ARDUINO WORKSHEET

Write the command line which sets 5th digital pin to Logic 1.

```
AnalogWrite (5,255);
```

// or

```
AnalogWrite (5,HIGH);
```

What is the maximum rating for per-pin current of Arduino?

40mA

Write the command line which indicates 9th pin will be used to write.

```
pinMode (9,OUTPUT);
```

Write the command line which lits the LED connected to 5th pin.

```
Digitalwrite (5,HIGH);
```

Write the command line which makes 2.5 sec delay.

```
delay (2500);
```

What does below program make?

```
 int sensorPin = 0;
 int ledPin = 13;
 int sensorValue = 0;
 void setup() {
     pinMode(ledPin, OUTPUT);
 }
 void loop()
{
      sensorValue = analogRead(sensorPin);
      digitalWrite(ledPin, HIGH);
      delay(sensorValue);
      digitalWrite(ledPin, LOW);
      delay(sensorValue);
 }
```

The amount of time the LED will be on and off depends on the value obtained from analog input.

Write the command line which lits the LED connected 8th pin if variable X is less than 15 and lits LED connected 7th pin if variable X is greater or equal 15.

```
If (sayi<15) digitalWrite(8,HIGH);  else digitalWrite(7,HIGH);
```

Write the command line which defines seven LEDs connected to pins 4,5,6,7,8,9,10 in array structure.

```
int ledpins[]={4,5,6,7,8,9,10};
```

Write the command line which unlits eight LEDs by one by starting from the end

```
for (int i=7; i>=0; i--) digitalWrite(ledpins[i],LOW);
```

Write the command line which generates a random number and lits the LED connected 3rd pin if number is even, otherwise unlits LED connected 3rd pin

```
number=random();
if (number%2 == 0) digitalWrite(3,HIGH);
else digitalWrite(3,LOW);
```

According to commands below find d value if val is 360.

```
if(val < 170)                          d = 1;
        if(val >= 170) && (val < 340)  d = 2;
        if(val >= 340) && (val < 510)  d = 3;
        if(val >= 510) && (val < 680)  d = 4;
        if(val >= 680) && (val < 850)  d = 5;
```

How many push button would be used for commands below?

```
int buttondurum3 = digitalRead(pin_a);
int buttondurum4 = digitalRead(pin_b);
if (buttondurum3 == HIGH)
      LEDdurum = HIGH;
if (buttondurum4 == HIGH)
      LEDdurum = LOW;
digitalWrite(pinLED1, LEDdurum);
```

Write the command line which scales analog value 0-1023 to percent range 0-100

```
val = map(val, 0, 1023, 0, 100);
```

What does below program make?

```
for (int val = 0; val <=255; val +=5) {analogWrite (ledpin, val);
delay(2);
}
```

It increases the brightness of LED in every 2ms.

What does below program make?

```
if(tempC > 30)
 {
   digitalWrite(ledpin, HIGH);
delay(200); }
else
{
  digitalWrite(ledpin, LOW);
  delay(1000);
}
```

If temperature is higher than 30, lits the LED for every 200 ms, otherwise lits for every 1000ms.

A system consists of 5 LEDs and a potentiometer. Write the Arduino IDE sketch according to application below.

If value of potentiometer is 0-200 (including 200) → Lits 1st LED

If value of potentiometer is 200-400 (including 400) → Lits 2nd LED

If value of potentiometer is 400-600 (including 600) → Lits 3rd LED

If value of potentiometer is 600-800 (including 800) → Lits 4th LED

If value of of potentiometer is 800-1000 (including 1000) → Lits 5h LED

```
int analog = A2;
int led[] = {3,4,5,6,7,8};
int pot = 0;

void setup(){
  for(int i= 1; i < 6 ; i++){
    pinMode(led[i], OUTPUT);
 }
  Serial.begin(9600);
}
void loop(){
  pot = 0;
  pot = analogRead(analog);
  if(pot>= 0 && pot <= 200 ){
    digitalWrite(led[1],HIGH);
    digitalWrite(led[2],LOW);
    digitalWrite(led[3],LOW);
    digitalWrite(led[4],LOW);
    digitalWrite(led[5],LOW);
  }
else if(pot <= 400 && pot > 200){
    digitalWrite(led[1],LOW);
    digitalWrite(led[2],HIGH);
    digitalWrite(led[3],LOW);
    digitalWrite(led[4],LOW);
    digitalWrite(led[5],LOW);
```

```
  }
else if(pot <= 600 && pot > 400){
    digitalWrite(led[1],LOW);
    digitalWrite(led[2],LOW);
    digitalWrite(led[3],HIGH);
    digitalWrite(led[4],LOW);
    digitalWrite(led[5],LOW);
  }
else if(pot<= 800 && pot > 600){
    digitalWrite(led[1],LOW);
    digitalWrite(led[2],LOW);
    digitalWrite(led[3],LOW);
    digitalWrite(led[4],HIGH);
    digitalWrite(led[5],LOW);
  }
else if(pot <=1000 && pot > 800){
    digitalWrite(led[1],LOW);
    digitalWrite(led[2],LOW);
    digitalWrite(led[3],LOW);
    digitalWrite(led[4],LOW);
    digitalWrite(led[5],HIGH);
  }
 Serial.println(pot);
delay(100);
}
```

A system consists of two LEDs, one of is green and one of is red. Write the Arduino IDE sketch which provides to unlit one of the LED and lit the other for each keystroke.

```
int buttonPin=2;
int greenLED=9;
int redLED=10;
boolean state;

void setup(){
  pinMode(buttonPin, INPUT);
  pinMode(greenLED, OUTPUT);
  pinMode(redLED, OUTPUT);
  boolean state = HIGH;
}

void loop(){
  if (digitalRead(buttonPin)==HIGH){
    digitalWrite(greenLED, state);
    digitalWrite(redLED, !state);
    state = !state;
    }
 }
```

In order to configure 12m range digitalmeter which is potentiometer controlled write the Arduino IDE sketch that lits 12 of LEDs one by one for every variation of distance.

```
int potPin = 0;
int i = 0;

void setup()
{
  pinMode(1, OUTPUT);
  pinMode(2, OUTPUT);
  pinMode(3, OUTPUT);
  pinMode(4, OUTPUT);
  pinMode(5, OUTPUT);
  pinMode(6, OUTPUT);
  pinMode(7, OUTPUT);
  pinMode(8, OUTPUT);
  pinMode(9, OUTPUT);
  pinMode(10, OUTPUT);
  pinMode(11, OUTPUT);
  pinMode(12, OUTPUT);

}

void loop()
{
  for (i = 1; i<=12; i++);
  digitalWrite(i, LOW);

  int val = analogRead(potPin);
  int count = map(val, 0, 1023, 0, 12);

  for (i = 1; i<=12; i++)
  if (i<=count)
  {
    digitalWrite(i, HIGH);
  }
  else
  {
    digitalWrite(i, LOW);
  }


}
```