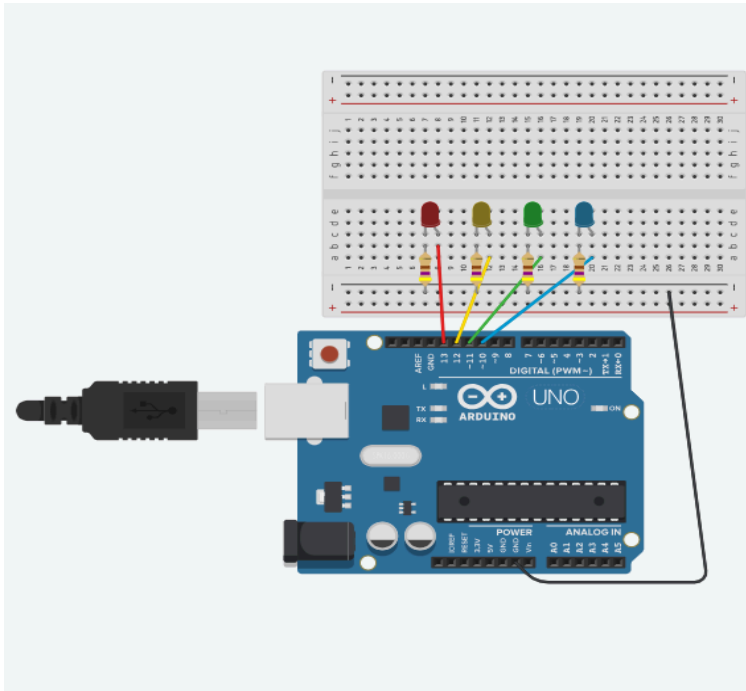
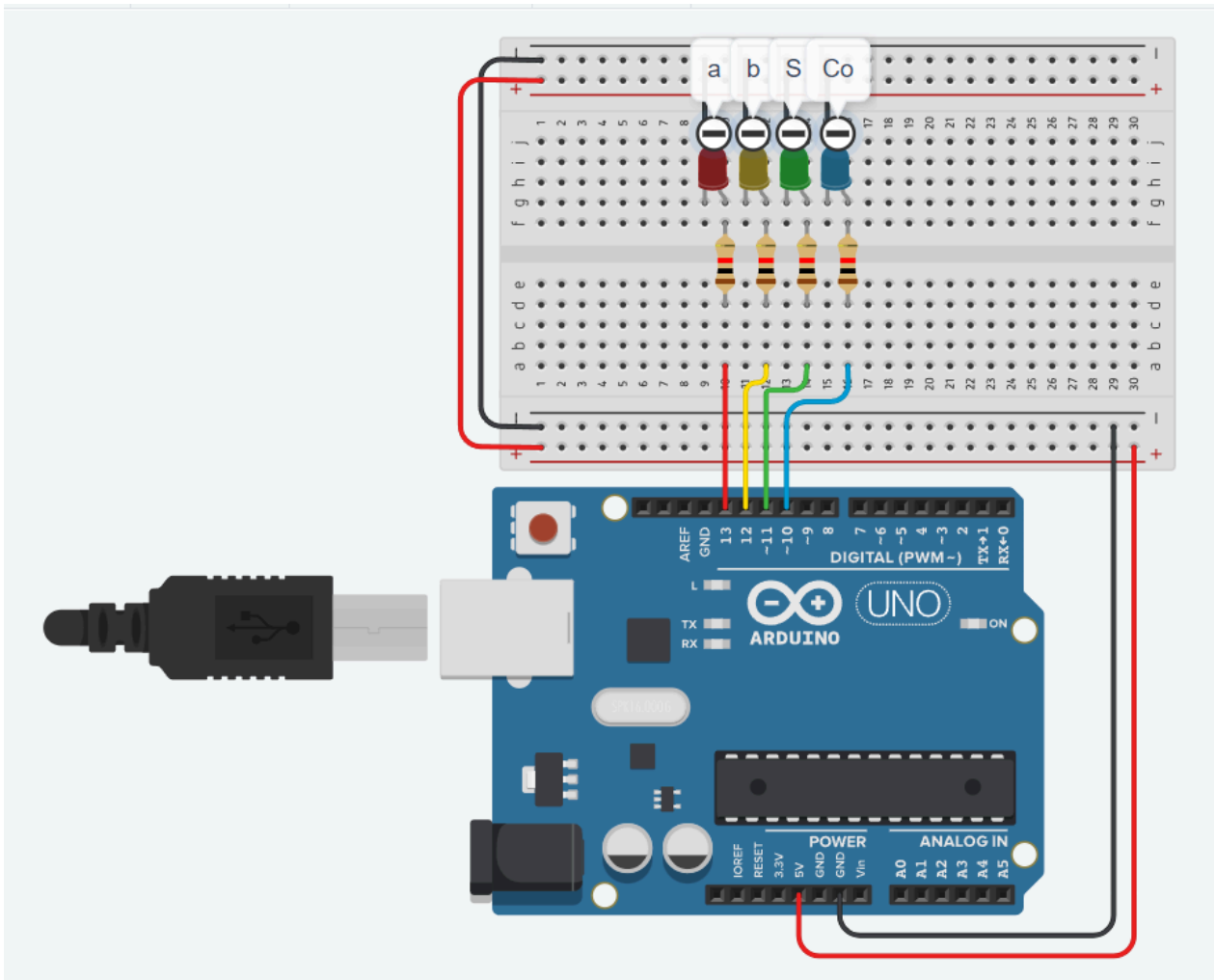


Exercício 1



```
23 void loop() {
24   digitalWrite(13,HIGH);
25   delay(500);
26   digitalWrite(10,HIGH);
27   delay(500);
28   digitalWrite(10,LOW);
29   delay(500);
30   digitalWrite(10,HIGH);
31   delay(500);
32   digitalWrite(10,LOW);
33   delay(500);
34   digitalWrite(10,HIGH);
35   delay(500);
36   digitalWrite(10,LOW);
37   digitalWrite(13,LOW);
38   digitalWrite(11,HIGH);
39   delay(500);
40   digitalWrite(10,HIGH);
41   delay(500);
42   digitalWrite(10,LOW);
43   delay(500);
44   digitalWrite(10,HIGH);
45   delay(500);
46   digitalWrite(10,LOW);
47   delay(500);
48   digitalWrite(10,HIGH);
49   delay(500);
50   digitalWrite(10,LOW);
51   delay(500);
52   digitalWrite(10,HIGH);
53   delay(500);
54   digitalWrite(10,LOW);
55   digitalWrite(11,LOW);
56   digitalWrite(12,HIGH);
57   delay(500);
58   digitalWrite(10,HIGH);
59   delay(500);
60   digitalWrite(10,LOW);
61   delay(500);
62   digitalWrite(10,HIGH);
63   delay(500);
64   digitalWrite(10,LOW);
65   digitalWrite(12,LOW);
66 }
67
```

Exercício 2  
Montagem



## Programa

```
1  int entrada[3];
2  int resultado;
3  int vail;
4  int led1 = 13;
5  int led2 = 12;
6  int led3 = 11;
7  int led4 = 10;
8  int temp = 0;
9
10 void setup() {
11     Serial.begin(9600);
12     pinMode(led1,OUTPUT);
13     pinMode(led2,OUTPUT);
14     pinMode(led3,OUTPUT);
15     pinMode(led4,OUTPUT);
16 }
17
18 void loop() {
19     if (Serial.available() > 0) {
20         temp = Serial.parseInt();
21         entrada[0] = (temp/100) % 10;
22         entrada[1] = (temp/10) % 10;
23         entrada[2] = temp % 10;
24
25         if (!(entrada[2] <= 3 && entrada[2] >= 0)){
26             Serial.print("Invalido2");
27         } else if (entrada[0] != 0 && entrada[0] != 1) {
28             Serial.print("Invalido0");
29         } else if (entrada[1] != 0 && entrada[1] != 1){
30             Serial.print("Invalido1");
31         } else {
32             Serial.print(entrada[0]);
33             Serial.print(entrada[1]);
```

```
33     Serial.print(entrada[1]);
34     Serial.print(entrada[2]);
35     Serial.print(" ");
36     if (entrada[2] == 0){
37         resultado = pand(entrada[0],entrada[1]);
38         mostrar(entrada[0], entrada[1], resultado, 0);
39         Serial.print(resultado);
40         Serial.println();
41     } else if (entrada[2] == 1){
42         resultado = por(entrada[0],entrada[1]);
43         mostrar(entrada[0], entrada[1], resultado, 0);
44         Serial.print(resultado);
45         Serial.println();
46     } else if (entrada[2] == 2){
47         resultado = pnot(entrada[0]);
48         mostrar(entrada[0], entrada[1], resultado, 0);
49         Serial.print(resultado);
50         Serial.println();
51     } else {
52         resultado = soma(entrada[0],entrada[1])[0];
53         vail = soma(entrada[0],entrada[1])[1];
54         mostrar(entrada[0], entrada[1], resultado, vail);
55         Serial.print(resultado);
56         Serial.print(" ");
57         Serial.print(vail);
58         Serial.println();
59     }
60 }
61 }
```

```
63 int pand(int a, int b)
64 {
65     return(a&b);
66 }
67
68 int por(int a, int b)
69 {
70     return(a|b);
71 }
72
73 int pnot(int a)
74 {
75     if (~a == -1)
76         return 1;
77
78     return(0);
79 }
80
81 int* soma (int a, int b){
82     int c = a+b;
83     static int res[2];
84     if(c==2){
85         res[0] = 0;
86         res[1] = 1;
87         return res;
88     }
89
90     if (c==1){
91         res[0] = 1;
92         res[1] = 0;
93         return res;
94     }
95 }
```

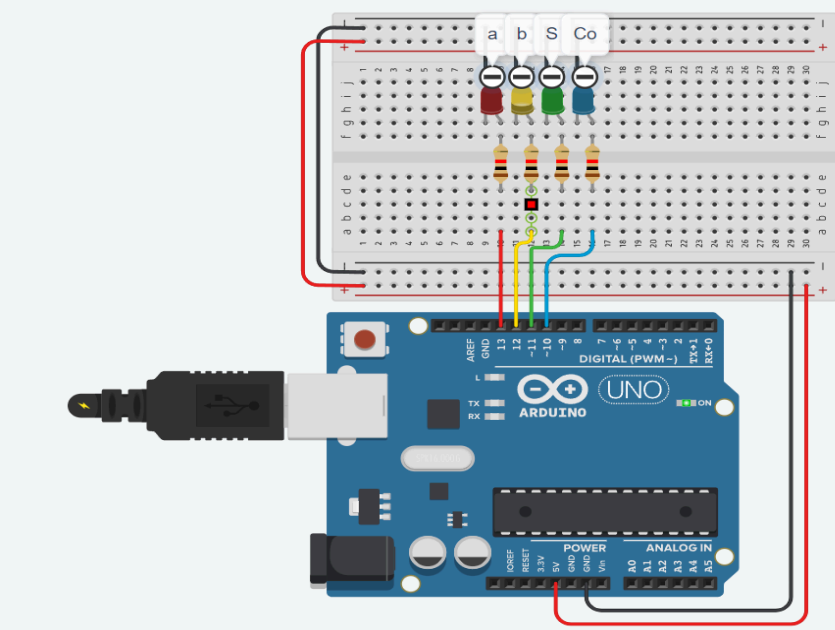
```

96     res[0] = 0;
97     res[1] = 0;
98     return res;
99 }
100
101 int mostrar (int a, int b, int s, int co)
102 {
103     if ( a == 0){
104         digitalWrite(led1, LOW);
105     } else if (a == 1) {
106         digitalWrite(led1, HIGH);
107     }
108
109     if ( b == 0){
110         digitalWrite(led2, LOW);
111     } else if (b == 1) {
112         digitalWrite(led2, HIGH);
113     }
114
115     if ( s == 0){
116         digitalWrite(led3, LOW);
117     } else if (s == 1) {
118         digitalWrite(led3, HIGH);
119     }
120
121     if ( co == 0){
122         digitalWrite(led4, LOW);
123     } else if (co == 1) {
124         digitalWrite(led4, HIGH);
125     }
126
127 }

```

Instrução	Binário	Hexa	Resultado
AND(A,B)	0 1 0 0	0x4	0
OR(A,B)	1 0 0 1	0x9	1
SOMA(A,B)	1 0 1 1	0xB	1
NOT(A)	0 0 1 0	0x2	1
AND(B,A)	1 0 0 0	0x8	0

AND(A,B)



```

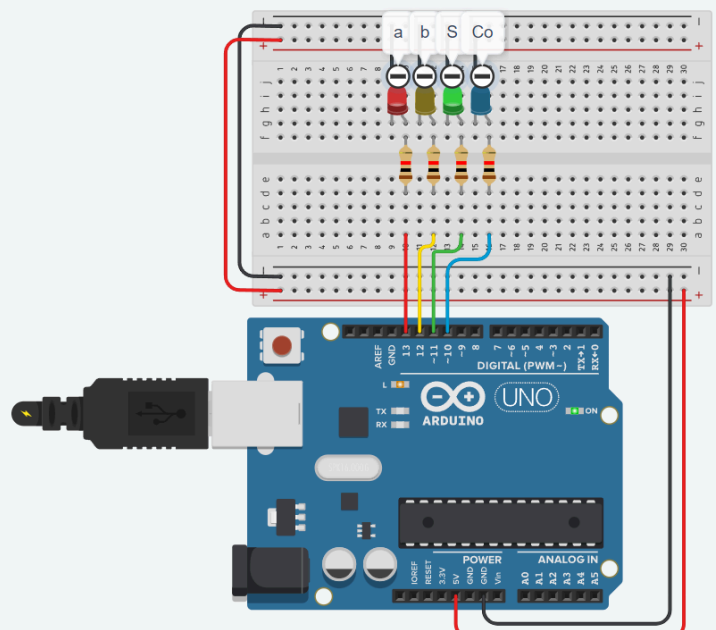
124  if ( b == 0){
125    digitalWrite(led2, LOW);
126  } else if ( b == 1) {
127    digitalWrite(led2, HIGH);
128  }
129
130  if ( s == 0){
131    digitalWrite(led3, LOW);
132  } else if ( s == 1) {
133    digitalWrite(led3, HIGH);
134  }
135
136  if ( co == 0){
137    digitalWrite(led4, LOW);
138  } else if ( co == 1) {
139    digitalWrite(led4, HIGH);
140  }
141  }
142
143
144

```

Monitor serial

010 0

OR(A,B)



```

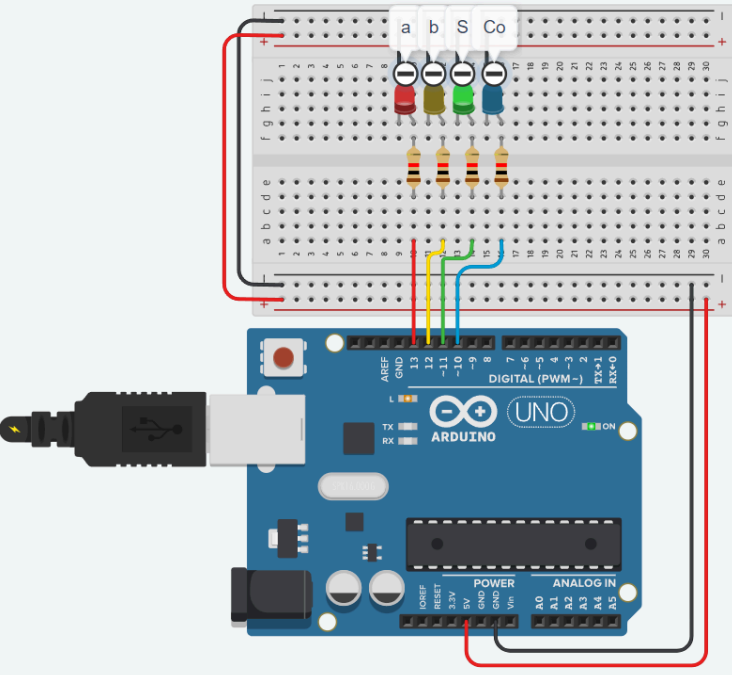
124  if ( b == 0){
125    digitalWrite(led2, LOW);
126  } else if ( b == 1) {
127    digitalWrite(led2, HIGH);
128  }
129
130  if ( s == 0){
131    digitalWrite(led3, LOW);
132  } else if ( s == 1) {
133    digitalWrite(led3, HIGH);
134  }
135
136  if ( co == 0){
137    digitalWrite(led4, LOW);
138  } else if ( co == 1) {
139    digitalWrite(led4, HIGH);
140  }
141  }
142
143
144

```

Monitor serial

101 1

SOMA(A,B)



```

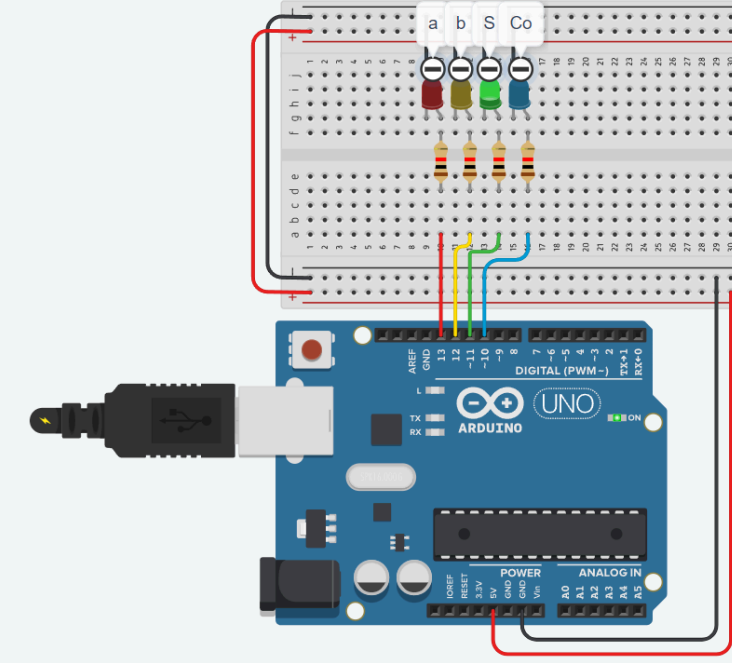
124 if ( b == 0){
125   digitalWrite(led2, LOW);
126 } else if ( b == 1) {
127   digitalWrite(led2, HIGH);
128 }
129
130 if ( s == 0){
131   digitalWrite(led3, LOW);
132 } else if (s == 1) {
133   digitalWrite(led3, HIGH);
134 }
135
136 if ( co == 0){
137   digitalWrite(led4, LOW);
138 } else if (co == 1) {
139   digitalWrite(led4, HIGH);
140 }
141 }
142 }
143
144

```

Monitor serial

103 1 0

NOT A



```

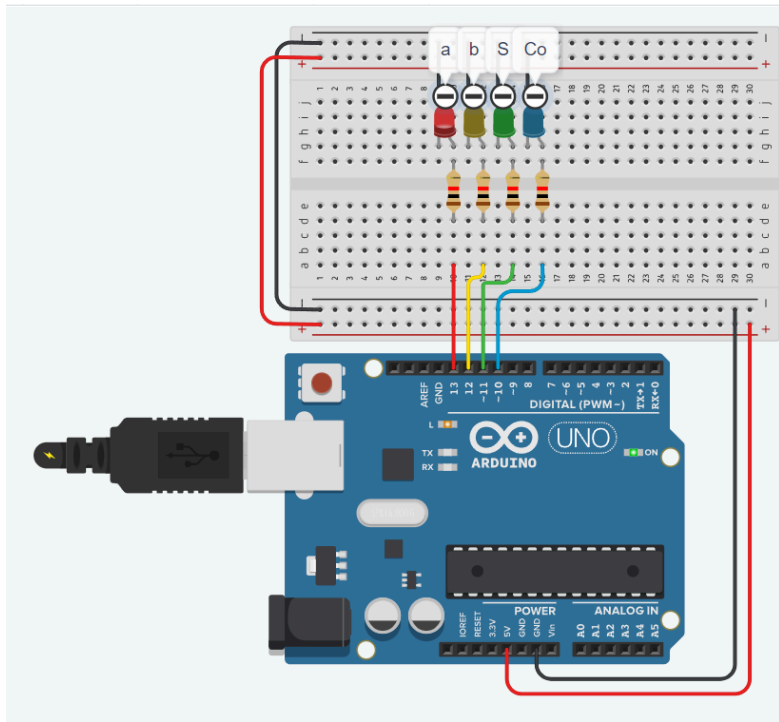
124 if ( b == 0){
125   digitalWrite(led2, LOW);
126 } else if ( b == 1) {
127   digitalWrite(led2, HIGH);
128 }
129
130 if ( s == 0){
131   digitalWrite(led3, LOW);
132 } else if (s == 1) {
133   digitalWrite(led3, HIGH);
134 }
135
136 if ( co == 0){
137   digitalWrite(led4, LOW);
138 } else if (co == 1) {
139   digitalWrite(led4, HIGH);
140 }
141 }
142 }
143
144

```

Monitor serial

002 1

AND(B,A)



```
124   if ( b == 0){
125       digitalWrite(led2, LOW);
126   } else if (b == 1) {
127       digitalWrite(led2, HIGH);
128   }
129
130   if ( s == 0){
131       digitalWrite(led3, LOW);
132   } else if (s == 1) {
133       digitalWrite(led3, HIGH);
134   }
135
136   if ( co == 0){
137       digitalWrite(led4, LOW);
138   } else if (co == 1) {
139       digitalWrite(led4, HIGH);
140   }
141 }
142
143
144
```

Monitor serial

100 0