Course Name: Information and Communication Technologies Lab

Lab # 6: Arduino IDE and C Programming

Department	Registration Number/Name	Semester/Section
BS CEN	F24604018/Muhammad Hamzah Iqbal	1
Date	**Instructor's Name**	**Instructor's Signature**
17/10/2024	Iqra Ashraf	

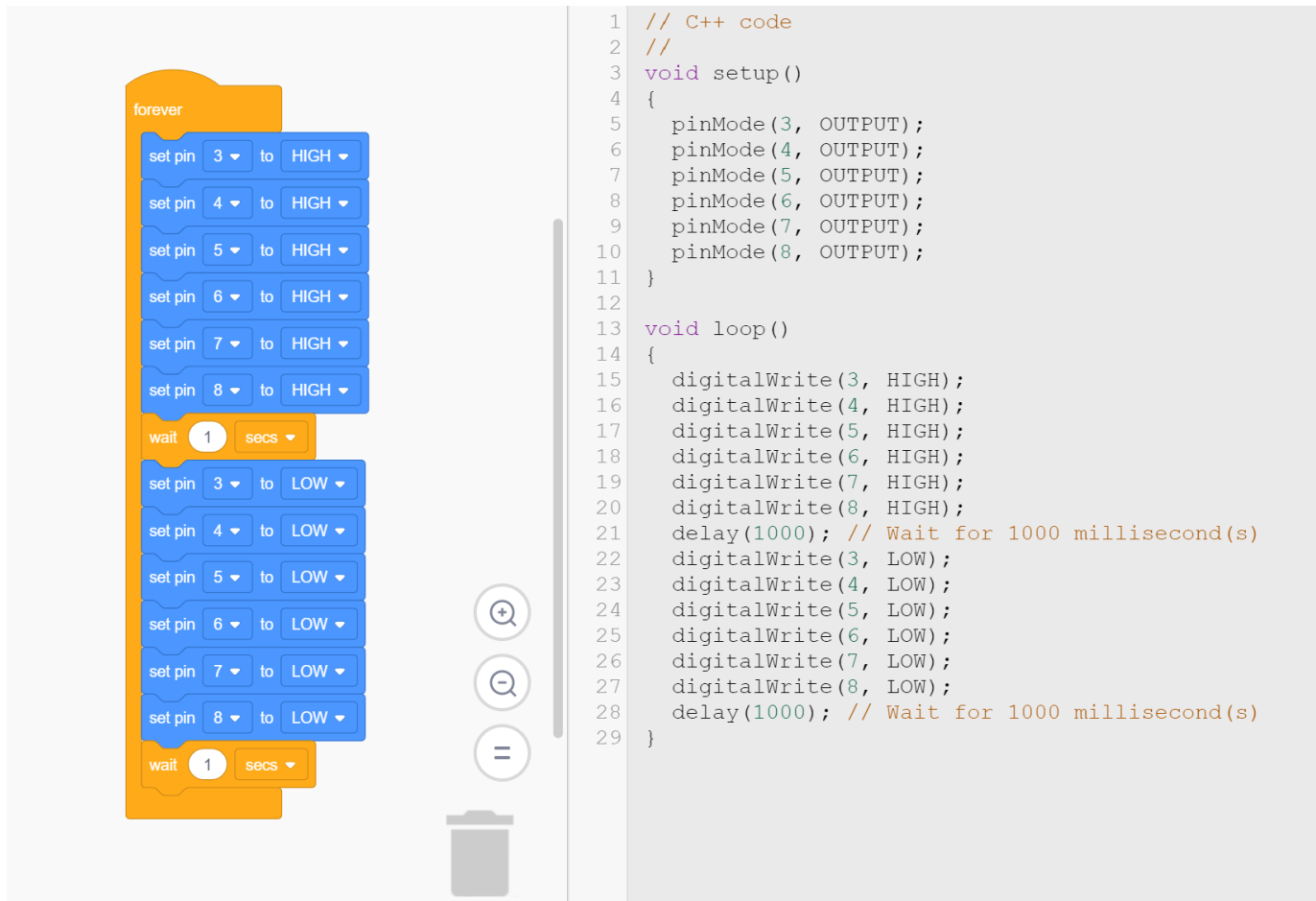Objectives:

- To understand the interfacing of Arduino
- To write the Arduino Program on Arduino IDE.
- Blink an LED using IDE and Arduino Board

Task:

Using Thinker CAD, blink 6 LEDs with 1 switch on Arduino.

Code:


```cpp
1  // C++ code
2  //
3  void setup()
4  {
5    pinMode(3, OUTPUT);
6    pinMode(4, OUTPUT);
7    pinMode(5, OUTPUT);
8    pinMode(6, OUTPUT);
9    pinMode(7, OUTPUT);
10   pinMode(8, OUTPUT);
11 }
12
13 void loop()
14 {
15   digitalWrite(3, HIGH);
16   digitalWrite(4, HIGH);
17   digitalWrite(5, HIGH);
18   digitalWrite(6, HIGH);
19   digitalWrite(7, HIGH);
20   digitalWrite(8, HIGH);
21   delay(1000); // Wait for 1000 millisecond(s)
22   digitalWrite(3, LOW);
23   digitalWrite(4, LOW);
24   digitalWrite(5, LOW);
25   digitalWrite(6, LOW);
26   digitalWrite(7, LOW);
27   digitalWrite(8, LOW);
28   delay(1000); // Wait for 1000 millisecond(s)
29 }
```

- To turn on the LEDs, we connected each LED to a specific digital pin on the Arduino board.
- Then, we went to the code section to write the program.
- We started with a "forever" loop to keep the circuit running until stop simulation is clicked.
- To turn each LED on, we used the "set pin (number) to HIGH" block.
- To show the transition from OFF to ON, we added a "wait 1 second" block.
- After that, we used the "set pin (number) to LOW" block to turn off each LED.
- Then we added another "wait for 1 second" block to show the transition from ON to OFF.
- Finally, we started the simulation to see the LEDs light up and turn off as expected.

Output:

LEDs OFF:
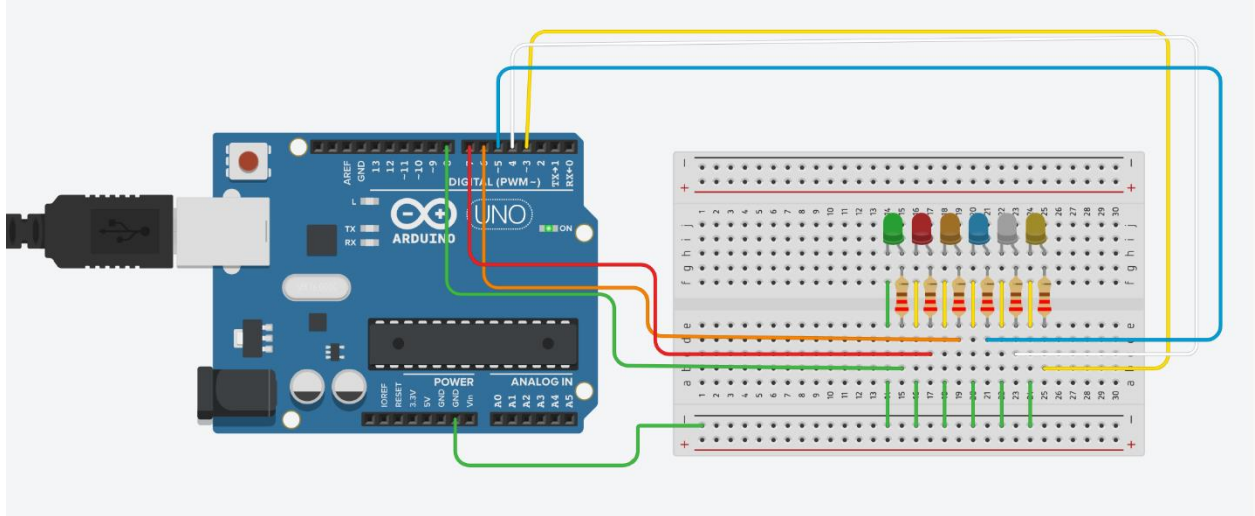
LEDs ON:
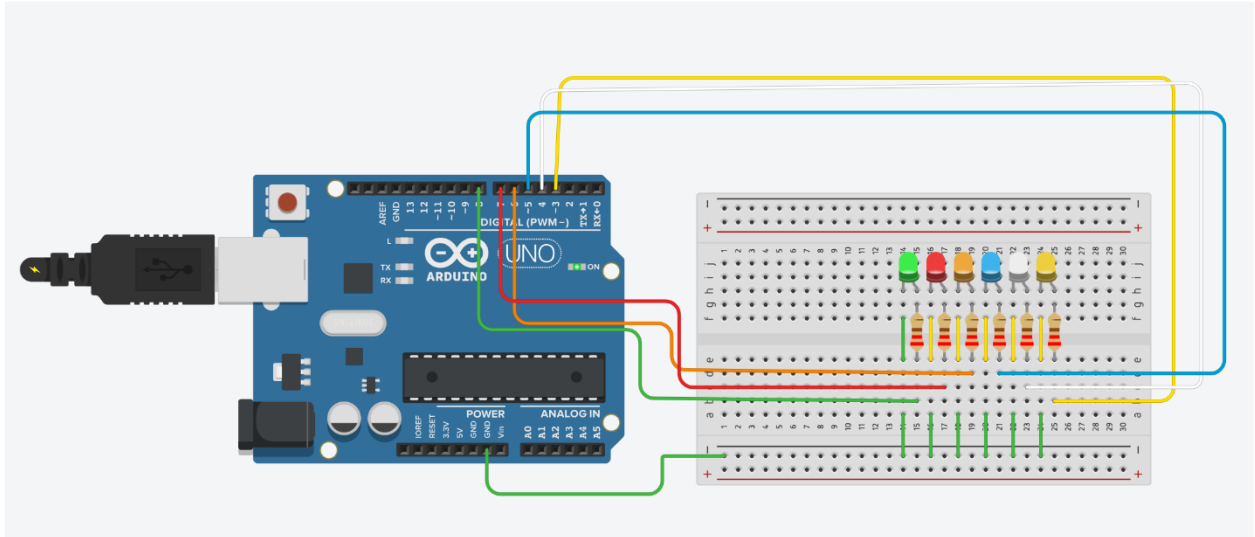
Conclusion:

In this lab, we successfully learned how to use Tinker cad for designing circuits. We also learned how to build circuits and control them with code according to our needs in Tinker cad. This has helped us better understand how to use simulation tools for electronics projects.