

Como utilizar o NodeMcu para conectar coisas à internet

por Iury Fernandes

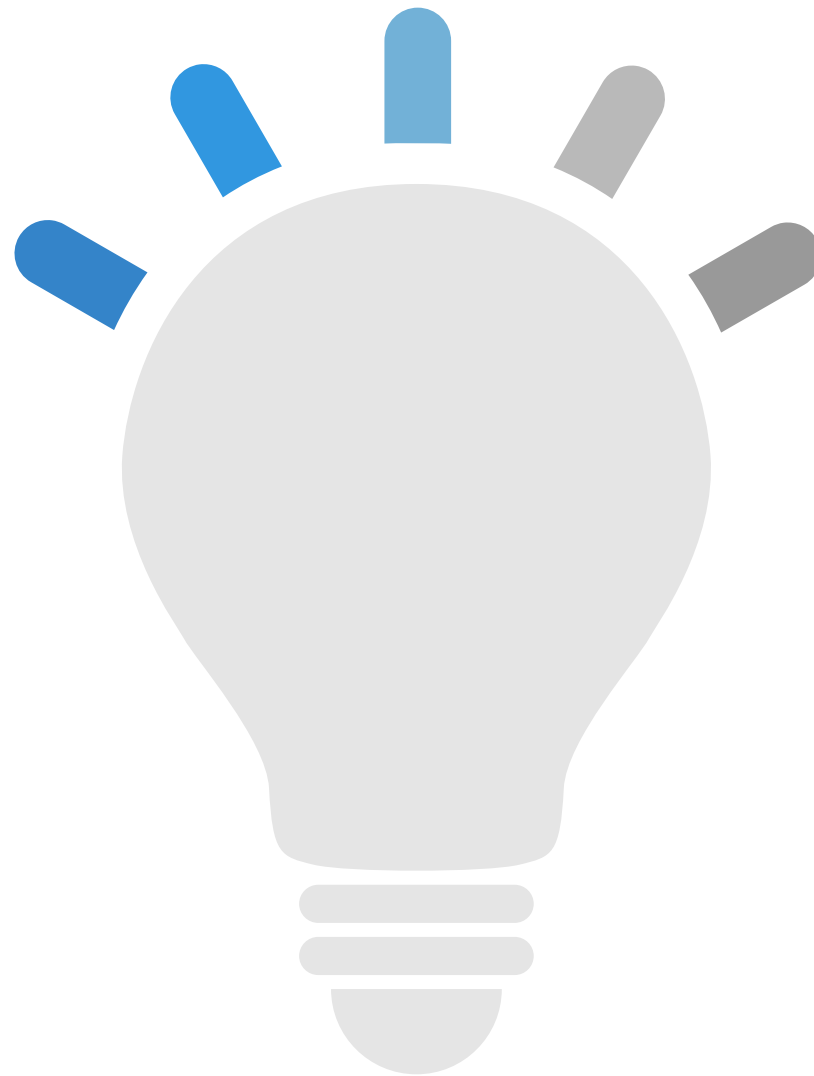
O que iremos aprender hoje?

Ao finalizar as atividades do minicurso seremos capazes de:

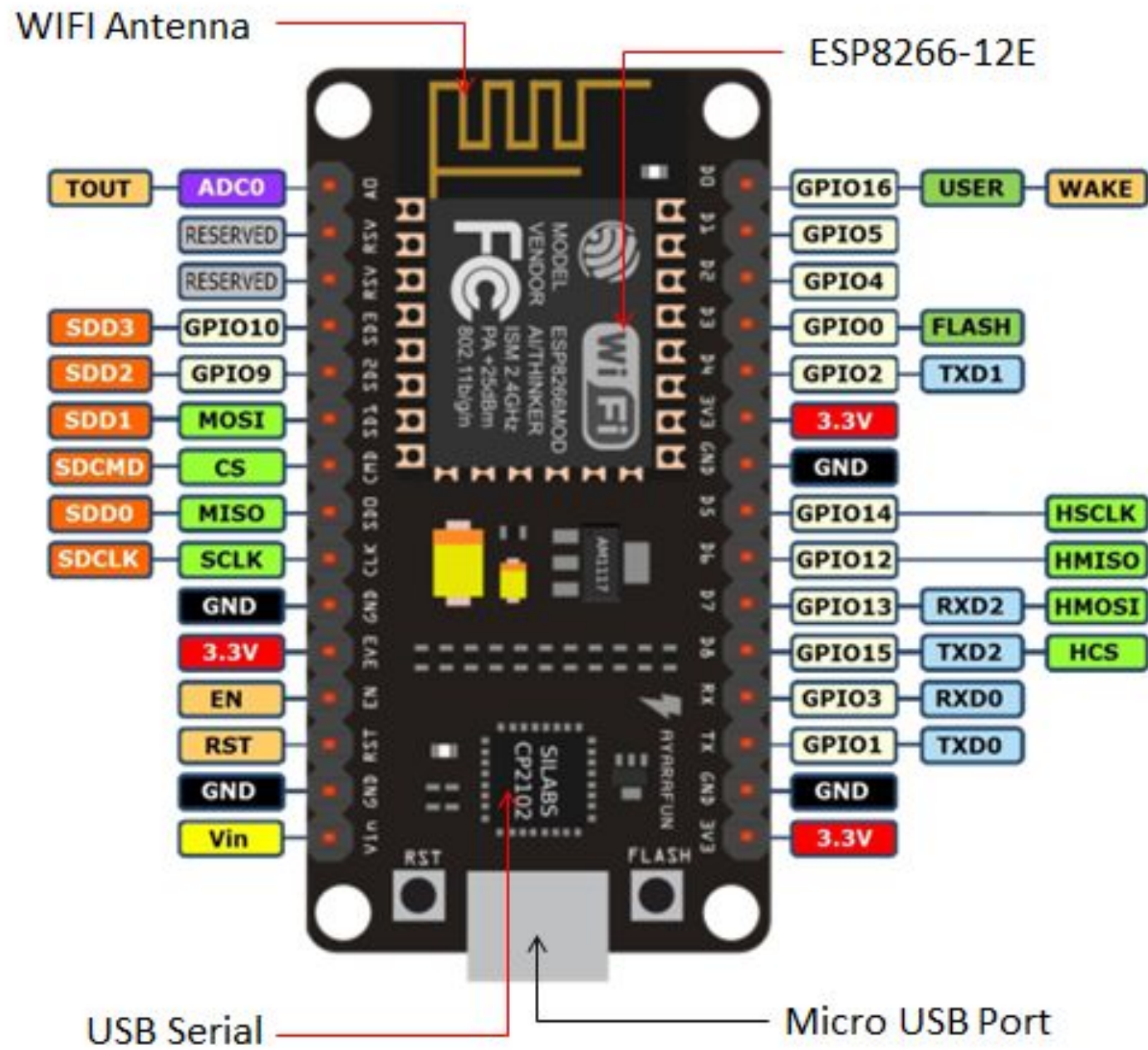
- > Configurar o NodeMcu com a rede local;

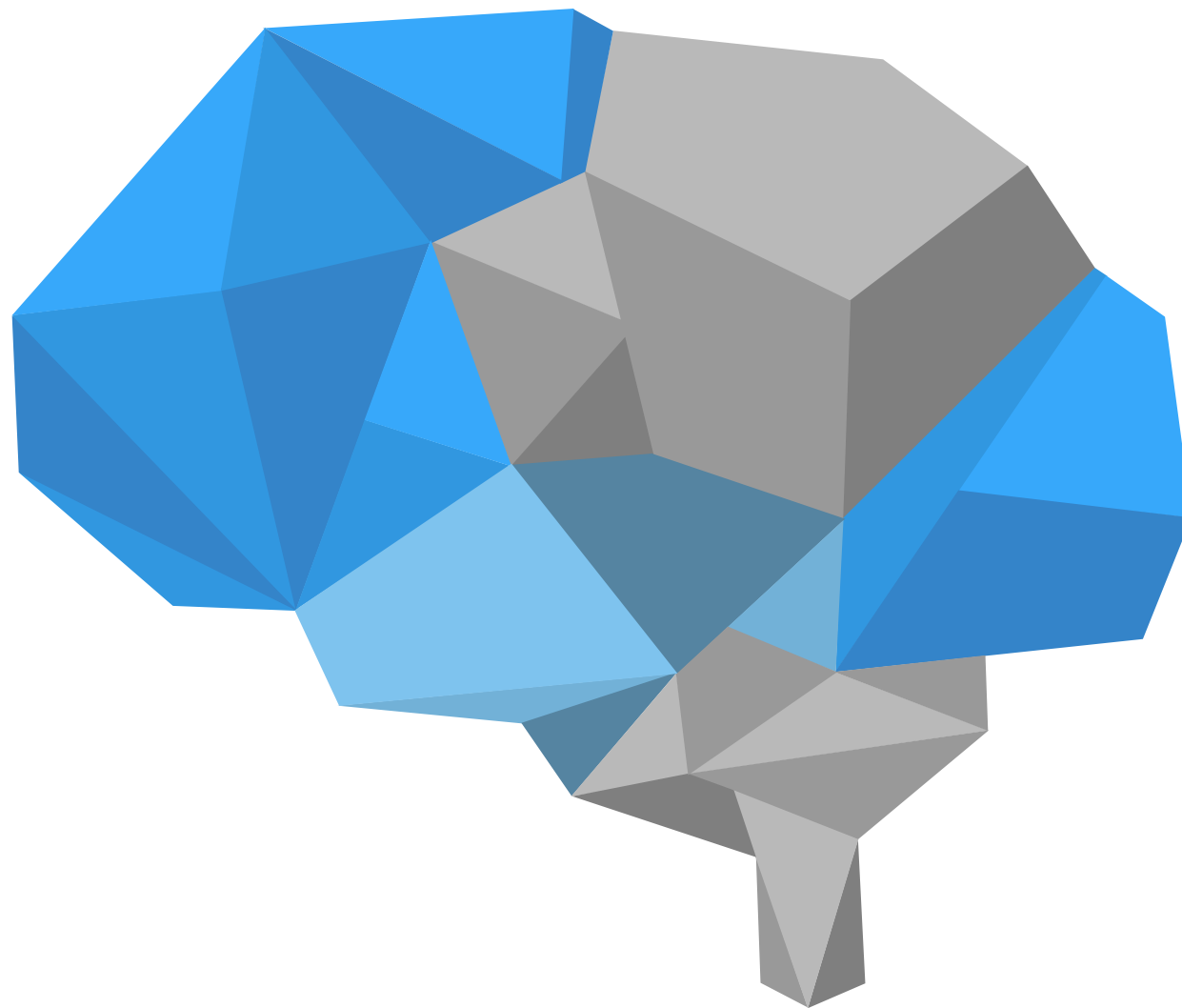
- > Capturar parâmetros de sensores e enviá-los remotamente;

- > Exibir os parâmetros captados em uma aplicação web.



Node MCU Pinout – ESP8266 12E





1

Lógica

2

Instalação do Xampp

Xampp : PHP, Apache, MySql,
PhpMyAdmin

3

Algoritmos PHP

Conexao.php
Salvar.php
Index.php

4

Algoritmo C/C++

nodemcu_wifi_mysql.ino

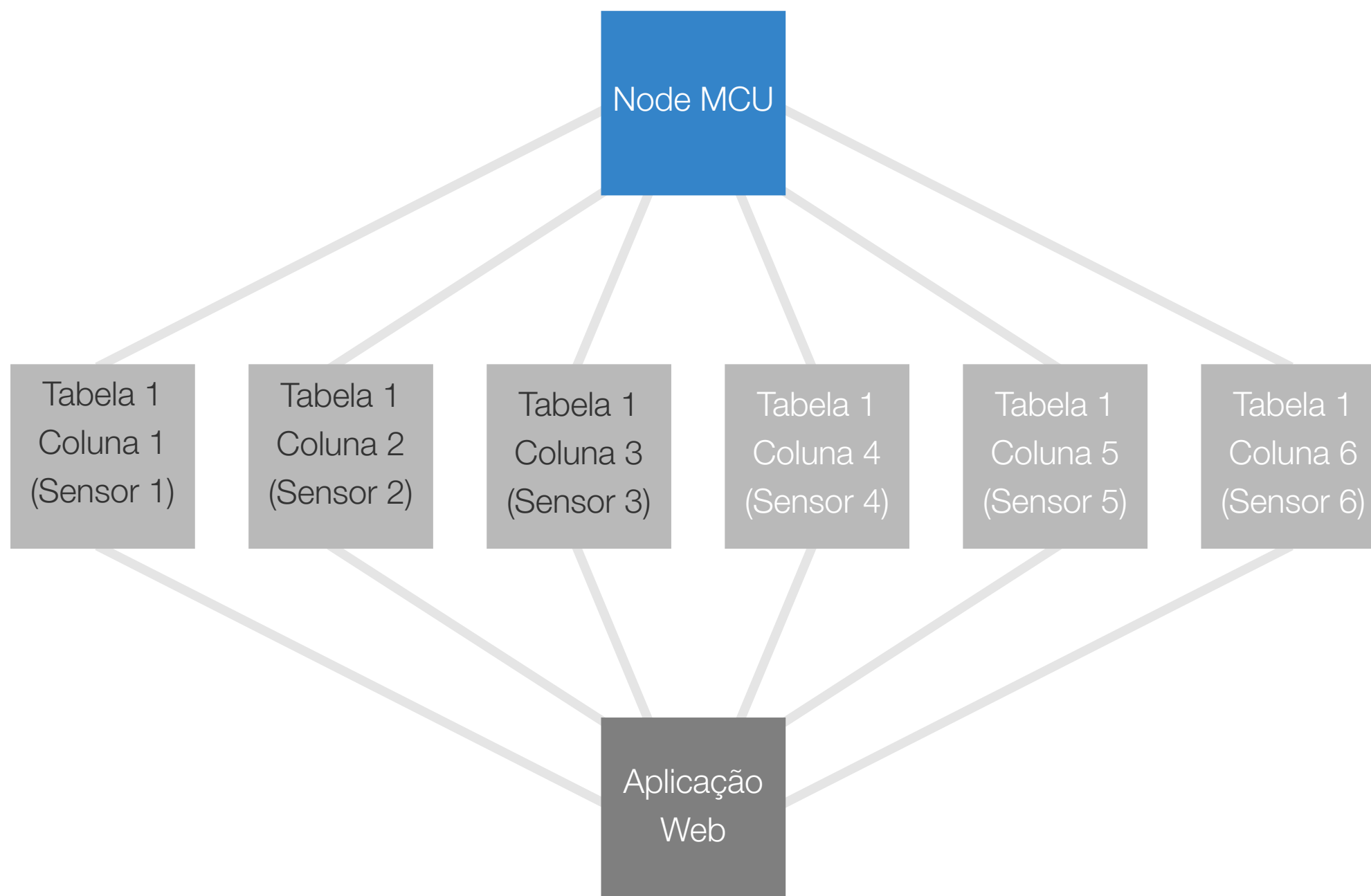
5

Aplicação Web

aplicacaoWeb.php

1

Lógica



1

Lógica

Node

Ler os valores dos sensores e envia-los para o banco de dados através de comunicação WiFi

BD

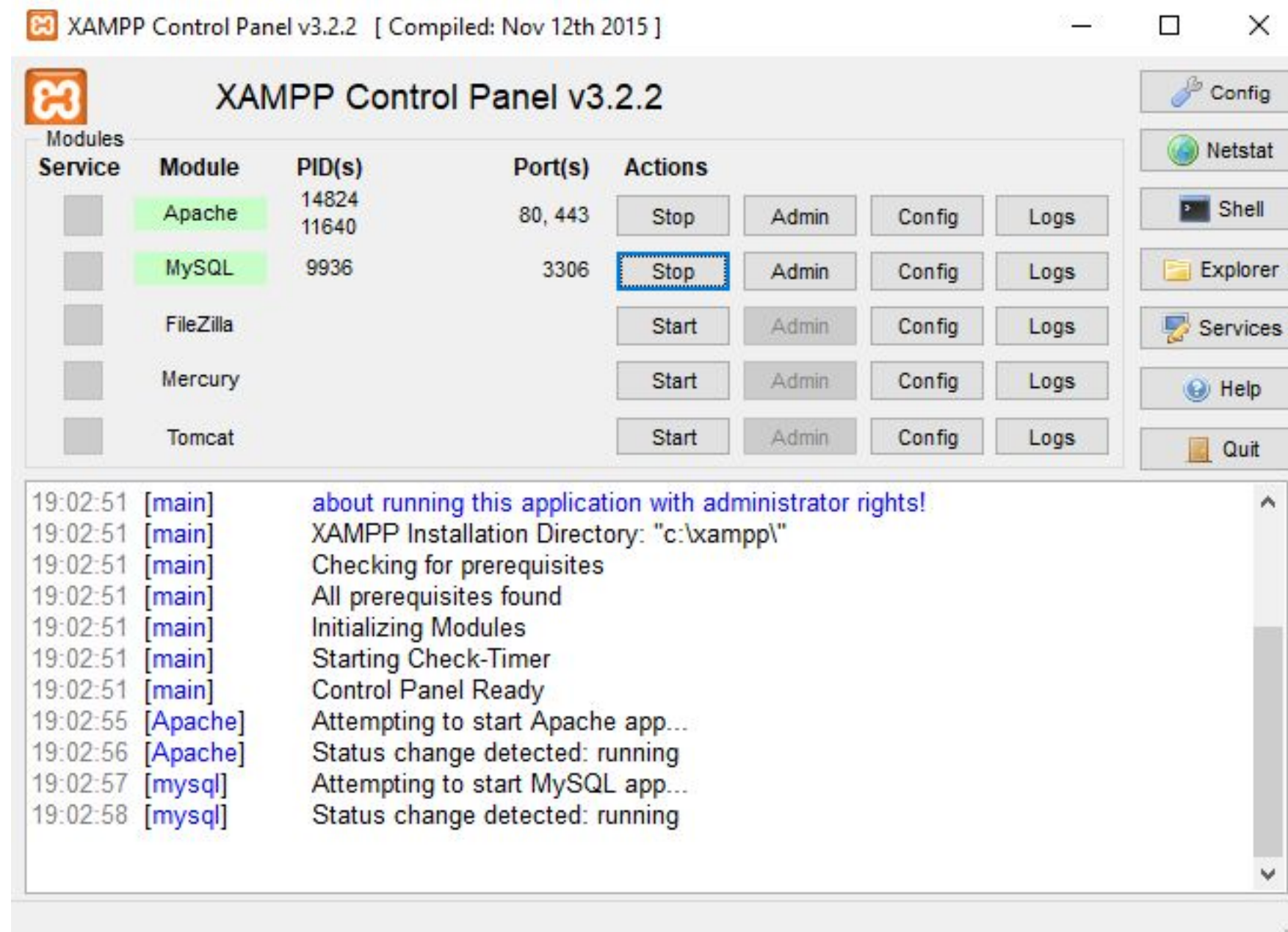
Armazena os valores lidos pelo node em tabelas SQL na ferramenta PhpMyAdmin

ApWeb

Captura as informações das tabelas e as exibem no browser para o usuário

Instalação do Xampp

Xampp : PHP, Apache, MySql,
PhpMyAdmin



conexao.php

```
1 <?php
2     try {
3         $HOST = "localhost";
4         $BANCO = "bdnodemcu";
5         $USUARIO = "root";
6         $SENHA = "";
7
8         $PDO = new PDO("mysql:host=" . $HOST . ";dbname=" . $BANCO . ";charset=utf8", $USUARIO, $
          SENHA);
9
10    } catch (PDOException $erro){
11
12        echo "Erro de conexao, detalhe : " . $erro->getMessage();
13
14    }
15 }
16
17 ?>
```

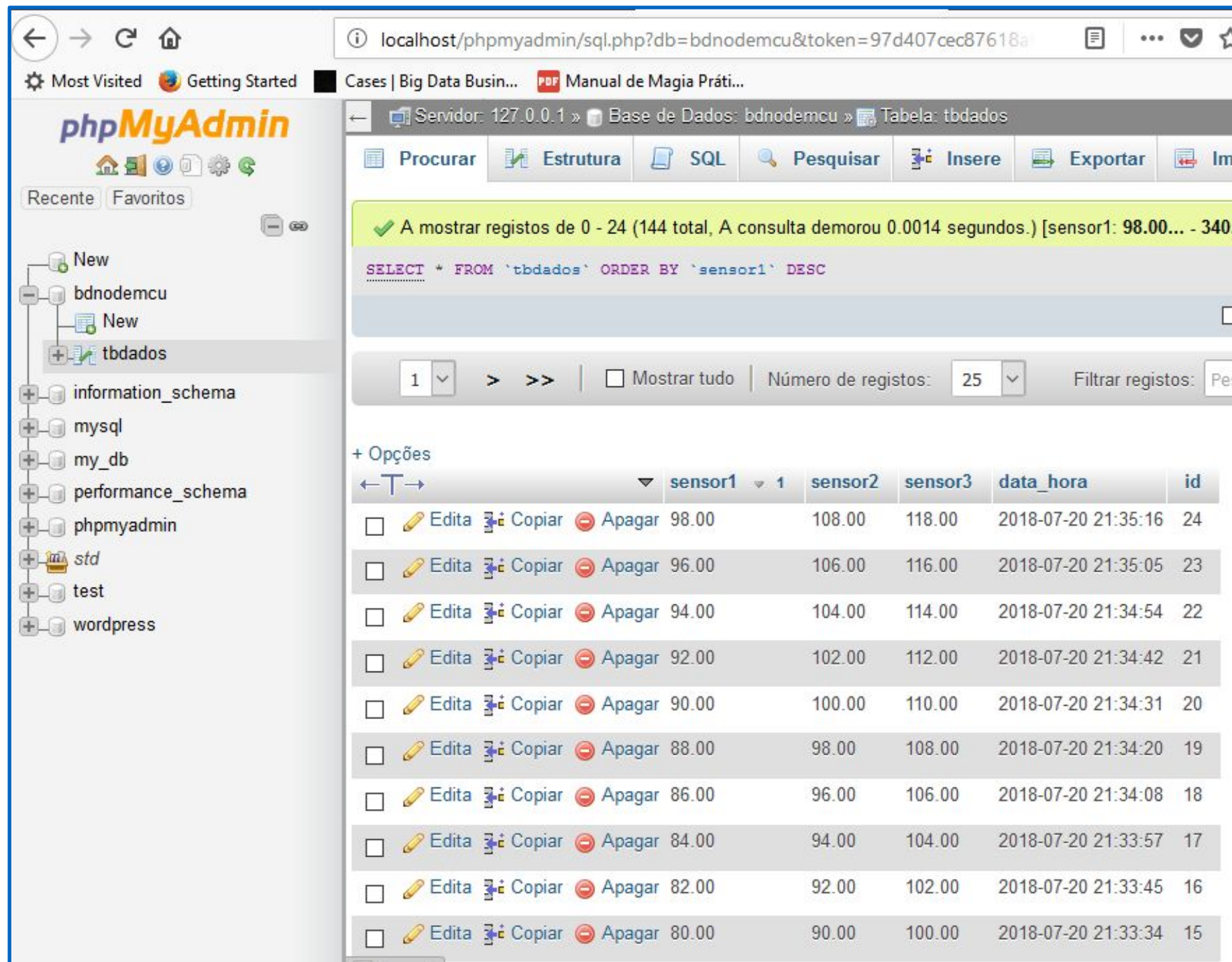

salvar.php

```
1
2
3 <?php
4 include "conexao.php";
5
6
7 $sensor1 = $_GET['sensor1'];
8 $sensor2 = $_GET['sensor2'];
9 $sensor3 = $_GET['sensor3'];
10
11
12 $sql = "INSERT INTO tbdados (sensor1, sensor2, sensor3) VALUES (:sensor1, :sensor2, :sensor3)"
13      ;
14
15 $stmt = $PDO->prepare($sql);
16
17 $stmt->bindParam(':sensor1', $sensor1);
18 $stmt->bindParam(':sensor2', $sensor2);
19 $stmt->bindParam(':sensor3', $sensor3);
20
21 if ($stmt->execute())
22 {
23     echo "salvo_com_sucesso";
24 }
25
26 else
27 {
28     echo "erro_ao_salvar";
29 }
30
31 ?>
32
```

index.php

```
index.php  salvar.php  conexao.php
82
83 include "conexao.php";
84
85 if ($_SERVER['REQUEST_METHOD'] == "POST") {
86     //echo "<h1> Recebeu a data : " . $_POST['data'] . "</h1";
87     $dataPesquisa = $_POST['data'];
88     $dataArray = explode("/", $dataPesquisa);
89
90     $dataPesquisa = $dataArray[1] . "-" . $dataArray[0];
91
92     echo "data da pesquisa: " . $dataPesquisa;
93
94
95
96
97
98     $sql = "SELECT * FROM tbdados WHERE data_hora LIKE '%" . $dataPesquisa . "%'";
99
100 }else {
101     //echo "<h1> Não recebeu nada, vai mostrar mes atual</h1";
102     $dataAtual = date('Y-m');
103     // echo "Mes Atual:" . $dataAtual ;
104     $sql = "SELECT * FROM tbdados WHERE data_hora LIKE '%" . $dataAtual . "%'";
105 }
106
107 $stmt = $PDO->prepare($sql);
108 $stmt ->execute();
109 echo "<table border=\\\"1\\\">";
110 echo "<tr>
111     <th> Sensor1</th>
112     <th> Sensor2</th>
113     <th> Sensor3</th>
114     <th>Data/Hora</th>
115 </tr>";
```

Onde os dados ficam armazenados ?



The screenshot displays the phpMyAdmin web interface. The left sidebar shows the database structure, with 'bdnodemcu' selected and 'tbdados' highlighted. The main panel shows the table 'tbdados' with the following columns: sensor1, sensor2, sensor3, data_hora, and id. The table contains 144 records, sorted by sensor1 in descending order. The interface shows the database 'bdnodemcu' and the table 'tbdados' selected.

Localhost/phpmyadmin/sql.php?db=bdnodemcu&token=97d407cec87618a

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Servidor: 127.0.0.1 » Base de Dados: bdnodemcu » Tabela: tbdados

Procurar Estrutura SQL Pesquisar Inserir Exportar Imprimir

✓ A mostrar registos de 0 - 24 (144 total, A consulta demorou 0.0014 segundos.) [sensor1: 98.00... - 340.00]

```
SELECT * FROM `tbdados` ORDER BY `sensor1` DESC
```

1 > >> ☐ Mostrar tudo Número de registos: 25 Filtrar registos: Pesquisar

+ Opções

			sensor1	sensor2	sensor3	data_hora	id	
<input type="checkbox"/>	✎ Editar	📋 Copiar	🗑 Apagar	98.00	108.00	118.00	2018-07-20 21:35:16	24
<input type="checkbox"/>	✎ Editar	📋 Copiar	🗑 Apagar	96.00	106.00	116.00	2018-07-20 21:35:05	23
<input type="checkbox"/>	✎ Editar	📋 Copiar	🗑 Apagar	94.00	104.00	114.00	2018-07-20 21:34:54	22
<input type="checkbox"/>	✎ Editar	📋 Copiar	🗑 Apagar	92.00	102.00	112.00	2018-07-20 21:34:42	21
<input type="checkbox"/>	✎ Editar	📋 Copiar	🗑 Apagar	90.00	100.00	110.00	2018-07-20 21:34:31	20
<input type="checkbox"/>	✎ Editar	📋 Copiar	🗑 Apagar	88.00	98.00	108.00	2018-07-20 21:34:20	19
<input type="checkbox"/>	✎ Editar	📋 Copiar	🗑 Apagar	86.00	96.00	106.00	2018-07-20 21:34:08	18
<input type="checkbox"/>	✎ Editar	📋 Copiar	🗑 Apagar	84.00	94.00	104.00	2018-07-20 21:33:57	17
<input type="checkbox"/>	✎ Editar	📋 Copiar	🗑 Apagar	82.00	92.00	102.00	2018-07-20 21:33:45	16
<input type="checkbox"/>	✎ Editar	📋 Copiar	🗑 Apagar	80.00	90.00	100.00	2018-07-20 21:33:34	15

Métodos: GET, POST, SELECT

```
<?php
include "conexao.php";

$sensor1 = $_GET['sensor1'];
$sensor2 = $_GET['sensor2'];
$sensor3 = $_GET['sensor3'];

$sql = "INSERT INTO tbdados (sensor1, sensor2, sensor3) VALUES (:sensor1, :sensor2, :sensor3)";
```

```
<?php

include "conexao.php";

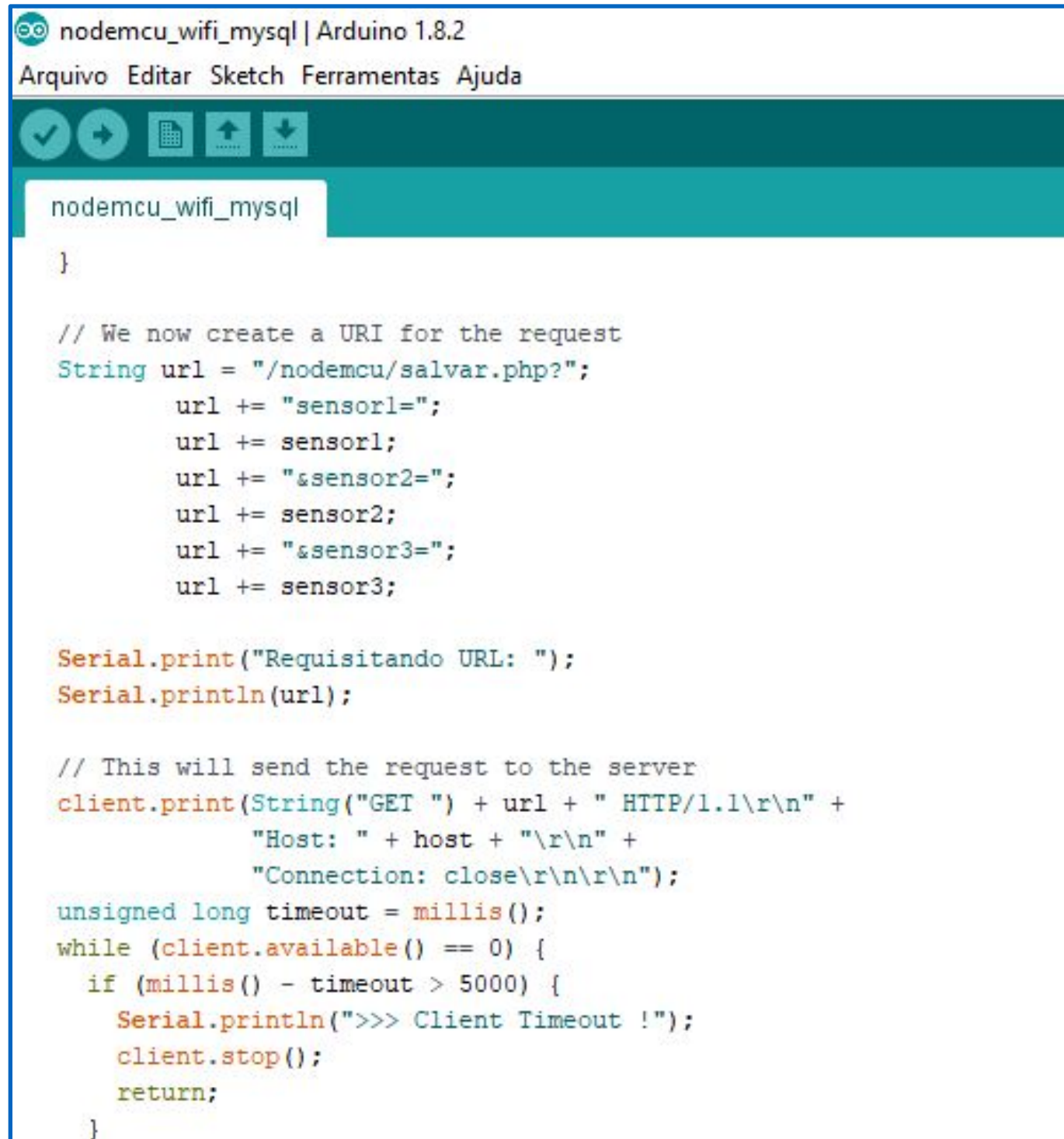
if ($_SERVER['REQUEST_METHOD'] == "POST") {
    //echo "<h1> Recebeu a data : " . $_POST['data'] . "</h1";
    $dataPesquisa = $_POST['data'];
    $dataArray = explode("/", $dataPesquisa);

    $dataPesquisa = $dataArray[1] . "-" . $dataArray[0];

    echo "data da pesquisa: " . $dataPesquisa;

    $sql = "SELECT * FROM tbdados WHERE data_hora LIKE '%" . $dataPesquisa . "%'"; // LIKE '%2017-09-15'
} else {
    //echo "<h1> Não recebeu nada, vai mostrar mes atual</h1";
    $dataAtual = date('Y-m');
    // echo "Mes Atual:" . $dataAtual ;
    $sql = "SELECT * FROM tbdados WHERE data_hora LIKE '%" . $dataAtual . "%'"; // LIKE '%2017-09-15'
```

Onde a mágica acontece?



```
nodemcu_wifi_mysql | Arduino 1.8.2
Arquivo Editar Sketch Ferramentas Ajuda

nodemcu_wifi_mysql
}

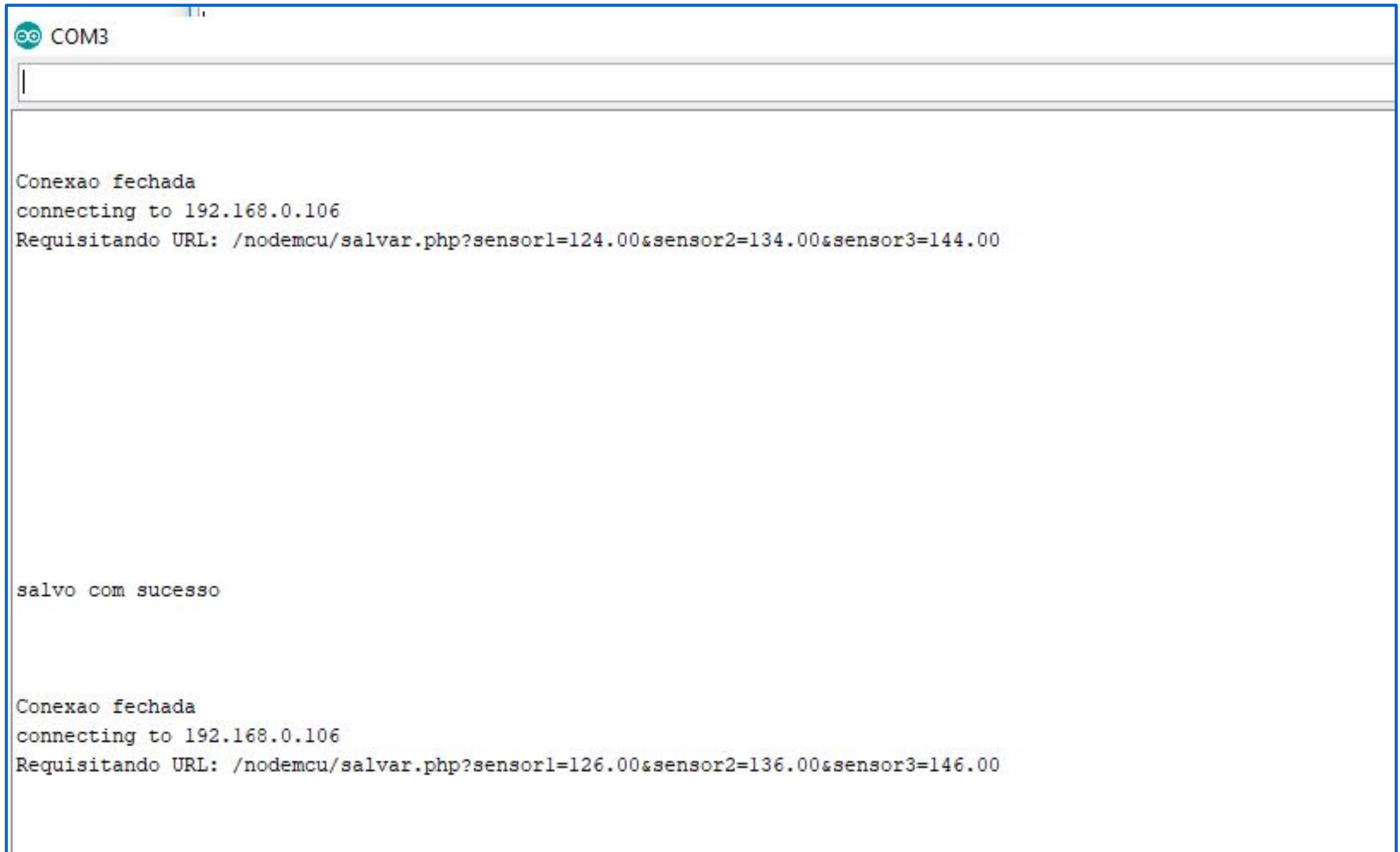
// We now create a URI for the request
String url = "/nodemcu/salvar.php?";
    url += "sensor1=";
    url += sensor1;
    url += "&sensor2=";
    url += sensor2;
    url += "&sensor3=";
    url += sensor3;

Serial.print("Requisitando URL: ");
Serial.println(url);

// This will send the request to the server
client.print(String("GET ") + url + " HTTP/1.1\r\n" +
    "Host: " + host + "\r\n" +
    "Connection: close\r\n\r\n");
unsigned long timeout = millis();
while (client.available() == 0) {
    if (millis() - timeout > 5000) {
        Serial.println(">>> Client Timeout !");
        client.stop();
        return;
    }
}
```

Algoritmo C/C++

Monitor Serial na IDE do Arduino



Aplicação Web : Tabela de Valores dos Sensores

Sabado Temático IFPB

NodeMCU para IoT

data da pesquisa: 2018-07

Sensor1	Sensor2	Sensor3	Data/Hora
52.00	62.00	72.00	20/07/2018 21:30:55
54.00	64.00	74.00	20/07/2018 21:31:06
56.00	66.00	76.00	20/07/2018 21:31:18
58.00	68.00	78.00	20/07/2018 21:31:29
60.00	70.00	80.00	20/07/2018 21:31:40
62.00	72.00	82.00	20/07/2018 21:31:51
64.00	74.00	84.00	20/07/2018 21:32:02
66.00	76.00	86.00	20/07/2018 21:32:13
68.00	78.00	88.00	20/07/2018 21:32:26

Fim

Muito Obrigado!

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