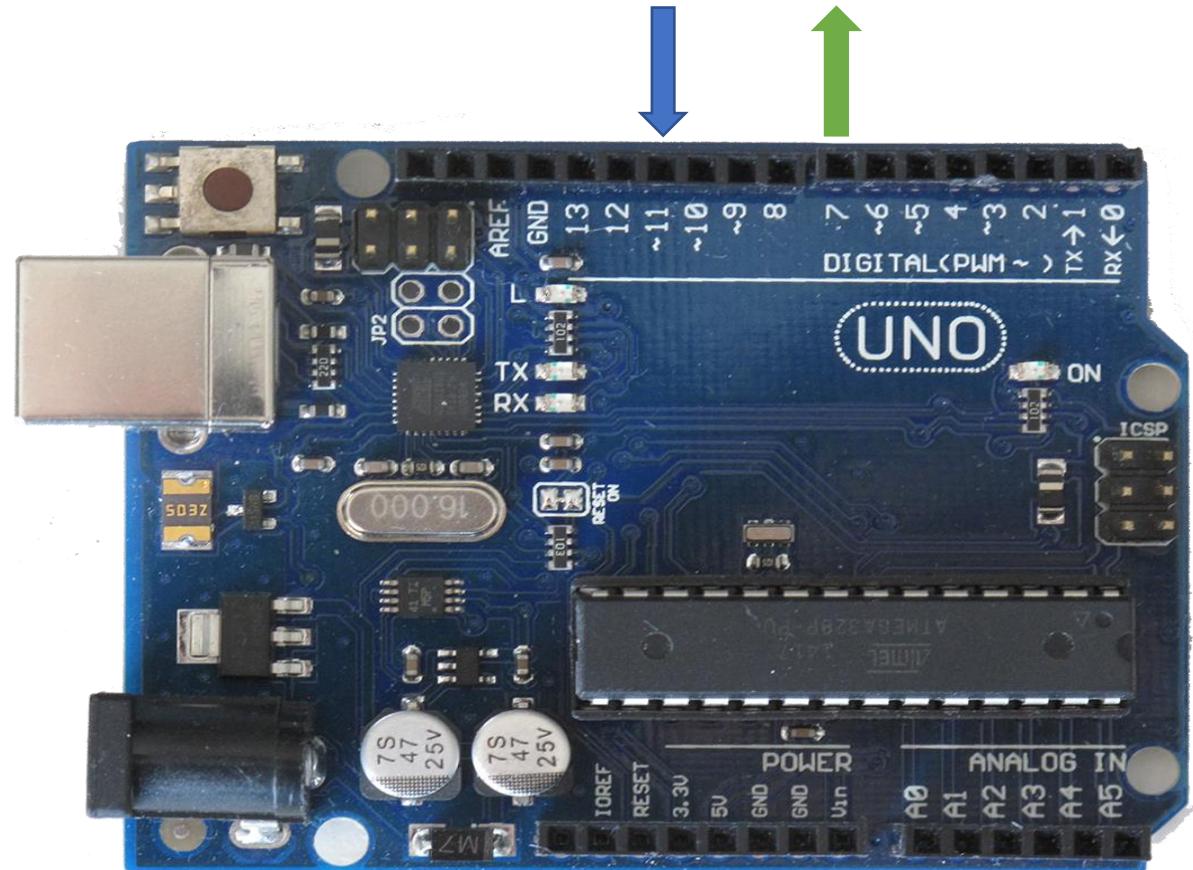
# • Arduino Interfacing

1. Make Arduino OUTPUTs a digital signal on pin no. 7

```
void setup() {
    pinMode(7,OUTPUT) ;
    //OR pinMode(7,1);
}
```

2. Make Arduino receives a digital INPUT signal on pin no. 11

```
void setup() {
    pinMode(11,INPUT) ;
    //OR pinMode(7,0);
}
```



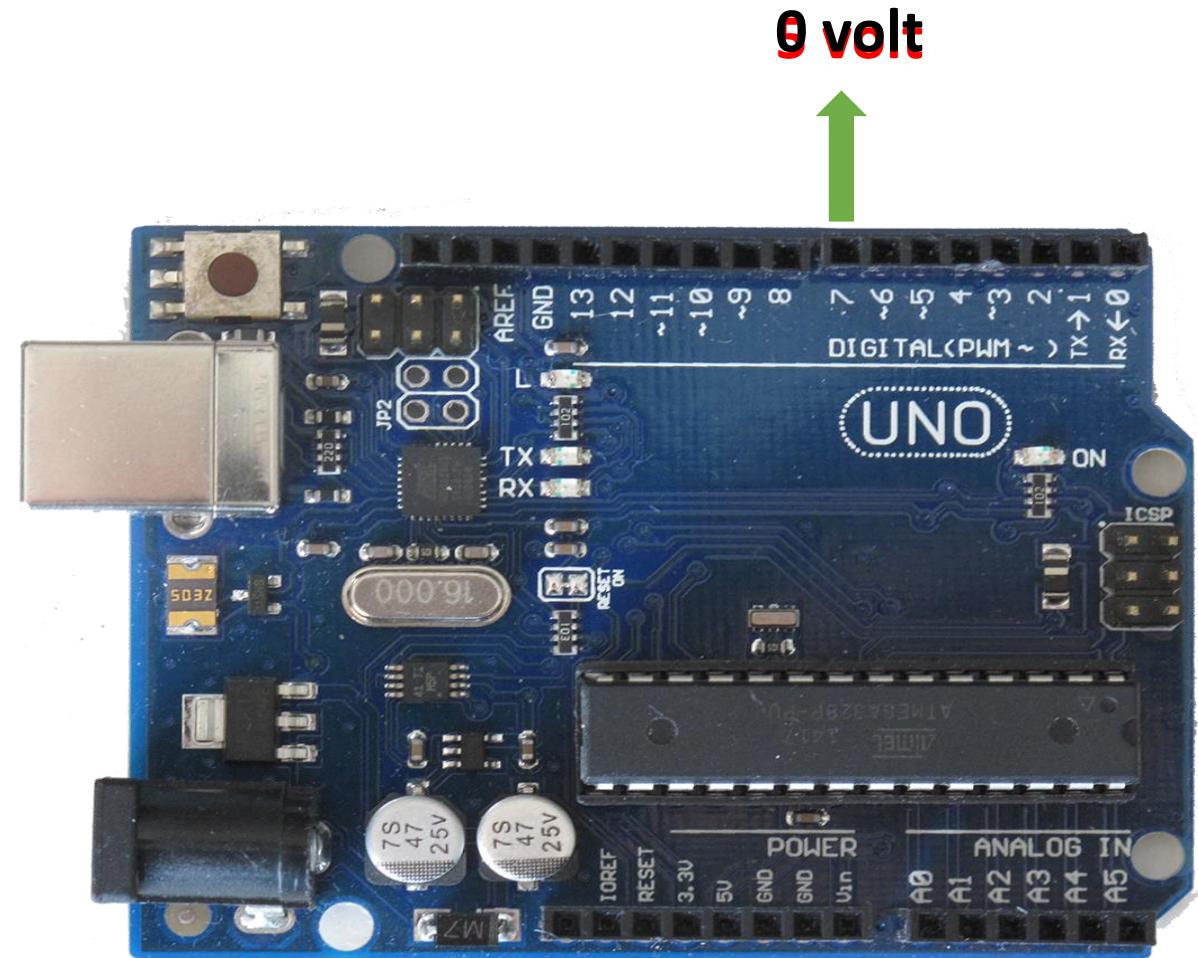
# • Arduino OUTPUT signal

1. Make Arduino OUTPUTs a **5 volt** signal on pin no. 7

```
void setup() {
    pinMode(7,OUTPUT);
    digitalWrite(7,HIGH);
    //digitalWrite(7,1);
}
```

1. Make Arduino OUTPUTs a 0 volt signal on pin no. 7

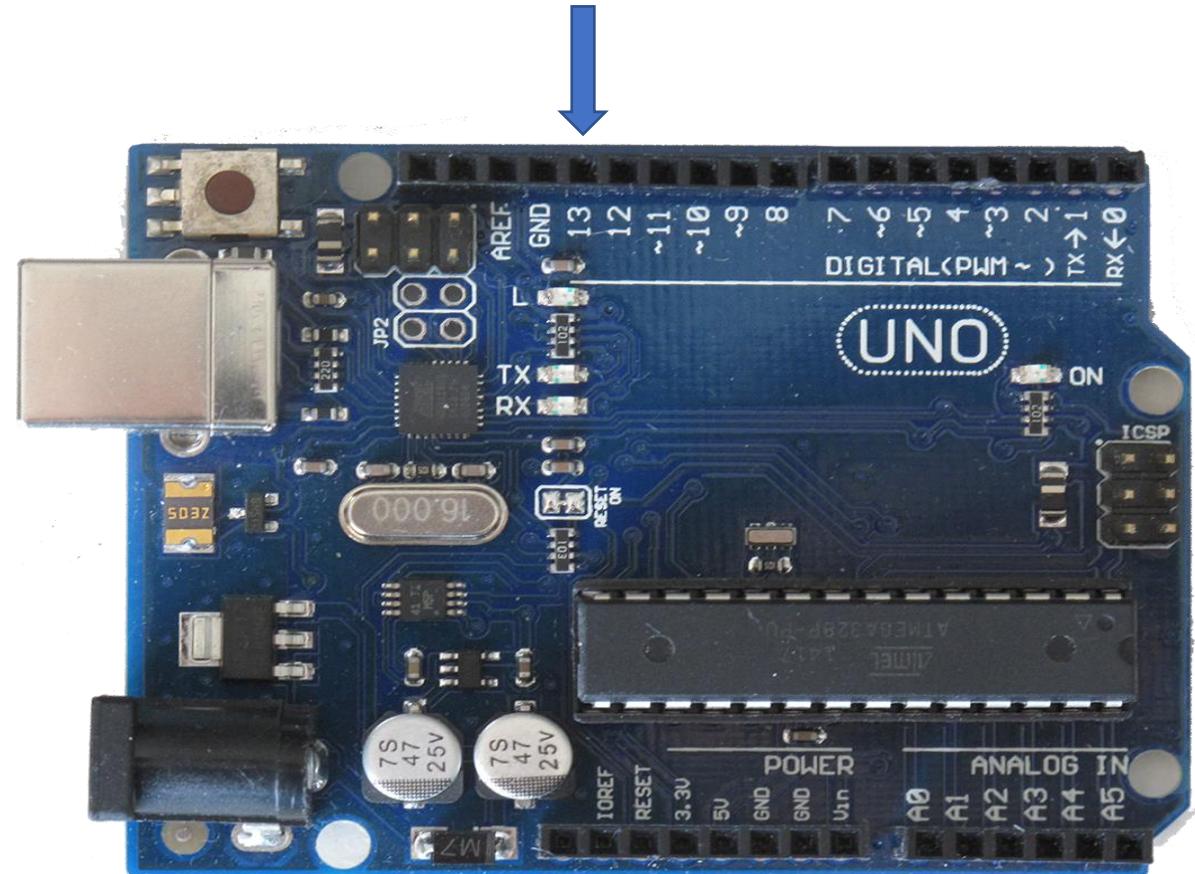
```
void setup() {
    pinMode(7,OUTPUT);
    digitalWrite(7,LOW);
    //digitalWrite(7,0);
}
```



# • Arduino INPUT signal

1. Make Arduino Reads an INPUT signal on pin no. 13

```
void setup() {  
    pinMode(13, INPUT);  
    digitalWrite(13);  
}
```



# • Blink code

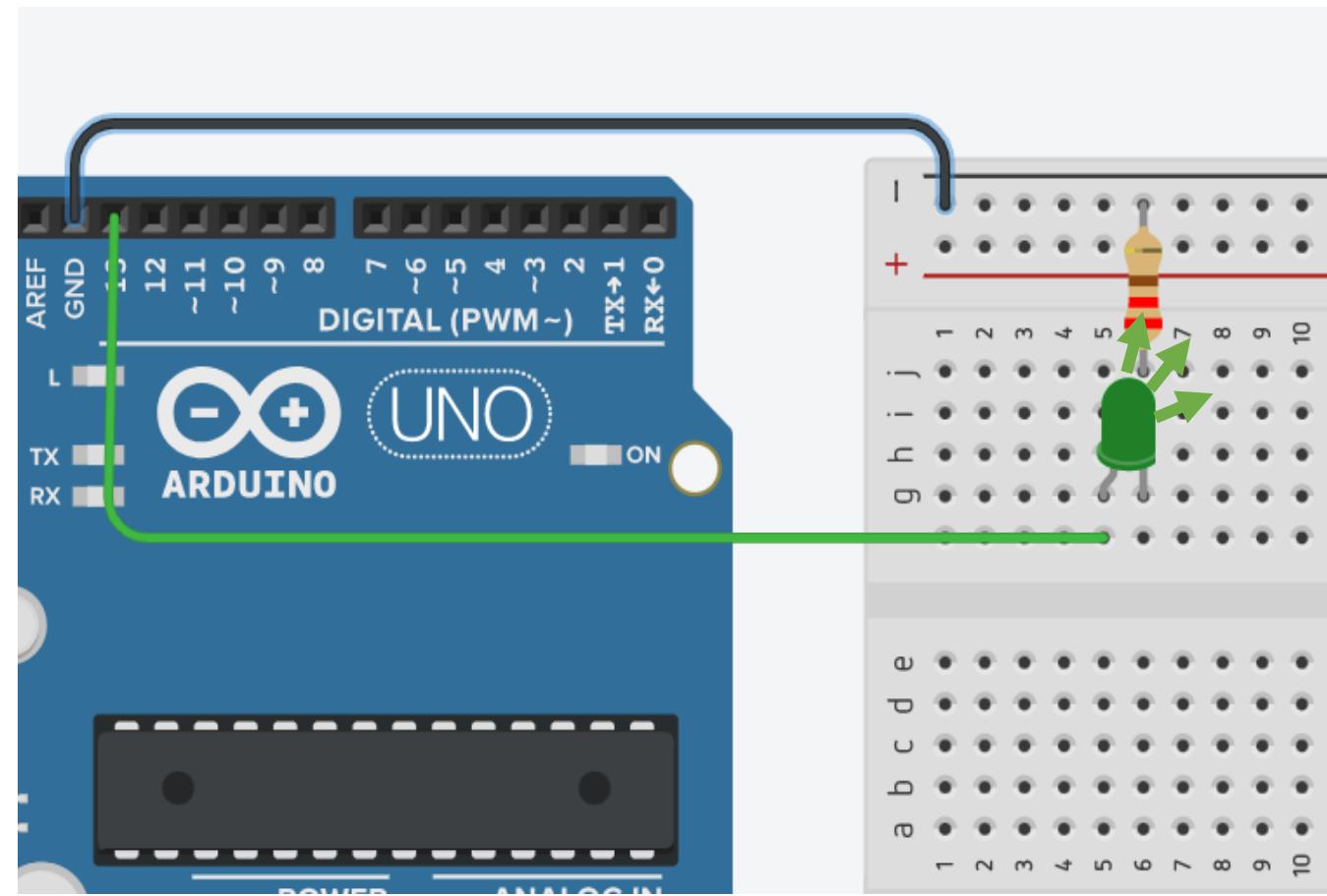
```

int ledPin = 13;

void setup()
{
    → pinMode(ledPin , OUTPUT);
}

void loop()
{
    → digitalWrite(ledPin, HIGH);
    → delay(1000);
    → digitalWrite(ledPin, LOW);
    → delay(1000);
}

```



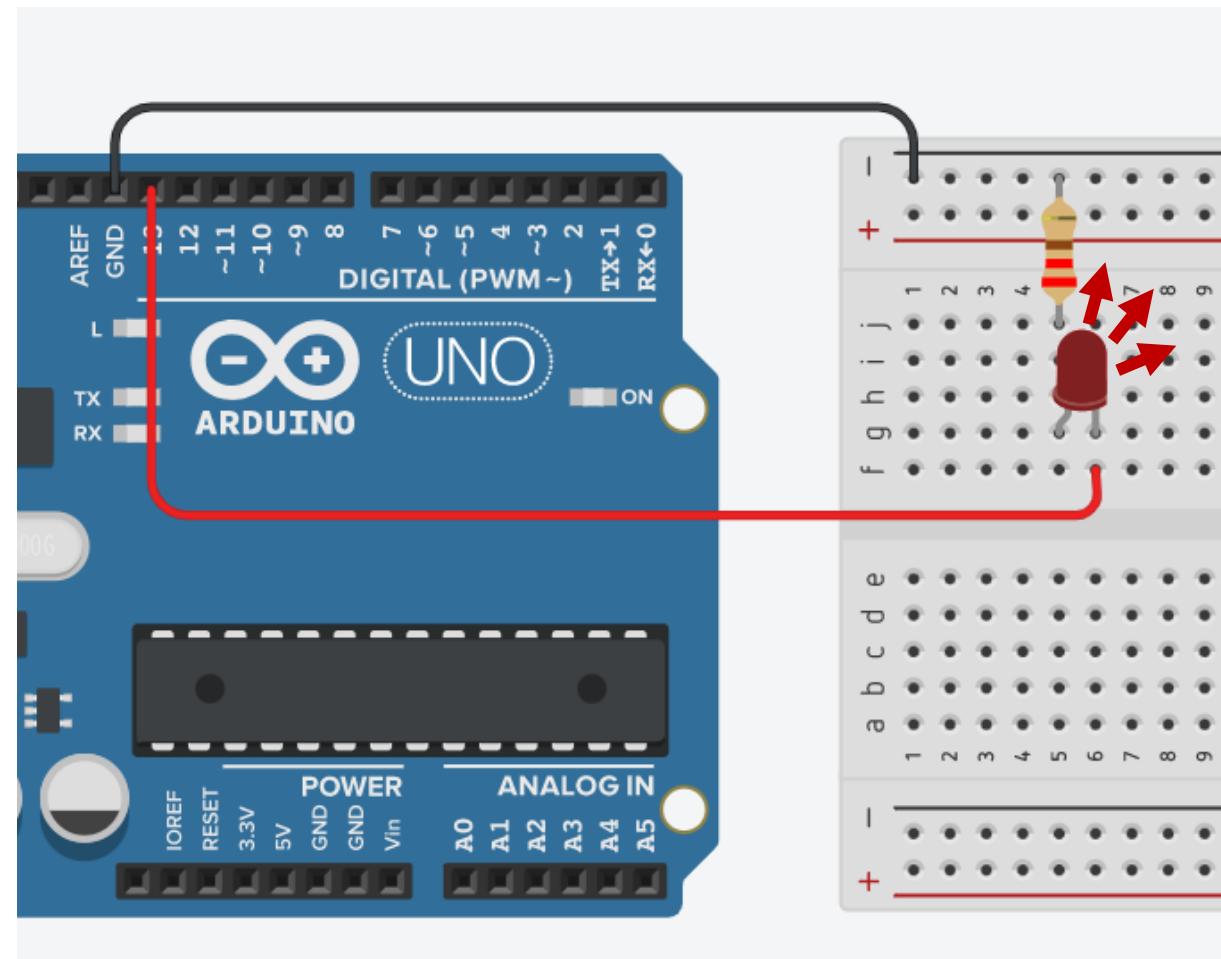
# • Another way of coding

```

int ledPin = 13;
int on = 1000;
int off = 1000;
void setup()
{
    → pinMode(ledPin , OUTPUT);
}

void loop()
{
    → digitalWrite(ledPin, HIGH);
    → delay(on);
    → digitalWrite(ledPin, LOW);
    → delay(off);
}

```



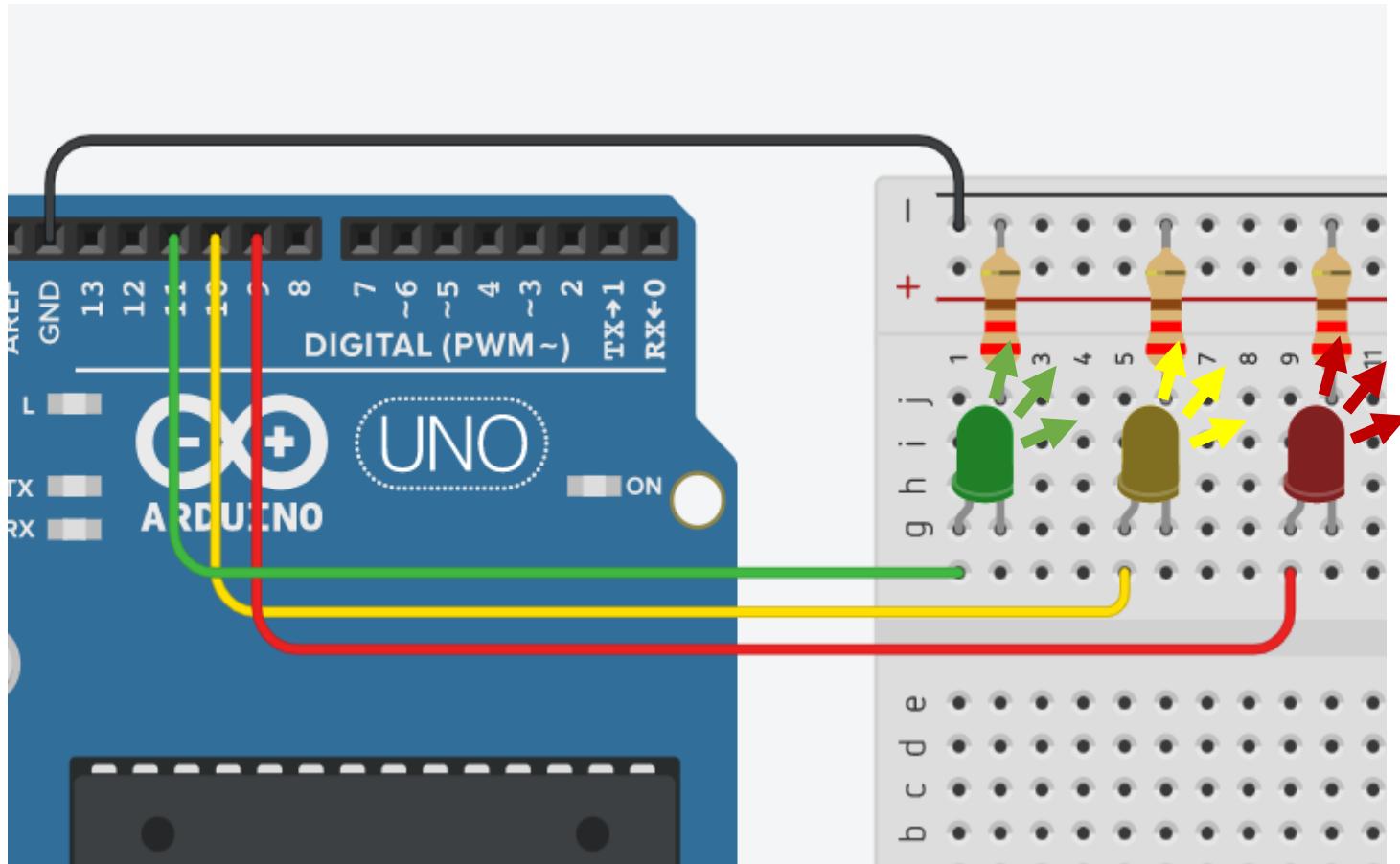
```

int red = 9;
int yellow = 10;
int green = 11;
int ON = 1000;
int OFF = 1000;

void setup()
{
    pinMode(red, OUTPUT);
    pinMode(yellow, OUTPUT);
    pinMode(green, OUTPUT);
}

void loop()
{
    digitalWrite(red, HIGH);
    delay(ON);
    digitalWrite(red, LOW);
    delay(OFF);
    digitalWrite(yellow, HIGH); delay(ON); digitalWrite(yellow, LOW); delay(OFF);
    digitalWrite(green, HIGH); delay(ON); digitalWrite(green, LOW); delay(OFF);
}

```



```

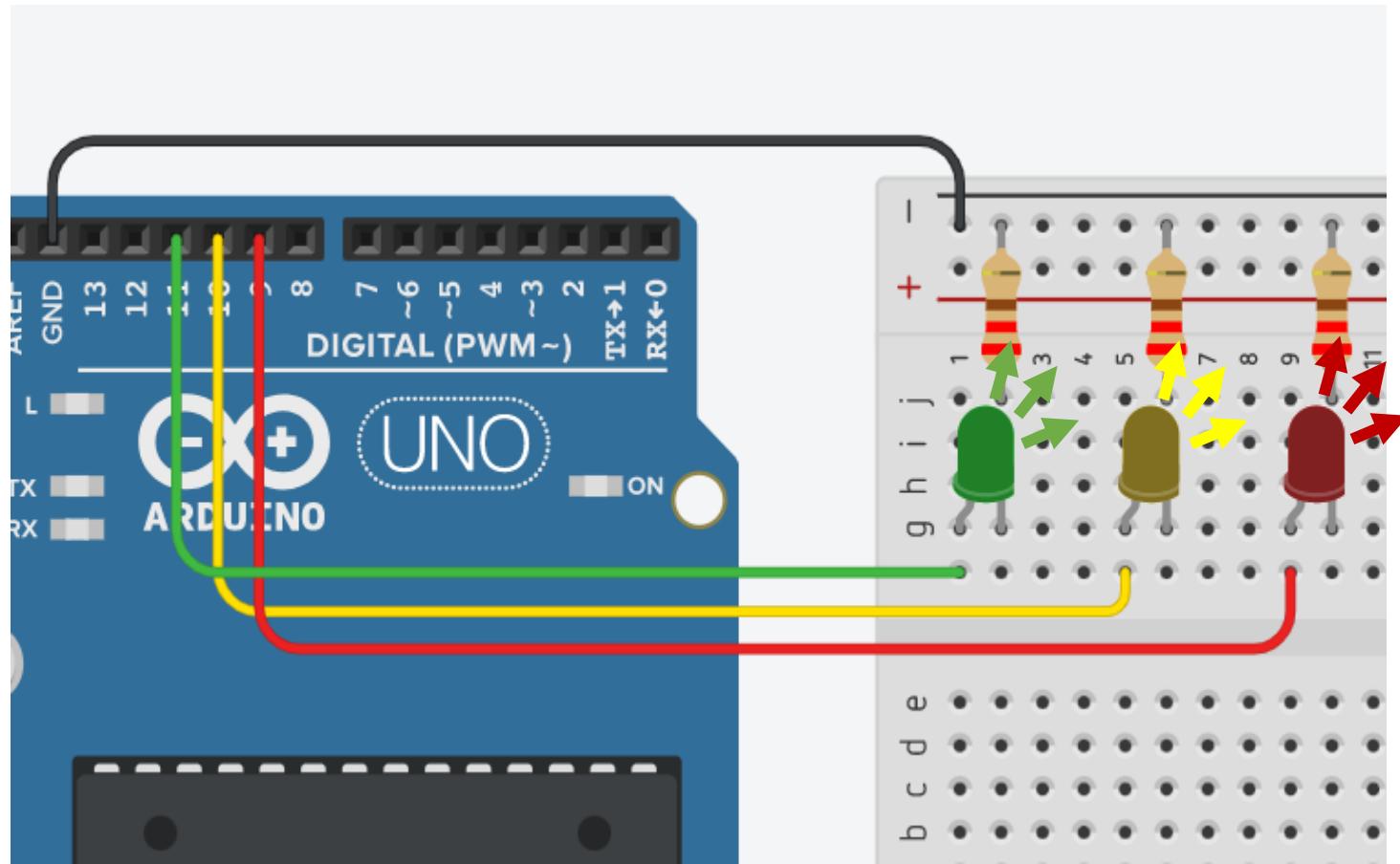
int red = 9;
int yellow = 10;
int green = 11;
int ON = 1000;
int OFF = 1000;

void setup()
{
    pinMode(red, OUTPUT);
    pinMode(yellow, OUTPUT);
    pinMode(green, OUTPUT);
}

void loop()
{
    digitalWrite(red, HIGH);
    digitalWrite(yellow, HIGH)
    digitalWrite(green, HIGH);
    delay(ON);

    digitalWrite(red, LOW);
    digitalWrite(yellow, LOW);
    digitalWrite(green, LOW);
    delay(OFF);
}

```



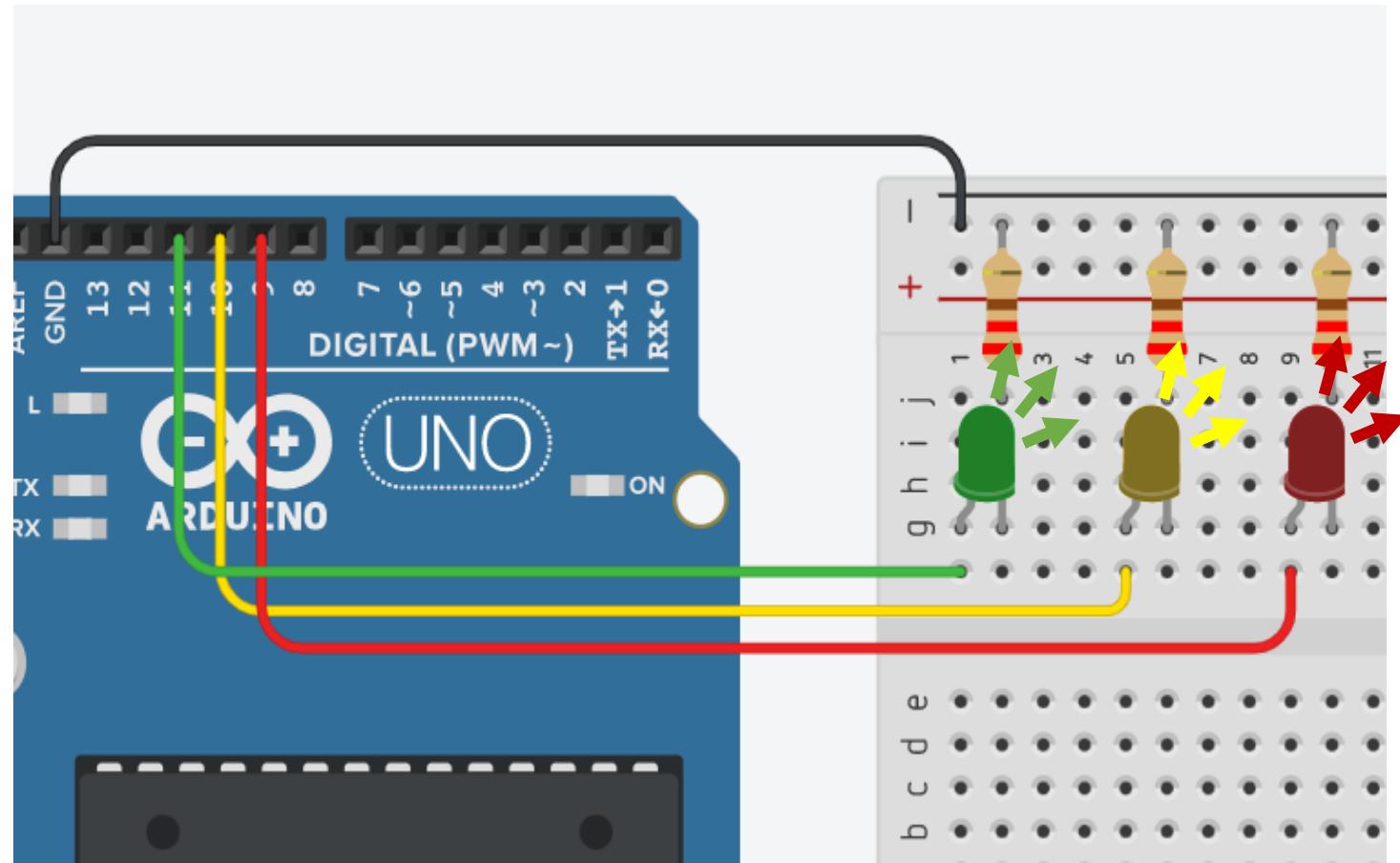
```

int red = 9;
int yellow = 10;
int green = 11;
int ON = 1000;
int OFF = 1000;

void setup()
{
    pinMode(red, OUTPUT);
    pinMode(yellow, OUTPUT);
    pinMode(green, OUTPUT);
}

void loop()
{
    digitalWrite(red, HIGH);
    delay(ON);
    digitalWrite(yellow, HIGH);
    delay(ON);
    digitalWrite(green, HIGH); delay(ON);    digitalWrite(red, LOW);      delay(OFF);
    digitalWrite(yellow, LOW); delay(OFF);   digitalWrite(green, LOW); delay(OFF);
}

```



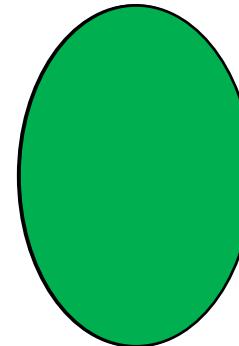
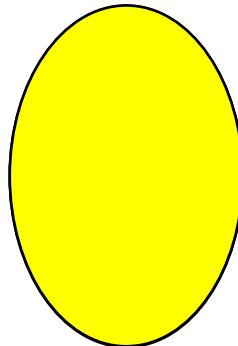
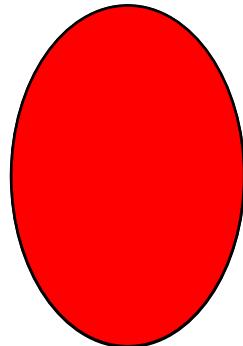
```

digitalWrite(red, LOW);      delay(OFF);
digitalWrite(green, LOW); delay(OFF);

```

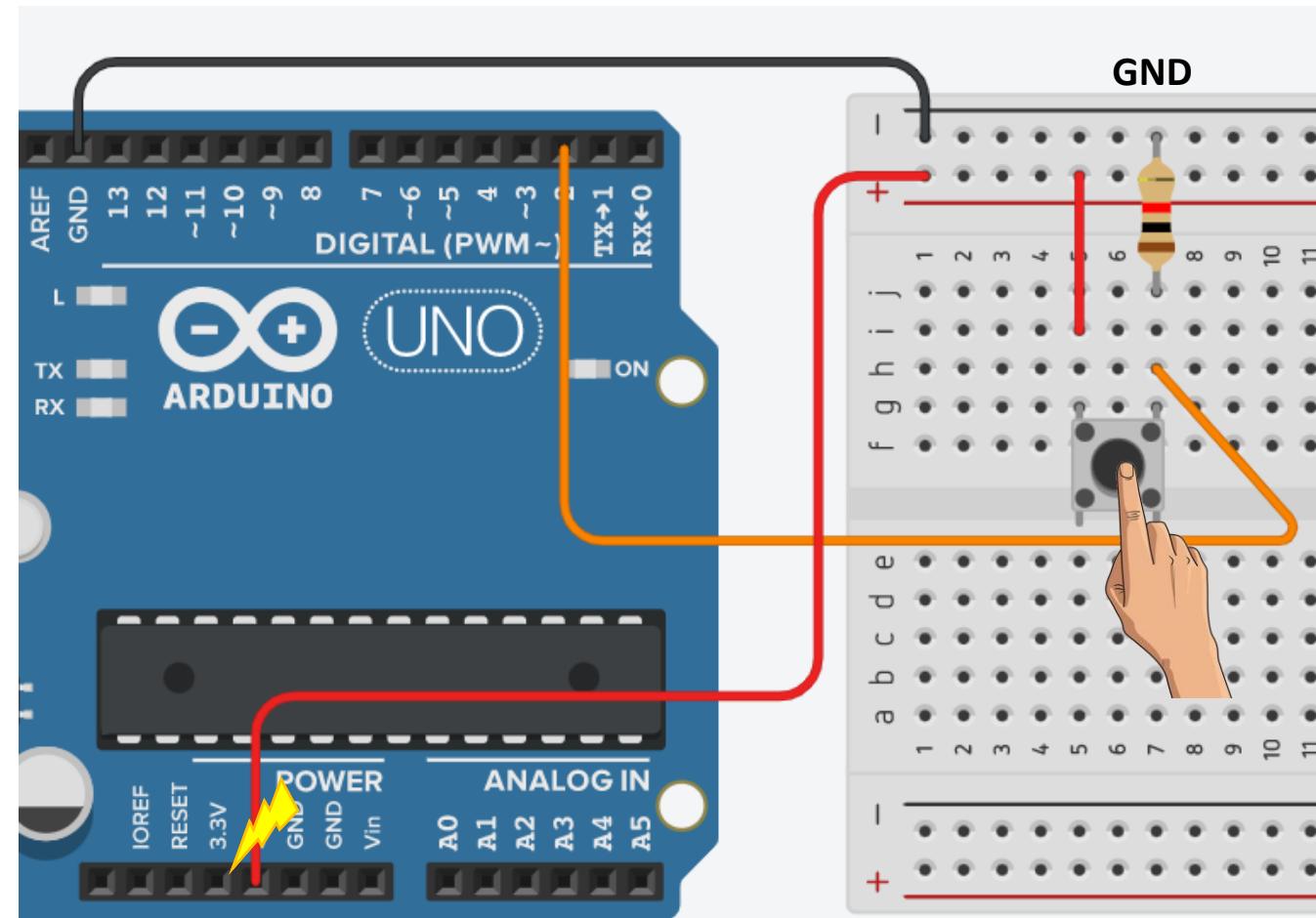
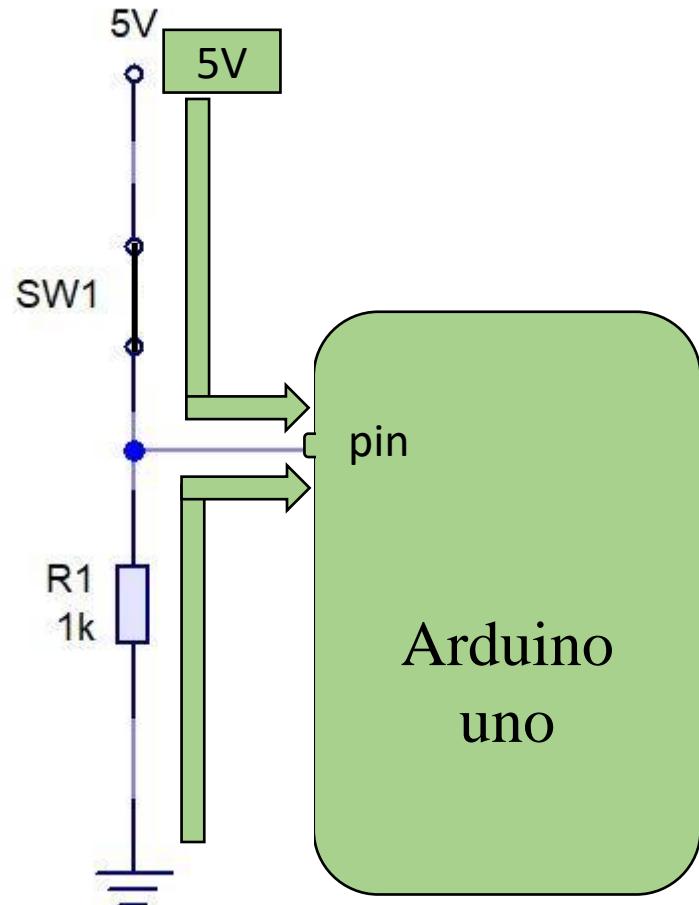
- Task

## Traffic Lights



# • Push Button

## “Pull Down Resistor Connection”



# • Code

```

void setup()
{ pinMode(2, INPUT);
Serial.begin(9600); }

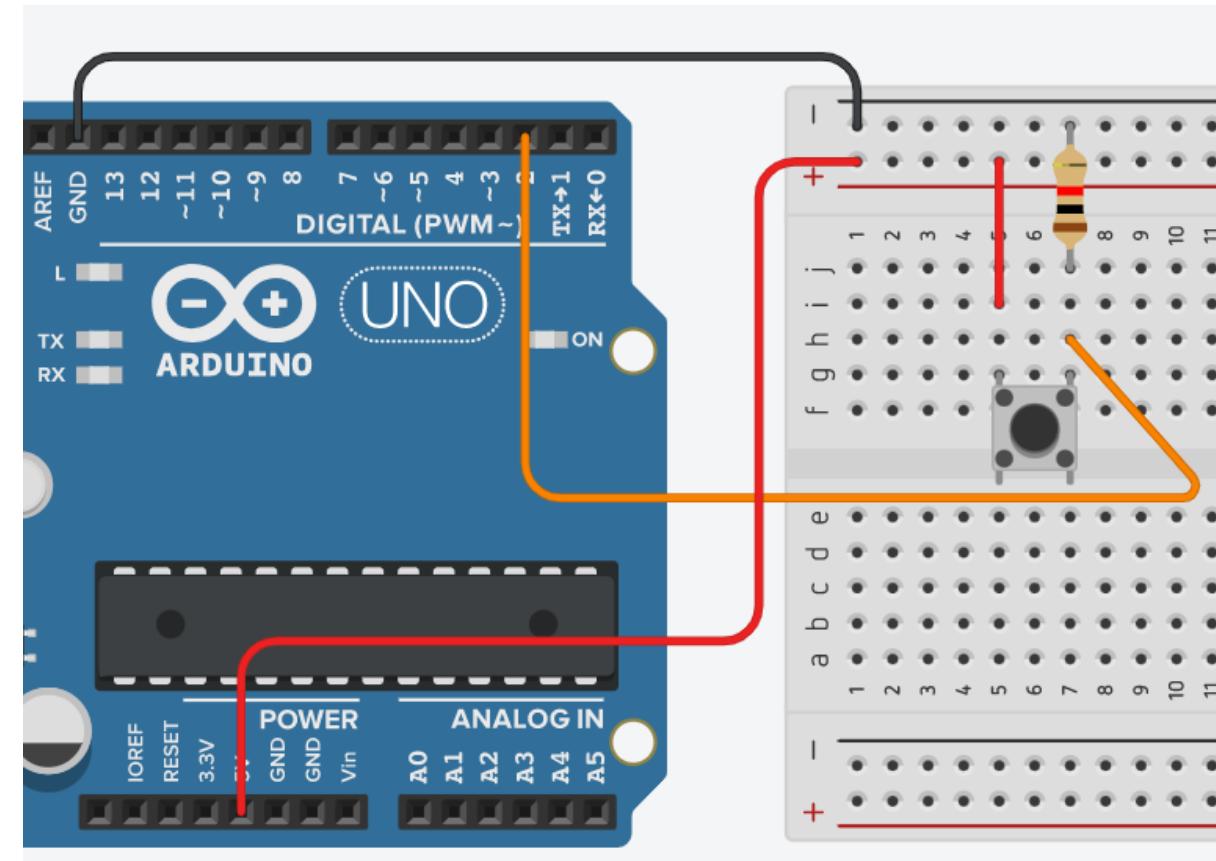
void loop()
{ Serial.println(digitalRead(2)); }



---


bool reading;
void setup()
{ pinMode(2, INPUT);
Serial.begin(9600);}

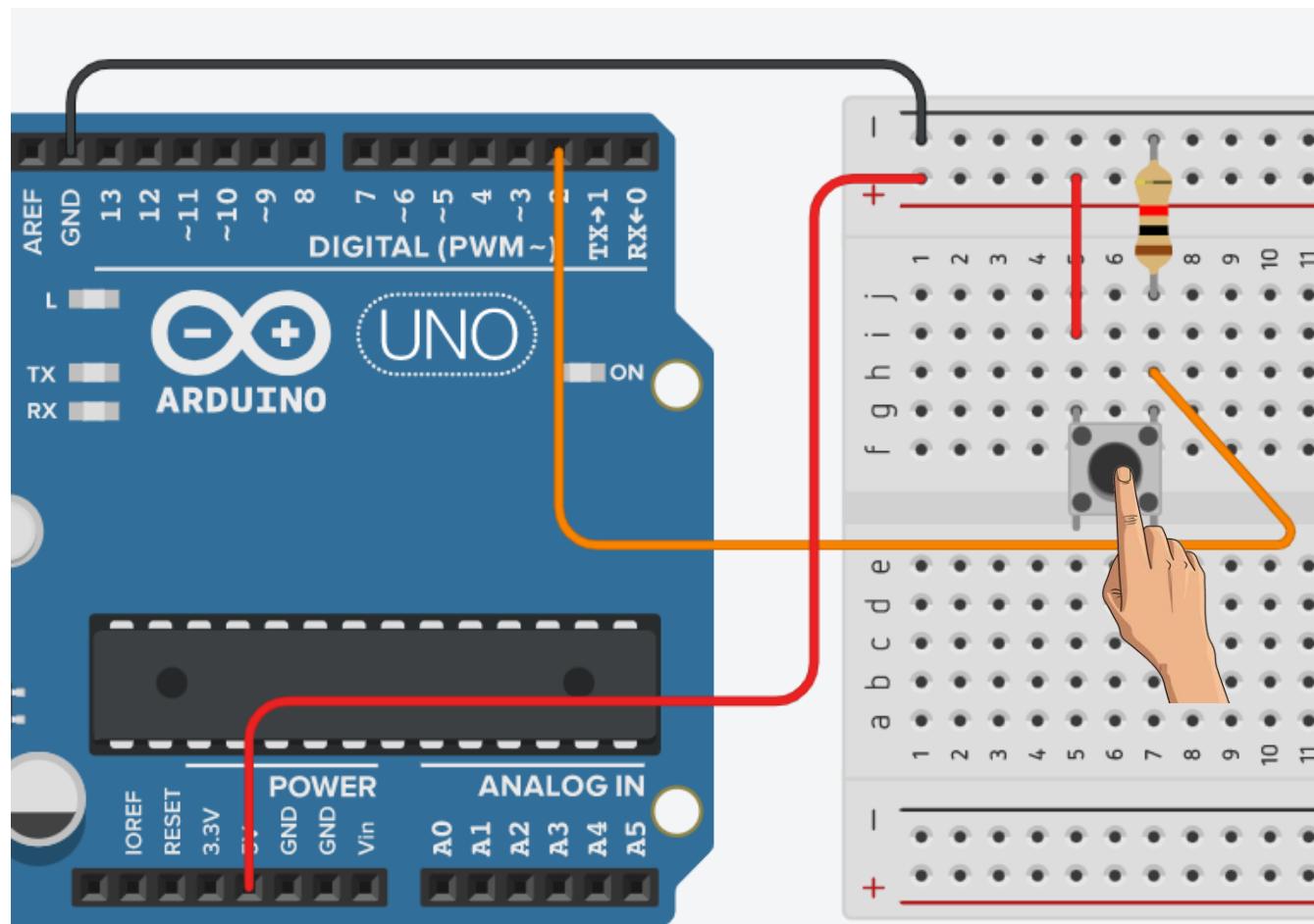
void loop()
{ reading = digitalRead(2);
Serial.println(reading); }
  
```



# • Task

- Make a counter on the serial monitor that increases by one every time you hit the pushbutton

counter  
**3**



**THANKS  
FOR  
COMING**

