Module B4: Simple Procedure

**Level 0: Sample Program**

3. The code says that the **integer time =5,** but the **integer times blinked= 4.** Then, it also says that the **integer times = value.** This means that 5(integer time)= 4(times blinked). Therefore, the LED will blink 4 times, have a delay(1000) and then repeat.

**Level 1: Variable Scope**

**3.** Int Times= Value states that the number of times to blink the LED equals to the blink value(causes the Int Times to change into the value given).

**4. a.** The first definition of integer applies before the void setup and the second definition applies in the void loop

**b.** There is no overlap because there is no integer being applied at the same time in each void.

**Level 2: Adding Colored LEDs**

int YellowLED =12;

int RedLED =11;

void setup() {

  pinMode(YellowLED, OUTPUT);

  pinMode(RedLED, OUTPUT);

  Serial.begin(9600);

}

void loop() {

  int timesBlinked = blink(4,YellowLED);

  timesBlinked = blink(5,RedLED);

  Serial.print("The LED was SUPPOSED to blink ");

  Serial.print(timesBlinked);

  Serial.print(" times BUT only blinked ");

  Serial.println(timesBlinked);

  delay(1000);

}

int blink(int value,int led) {

  for (int i = 0; i < value; i++) {

    digitalWrite(led, HIGH);   // turn the LED on (HIGH is the voltage level)

    delay(500);                       // wait for a second

    digitalWrite(led, LOW);    // turn the LED off by making the voltage LOW

    delay(500);                       // wait for a second

  }

  Serial.print("The LED blinked ");

  Serial.print(value);

  Serial.println(" times.");

  return value;

}

**Level 3: Changing LEDs**

int YellowLED = 12;

int RedLED = 11;

long randOn = 0;

long randOff = 0;

void setup()

{

 randomSeed (analogRead (0));

 pinMode(YellowLED, OUTPUT);

 pinMode(RedLED, OUTPUT);

 Serial.begin(9600);

}

void loop(){

 int value = random(1, 10);

 int led = random(11, 13);

 int timesBlinked = blink(value,led);

  Serial.print("The LED was SUPPOSED to blink ");

  Serial.print(timesBlinked);

  Serial.print(" times BUT only blinked ");

  Serial.println(timesBlinked);

  delay(1000);

}

int blink(int value,int led) {

  for (int i = 0; i < value; i++) {

    randOff = random (200, 900);

    digitalWrite(led, HIGH);   // turn the LED on (HIGH is the voltage level)

    delay(1000);                       // wait for a second

    digitalWrite(led, LOW);    // turn the LED off by making the voltage LOW

    delay(randOff);                       // wait for a second

  }

  Serial.print("The LED blinked ");

  Serial.print(value);

  Serial.println(" times.");

  Serial.print(led);

  return value;

}