Name: Muhammad Ibtisam Reg No: 23-NTU-CS-1269

ESP32 Two Switches with Independent LED Toggle

➢ Code:

```
➢  const int button1Pin = 35;     // Switch 1
➢  const int button2Pin = 34;     // Switch 2
➢  const int led1Pin    = 5;    // LED 1
➢  const int led2Pin    = 18;    // LED 2
➢
➢  // LED states
➢  int led1State = LOW;
➢  int led2State = LOW;
➢
➢  // For button 1 debounce
➢  int lastButton1 = HIGH;
➢  unsigned long lastTime1 = 0;
➢
➢  // For button 2 debounce
➢  int lastButton2 = HIGH;
➢  unsigned long lastTime2 = 0;
➢
➢  const int debounceDelay = 50; // debounce time in ms
➢
➢  void setup() {
➢    pinMode(led1Pin, OUTPUT);
➢    pinMode(led2Pin, OUTPUT);
➢
➢    pinMode(button1Pin, INPUT_PULLUP); // active LOW
➢    pinMode(button2Pin, INPUT_PULLUP); // active LOW
➢
➢    digitalWrite(led1Pin, led1State);
➢    digitalWrite(led2Pin, led2State);
➢  }
➢
```

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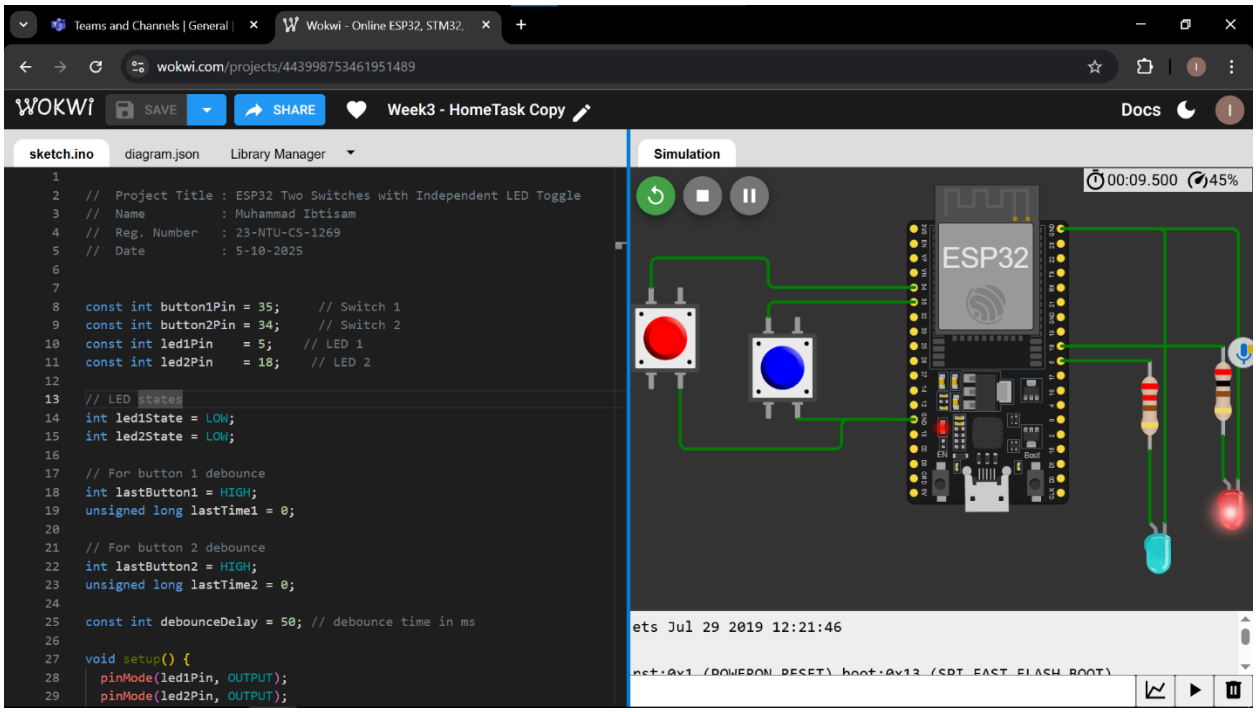
```
➢  void loop() {
➢    //Botton1
➢    int reading1 = digitalRead(button1Pin);
➢    if (reading1 == LOW && lastButton1 == HIGH && (millis() - lastTime1) >
   debounceDelay) {
➢      led1State = !led1State;                // toggle LED1
➢      digitalWrite(led1Pin, led1State);
➢      lastTime1 = millis();
➢    }
➢    lastButton1 = reading1;
➢
➢    //Botton1
➢    int reading2 = digitalRead(button2Pin);
➢    if (reading2 == LOW && lastButton2 == HIGH && (millis() - lastTime2) >
   debounceDelay) {
➢      led2State = !led2State;                // toggle LED2
➢      digitalWrite(led2Pin, led2State);
➢      lastTime2 = millis();
➢    }
➢    lastButton2 = reading2;
➢  }
➢
```

➢ Screenshots:



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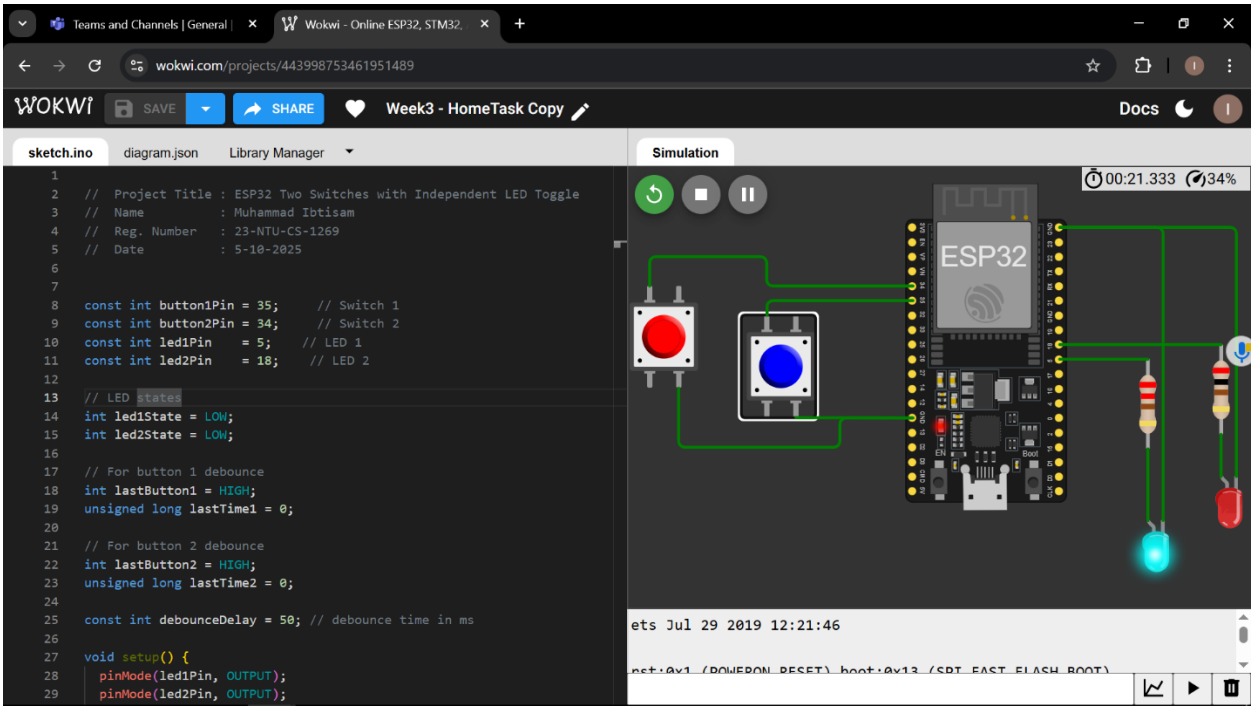

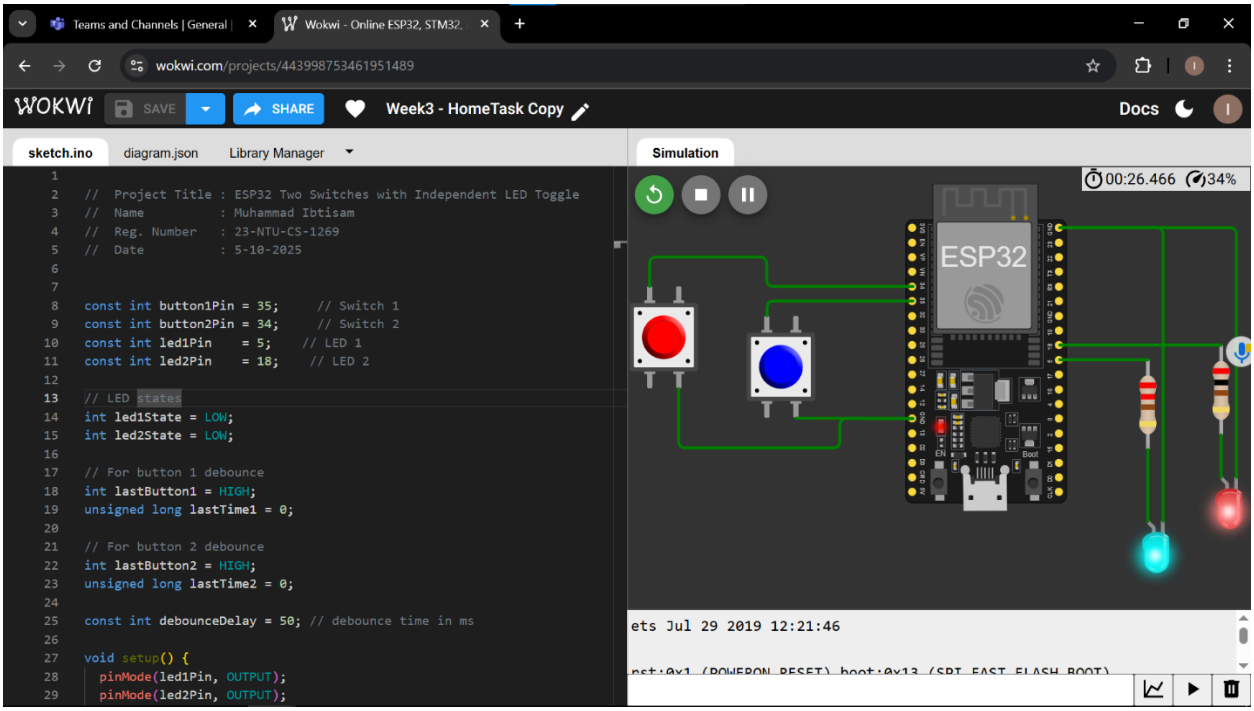

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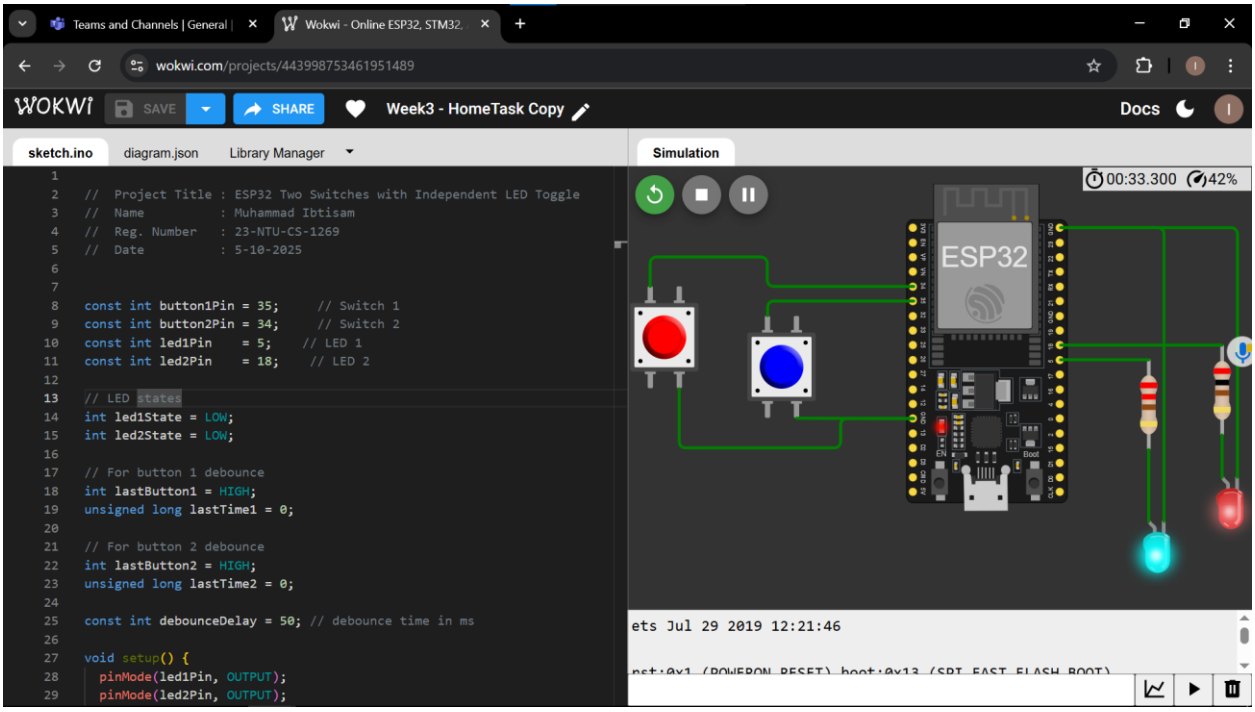

➢ Wokwi project link:

https://wokwi.com/projects/443998753461951489