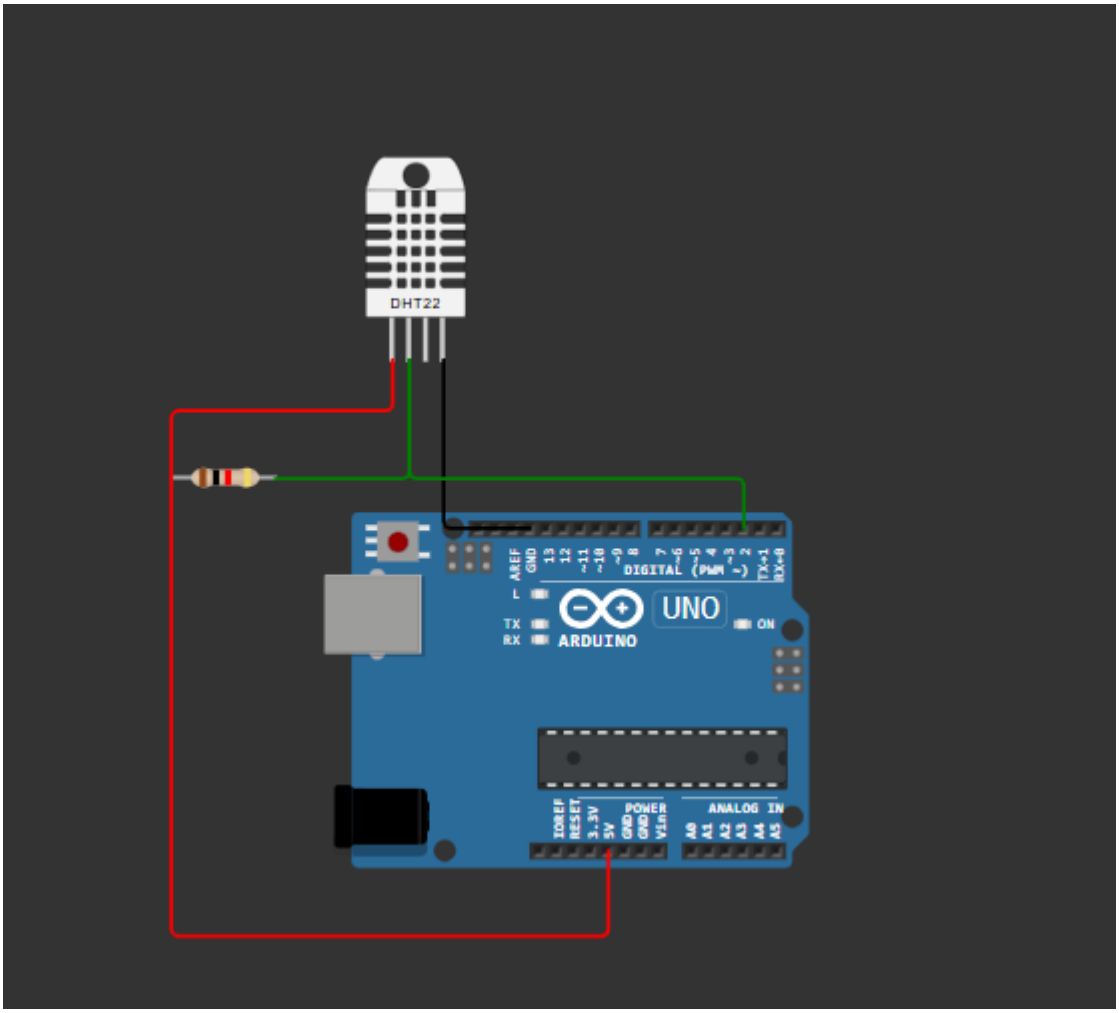
Experiment 10

Write a program so it displays the temperature in Fahrenheit as well as the maximum and minimum temperatures it has seen

```
#include <DHT.h>

const int dhtPin = 2;
const int dhtType = DHT11;  // DHT sensor type

DHT dht(dhtPin, dhtType);

float currentTemp;
float maxTemp = -100.0;  // Initialize to a very low value
float minTemp = 150.0;   // Initialize to a very high value

void setup() {
  Serial.begin(9600);
  dht.begin();
  Serial.println("DHT11 Temperature Monitor");
  Serial.println("------------------------");
  delay(1000);
}

void loop() {
  delay(2000);
  float tempC = dht.readTemperature();

  if (isnan(tempC)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }
  currentTemp = (tempC * 9.0 / 5.0) + 32.0;

  if (currentTemp > maxTemp) {
    maxTemp = currentTemp;
  }
  if (currentTemp < minTemp) {
    minTemp = currentTemp;
  }
  Serial.print("Current: ");
  Serial.print(currentTemp, 1);
  Serial.print(" F | Min: ");
  Serial.print(minTemp, 1);
```

```
  Serial.print(" F | Max: ");
  Serial.print(maxTemp, 1);
  Serial.println(" F");
}
```



Experiment 11

Write a program, read the temperature sensor and send the values to the serial monitor on the computer

```
#include <DHT.h>

const int dhtPin = 2;
const int dhtType = DHT11;  // DHT sensor type

DHT dht(dhtPin, dhtType);

void setup() {
  Serial.begin(9600);
  dht.begin();
  Serial.println("DHT11 Temperature Monitor");
  Serial.println("------------------------");
  delay(1000);
}

void loop() {
  delay(2000);
  float tempC = dht.readTemperature();
  if (isnan(tempC)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }
  Serial.print("Current Temperature: ");
  Serial.print(tempC, 1);
  Serial.println(" C");
}
```

Experiment 12

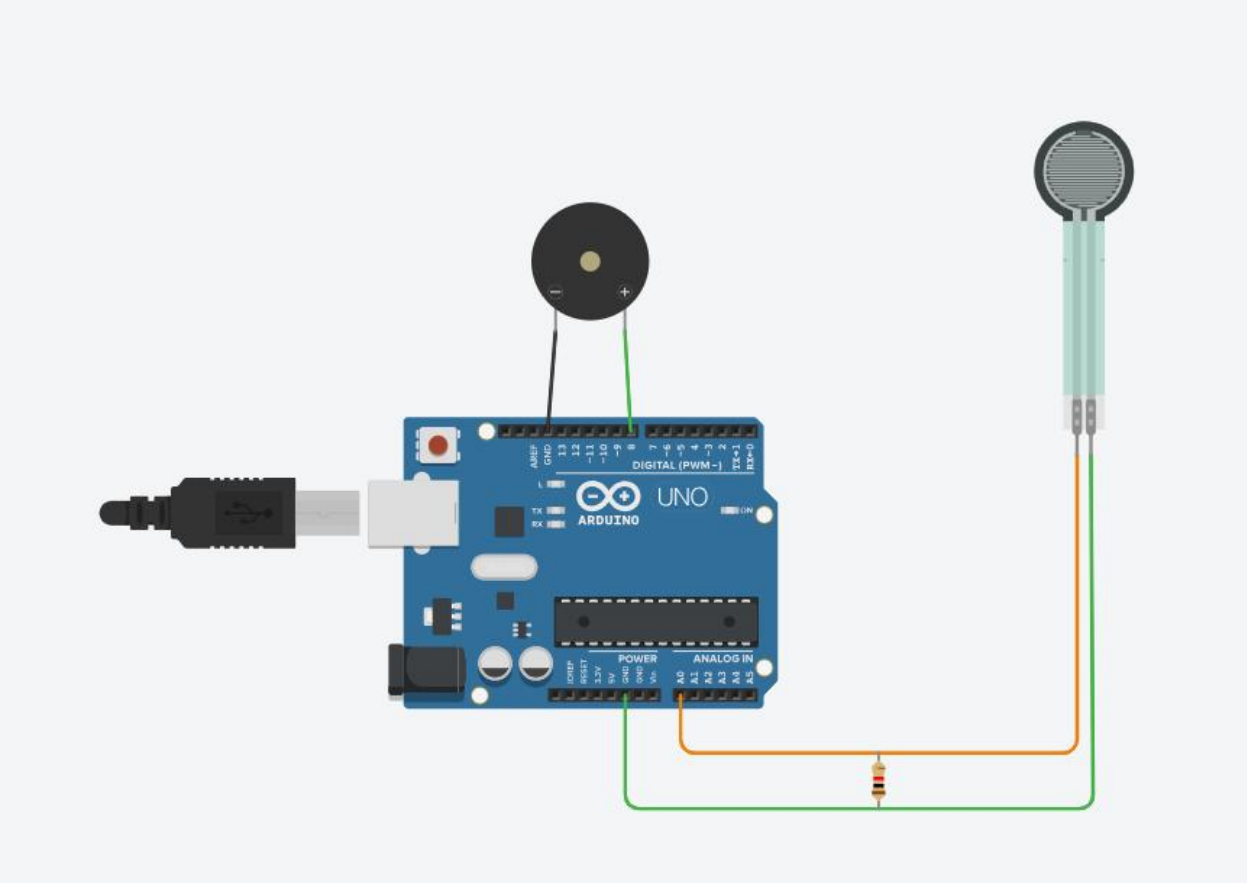
Write a program to show the temperature and shows a graph of the recent measurements

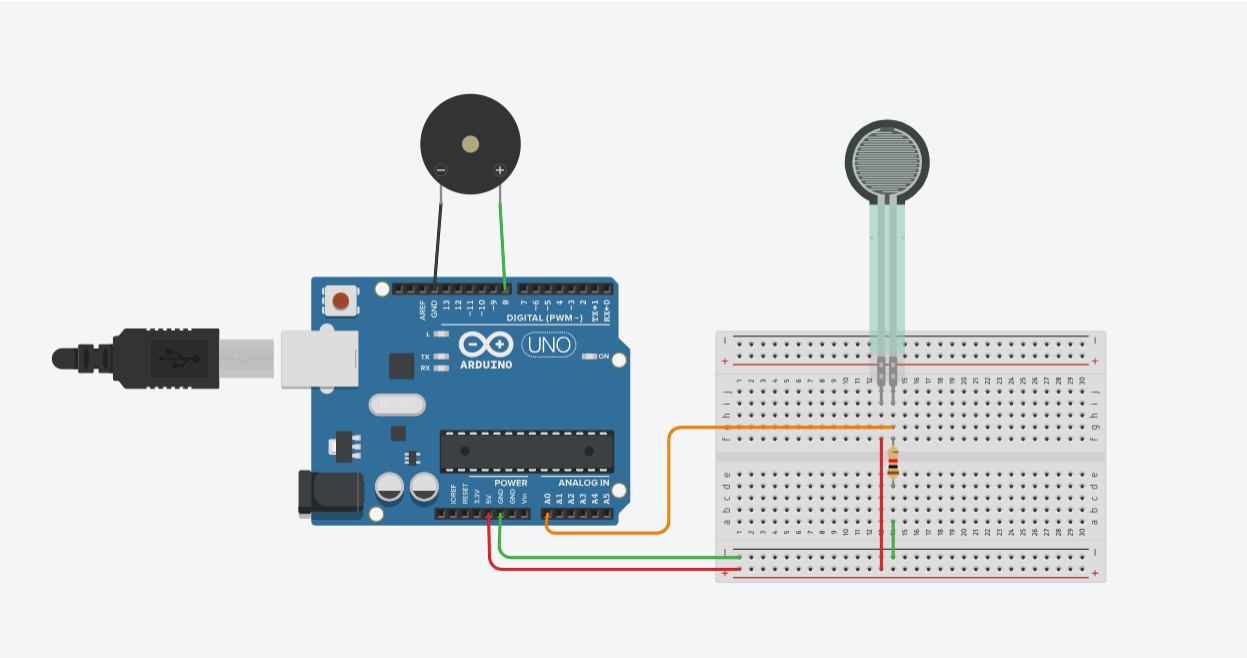
```
#include <DHT.h>

const int dhtPin = 2;
const int dhtType = DHT11;  // DHT sensor type

DHT dht(dhtPin, dhtType);

void setup() {
  Serial.begin(9600);
  dht.begin();
  Serial.println("DHT11 Temperature Monitor");
  Serial.println("------------------------");
  delay(1000);
}

void loop() {
  delay(2000);
  float tempC = dht.readTemperature();
  if (isnan(tempC)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }
  Serial.println(tempC, 1);
}
```

Practical 13

Write a program using piezo element and use it to play a tune after someone knocks

```
const int knockSensorPin = A0;
const int buzzerPin = 8;
const int threshold = 100;

const int tuneNotes[] = {100, 200, 300, 400, 500};
const int noteCount = 5;
const int noteDuration = 150;

void setup() {
  pinMode(knockSensorPin, INPUT);
  pinMode(buzzerPin, OUTPUT);
  Serial.begin(9600);
}

void loop() {
  int sensorValue = analogRead(knockSensorPin);
  Serial.println(sensorValue);


  if (sensorValue >= threshold) {

    for (int i = 0; i < noteCount; i++) {
      tone(buzzerPin, tuneNotes[i], noteDuration);
      delay(noteDuration + 30);
    }

    delay(500);
  }

  delay(10);
}
```


DIGITAL (PWM~)
UNO
ARDUINO
POWER
ANALOG IN


DIGITAL (PWM~)
UNO
ARDUINO
POWER
ANALOG IN