

```
/*
```

```
Experiment No. :    06
```

```
Statement      :    Design a 4-bit counter.
```

```
Date of Exp.   :    xx/xx/xxxx
```

```
Author         :    Harsh Devendra Mishra (A-28)
```

```
*/
```

```
// Define pins for LEDs and push-button switch
```

```
const int LED_pins[] = {2, 3, 4, 5}; // LED pins
```

```
const int buttonPin = 7; // Push-button switch pin
```

```
// Variables to hold current count and button state
```

```
int count = 0; // Initial count
```

```
int buttonState; // Current state of the button
```

```
int lastButtonState = LOW; // Previous state of the button
```

```
void setup() {
```

```
    // Set LED pins as output
```

```
    for (int i = 0; i < 4; i++) {
```

```
        pinMode(LED_pins[i], OUTPUT);
```

```
    }
```

```
    // Set push-button pin as input
```

```
    pinMode(buttonPin, INPUT);
```

```
    // Initialize LEDs with the initial count
```

```
    updateLEDs();
```

```
}
```

```
void loop() {
```

```
    // Read the state of the push-button switch
```

```
    buttonState = digitalRead(buttonPin);
```

```
    // Check if the button is pressed and was previously not pressed
```

```
    if (buttonState == HIGH && lastButtonState == LOW) {
```

```
        // Increment the count
```

```

    count++;

    // Ensure the count wraps around after reaching 16 (4 bits)
    if (count > 15) {
        count = 0;
    }
    // Update LEDs with the new count
    updateLEDs();
}

// Update last button state
lastButtonState = buttonState;
}

// Function to update LEDs based on the current count
void updateLEDs() {
    // Convert count to binary and display on LEDs
    for (int i = 0; i < 4; i++) {
        digitalWrite(LED_pins[i], bitRead(count, i));
    }
}

```

