

**Experiment 1:** Develop a program to blink 5 LEDs back and forth.

**Pin Connections:**

| LED | ESP32 Pin | <i>Arduino UNO Pin</i> |
|-----|-----------|------------------------|
| L1  | GPIO 2    | D5                     |
| L2  | GPIO 4    | D6                     |
| L3  | GPIO 5    | D7                     |
| L4  | GPIO 18   | D8                     |
| L5  | GPIO 19   | D9                     |

**Code:**

```
const int ledPins[] = {5, 6, 7, 8, 9};
const int numLeds = sizeof(ledPins) / sizeof(ledPins[0]);

int currentIndex = 0;      // Starting LED index
int direction = 1;        // 1 = forward, -1 = backward

void setup() {
    for (int i = 0; i < numLeds; i++) {
        pinMode(ledPins[i], OUTPUT);
        digitalWrite(ledPins[i], LOW);
    }
}

void loop() {
    digitalWrite(ledPins[currentIndex], HIGH);
    delay(200);
    digitalWrite(ledPins[currentIndex], LOW);

    currentIndex += direction;

    // Reverse direction if we hit either end
    if (currentIndex == numLeds - 1 || currentIndex == 0) {
        direction = -direction;
    }
}
```