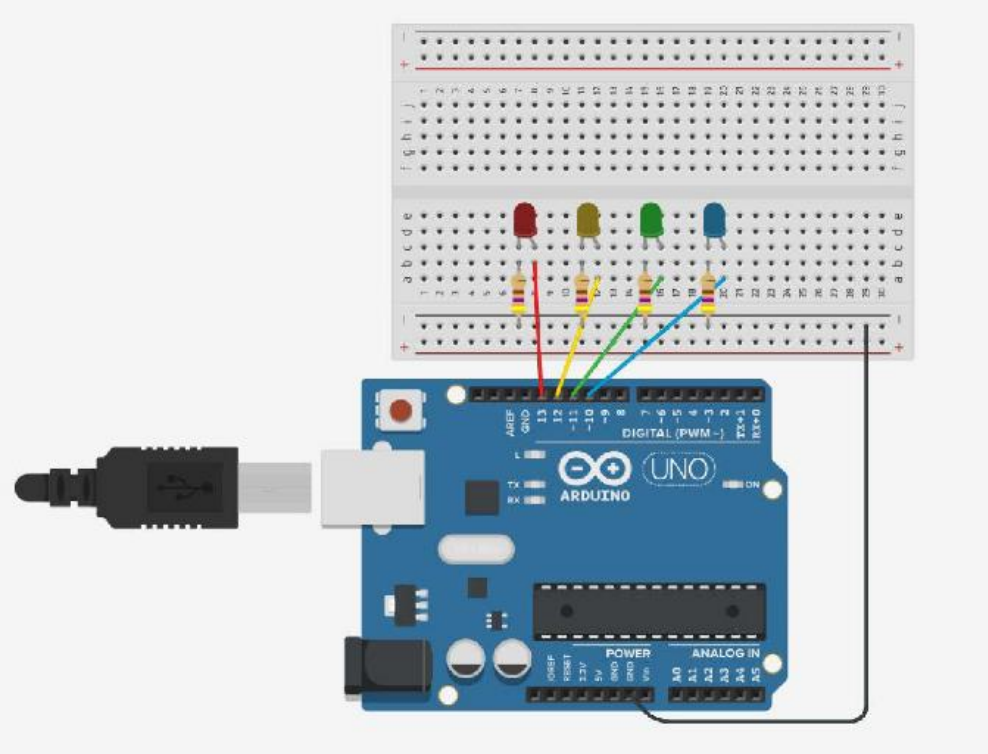
// Giuseppe Cordeiro
// 801779
// Ep03

Exercício 1



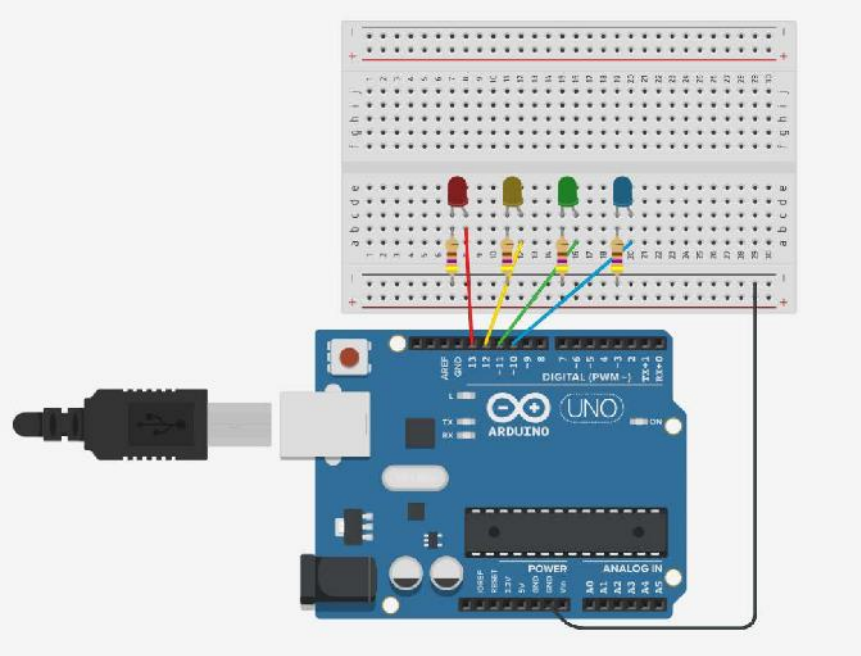
Programa

```
// definicao de pinos
int ledA      = 13;
int ledB      = 12;
int ledOutput = 11;
int ledCarry  = 10;

// prototipo de funcoes
char read      ( );
void turnOnOff ( int led, int value );
int  gate_xor  ( int a, int b );
int  gate_or   ( int a, int b );
int  gate_and  ( int a, int b );
int  gate_not  ( int a );

void setup ( )
{
    Serial.begin( 9600 );
    pinMode( ledA , OUTPUT );
    pinMode( ledB , OUTPUT );
    pinMode( ledOutput , OUTPUT );
    pinMode( ledCarry  , OUTPUT );
} // end setup ( )

void loop ( )
{
    if( Serial.available( ) >= 3 ) {
        int a  = read( );
        int b  = read( );
        int op = read( );

        int output = 0;
        int carry  = 0;

        switch ( op ) {
            case 0:
                output = gate_and( a, b );
                break;
            case 1:
                output = gate_or( a, b );
                break;
            case 2:
                output = gate_not( a );
                break;
            case 3:
                output = gate_xor( a, b );
                carry  = gate_and( a, b );
                break;
            default:
                Serial.print( "Operacao Invalida!" );
                break;
        } // end switch

        turnOnOff( ledA , a );
        turnOnOff( ledB , b );
        turnOnOff( ledOutput, output );
        turnOnOff( ledCarry , carry  );
    } // end if
} // end loop ( )
```

Exercício 2

ão realizada	Binário (A, B, OP.CODE)	Valor em Hexa	Resultado em Binario
,B)	0,1,00	0x4	0
)	1,0,01	0x9	1
A,B)	1,0,01	0xB	1
	0,0,10	0x2	1
A)	0,1,00	0x4	0

Circuito

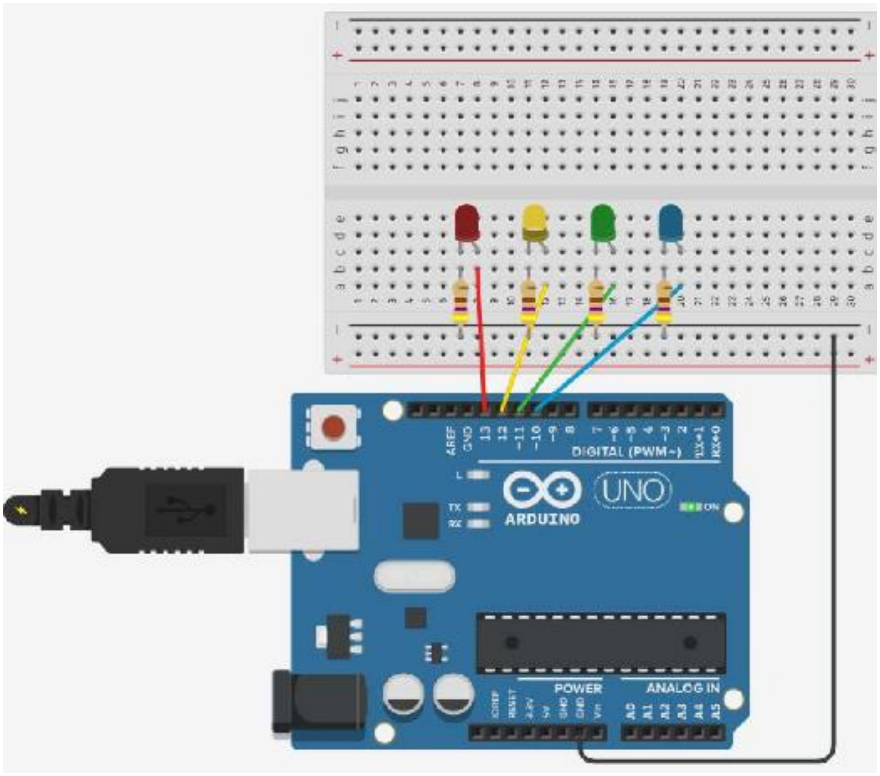


Programa

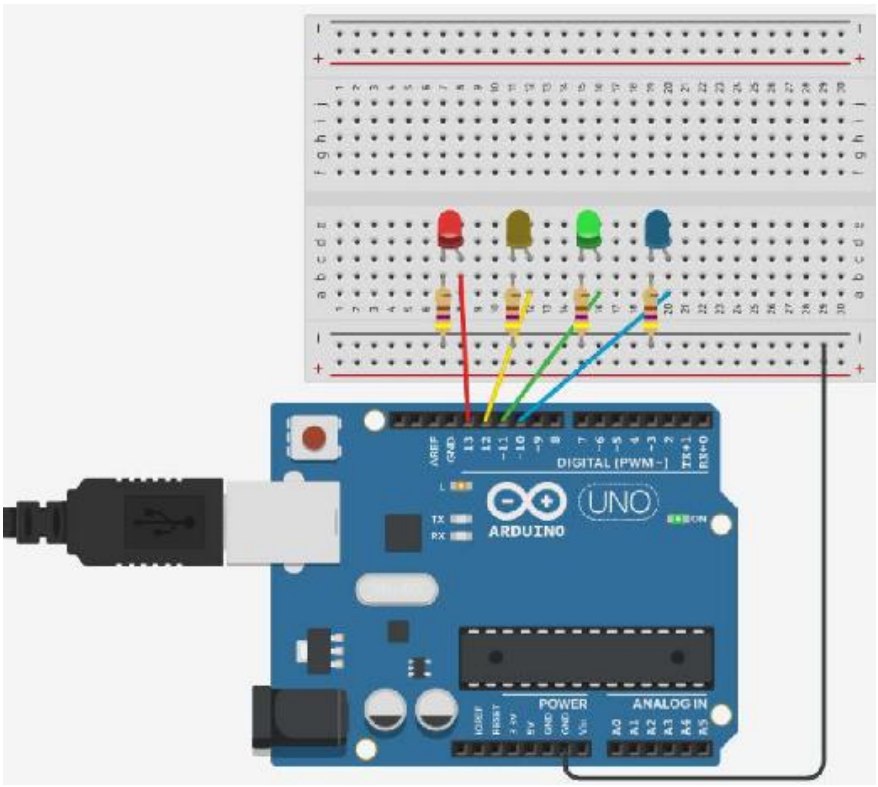
```
char read ( ) {
    return ( Serial.read( ) - '0' );
} // end read_int ( )

void turnOnOff ( int led, int value ) {
    digitalWrite( led, value );
} // end turnOnOff

int gate_xor ( int a, int b ) {
    return ( a^b );
} // end gate_xor ( )

int gate_or ( int a, int b ) {
    return ( a|b );
} // end gate_or ( )

int gate_and ( int a, int b ) {
    return ( a&b );
} // end gate_and ( )

int gate_not ( int a ) {
    return ( ~a );
} // end gate_not ( )
```

Testes

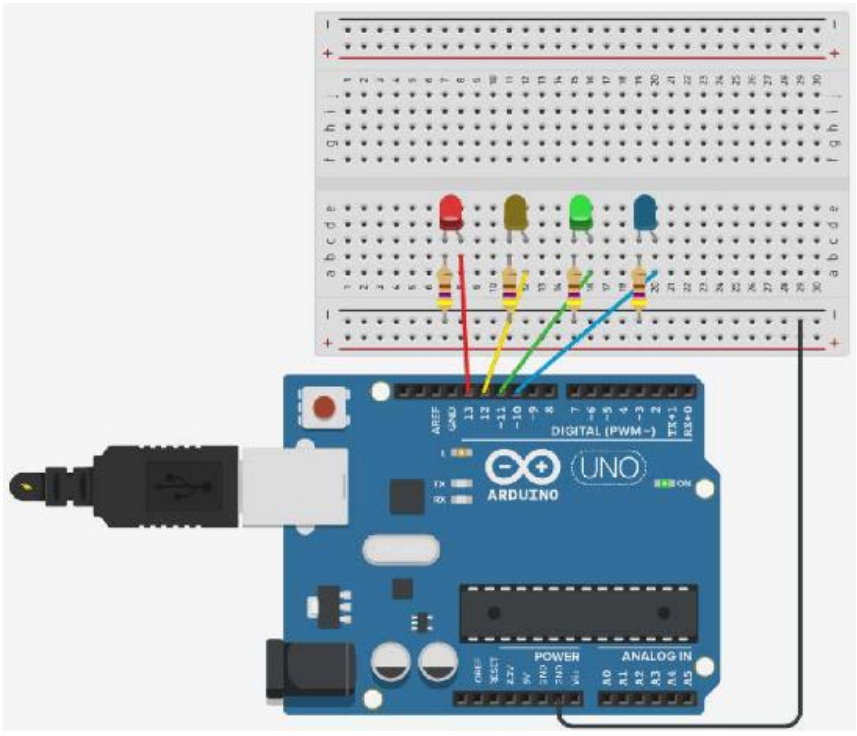
010:



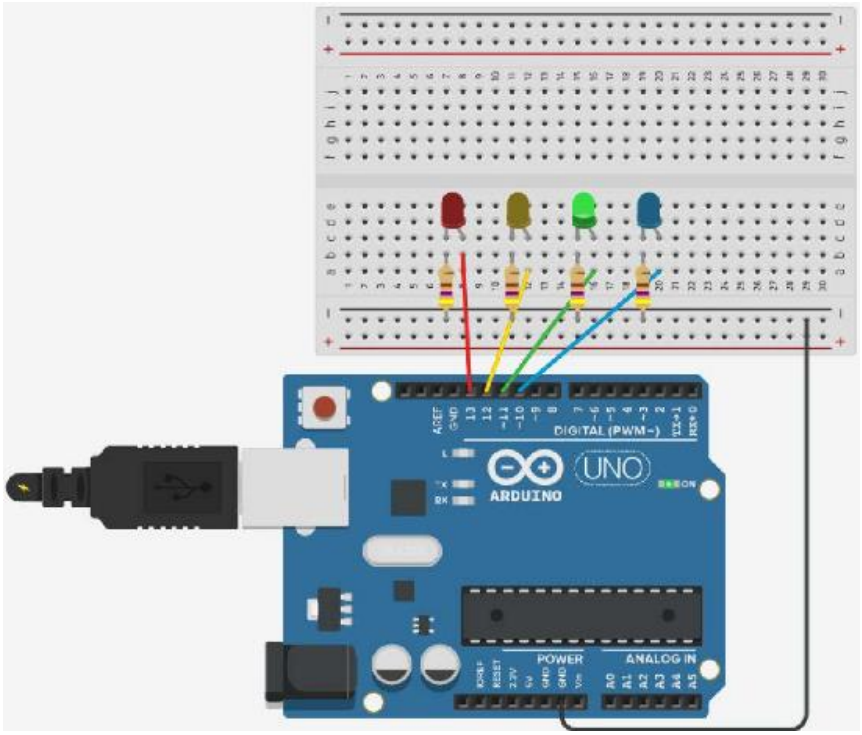
101:


DIGITAL (PWM~)
UNO
ARDUINO
POWER
ANALOG IN

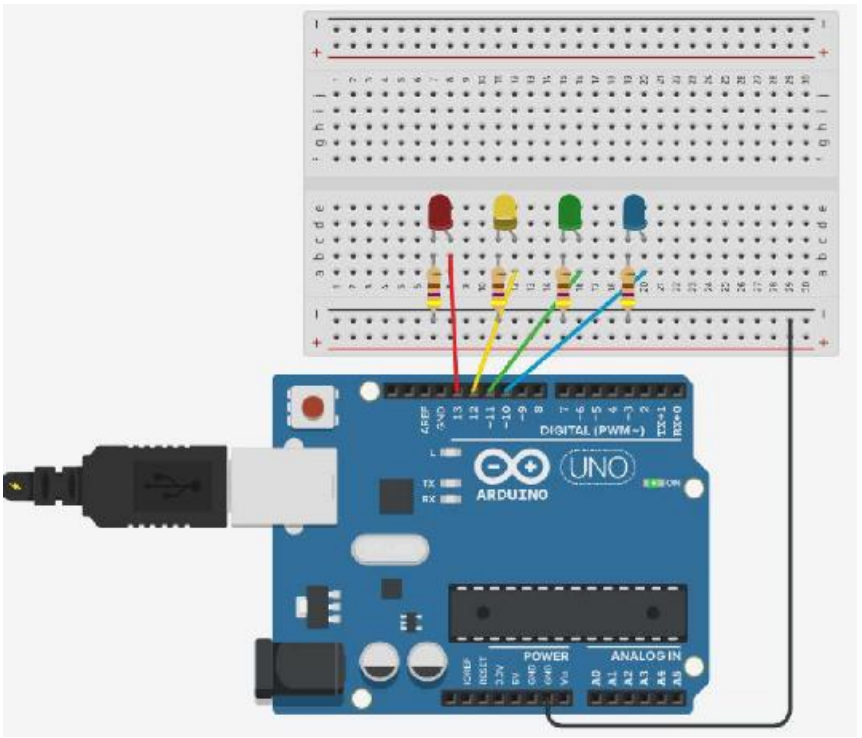
103:


DIGITAL (PWM~)
UNO
ARDUINO
POWER
ANALOG IN

002:


DIGITAL (PWM~)
UNO
ARDUINO
POWER
ANALOG IN

010:


DIGITAL (PWM~)
UNO
ARDUINO
POWER
ANALOG IN