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/*
Experiment No. :    06

Statement      :    Design a 4-bit counter.

Date of Exp.   :    xx/xx/xxxx

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*/

// Define the pins for LEDs
const int ledPins[] = {2, 3, 4, 5};

void setup() {
    // Set the LED pins as OUTPUT
    for (int i = 0; i < 4; i++) {
        pinMode(ledPins[i], OUTPUT);
    }
}

void loop() {
    // Count from 0 to 15 in binary
    for (int count = 0; count < 16; count++) {
        displayBinary(count);
        delay(9000); // Adjust the delay for the desired speed
    }
}

// Function to display the binary representation on LEDs
void displayBinary(int value) {
    for (int i = 0; i < 4; i++) {
        // Extract each bit using bitwise AND
        int bit = (value >> i) & 1;
        // Turn on/off the corresponding LED
        digitalWrite(ledPins[i], bit);
    }
}

```

