

NAME: Ali Salman Hassan.

S-ID: 63758.

C-ID: 105139.

Q) Connect potentiometer and 6 to 8 leds of different colors with arduino. Read potentiometer value and map it to the range of 0 to your birthday number by adding zero in last.(for example if my birthday is on 23 Jan so may mapped range will be from 0 to 230 taking 23 and adding zero in last). Now when the mapped value is from zero to the mid range then all leds start blinking and when mapped value is between mid range to max value then leds start blinking randomly. (for example my mapped range is 0- 230 so from 0 to $230/2=115$ all leds will blink in this range and if mapped value is more then 115 leds start blinking randomly) Note: Use array to declare led pins as an output. Show the original value and mapped value on Serial monitor(paste a screen shot of serial monitor). Write down your date of birth in the start of your code as comment. Use arduino random function for blinking led randomly.

```
//15thDec1999
```

```
int leds[] = {13,12,11,10,9,8};
```

```
int ledsCount = 6;
```

```
int red = leds[0];
```

```
int white = leds[1];
```

```
int blue = leds[2];
```

```
int orange = leds[3];
```

```
int yellow = leds[4];
```

```
int green = leds[5];
```

```
void setup()
```

```
{
```

```
pinMode(A0, INPUT);
```

```
Serial.begin(9600);
```

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```
for (int i = 0; i < ledsCount; i++) {
```

```
    pinMode(leds[i], OUTPUT);
```

```
}
```

```
}
```

```
void loop()
```

```
{
```

```
    int a;
```

```
    a = analogRead(A0);
```

```
    int b = map(a,0,1023,0,150);
```

```
    Serial.print("Original Value Is ");
```

```
    Serial.print(a);
```

```
    Serial.print(" , ");
```

```
    Serial.print(" Mapped Value Is ");
```

```
    Serial.println(b);
```

```
    if(b >= 0 && b <= 75)
```

```
    {
```

```
        digitalWrite(red,HIGH);
```

```
        digitalWrite(white,HIGH);
```

```
        digitalWrite(blue,HIGH);
```

```
        digitalWrite(orange,HIGH);
```

```
        digitalWrite(yellow,HIGH);
```

```
        digitalWrite(green,HIGH);
```

```
        delay(500);
```

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```
    digitalWrite(red,LOW);
    digitalWrite(white,LOW);
    digitalWrite(blue,LOW);
    digitalWrite(orange,LOW);
    digitalWrite(yellow,LOW);
    digitalWrite(green,LOW);
    delay(500);

}

if(b > 75 && b <= 150)
{

    digitalWrite(leds[random(0,sizeof(leds)/sizeof(int))],HIGH);
    delay(100);
    digitalWrite(leds[random(0,sizeof(leds)/sizeof(int))],LOW);

}

}
```

Q1) What is the difference between digitalWrite() and analogWrite() ?

ANSWER:

digitalWrite() sets the pin to an high or low value until digitalWrite() is called for that pin again whereas analogWrite() sets the pin to have an oscillating value which has a pulse length based of the duty cycle.

Q2) In the following statement, what does the 1000 stand for: delay(1000);

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It means it will delay or block the program(wait) for 1 second to execute the next instruction. It's like waiting command comparing to other languages.

Q3) What is wrong with the following:

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

```
int led = 13;

void setup() {
  pinMode(led, INPUT);
}

void loop() {
  digitalWrite(led,HIGH);
  delay(1000);
  digitalWrite(led, LOW);
  delay(1000);
}
```

ANSWER:

Simply replace third line “pinMode(led, INPUT);” with “pinMode(led, OUTPUT);”. The problem was that we were taking LED as an INPUT which is not possible, we can only use LED to show OUTPUT.