**To create a web server using an ESP8266 NodeMCU and a 4-relay module to control 4 LED bulbs individually, you can follow these general steps:**

**Hardware Setup:**

* Connect the NodeMCU to your computer.
* Connect the 4-relay module to the NodeMCU. Typically, each relay has three pins: VCC, GND, and Signal. Connect these pins to the appropriate pins on the NodeMCU.
* Connect the LED bulbs to the 4-relay module. Each relay will control a separate LED.

**Write the Code:**

* You need to write Arduino code to control the relays and serve a web page for controlling the LEDs.
* Use the Arduino IDE and make sure you have the ESP8266 board installed.
* Here is a basic example code to get you started. Modify it based on your specific pin connections and requirements.

**Here's a general guide for connecting the components:**

* Connect the VCC and GND pins of the relay module to the 3.3V and GND pins on the NodeMCU, respectively.
* Connect the Signal pins of the relay module to the digital pins on the NodeMCU (e.g., D1, D2, D3, D4).
* Connect the LED bulbs to the output terminals of the relay module. Ensure that the LED bulbs are connected to the Common (COM) and Normally Open (NO) terminals of the relays.

**Code:** [**Link**](https://github.com/vishal-ravi/projects/blob/main/Home%20automation)

**#include <ESP8266WiFi.h>**

**#include <ESP8266WebServer.h>**

**const char \*ssid = "your-ssid";**

**const char \*password = "your-password";**

**ESP8266WebServer server(80);**

**const int relayPins[] = {D1, D2, D3, D4};**

**const int numRelays = 4;**

**void setup() {**

**Serial.begin(115200);**

**// Connect to Wi-Fi**

**WiFi.begin(ssid, password);**

**while (WiFi.status() != WL\_CONNECTED) {**

**delay(1000);**

**Serial.println("Connecting to WiFi...");**

**}**

**Serial.println("Connected to WiFi");**

**// Print the IP address to the Serial Monitor**

**Serial.print("IP Address: ");**

**Serial.println(WiFi.localIP());**

**// Initialize relay pins**

**for (int i = 0; i < numRelays; i++) {**

**pinMode(relayPins[i], OUTPUT);**

**digitalWrite(relayPins[i], HIGH); // Initially turn off relays**

**}**

**// Define web server routes**

**server.on("/", HTTP\_GET, handleRoot);**

**server.on("/relay", HTTP\_POST, handleRelay);**

**server.begin();**

**}**

**void loop() {**

**server.handleClient();**

**}**

**void handleRoot() {**

**String html = "<html><body>";**

**for (int i = 0; i < numRelays; i++) {**

**html += "<p>LED " + String(i + 1) + ": ";**

**html += "<a href='/relay?state=on&id=" + String(i) + "'>ON</a> | ";**

**html += "<a href='/relay?state=off&id=" + String(i) + "'>OFF</a></p>";**

**}**

**html += "</body></html>";**

**server.send(200, "text/html", html);**

**}**

**void handleRelay() {**

**String state = server.arg("state");**

**int relayId = server.arg("id").toInt();**

**if (state == "on") {**

**digitalWrite(relayPins[relayId], LOW);**

**} else if (state == "off") {**

**digitalWrite(relayPins[relayId], HIGH);**

**}**

**server.send(200, "text/plain", "OK");**

**}**