Lights and Analog Dial

Code Walkthrough

Code Color Guide

Keyword Function Built-In Function Comments

Define Pins

Start by defining your pins so that they will not mixed up. This also allows for us to use this definition in the remainder of the code.

```
#define blue 10 // blue LED is pin 10
#define yellow 12 // yellow LED is pin 12
#define green 11 // green LED is pin 11
#define red 13 // red LED is pin 13
```

Set Integers

The keyword int is a declaration of a variable whose datatype is an integer.

```
int dial = 0; // initial dial speed is 0
int speed = 50; // sets the delay time
const int buttonPin = 9; // dial will always be pin 9
```

Define Bool

Bool is a declaration of true or false.

```
bool buttonState = 0; // sets the buttonState to false
bool lastState = 0; // sets the lastState to false
```

Void Setup

The void setup runs one time as soon as the program starts

```
void setup() {
  Serial.begin(9600); // port for the serial monitor
  pinMode(blue, OUTPUT); // sets LED to an output
  pinMode(red, OUTPUT);
  pinMode(green, OUTPUT);
  pinMode(yellow, OUTPUT);
  pinMode(buttonPin, INPUT); // sets dial to an input
}
```

Void Loop

Runs in a constant loop

```
void loop() {
 // buttonState reads to see if button pin is set to true or false
  buttonState = digitalRead(buttonPin);
  dial = analogRead(0); // reads the value of the dial on analog pin 0
  Serial.println(dial); // prints the analogRead value to serial monitor
  if (dial < 256) {// when the dial value is less the 256 it runLights case 0
    runLights(0);
  } else if (dial < 512) {// when the dial value is less the 512 it runLights case 1
```

```
    runLights(1);
  }
  else if (dial < 768) {// when the dial value is less the 768 it runLights case 2
    runLights(2);
  }
  else {// when the dial value is anything else it runLights case 3
    runLights(3);
  }
}
```

Void runLights

A function that holds the cases

```
void runLights(int c) {
  switch (c) {
    case 0: // one pattern of blinking lights
      digitalWrite(blue, HIGH); // turns light off
      delay(speed); // reads the int speed to change the delay
      digitalWrite(blue, LOW); // turns light off
      Serial.println("blue"); // prints blue to the serial monitor when done

      digitalWrite(yellow, HIGH);
      delay(speed);
      digitalWrite(yellow, LOW);
      Serial.println("yellow");

      digitalWrite(green, HIGH);
      delay(speed);
      digitalWrite(green, LOW);
      Serial.println("green");

      digitalWrite(red, HIGH);
      delay(speed);
      digitalWrite(red, LOW);
      Serial.println("red");
      break; // changes to next pattern

    case 1: // second pattern of blinking lights
      digitalWrite(green, HIGH);
      delay(speed);
      digitalWrite(green, LOW);

      digitalWrite(yellow, HIGH);
      delay(speed);
      digitalWrite(yellow, LOW);

      digitalWrite(blue, HIGH);
      delay(speed);
      digitalWrite(blue, LOW);

      digitalWrite(red, HIGH);
      delay(speed);
      digitalWrite(red, LOW);
      break; // changes to next pattern

    case 2: // third pattern of blinking lights
      digitalWrite(yellow, HIGH);
      delay(speed);
      digitalWrite(yellow, LOW);

      digitalWrite(red, HIGH);
```

```
      delay(speed);
      digitalWrite(red, LOW);

      digitalWrite(green, HIGH);
      delay(speed);
      digitalWrite(green, LOW);

      digitalWrite(blue, HIGH);
      delay(speed);
      digitalWrite(blue, LOW);
      break; // changes to next pattern

    case 3:// turns off
      break;
  }
}
```