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| Date : 07/03/2022 | | | | | | | |
|  | CSLR61 : EMBEDDED SYSTEMS  **LAB-5** | | | | | |  |
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1. Blink Led In Arduino UNO Simulator using Tinkercad

Code

// 106119100 C++ code to blink the LED

void setup(){

    pinMode(8, OUTPUT);

}

void loop(){

    digitalWrite(8, HIGH);

    delay(1000); // Wait for 1000 millisecond(s)

    digitalWrite(8, LOW);

    delay(1000); // Wait for 1000 millisecond(s)

}

Output

Graphical user interface, application

Description automatically generated

2. Blink LEDs in alternate order – 1 and 3 together and 2 and 4 together.

Code:

// 106119100 C++ code to Blink Alternative LED

void setup(){

    pinMode(5, OUTPUT);

    pinMode(6, OUTPUT);

    pinMode(7, OUTPUT);

    pinMode(8, OUTPUT);

}

void loop(){

    digitalWrite(5, LOW);

    digitalWrite(7, LOW);

    digitalWrite(8, HIGH);

    digitalWrite(6, HIGH);

    delay(2000);

    digitalWrite(8, LOW);

    digitalWrite(6, LOW);

    digitalWrite(5, HIGH);

    digitalWrite(7, HIGH);

    delay(2000);

}

Output:

Graphical user interface

Description automatically generated

3. Blink LEDs – count from 1 to 15; if the board is counting odd value, wait for 1 sec, else wait for 2 sec.

Code:

// 106119100 C++ code to Wait for 1 and 2 sec for

// odd and even count

void setup()

{

    pinMode(5, OUTPUT);

    pinMode(6, OUTPUT);

    pinMode(7, OUTPUT);

    pinMode(8, OUTPUT);

}

void displayNumber(int n)

{

    digitalWrite(5, (n & 1) ? HIGH : LOW);

    n >>= 1;

    digitalWrite(6, (n & 1) ? HIGH : LOW);

    n >>= 1;

    digitalWrite(7, (n & 1) ? HIGH : LOW);

    n >>= 1;

    digitalWrite(8, (n & 1) ? HIGH : LOW);

}

void loop()

{

    for (int i = 1; i <= 15; i++)

    {

        displayNumber(i);

        if (i & 1)

            delay(1000);

        else

            delay(2000);

    }

}

Output:

Graphical user interface

Description automatically generated

4. Blink LEDs – for all composite number below 15.

Code:

// 106119100 C++ code to count composite number

void setup()

{

    pinMode(5, OUTPUT);

    pinMode(6, OUTPUT);

    pinMode(7, OUTPUT);

    pinMode(8, OUTPUT);

}

void displayNumber(int n)

{

    digitalWrite(5, (n & 1) ? HIGH : LOW);

    n >>= 1;

    digitalWrite(6, (n & 1) ? HIGH : LOW);

    n >>= 1;

    digitalWrite(7, (n & 1) ? HIGH : LOW);

    n >>= 1;

    digitalWrite(8, (n & 1) ? HIGH : LOW);

}

bool isPrime(int n)

{

    if (n == 0 || n == 1)

        return 0;

    if (n == 2)

        return 1;

    for (int i = 3; i <= n; i++)

    {

        for (int fac = 2; fac <= n - 1; fac++)

        {

            if (i % fac == 0)

                return 0;

        }

    }

    return 1;

}

void loop()

{

    for (int i = 0; i <= 15; i++)

    {

        if (!isPrime(i))

        {

            displayNumber(i);

            delay(2000);

        }

    }

}

Output:

Graphical user interface

Description automatically generated

5. Blink LEDs – to count even numbers

Code:

// 106119100 C++ code to blink the LED

void setup()

{

    pinMode(5, OUTPUT);

    pinMode(6, OUTPUT);

    pinMode(7, OUTPUT);

    pinMode(8, OUTPUT);

}

void displayNumber(int n)

{

    digitalWrite(5, (n & 1) ? HIGH : LOW);

    n >>= 1;

    digitalWrite(6, (n & 1) ? HIGH : LOW);

    n >>= 1;

    digitalWrite(7, (n & 1) ? HIGH : LOW);

    n >>= 1;

    digitalWrite(8, (n & 1) ? HIGH : LOW);

}

void loop()

{

    for (int i = 0; i <= 15; i += 2)

    {

        displayNumber(i);

        delay(2000);

    }

}

Output:

Graphical user interface, application

Description automatically generated