DEVELOPMENT PART 2

USER-FRIENDLY DASHBOARD:

Upon logging in, users are greeted with a dashboard displaying real-time and historical water consumption data.
The dashboard is designed in such a way that it is visually appealing and easy to understand, with charts and graphs representing water usage over time.

REAL-TIME DATA DISPLAY:

Implementing a section for real-time water consumption data, showing the current water usage and trends.
Using interactive charts or meters to make the data engaging.

HISTORICAL DATA ANALYSIS:

Allowing users to access historical data to track their water consumption trends.
Present historical data in customizable charts and graphs, enabling users to identify patterns.

USER PROFILES:

Users can create profiles to personalize their water conservation goals.
The platform can provide suggestions based on their consumption history.

NOTIFICATIONS AND ALERTS:

Setting up notifications for users when water consumption exceeds certain thresholds or deviates from their goals.
Users can choose to receive alerts through email, SMS, or in-app notifications.

WATER CONSERVATION TIPS:

Including a section with water-saving tips and best practices to educate users.
Regularly updating this section with new content to keep users engaged.

COMMUNITY AND SOCIAL INTEGRATION:

Creating a community aspect where users can share their conservation efforts and tips.
Users can compete with each other or collaborate on conservation initiatives.
Integration with IoT Sensors:

Ensuring seamless integration with IoT sensors to gather real-time data.
Providing users with an option to add or manage their sensors within the platform.

PRIVACY AND SECURITY:

Implementing strong security measures to protect user data and ensure IoT sensor data is secure.

ACCESSIBILITY:

Ensuring the platform is accessible to all users, including those with disabilities.

ANALYTICS AND REPORTING:

Providing detailed analytics and reports to help users understand their water usage patterns.

FEEDBACK MECHANISM:

Including a feedback feature where users can provide suggestions and report issues.

EDUCATION AND AWARENESS:

Dedicating a section to water-related articles, videos, and infographics to increase awareness.

MEASURING IMPACT:

Implementing mechanisms to measure the positive impact of water conservation efforts and share this data with users.
Regularly update and maintain the platform based on user feedback and evolving water conservation strategies.

WAMP:

WampServer, short for Windows, Apache, MySQL, and PHP, is a popular open-source software stack primarily designed for Windows operating systems. It provides a convenient and straightforward way for web developers to create a local web development environment on their Windows-based computers. This environment enables developers to build, test, and debug web applications without the need for a live web server, making it an essential tool in the web development process.
The core components of WampServer include Apache, the web server that handles HTTP requests; MySQL, a relational database management system for data storage; and PHP, a server-side scripting language used to create dynamic web applications. By bundling these components, WampServer simplifies the installation and configuration process, allowing developers to set up their development environment quickly.

WampServer offers several key advantages, including the ability to switch between different versions of PHP to match project requirements, an easy-to-use user interface for configuring server settings, and the ability to run local web applications with ease. Whether you're a beginner looking to learn web development or an experienced developer working on new projects, WampServer can significantly streamline your workflow by providing a complete, local web server environment on your Windows machine.

PHPMYADMIN:

phpMyAdmin is a versatile and widely-used tool for managing MySQL databases through a userfriendly web-based interface. It offers a wealth of features that streamline database administration and development tasks. With phpMyAdmin, users can perform a wide range of actions, from creating and altering database structures to executing SQL queries and managing user privileges. This makes it an invaluable resource for web developers, database administrators, and anyone working with MySQL databases.
One of phpMyAdmin's standout features is its ability to simplify database management tasks. Users can effortlessly create new databases, tables, and fields, and they can efficiently import and export data in various formats. The SQL query editor allows for custom data retrieval and manipulation, providing fine-grained control over the database's content. Furthermore, the tool's user management capabilities enable administrators to set access permissions and secure their databases.
Another advantage of phpMyAdmin is its database design functionality. Users can visually design database structures, define relationships between tables, and set data types and constraints. This makes the tool especially useful for those who need to plan and implement complex database schemas.
Additionally, phpMyAdmin's support for multiple languages and its extensive community of users contribute to its widespread adoption and accessibility across different regions and cultures.

CODE:

```
<!DOCTYPE html>
<html>
<head>
<style>
body{
background-image: url("https://r1.ilikewallpaper.net/ipad-pro-wallpapers/download-
151361/darkflavours.jpg");  background-repeat: no-repeat;

color: white; margin-left: 150px; margin-right: 150px;
}
</style>
</head>
<body>
<center>
<h1 style="padding-top: 10px">SMART WATER MANAGEMENT SYSTEM</h1>
<br>
<p style="font-size: 30px">
A Smart Water Management System is a sophisticated and interconnected network that
employs modern technology, particularly the Internet of Things (IoT), to monitor,
control, and optimize the use of water resources. It is designed to address the challenges
of water scarcity, water quality, infrastructure inefficiencies, and environmental
sustainability. Here are the key components and features of a Smart Water Management
System:
</p><br>
<?php
$servername = "localhost";

$username = "root";
$password = "";
$dbname = "watermanagement";
$conn = new mysqli($servername, $username, $password, $dbname); if ($conn-
>connect_error) {  die("Connection failed: " . $conn-
>connect_error);
}
$sql = "SELECT ph, hardness, solids, sulphates FROM water";
$result = $conn->query($sql);
if ($result->num_rows > 0) {
echo "<table cellpadding=30px; border='2' style='border-collapse: collapse;'font-size:
90px;><tr><th>ph</th><th>hardness</th><th>solids</th><th>sulphate<
/th></tr>";  while($row = $result-
>fetch_assoc()) { echo
"<tr><td>".$row["ph"]."</td><td>".$row["hardness"]."</td><td>".$row["solids"].
"</td><td>".$row["sulphates"]."</td></tr>";
}  echo "</table>";
} else {  echo "0 results";
```

```
}
$conn->close();
?>
</center>
</body>
</html>
```

EXPLANATION:

Database Connection:

This section establishes a connection to a MySQL database. It specifies the database server (`localhost`), the username (`root`), and an empty password (in this example, no password). The database name is set to `"water management"`.
It uses the `mysqli` library to create a database connection object (`$conn`).
Connection Error Handling:
The `if ($conn->connect_error)` condition checks if there was an error in establishing the database connection. If an error occurs, the script terminates and displays an error message with the reason for the connection failure.

SQL Query:

The SQL query selects specific columns (ph, hardness, solids, sulphates) from a table named "water." This table is assumed to be within the specified database.
Query Execution and Result Handling:
The `query` method is used to execute the SQL query. The result is stored in the `$result` variable.

Display Data in HTML Table:

If there are rows in the result set (i.e., if `$result->num_rows` is greater than 0), it generates an HTML table with column headers (Temperature, Humidity, Pollution Level, Particulate Matter).
Inside a loop, it fetches each row of data using `$result->fetch_assoc()`, and for each row, it generates an HTML table row (`<tr>`) with the corresponding data in the table cells (`<td>`).
The loop iterates through all the rows in the result set.

No Results Message:

If there are no results (i.e., no rows in the result set), it displays a message indicating "0 results."

Database Connection Closure:

The `$conn->close()` method is used to close the database connection when the data retrieval and display are complete.
This PHP code connects to a MySQL database, retrieves data from a specific table, and formats the data into an HTML table for display on a web page. The data displayed in the HTML table depends on what's stored in the "air" table of the "watermanagement" database.

OUTPUT:

SMART WATER MANAGEMENT SYSTEM

A Smart Water Management System is a sophisticated and interconnected network that employs modern technology, particularly the Internet of Things (IoT), to monitor, control, and optimize the use of water resources. It is designed to address the challenges of water scarcity, water quality, infrastructure inefficiencies, and environmental sustainability. Here are the key components and features of a Smart Water Management System.

PH	HARDNESS	SOLIDS	SULPHATES
393.66339551509645	283.6516335078445	13.789695317519886	28749.716543528233
3.71608007538699	129.42292051494425	18630.057857970347	592.8853591348523
8.316765884214679	214.37339408562252	22018.417440775294	8.05933237743854

ph	hardness	solids	sulphates
4	129	18630	369
4	129	18630	369
8	224	19910	0
8	224	19910	0
10	248	28750	394
10	248	28750	394

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