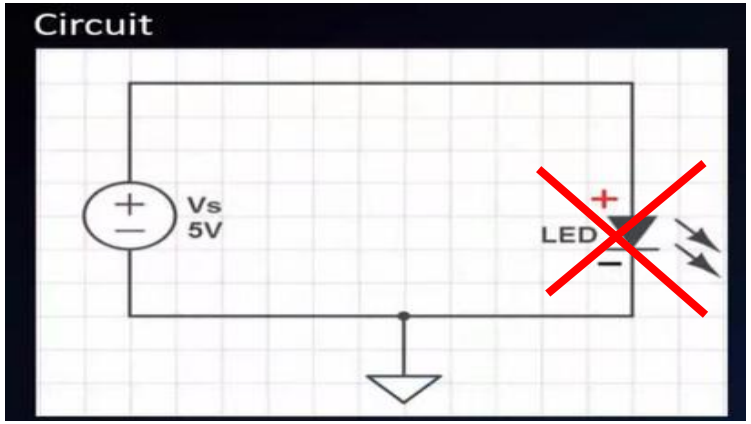
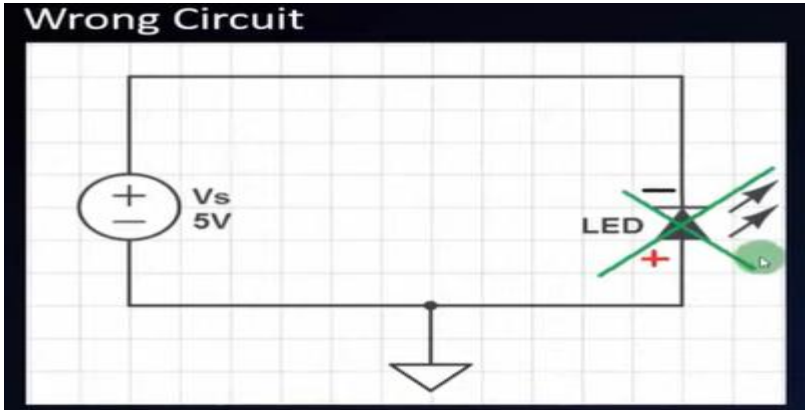
Blink_LED

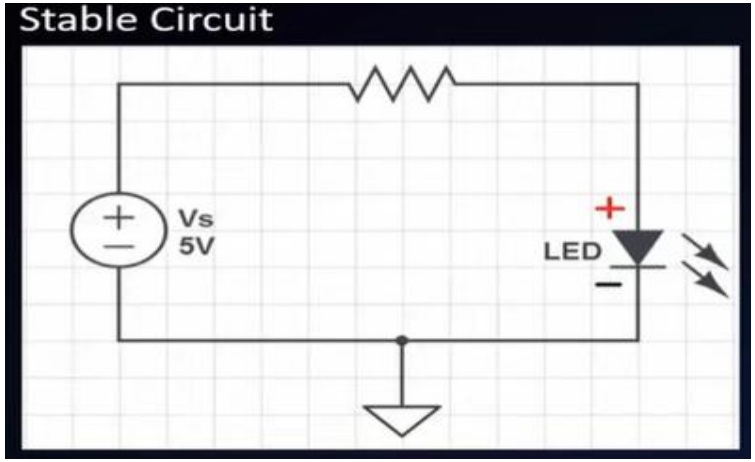
From

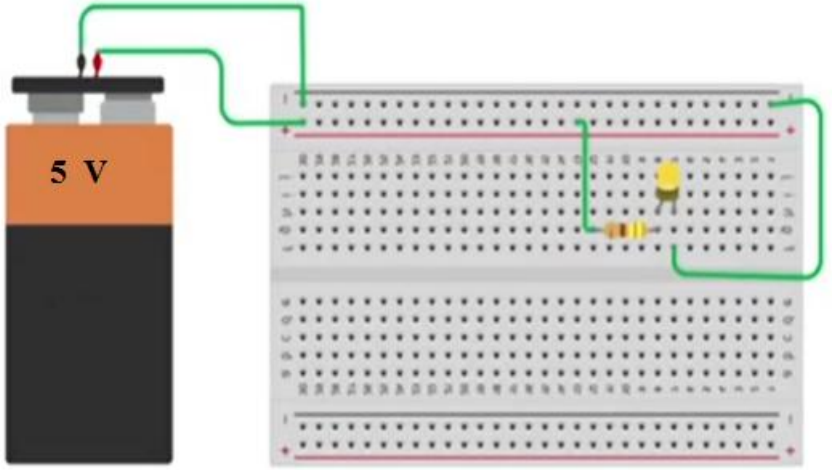
Dr. G. V. Prasanna Anjaneyulu

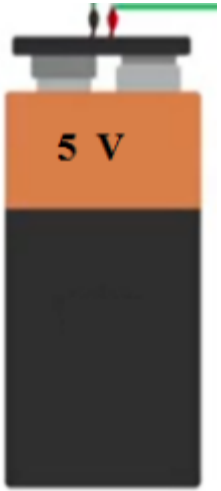
LED + Resistor

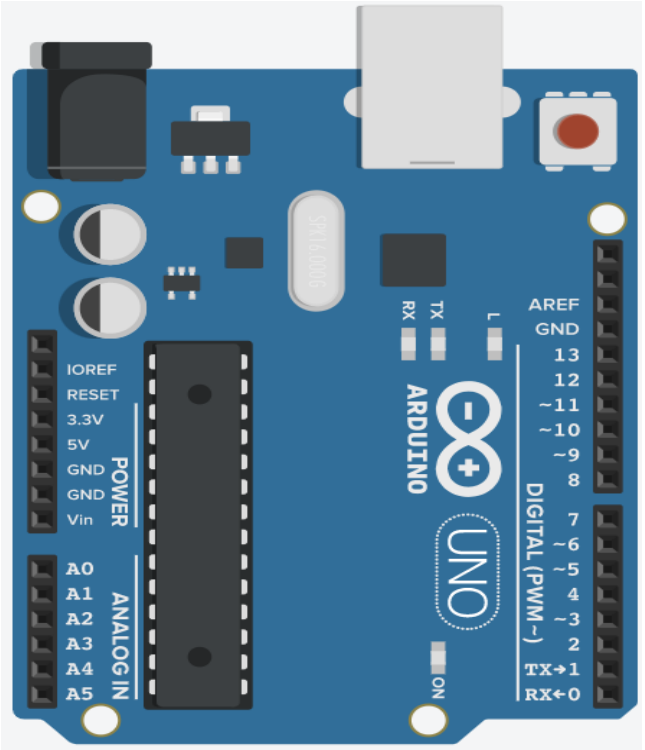


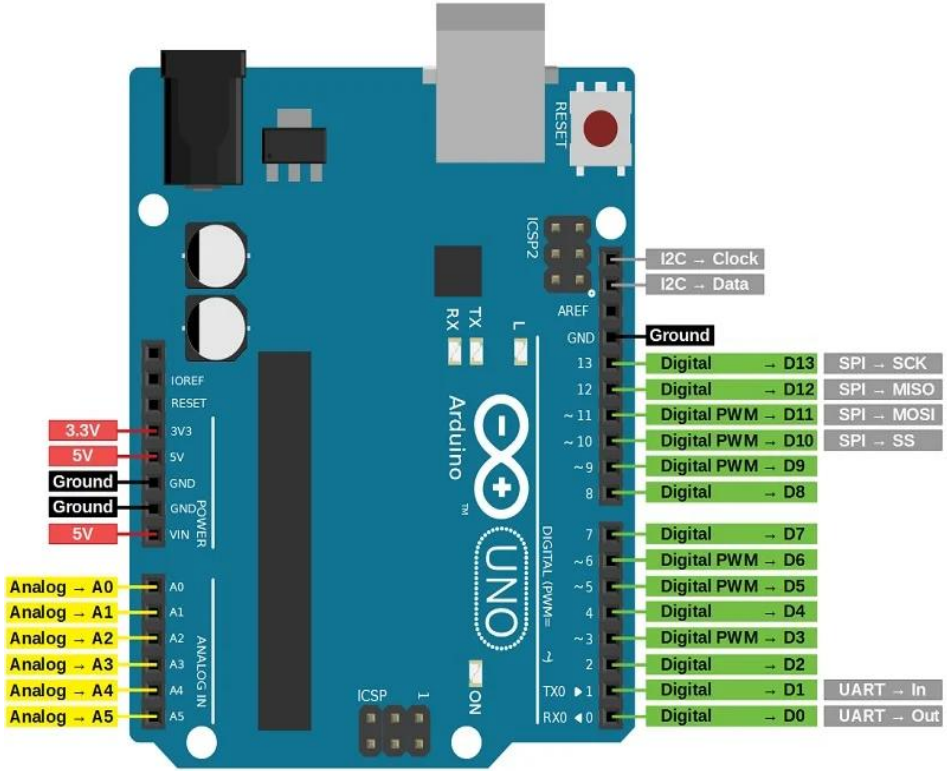


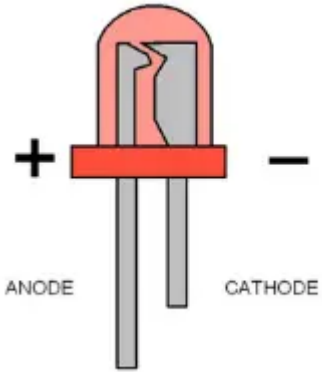





5 V


IOREF
RESET
3.3V
5V
GND
GND
Vin
POWER
A0
A1
A2
A3
A4
A5
ANALOG IN
AREF
GND
13
12
~11
~10
~9
8
7
~6
~5
4
~3
2
TX→1
RX←0
DIGITAL (PWM~)
TX
RX
L
ON
ARDUINO
UNO


RESET
ICSP2
I2C → Clock
I2C → Data
AREF
GND
Ground
13
Digital → D13
SPI → SCK
12
Digital → D12
SPI → MISO
~ 11
Digital PWM → D11
SPI → MOSI
~ 10
Digital PWM → D10
SPI → SS
~ 9
Digital PWM → D9
8
Digital → D8
7
Digital → D7
~ 6
Digital PWM → D6
~ 5
Digital PWM → D5
4
Digital → D4
~ 3
Digital PWM → D3
2
Digital → D2
TX0 ▶ 1
Digital → D1
UART → In
RX0 ◀ 0
Digital → D0
UART → Out
DIGITAL (PWM=~)
TX
RX
L
ON
ICSP
Arduino
UNO
IOREF
RESET
3.3V
3V3
5V
5V
Ground
GND
Ground
GND
5V
VIN
POWER
Analog → A0
A0
Analog → A1
A1
Analog → A2
A2
Analog → A3
A3
Analog → A4
A4
Analog → A5
A5
ANALOG IN


+
−
ANODE
CATHODE

Circuit Diagram

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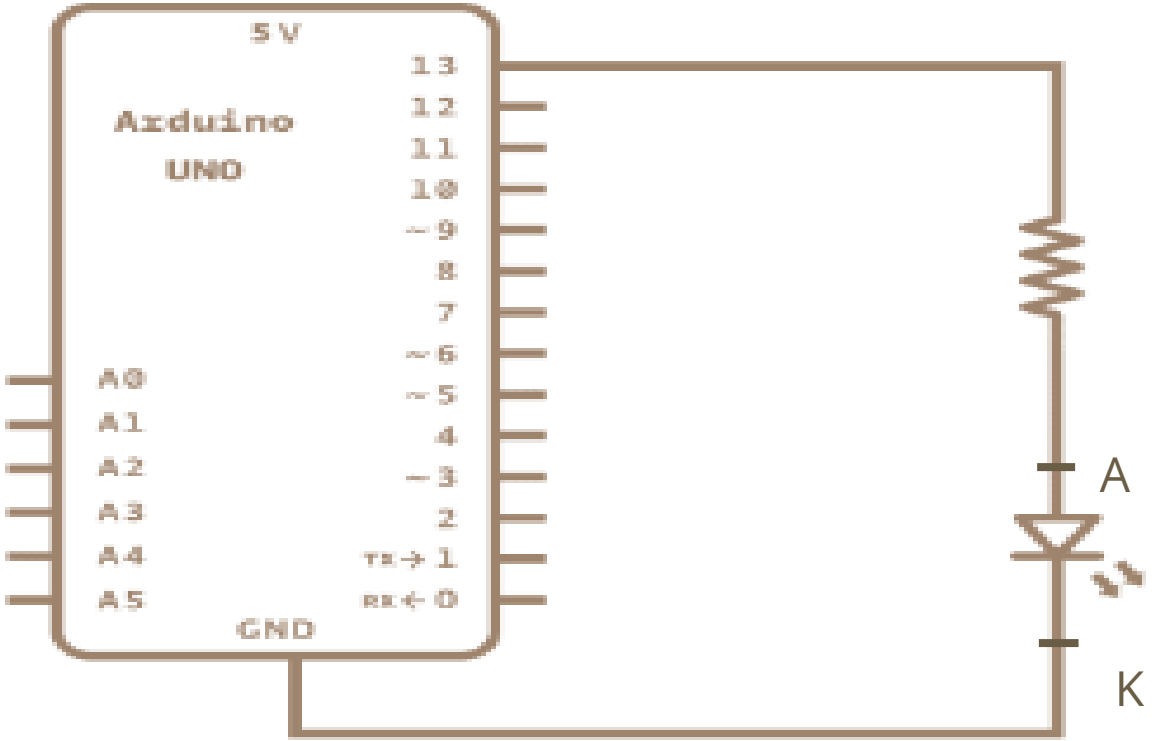

Apparatus

1.PC with Arduino IDE

2.Arduino UNO Board

3.USB cable

4.LED

5.Bread board

6.1000Ω resistor

7.Jumper wires

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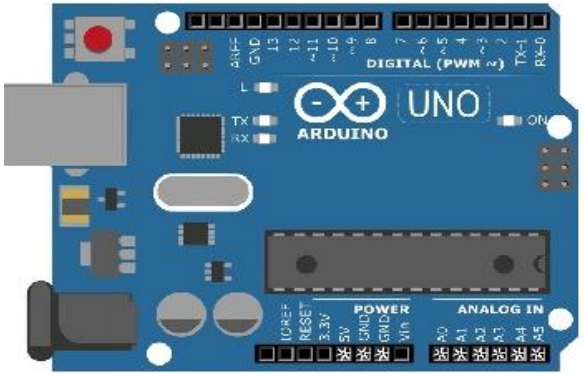
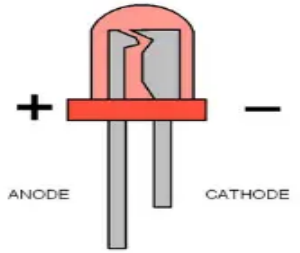
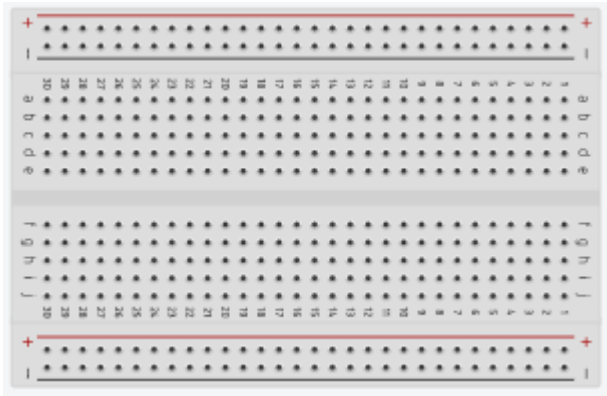
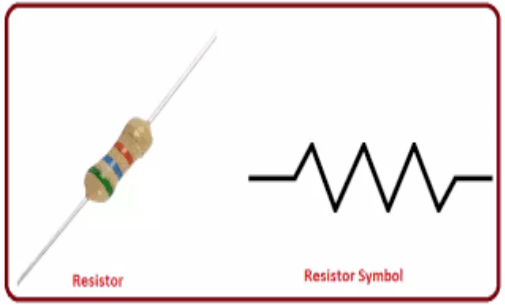
Implementation

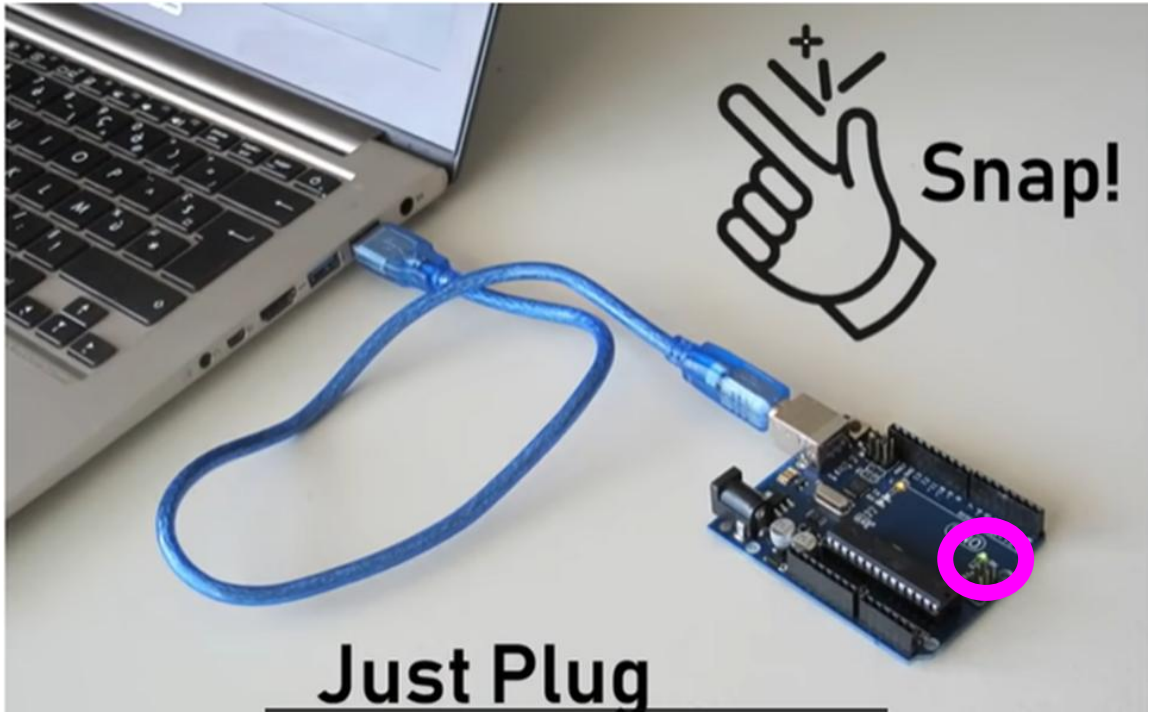




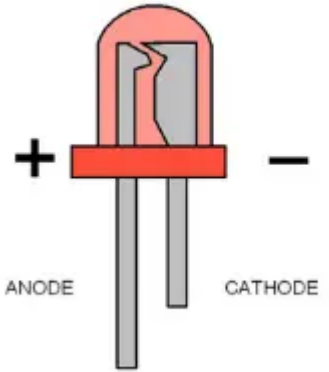


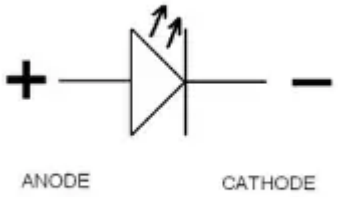


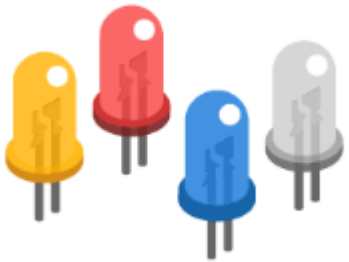
Setup - ready ?

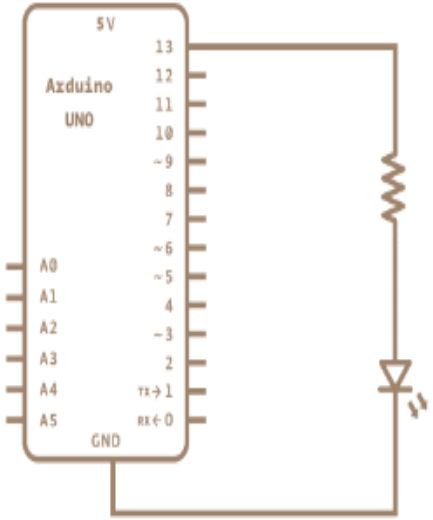


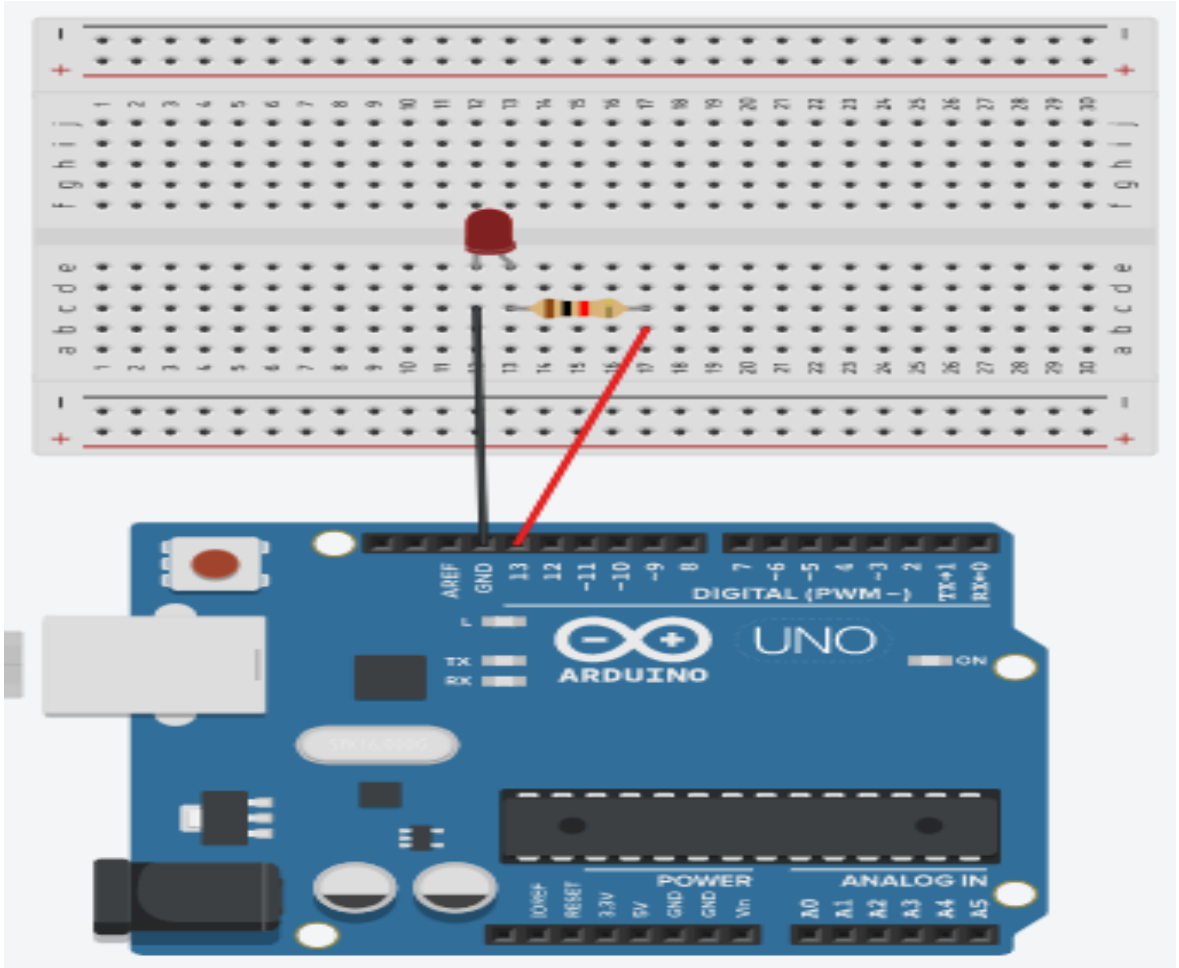
LED



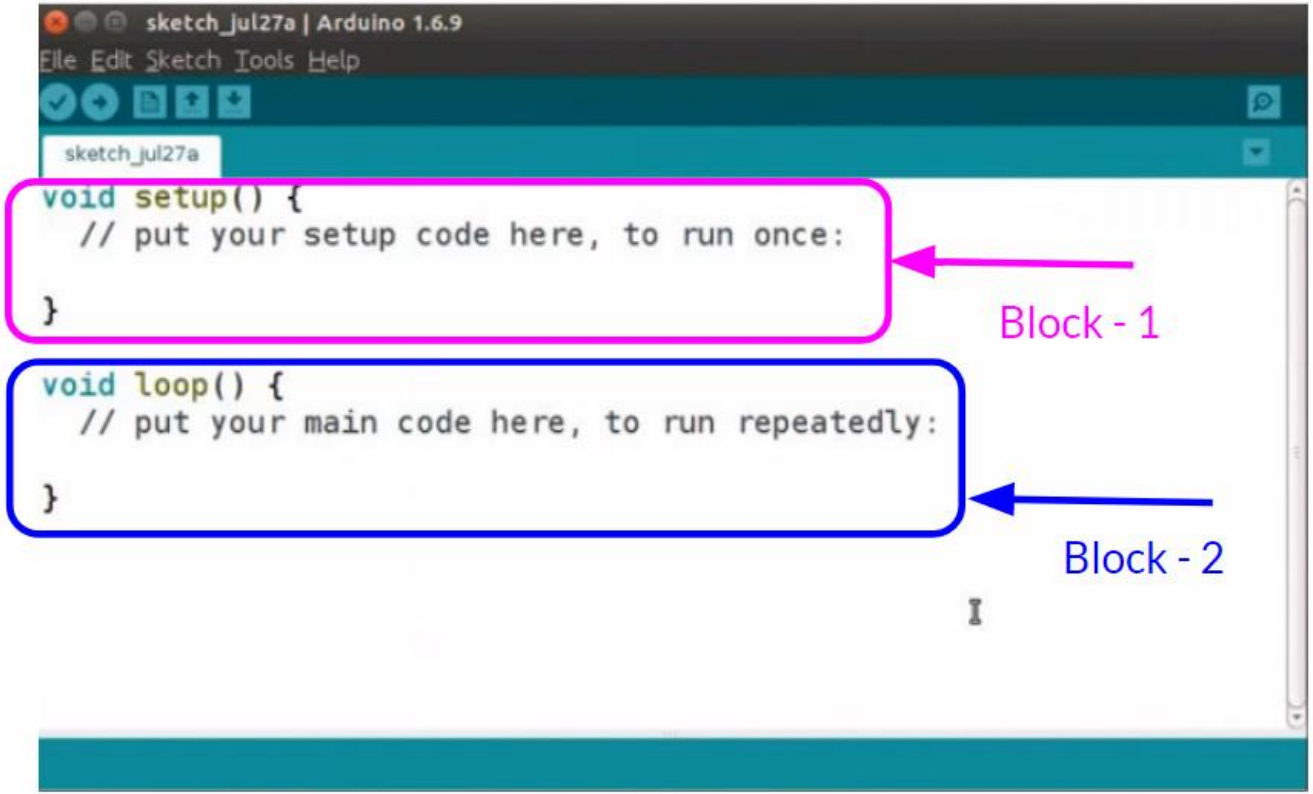




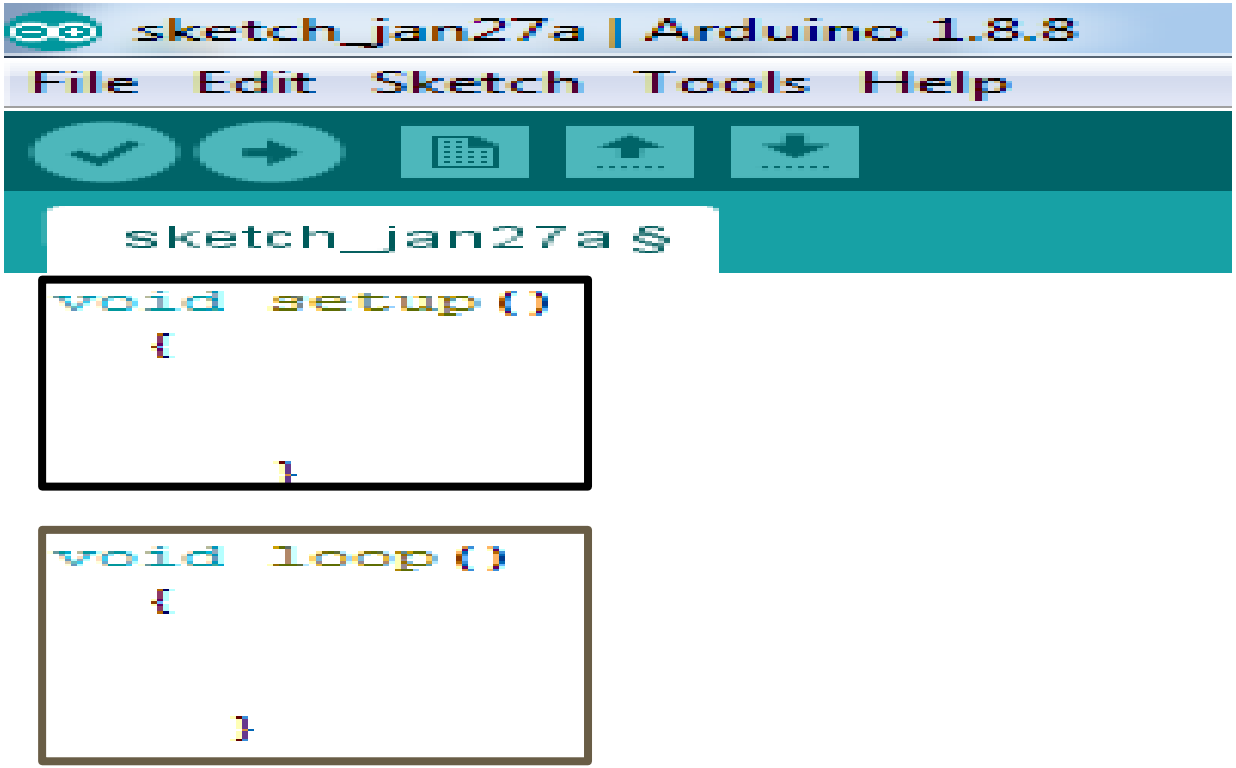

5V
Arduino
UNO
13
12
11
10
~9
8
7
~6
~5
4
~3
2
TX→1
RX←0
A0
A1
A2
A3
A4
A5
GND


AREF
GND
13
12
~11
~10
~9
8
7
~6
~5
4
~3
2
TX→1
RX←0
DIGITAL (PWM~)
TX
RX
ARDUINO
UNO
ON
POWER
ANALOG IN
IOREF
RESET
3.3V
5V
GND
GND
Vin
A0
A1
A2
A3
A4
A5

Arudino_sketch

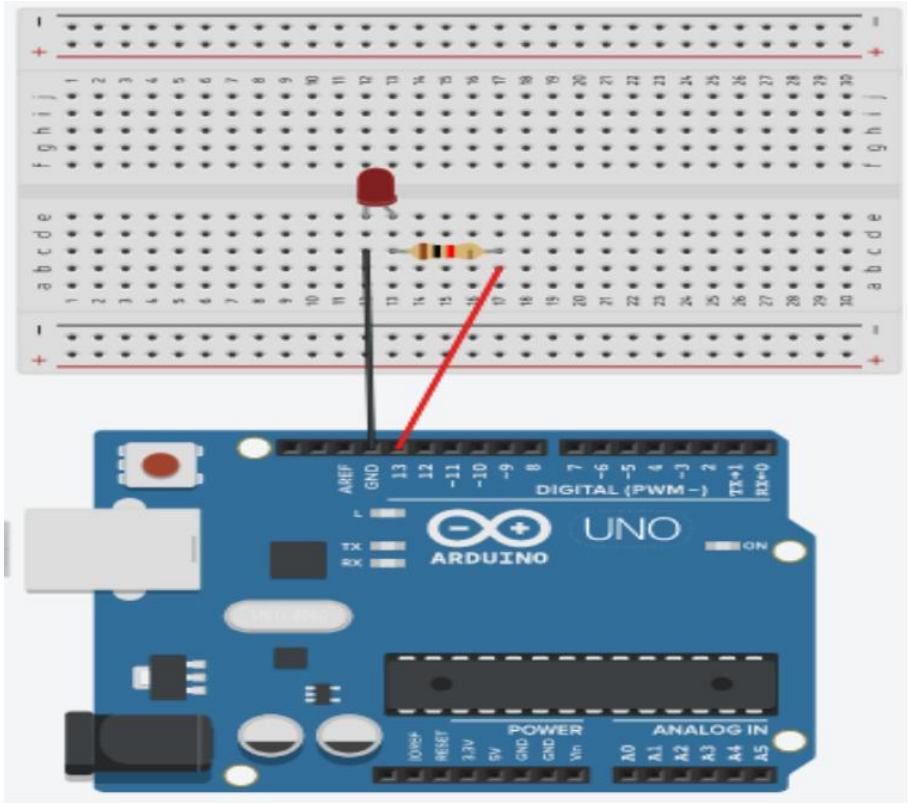


Contd.....


sketch_jan27a | Arduino 1.8.8
File Edit Sketch Tools Help
sketch_jan27a §
void setup()
{
}
void loop()
{
}

Method-1

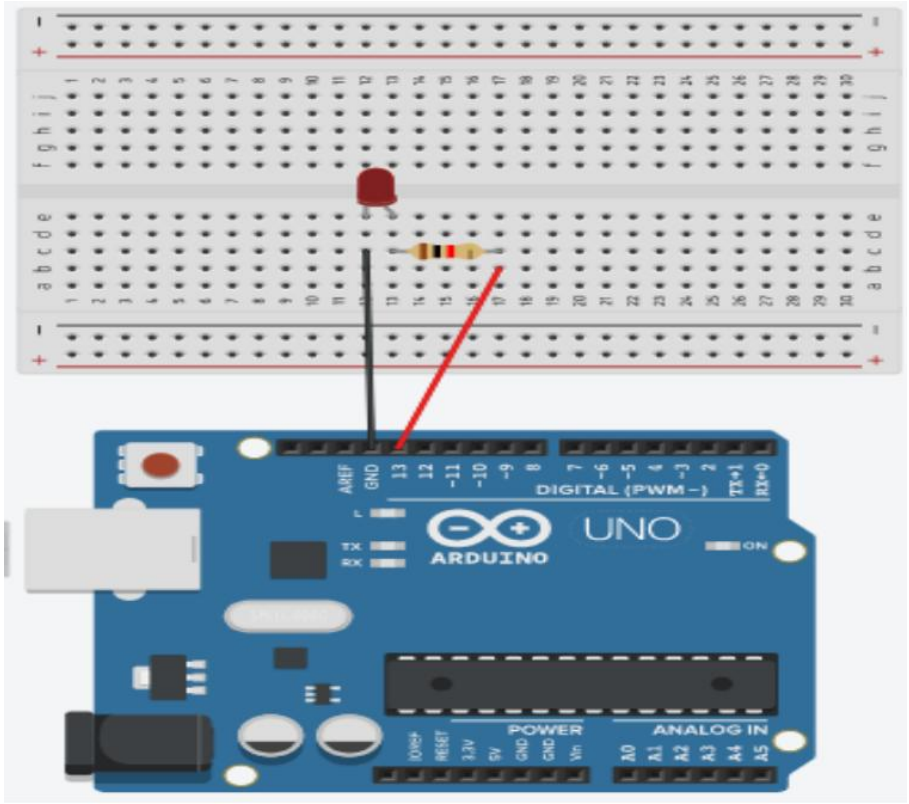
LED_BUILTIN = 13




```
//LED_BLINKING PROGRAM
void setup()
{
  pinMode(13, OUTPUT);
}
```

```
void loop()
{
 digitalWrite(13, HIGH);
 delay(500);
 digitalWrite(13, LOW);
 delay(500);
}
```

Method-1




```
//LED_BLINKING PROGRAM
void setup()
{
  pinMode(LED_BUILTIN, OUTPUT);
}

void loop()
{
 digitalWrite(LED_BUILTIN, HIGH);
 delay(500);
 digitalWrite(LED_BUILTIN, LOW);
 delay(500);
}
```

Method-2

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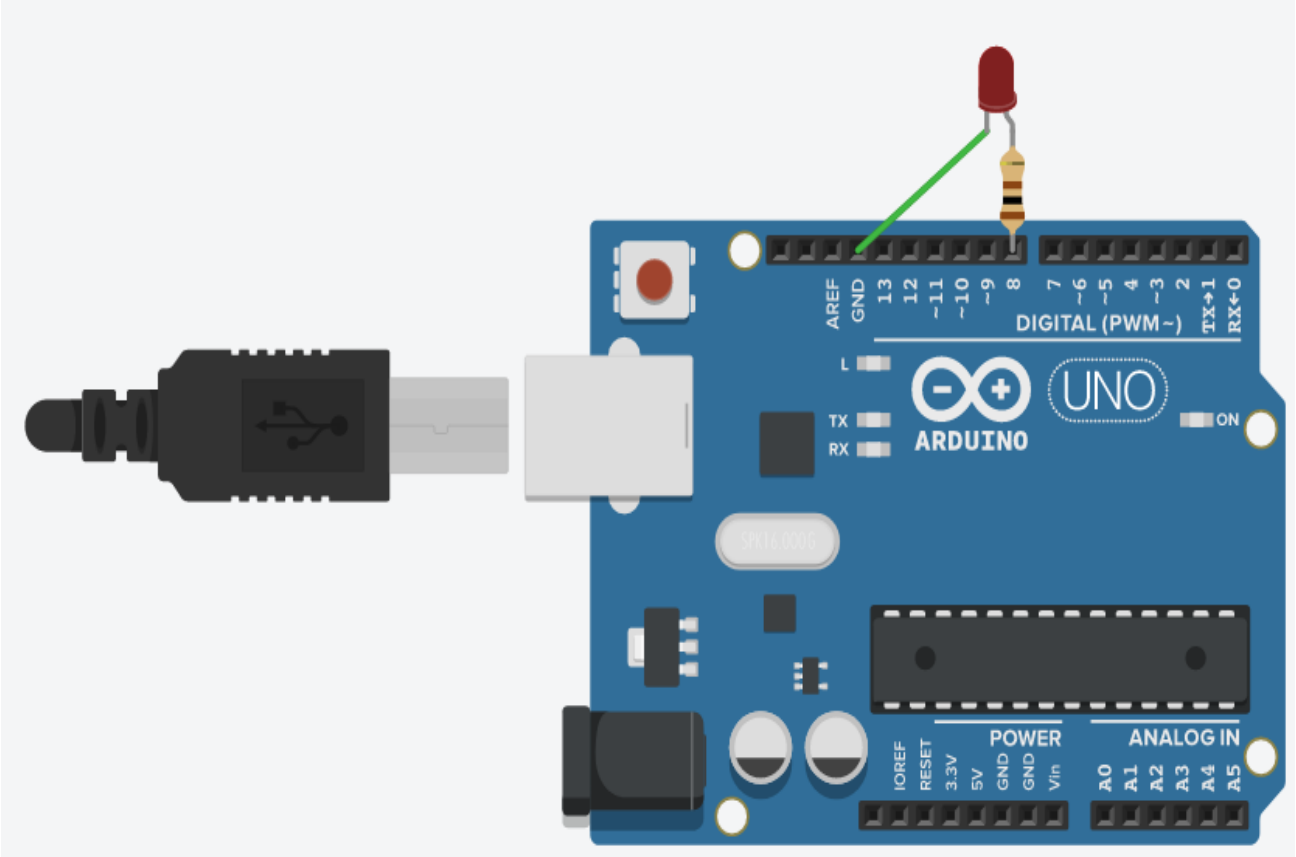

Contd...

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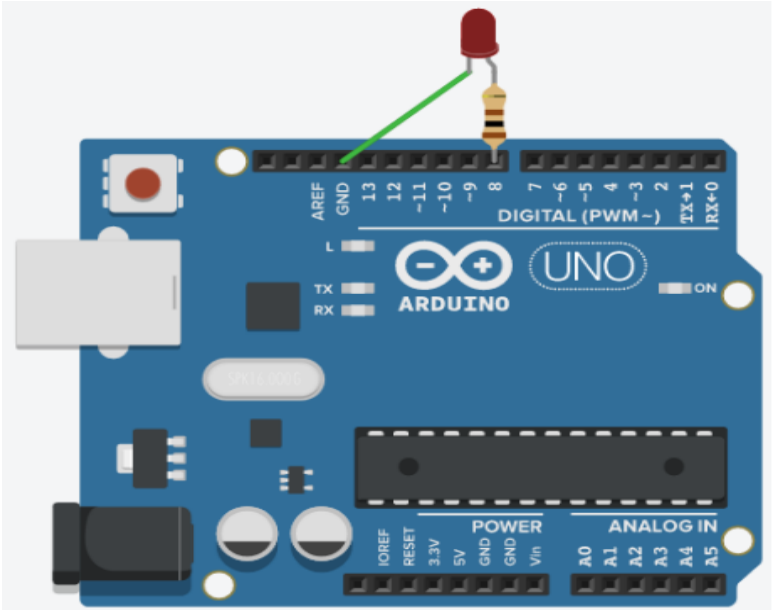


```
//method-2 for BLINKING OF LED
void setup()
{
  pinMode(8,OUTPUT);
}
void loop()
{
  digitalWrite(8, HIGH);
  delay(1000);
  digitalWrite(8, LOW);
  delay(1000);
}
```

Method-3

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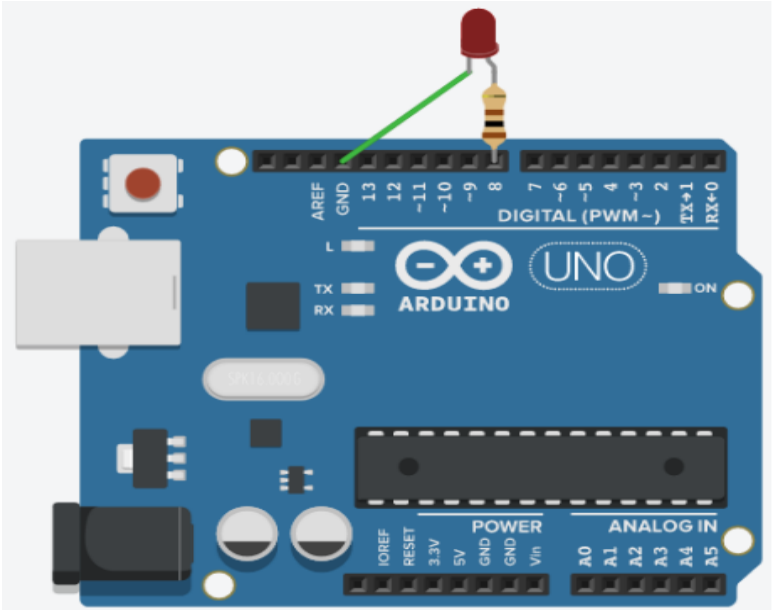
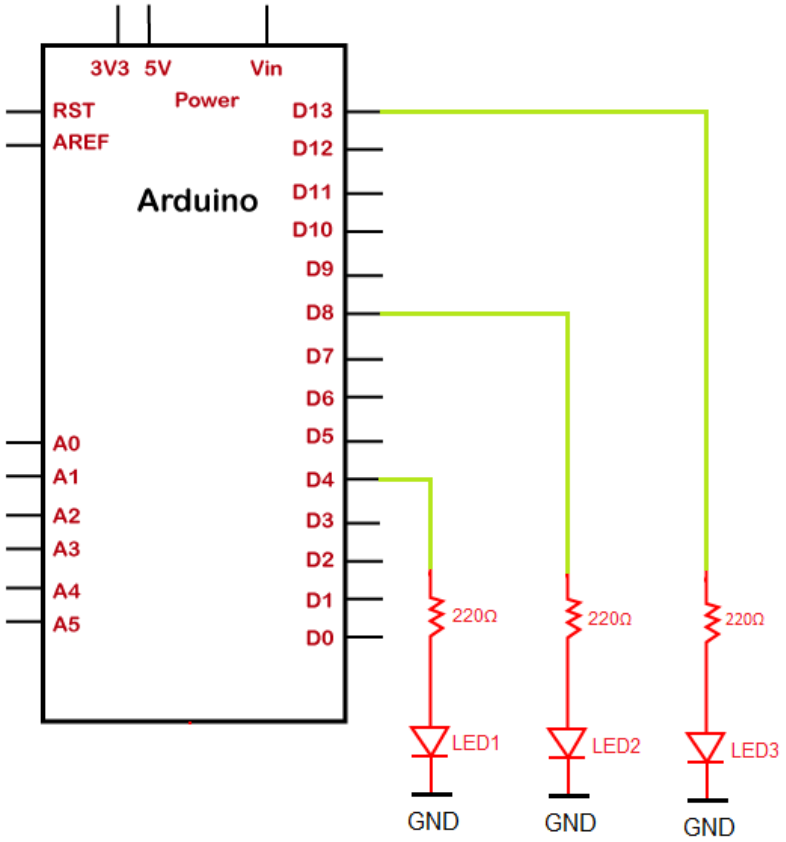



```
//method-3
// BLINKING OF LED
int ledPin=8;
void setup()
{
  pinMode(ledPin,OUTPUT);
}
void loop()
{
  digitalWrite(ledPin, HIGH);
  delay(1000);
  digitalWrite(ledPin, LOW);
  delay(1000);
}
```


1ST
Success


WAITING
2nd

Blinking multiple LEDs using the loop



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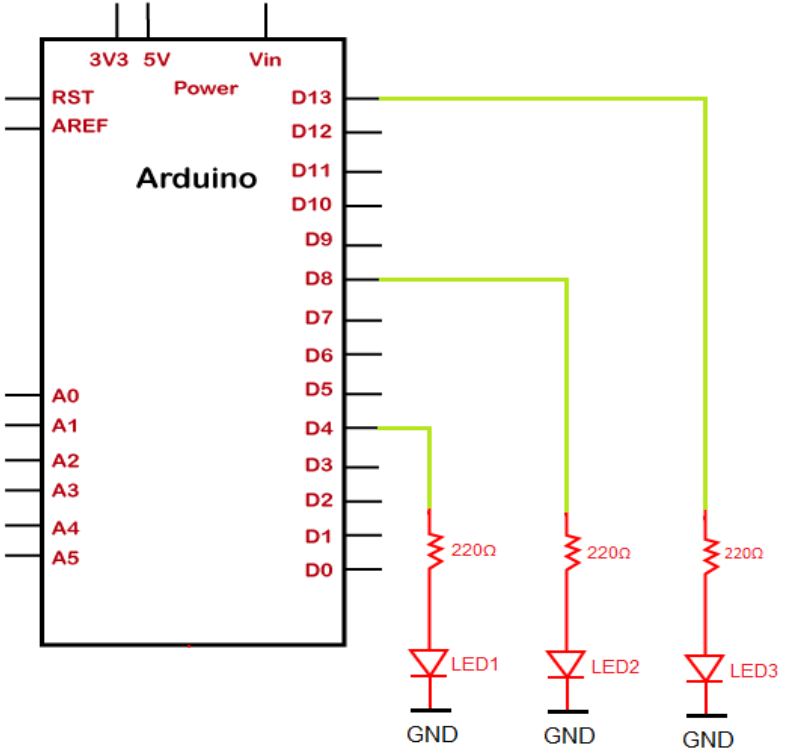

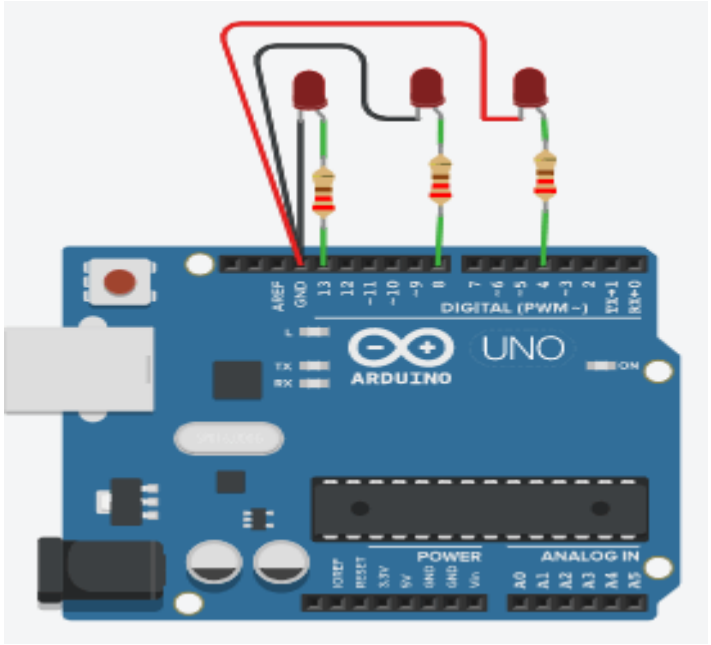

https://www.javatpoint.com/arduino-blinking-multiple-leds-using-loop

code....

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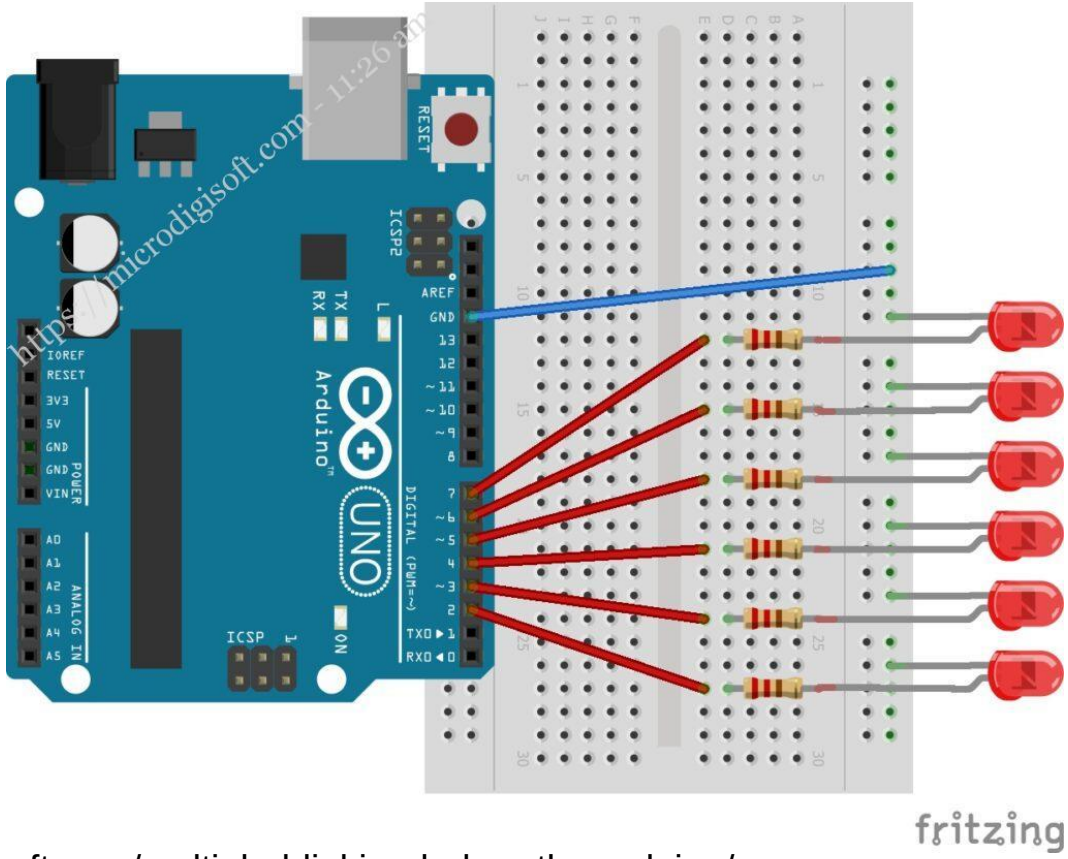
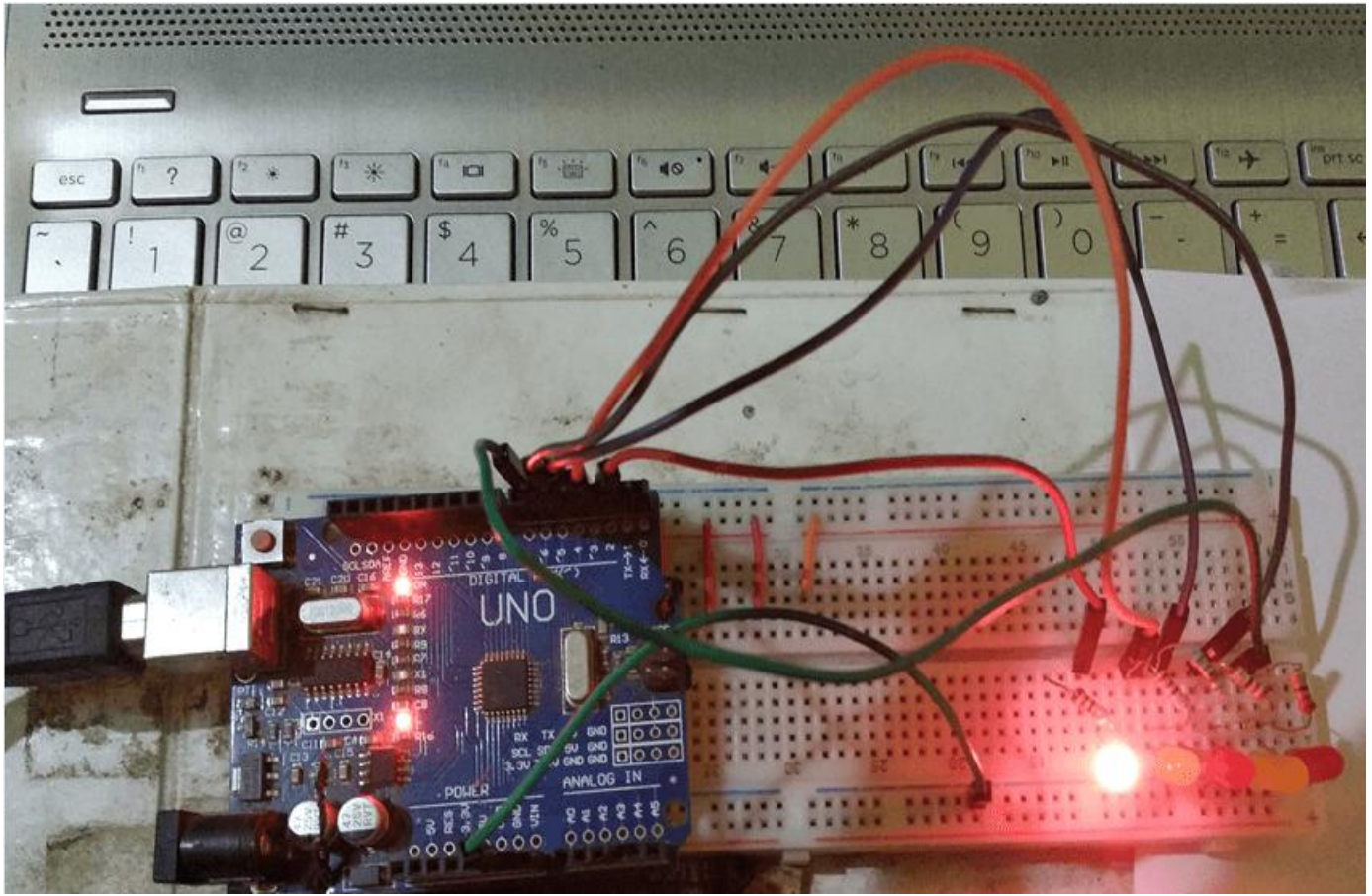
```
//This program blinks LED connection to the pin number 13, 8, and 4
void setup()
{
  pinMode(13, OUTPUT);
  pinMode(8, OUTPUT);
  pinMode(4, OUTPUT);
}
void loop()
{
 // the first LED is made to blink one time
  digitalWrite(13, HIGH);
  delay(1000); // delay time in milliseconds
  digitalWrite(13, LOW);
  delay(1000);
  // the second LED will blink two times
  digitalWrite(8, HIGH);
  delay(500); // the duration is 0.5 seconds
  digitalWrite(8, LOW);
  delay(500);
  digitalWrite(8, HIGH);
  delay(500);
  digitalWrite(8, LOW);
  delay(500);
   // the third LED will blink three times
  for( int i = 0; i < 3; i = i +1 )
  {
  digitalWrite(4, HIGH);
  delay(500);
  digitalWrite(4, LOW);
  delay(500);
    // We can adjust the delay time accordingly
  }
}
```

Multiple LED blinking on the Arduino Uno



https://microdigisoft.com/multiple-blinking-led-on-the-arduino/


esc
UNO
DIGITAL
POWER
ANALOG IN

Code....

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```
int ledPins[] = {2,3,4,5,6};
  void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode(ledPins[0], OUTPUT);
  pinMode(ledPins[1], OUTPUT);
  pinMode(ledPins[2], OUTPUT);
  pinMode(ledPins[3], OUTPUT);
  pinMode(ledPins[4], OUTPUT);
}
// the loop function runs over and over again forever
void loop() {
  digitalWrite(ledPins[0], HIGH);  // turn ON the LED on in ascending
  delay(1000);
  digitalWrite(ledPins[1], HIGH);
  delay(1000);
  digitalWrite(ledPins[2], HIGH);
  delay(1000);
  digitalWrite(ledPins[3], HIGH);
  delay(1000);
  digitalWrite(ledPins[4], HIGH);
  delay(1000);
  digitalWrite(ledPins[4], LOW);// turn on the LED in descending
  delay(1000);
  digitalWrite(ledPins[3], LOW);
  delay(1000);
  digitalWrite(ledPins[2], LOW);
  delay(1000);
  digitalWrite(ledPins[1], LOW);
  delay(1000);
  digitalWrite(ledPins[0], LOW);
  delay(1000);// wait for one second
}
```

Thank You

For your attention