

EC2010-COMPUTER
PROGRAMMING
LAB-07(ARDUINO)

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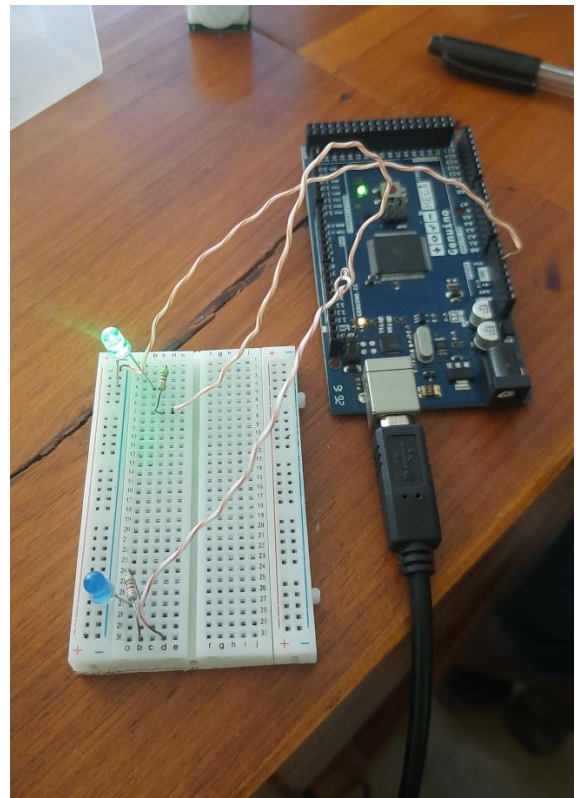
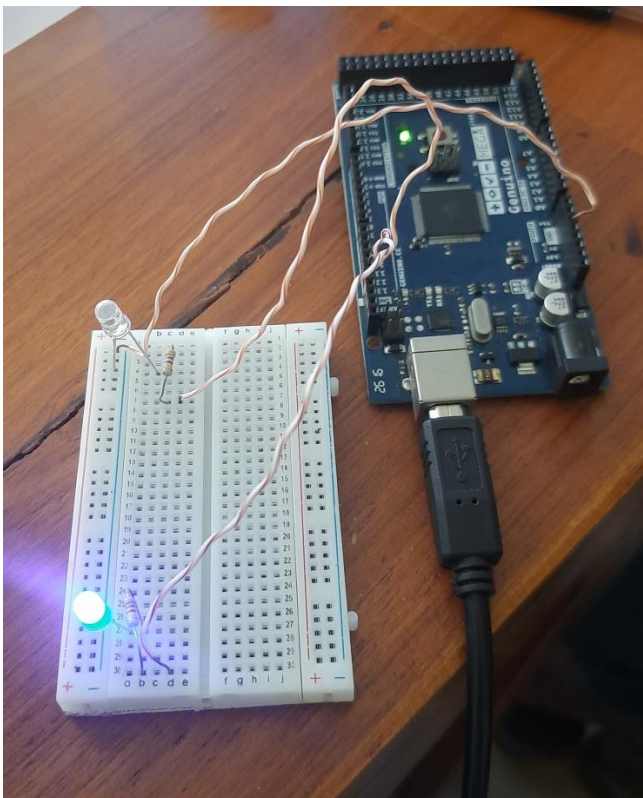
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EXERCISE 1: Connect 2 LEDs on Digital pin 12, 11 and program to blink them alternatively.

```
int ledPin1 = 13;
int ledPin2 = 12;
void setup() {
  pinMode(ledPin1, OUTPUT);
  pinMode(ledPin2, OUTPUT);
}

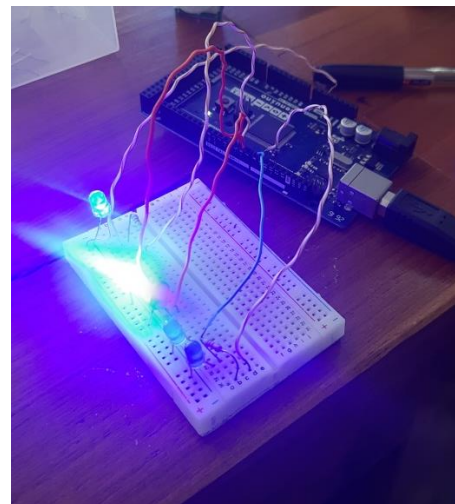
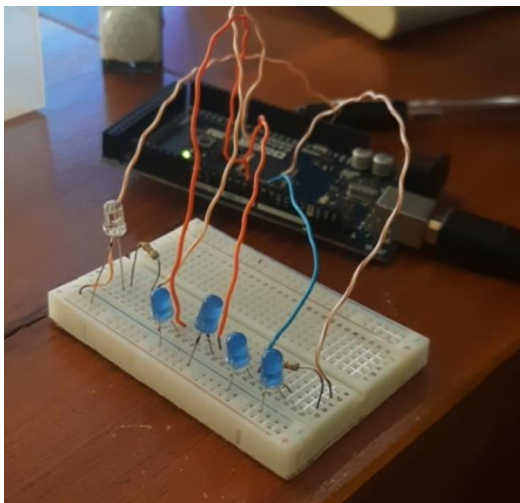
// the loop function runs over and over again forever
void loop() {
  digitalWrite(ledPin1, HIGH);
  delay(1000);
  digitalWrite(ledPin1, LOW);
  delay(1000);
  digitalWrite(ledPin2, HIGH);
  delay(1000);
  digitalWrite(ledPin2, LOW);
  delay(1000);
}
```



EXERCISE 2: Find the code below for the knight rider circuit. Reproduce the code in your editor and try to understand how this works. You will be evaluated based on your understanding.

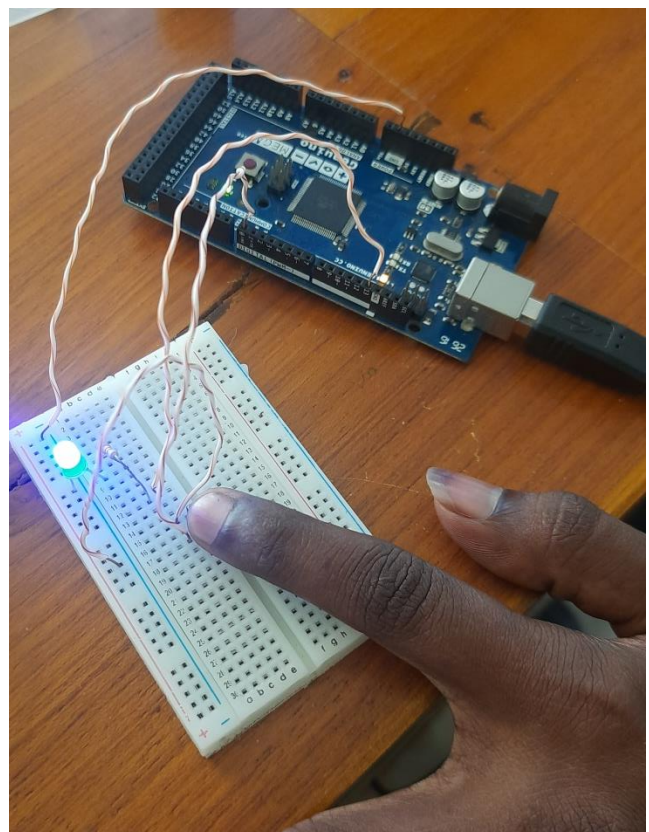
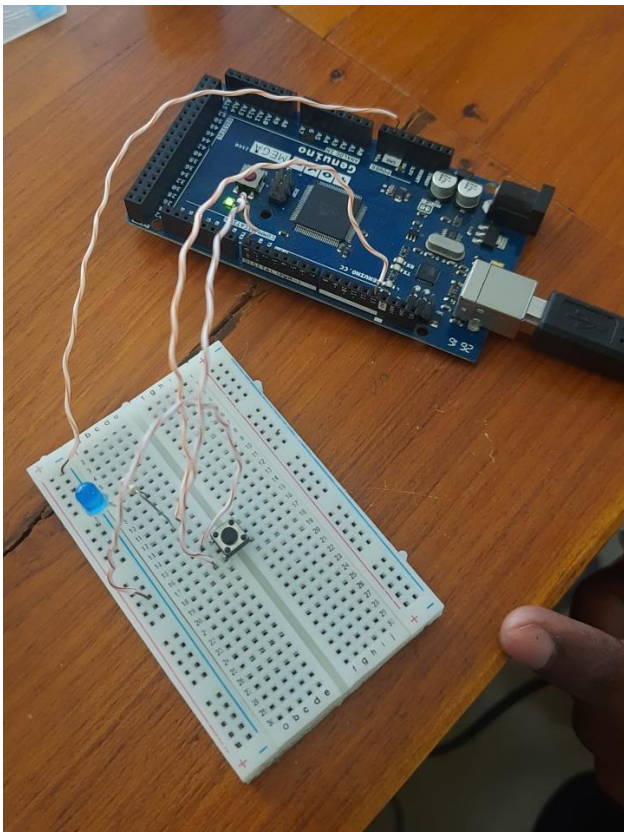
```
void setup()
{
  for(int i=2; i<14; i++)
  {
    pinMode(i, OUTPUT);
  }
}
void loop()
{
  for(int i=2; i<14; i++)
  {
    digitalWrite(i, HIGH);
    delay(20);
    digitalWrite(i+1, HIGH);
    delay(20);
    digitalWrite(i+2, HIGH);
    delay(20);
    digitalWrite(i, LOW);
    delay(20);
    digitalWrite(i+1, LOW);
  }

  for(int i=13; i>1; i--)
  {
    digitalWrite(i, HIGH);
    delay(20);
    digitalWrite(i-1, HIGH);
    delay(20);
    digitalWrite(i-2, HIGH);
    delay(20);
    digitalWrite(i, LOW);
    delay(20);
    digitalWrite(i-1, LOW);
  }
}
```



EXERCISE 3: Program to on-off led using a push button as a switch

```
int ledPin = 13; // choose the pin for the LED
int inPin = 0; // choose the input pin (for a pushbutton)
int val = 0; // variable for reading the pin status
void setup()
{
  pinMode(ledPin, OUTPUT); // declare LED as output.
  pinMode(inPin, INPUT); // declare pushbutton as input.
}
void loop()
{
  val = digitalRead(inPin); // read input value
  /* check if the input is HIGH (button released)*/
  if (val == HIGH){
    digitalWrite(ledPin, LOW); // turn LED OFF
  }
  else{
    digitalWrite(ledPin, HIGH); // turn LED ON
  }
}
```



EXERCISE 6: Design an Arduino circuit to Sense motion using PIR Sensor and light up an LED when motion detected.

```
int pirPin = 3;    // PIR sensor output pin
int ledPin = 11;   // LED pin

void setup() {
  pinMode(pirPin, INPUT);    // Set PIR pin as input
  pinMode(ledPin, OUTPUT);   // Set LED pin as output
  Serial.begin(9600);        // Initialize serial communication for debugging
}

void loop() {
  int motionState = digitalRead(pirPin); // Read PIR sensor state

  if (motionState == HIGH) {
    digitalWrite(ledPin, HIGH); // Turn on the LED when motion is detected
    Serial.println("Motion detected!");
    delay(1000); // You can adjust the delay based on your preference
  } else {
    digitalWrite(ledPin, LOW); // Turn off the LED when no motion is detected
  }
}
```

