EXERCISE:8

SECURED COMMUNICATION FROM MICROCONTROLLER TO BACKEND

PHP CODE

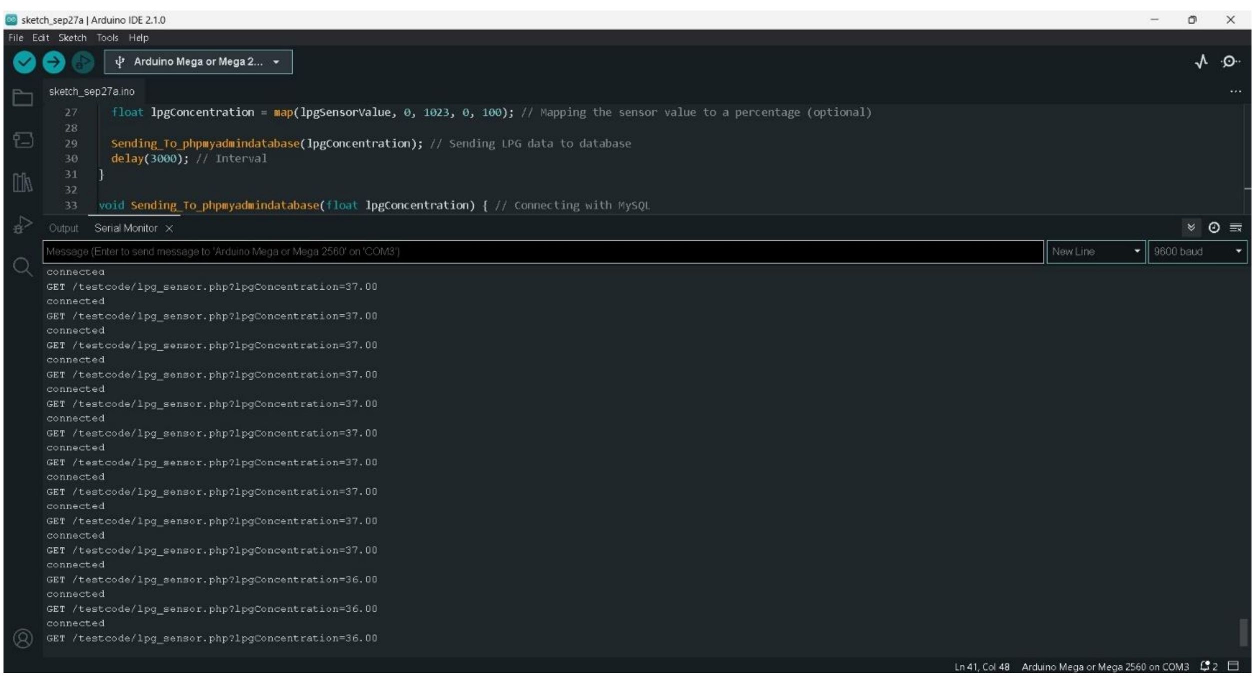
```
<?php
class lpg {
  public $link = '';
  function __construct($lpgConcentration) {
    $this->connect();
    $this->storeInDB($lpgConcentration);
  }
  function connect() {
    // Connecting to the database
    $this->link = mysqli_connect('localhost', 'root', '') or die('Cannot connect to the DB');
    mysqli_select_db($this->link, 'lpg') or die('Cannot select the DB'); // Your database is 'lpg'
  }
  function storeInDB($lpgConcentration) {
    // Insert LPG data into the database
    $query = "INSERT INTO sensor (value) VALUES ('" . $lpgConcentration . "')";
    $result = mysqli_query($this->link, $query) or die('Errant query: ' . $query);
  }
}
// Check if LPG concentration is passed in the URL
if ($_GET['lpgConcentration'] != '') {
  // Create new lpg object and store data
  $lpg = new lpg($_GET['lpgConcentration']);
}
?>
```

ARDUINO CODE:

```
#include <SPI.h>

#include <Ethernet.h>

byte mac[] = { 0xDE, 0xAD, 0xBE, 0xEF, 0xFE, 0xED }; // Setting MAC Address

// Pin for the LPG sensor (Assume it's connected to A0)

#define LPG_PIN A0

char server[] = "172.16.8.25"; // Server IP

IPAddress ip(172,16,0,0);

EthernetClient client;

/* Setup for Ethernet and RFID */

void setup() {

  Serial.begin(9600);

  if (Ethernet.begin(mac) == 0) {

    Serial.println("Failed to configure Ethernet using DHCP");

    Ethernet.begin(mac, ip);

  }

  delay(1000);

}

/* Infinite Loop */

void loop() {

  int lpgSensorValue = analogRead(LPG_PIN); // Read LPG sensor value

  float lpgConcentration = map(lpgSensorValue, 0, 1023, 0, 100); // Mapping the sensor value to a
percentage (optional)

    Sending_To_phpmyadmindatabase(lpgConcentration); // Sending LPG data to database

  delay(3000); // Interval

}void Sending_To_phpmyadmindatabase(float lpgConcentration) { // Connecting with MySQL

  if (client.connect(server, 80)) {

    Serial.println("connected");

    // Make a HTTP request:
```

```
    Serial.print("GET /testcode/lpg_sensor.php?lpgConcentration=");
    client.print("GET /testcode/lpg_sensor.php?lpgConcentration="); // Your URL
    Serial.println(lpgConcentration);
    client.print(lpgConcentration);
    client.print(" "); // SPACE BEFORE HTTP/1.1
    client.print("HTTP/1.1");
    client.println();
    client.println("Host: 172.16.10.148");
    client.println("Connection: close");
    client.println();
  } else {
    // If connection to the server failed:
    Serial.println("connection failed");
  }
}
```

ARDUINO OUTPUT:



DATABASE OUTPUT: