LAB REPORT 1

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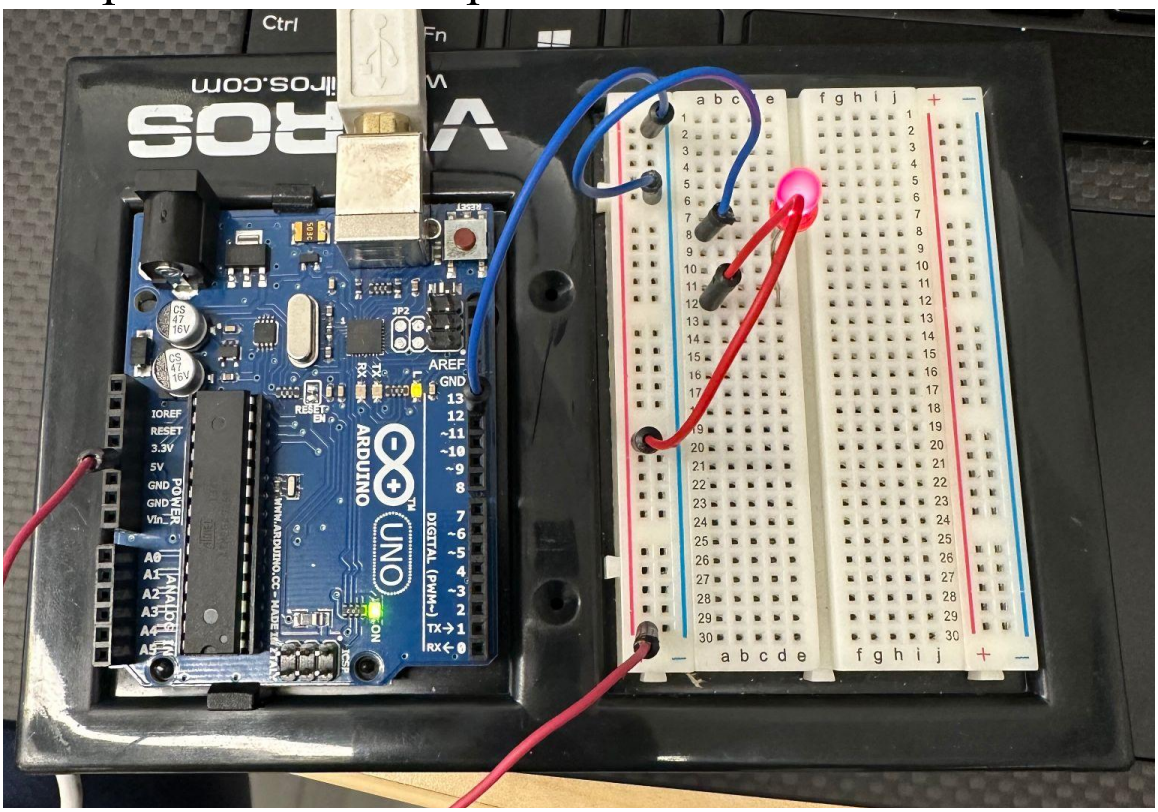
Components and Setup:



- Arduino and Breadboard Unit – This is how we make connections and control real world devices through code.
- LED – Stands for Light Emitting Diode. Can only be powered one way. I needed to use a resistor to lower the voltage that the LED was receiving.
- Wires – For creating connections between Arduino/breadboard/LED.

Summary:

- I first connected the LED to the board as shown above. This simple circuit is for the purpose of blinking an LED and I then altered the blink rate through changing the starting code. This was done by connecting a LED between pin 12 and power(5V) with the use of a breadboard and wires, making sure that the LED was connected in the correct orientation. Then, running the altered code and visually seeing the change in the blink rate of the LED.

Results:

- I completed the lab with little issue and saw the change in the blinking interval of the LED. I used serial monitor and got the expected output from this line of code: `Serial.println("Hello world. Watch me blink an LED.");`
  I placed this code in the setup section of the code as I only want it to run once. It functioned correctly and displayed the code once and then blinked the LED. The altered code can be found at the end of this report, but for context this was very simply done through changing the `delay(1000);` to `delay(500);` on the line after `digitalWrite(12, HIGH);`. Initially I had to change the pin to pin 12 through the `pinMode(12, OUTPUT)` line. All this does is state what the purpose of a pin is on the Arduino Uno. Once those changes were done to the initial code I ran the program and saw the LED blink at the interval expected.

Conclusions:

- I encountered 2 errors in the procedure:
  - Compilation error: stray '\342' – This is an interesting error that often comes from when a line of code is copied from plain text.
  - Plugged into GND port on accident instead of Port 12 – This just caused a slight issue where the LED was constantly on rather than blinking as it should if it were connected to pin 12.

Code:

```
/*
  Blink

  Turns an LED on for one second, then off for one second, repeatedly.

  Most Arduinos have an on-board LED you can control. On the UNO, MEGA and ZERO
  it is attached to digital pin 13, on MKR1000 on pin 6. LED_BUILTIN is set to
  the correct LED pin independent of which board is used.
  If you want to know what pin the on-board LED is connected to on your Arduino
  model, check the Technical Specs of your board at:
  https://www.arduino.cc/en/Main/Products

  modified 8 May 2014
  by Scott Fitzgerald
  modified 2 Sep 2016
  by Arturo Guadalupi
  modified 8 Sep 2016
```

```
  by Colby Newman

  This example code is in the public domain.

  https://www.arduino.cc/en/Tutorial/BuiltInExamples/Blink
*/

// the setup function runs once when you press reset or power the board
void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  Serial.begin(9600);
  Serial.println("Hello world. Watch me blink an LED.");
  pinMode(12, OUTPUT);
}

// the loop function runs over and over again forever
void loop() {
  digitalWrite(12, HIGH);   // turn the LED on (HIGH is the voltage level)
  delay(500);                       // wait for a second
  digitalWrite(12, LOW);    // turn the LED off by making the voltage LOW
  delay(1000);                      // wait for a second
}
```