Created by:

Names: Alper Kaya, Meryem Ahıskalı

Student Numbers: 20200808002, 20200808054

Github Links: https://github.com/alperkaya0 , https://github.com/meryemAhiskali

Github Project Link: https://github.com/alperkaya0/home-automation-project

WORKFLOW

- The website starts from the starting point first. From here, he can proceed by choosing one of the consumer or producer sections.
- When the consumer makes a choice, the consumer home page appears.
    - This homepage is for a user preview.
    - If the consumer reaches the login section and enters the data that matches with the database, they will have successfully logged in.
    - If they click on the sign up option, they can successfully create an account in the system.
    - After logging in, the user can see the device and its data, graphics.
    - The graph data is constructed based on real-time data. It considers the user's consumption at specific time intervals and reflects it on the graph accurately.

        - You can get information about the site from the Feauters, About, FAQs section.
        - When you're done, you can log out with the log out button.

- When the producer makes a choice, the producer page appears.

        - We have one producer.
        - After logging in, the page come which shows
            - Toggle Buttons
            - Change Temperature
            - Change Weather Forecast parts.
        - And you can change or see data about devices.
        - When you're done, you can log out with the log out button.

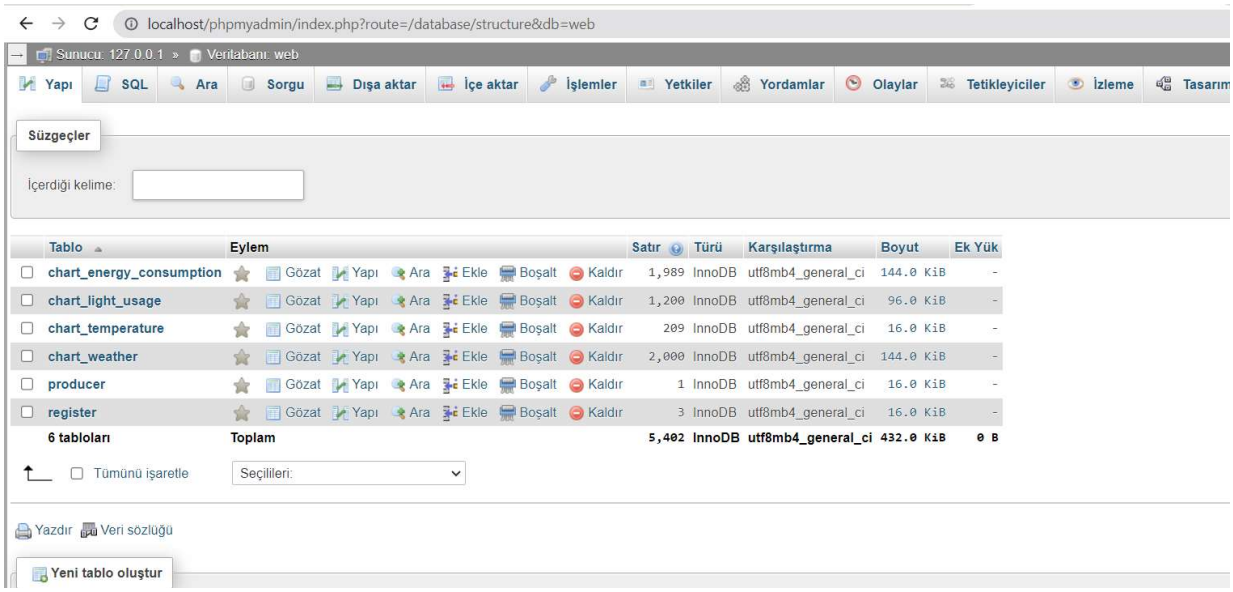
About Project

In our project, we utilized a MySQL database. We stored user information in the database and also kept track of our sensors and their values. As needed, we retrieved data from the database and used it accordingly.

- While developing our project, we wrote some code to creation data for the sensor.

```
public class data_creator {
    public static void main(String[] args) {
        createInsertionsForWeather("INSERT INTO `chart_weather` VALUES (9, \"alperkaya\", \"2023-06-02\",
11);");
    }
    public static void createInsertionsForTemperature(String s) {
        String[] arr = s.split("9|2023-06-02|11|alperkaya");
        String[] _arr = new String[]{"110", "meryemAhiskali", "2023-06-02", "11"};

        for (int j = 0; j < 100; ++j) {
            _arr[0] = (Integer.parseInt(_arr[0]) + 1) + "" ;
            _arr[2] = _arr[2].substring(0, _arr[2].length()-1) + (int)(Math.random()*9 + 1);
            _arr[3] = Integer.toString((int)(Math.random()*100));

            int k = 0;
            for (int i = 0; i < arr.length; ++i) {
                System.out.print(arr[i] + (k < _arr.length ? _arr[k++] : ""));
            }
            System.out.println();
        }
    }

    public static void createInsertionsForLightUsage(String s) {
        String[] arr = s.split("9|2023-06-02|11|alperkaya");
        String[] _arr = new String[]{"210", "alperkaya", "2023-06-02", "11"};

        for (int j = 0; j < 1000; ++j) {
            _arr[0] = (Integer.parseInt(_arr[0]) + 1) + "" ;
            String randomYear = "202";
            randomYear += (int)(Math.random()*4)+"";
            String randomMonth = (int)(Math.random()*12 + 1)+"";
            String randomDay = (int)(Math.random()*27 + 1)+"";
            if (randomDay.length() < 2) randomDay = "0" + randomDay;
            if (randomMonth.length() < 2) randomMonth = "0" + randomMonth;
            _arr[2] = randomYear+"-"+randomMonth+"-"+randomDay;
            _arr[3] = Double.toString(Math.random()*1000);

            int k = 0;
            for (int i = 0; i < arr.length; ++i) {
                System.out.print(arr[i] + (k < _arr.length ? _arr[k++] : ""));
            }
            System.out.println();
        }
    }

    public static void createInsertionsForEnergyConsumption(String s) {
        String[] arr = s.split("9|2023-06-02|11|alperkaya");
        String[] _arr = new String[]{"1000", "alperkaya", "2023-06-02", "11"};

        for (int j = 0; j < 1000; ++j) {
            _arr[0] = (Integer.parseInt(_arr[0]) + 1) + "" ;
            String randomYear = "202";
            randomYear += (int)(Math.random()*4)+"";
            String randomMonth = (int)(Math.random()*12 + 1)+"";
            String randomDay = (int)(Math.random()*27 + 1)+"";
            if (randomDay.length() < 2) randomDay = "0" + randomDay;
            if (randomMonth.length() < 2) randomMonth = "0" + randomMonth;
            _arr[2] = randomYear+"-"+randomMonth+"-"+randomDay;
            _arr[3] = Double.toString((Math.random()*1000));

            int k = 0;
            for (int i = 0; i < arr.length; ++i) {
                System.out.print(arr[i] + (k < _arr.length ? _arr[k++] : ""));
            }
            System.out.println();
        }
    }

    public static void createInsertionsForWeather(String s) {
        String[] arr = s.split("9|2023-06-02|11|alperkaya");
        String[] _arr = new String[]{"1000", "meryemAhiskali", "2023-06-02", "11"};
        String[] weathers = new String[]{"sunny", "rainy", "cloudy", "stormy", "windy"};

        for (int j = 0; j < 1000; ++j) {
            _arr[0] = (Integer.parseInt(_arr[0]) + 1) + "" ;
            String randomYear = "202";
            randomYear += (int)(Math.random()*4)+"";
            String randomMonth = (int)(Math.random()*12 + 1)+"";
            String randomDay = (int)(Math.random()*27 + 1)+"";
            if (randomDay.length() < 2) randomDay = "0" + randomDay;
            if (randomMonth.length() < 2) randomMonth = "0" + randomMonth;
            _arr[2] = randomYear+"-"+randomMonth+"-"+randomDay;
            _arr[3] = "\""+weathers[(int)(Math.random()*5)]+"\"";

            int k = 0;
            for (int i = 0; i < arr.length; ++i) {
                System.out.print(arr[i] + (k < _arr.length ? _arr[k++] : ""));
            }
            System.out.println();
        }
    }
}
```

- Let's take a look at a few SQL queries we used.




```
SELECT AVG(value) as average FROM chart_energy_consumption WHERE DATEDIFF(CURDATE(), date) >= 0 AND
DATEDIFF(CURDATE(), date) <= 365 AND name = 'alperkaya';
```

```
SELECT AVG(value) as average FROM chart_energy_consumption WHERE DATEDIFF(CURDATE(), date) >= 0 AND
DATEDIFF(CURDATE(), date) <= 7 AND name = 'alperkaya';
```

```
SELECT AVG(value) as average FROM chart_energy_consumption WHERE DATEDIFF(CURDATE(), date) >= 0 AND
DATEDIFF(CURDATE(), date) <= 1 AND name = 'alperkaya';
```

```sql
SELECT name, surname FROM register WHERE username = 'alperkaya'
```

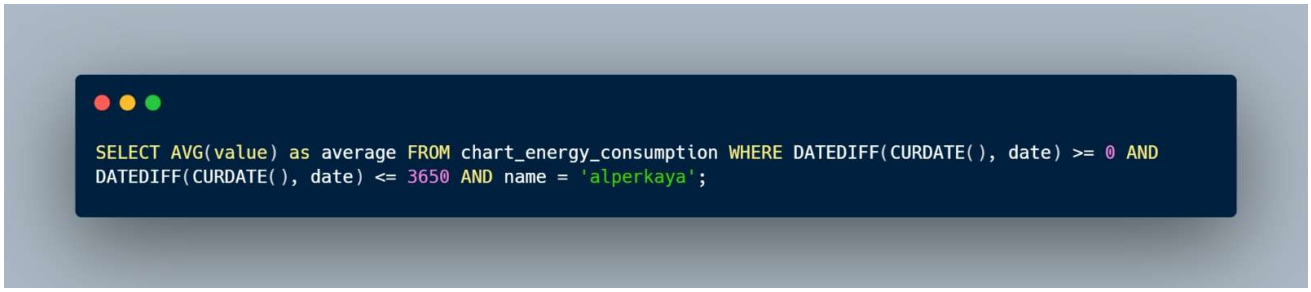
```sql
SELECT name, value AS weather, COUNT(value) AS value FROM `chart_weather` GROUP BY name,
value;
```

```sql
SELECT AVG(value) AS value, name, DAYNAME(date) AS day_of_week FROM `chart_temperature` GROUP BY name,
day_of_week;
```

```sql
SELECT AVG(value) as average FROM `chart_light_usage` WHERE DATEDIFF(CURDATE(), date) >= 0 AND
DATEDIFF(CURDATE(), date) <= 3650 AND name = 'alperkaya';
```

SELECT AVG(value) as average FROM `chart_light_usage` WHERE DATEDIFF(CURDATE(), date) >= 0 AND
DATEDIFF(CURDATE(), date) <= 7 AND name = 'alperkaya';

SELECT AVG(value) as average FROM `chart_light_usage` WHERE DATEDIFF(CURDATE(), date) >= 0 AND
DATEDIFF(CURDATE(), date) <= 1 AND name = 'alperkaya';



```
SELECT AVG(value) as average FROM chart_energy_consumption WHERE DATEDIFF(CURDATE(), date) >= 0 AND
DATEDIFF(CURDATE(), date) <= 3650 AND name = 'alperkaya';
```

USAGE

After you copied the files to your htdocs, which you can find at /opt/lampp/htdocs in Linux or
C:/xampp/htdocs in Windows,
you can access the webpage at localhost/[YOUR_FOLDER_NAME].

Login Credentials

Consumers:

The consumers already present in the system.

username -	password:	meryemAhiskali	1234
		alperkaya	5678

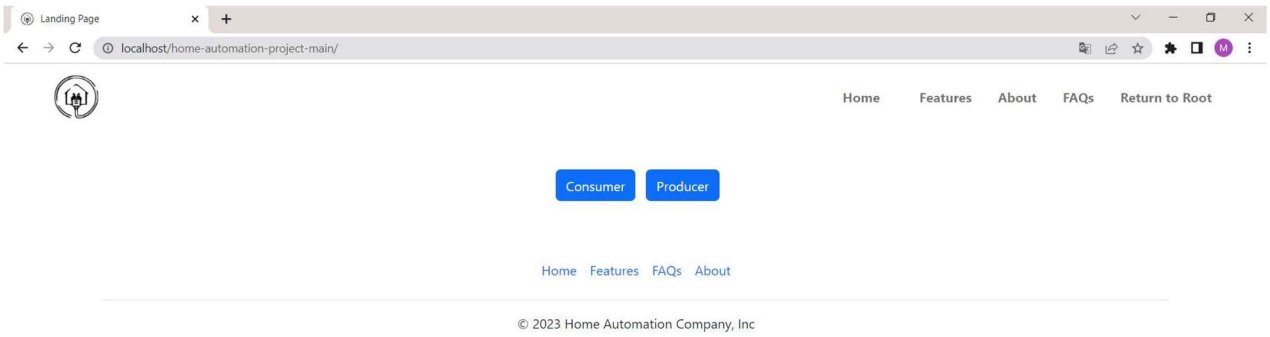
If you want to add a new user. You should pay attention to these:

- Username must be letters and spaces only.
- Password must be only numbers.

Details

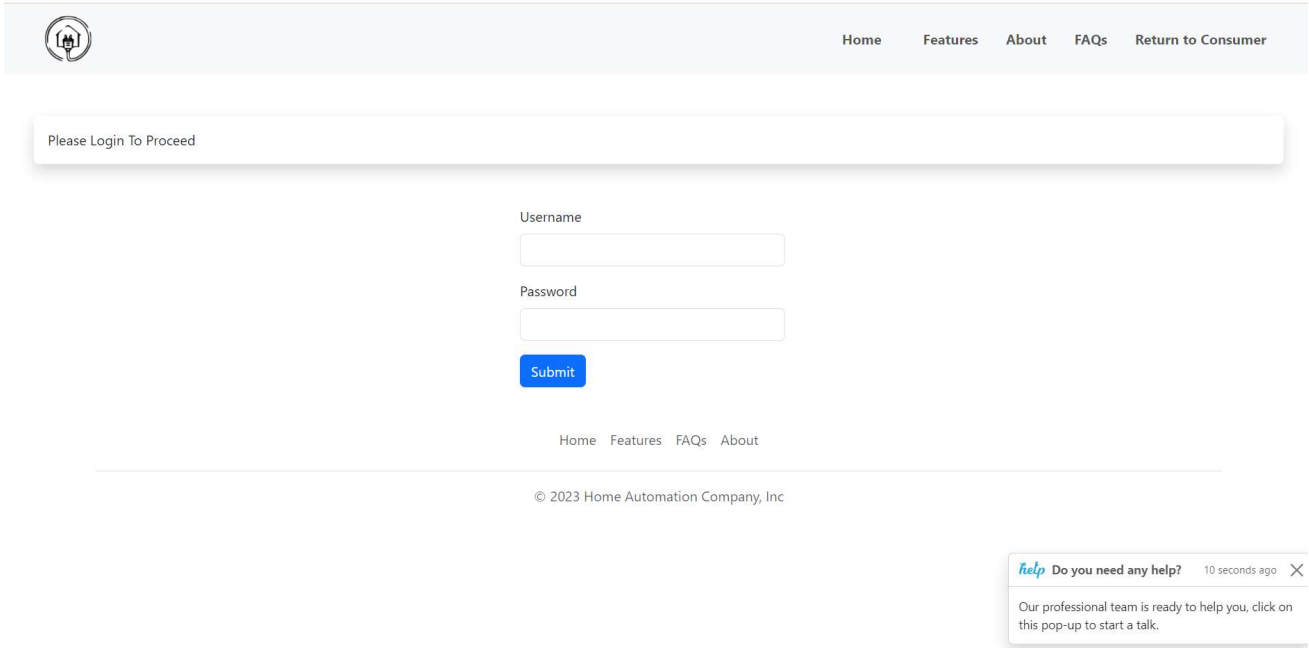
Pages like Features, About, FAQs are consumer targeted pages. Return to Root, Return to Producer, Return to Consumer buttons are made specifically for our teacher to navigate easier between consumer and producer. We designed the charts and tables based on daily life data and stored this information in a database. Then, we generated charts and tables by running various queries.

STARTING POINT



PRODUCER

- ## Login Page

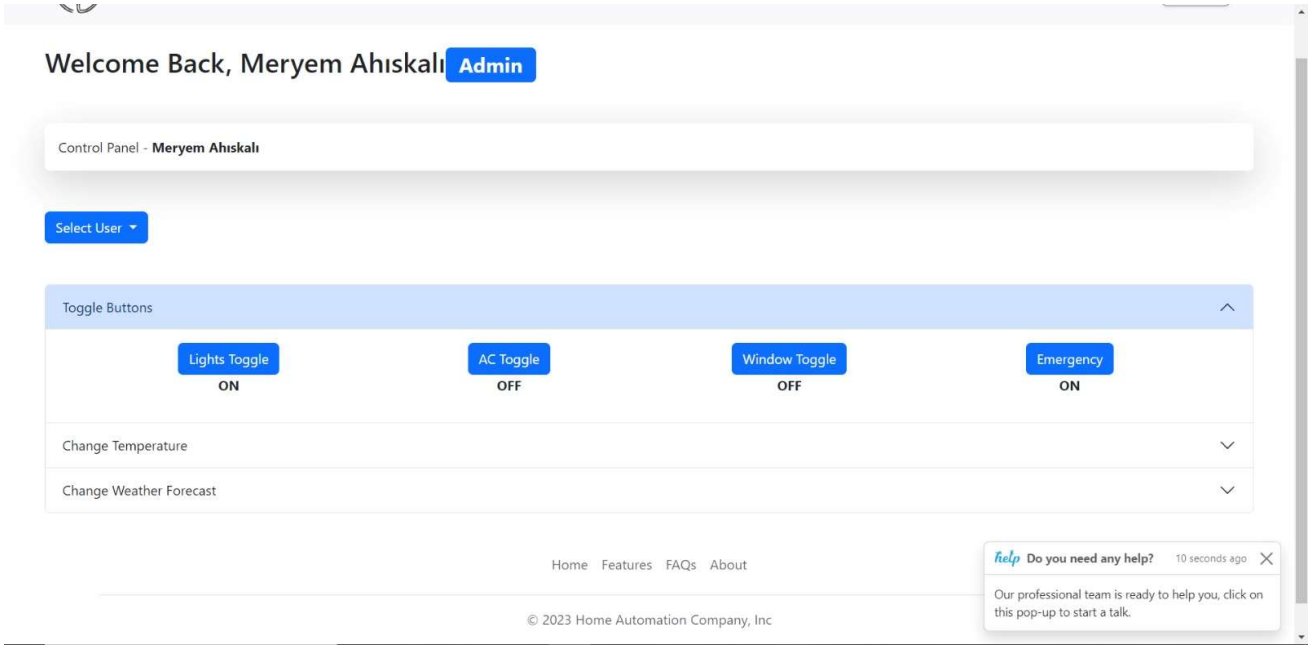


Login Information for Producer:

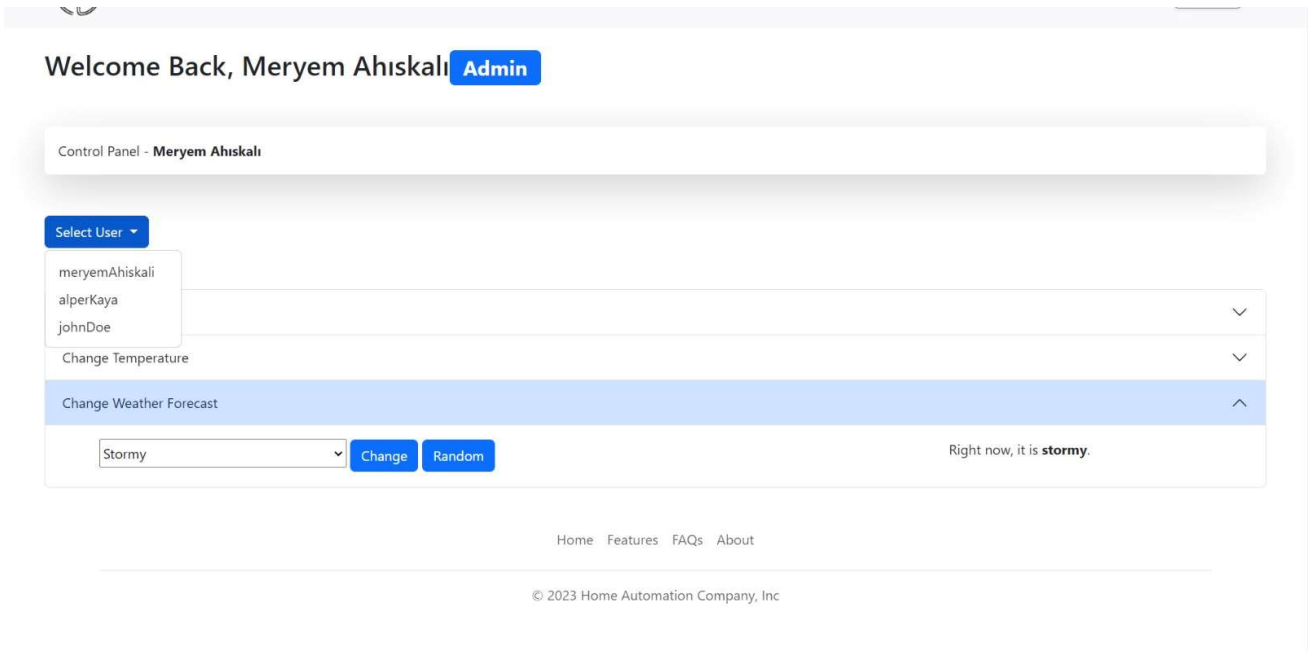
Username : “meryem”

Password : “1928”

- **After Logged In**

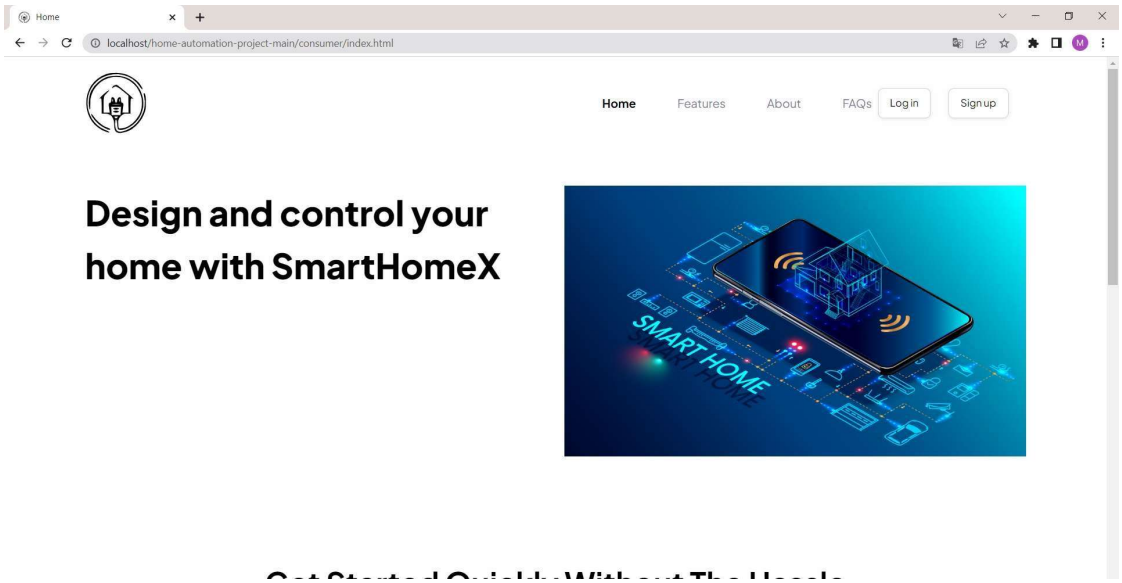


The producer can select the consumer information that the system possesses from here. The settings of the selected consumer are displayed.



- **Log out**

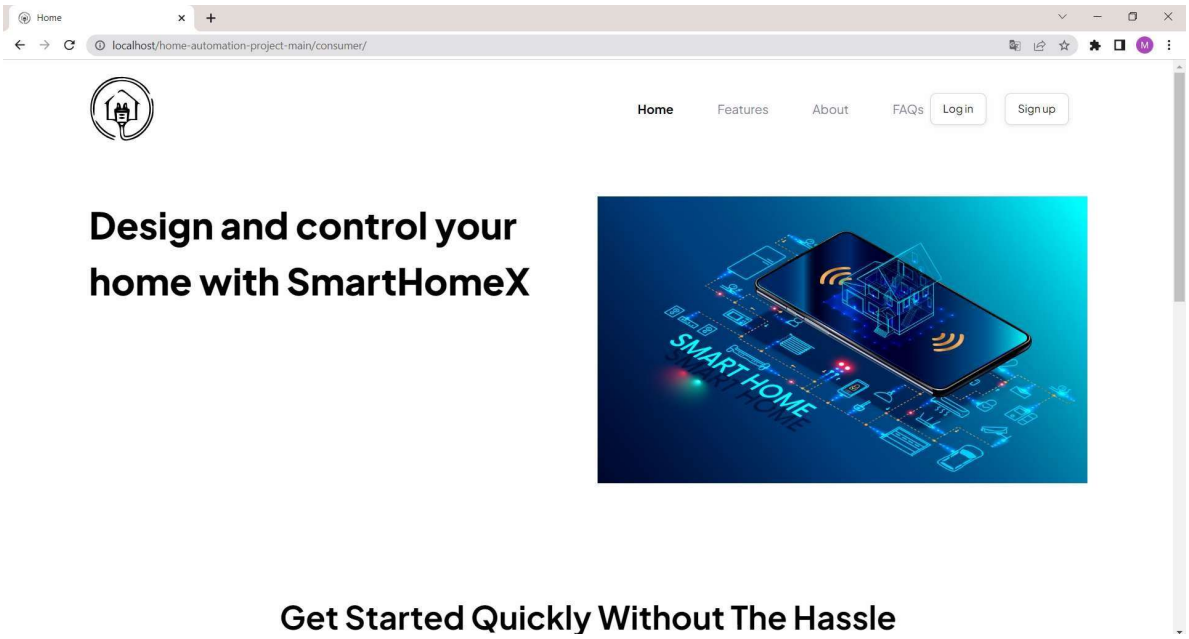
When the producer clicks the “Log out” button, it is directed to the Consumer Home Page. (This page for consumer to first look of the page.)

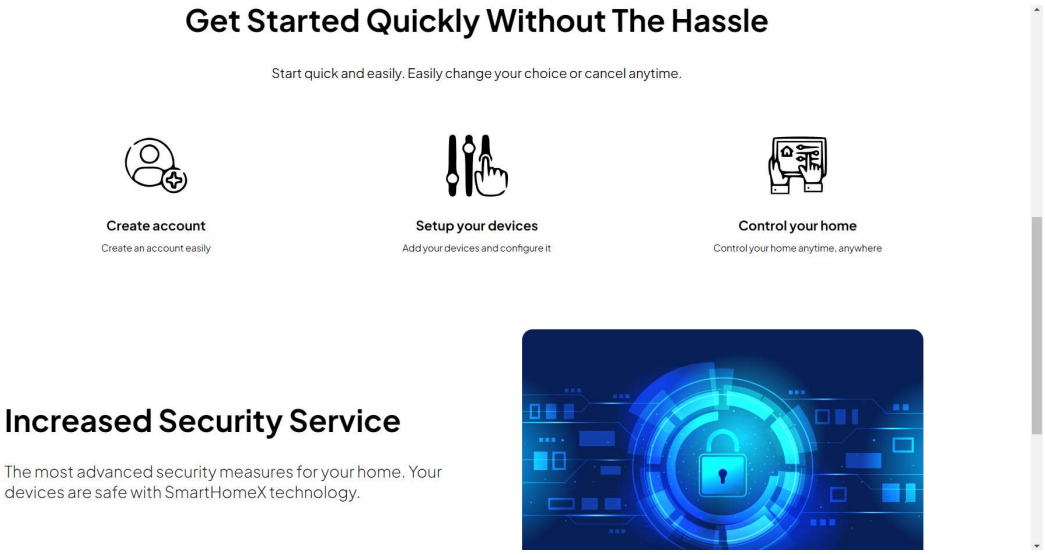


CONSUMER

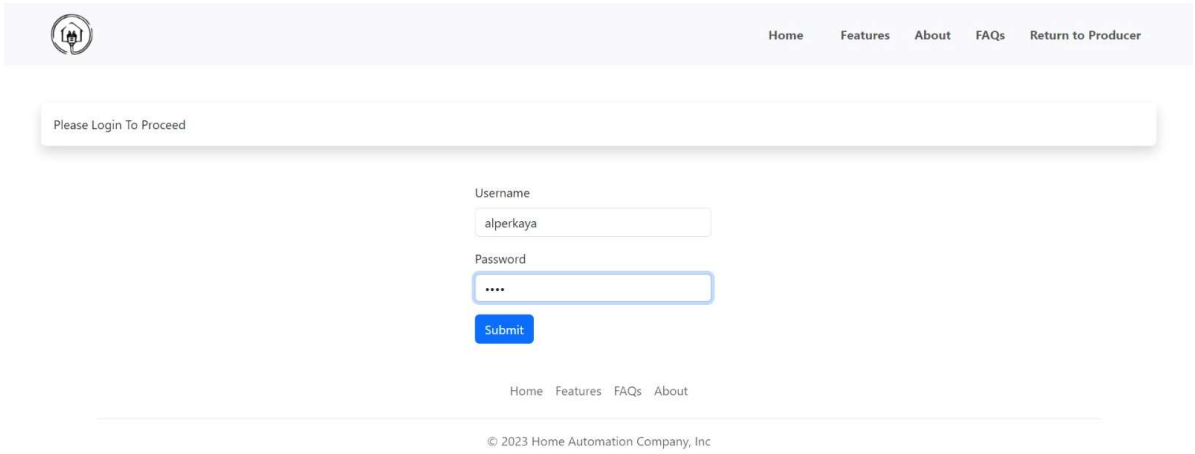
- ## Consumer Home Page

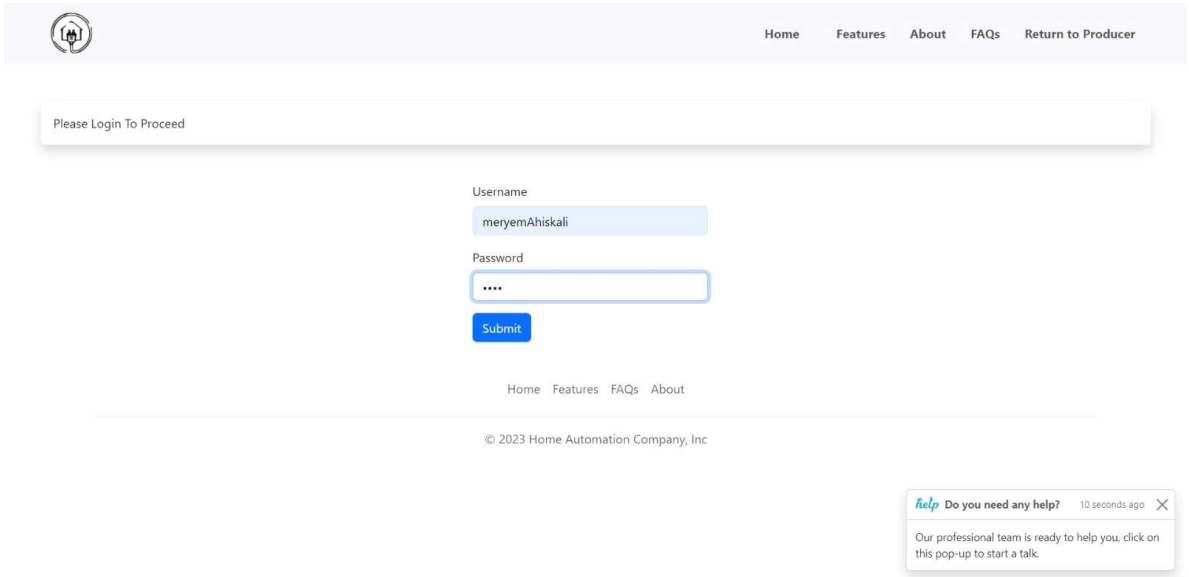
This page for consumer to first look of the page.





- **Log in Page**

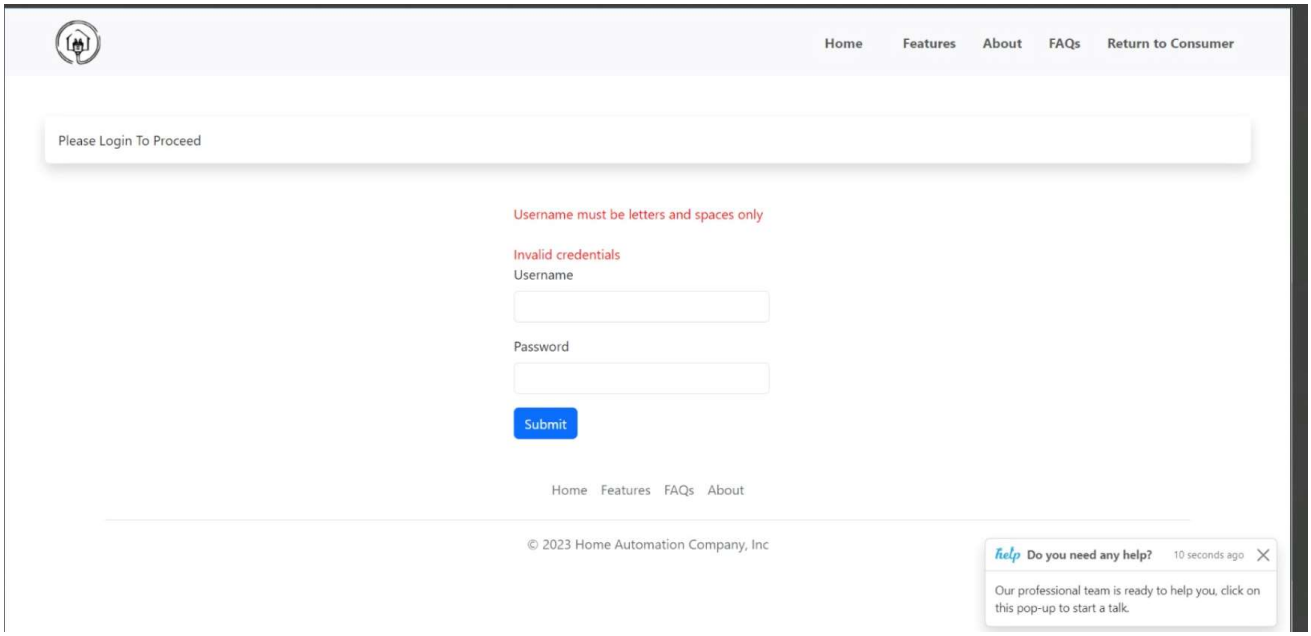




Login Information for Consumer:

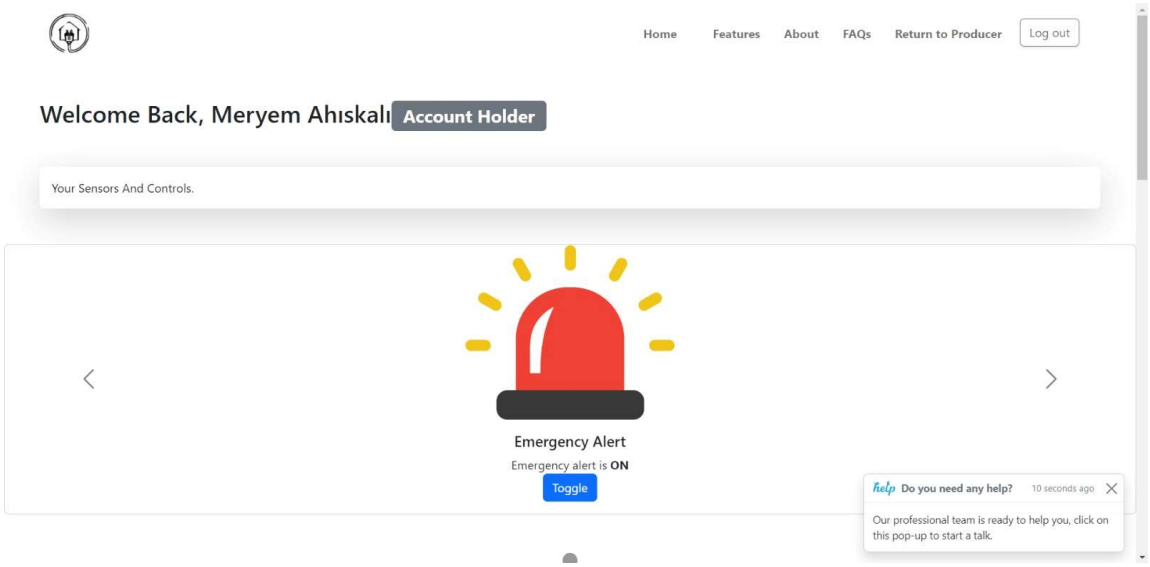
username-password: meryemAhiskali 1234
alperkaya 5678

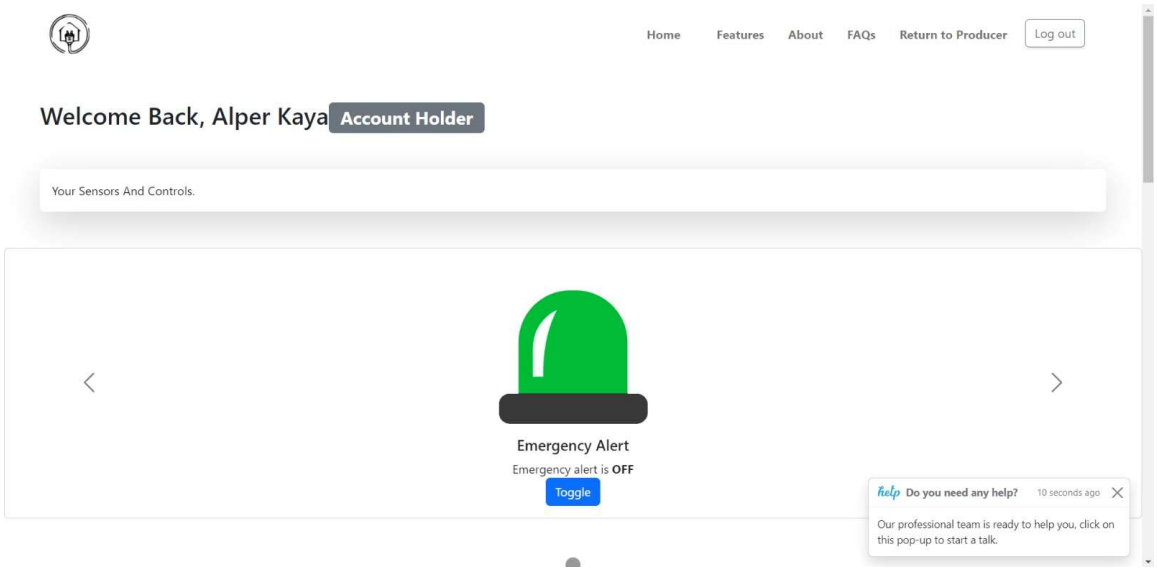
If you enter something other than a letter or space as your username during login, or if you enter something other than a number as your password, the system will display a warning.



- After Logged In

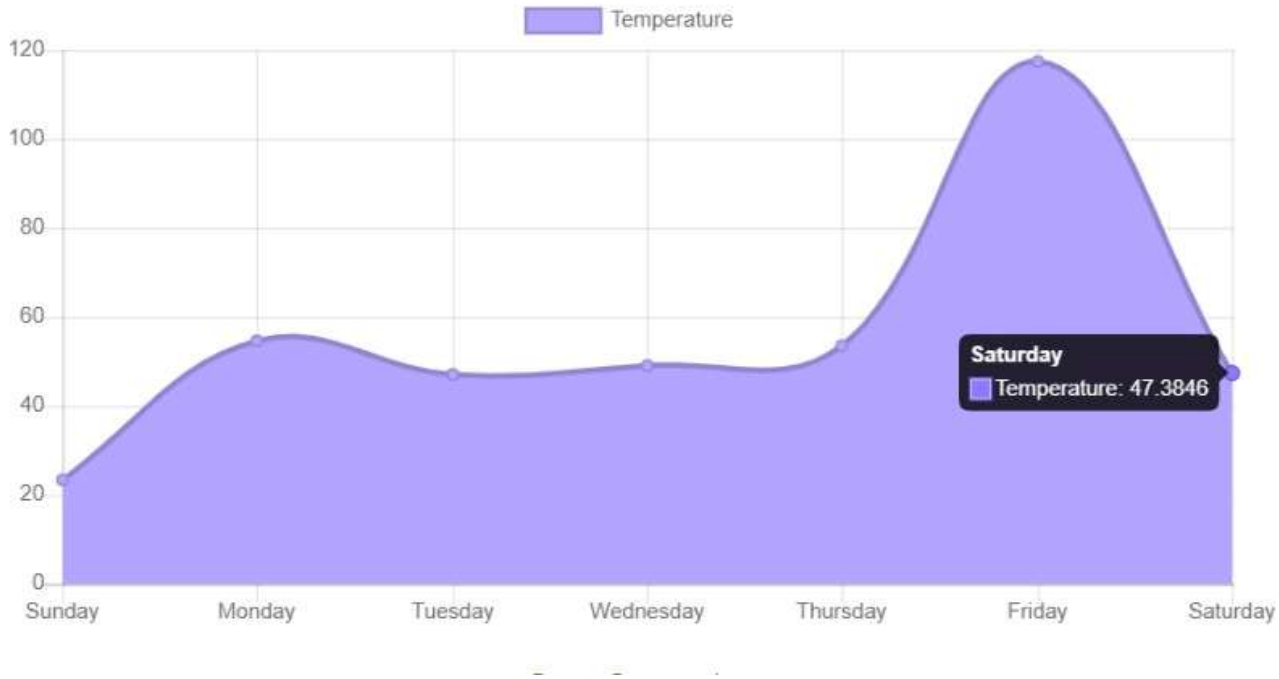
The system greets you with a "Welcome back" message based on the username you used to log in.

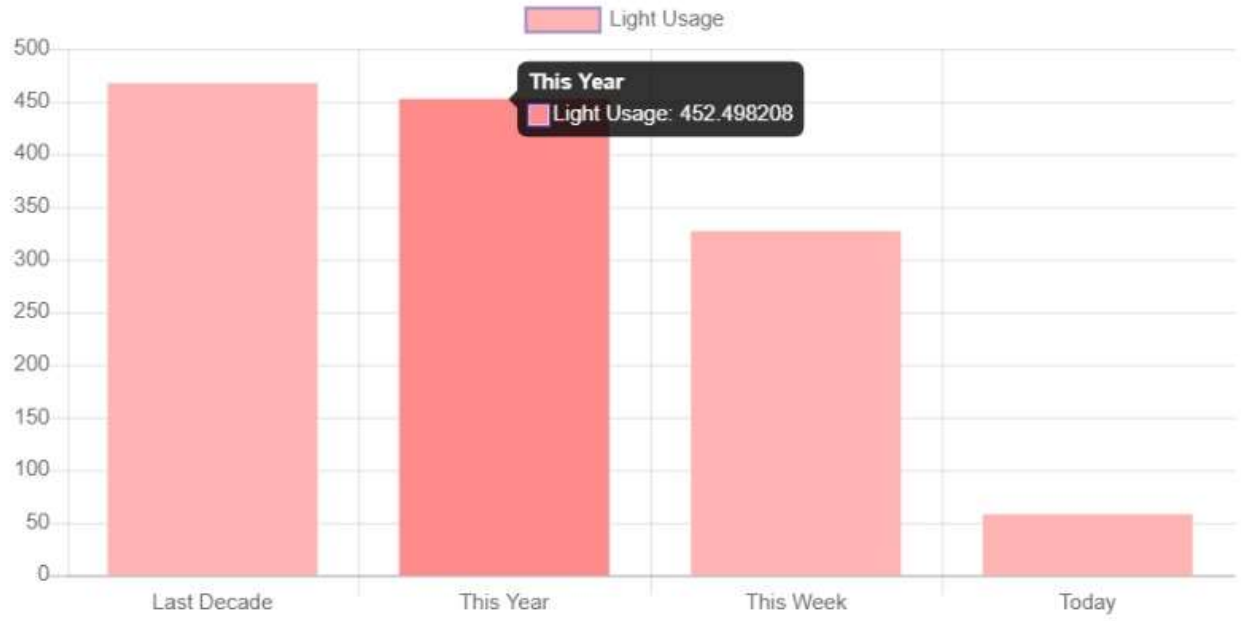


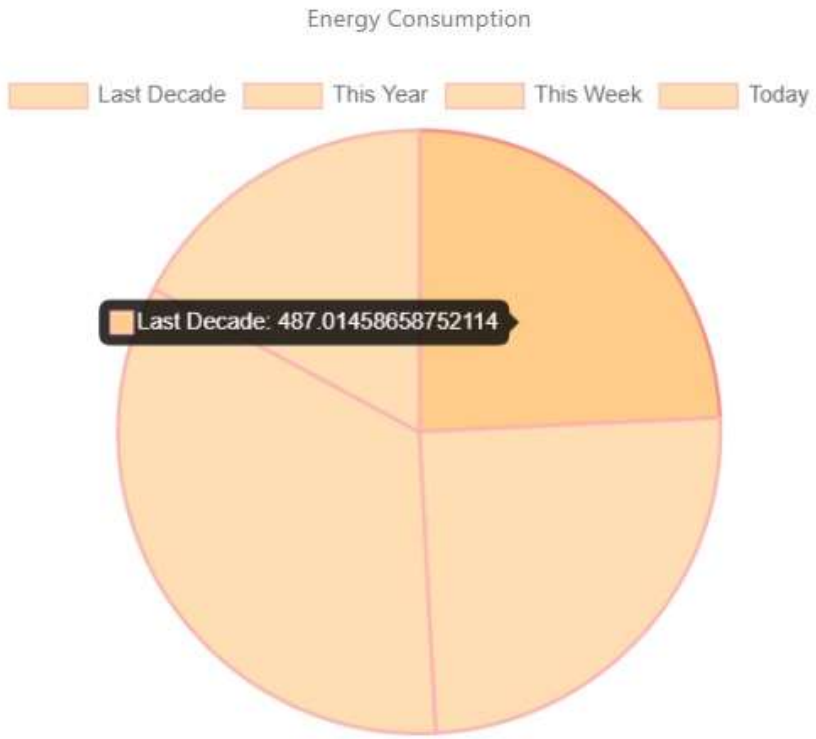


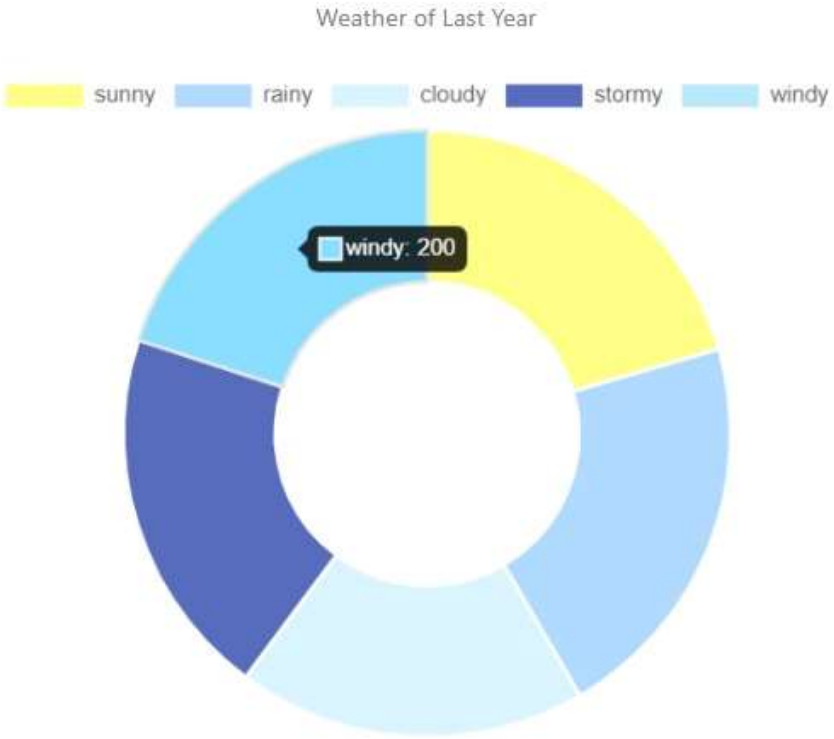
- Some graphic models about our system.

You can hover over and click on the charts and columns beneath the sensors to view their details.

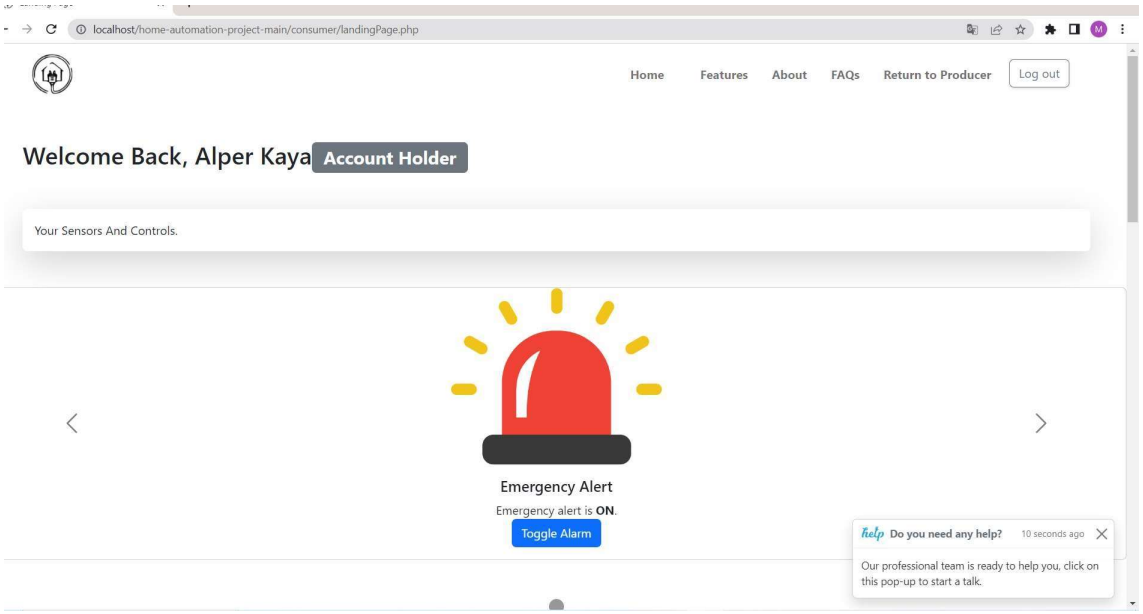


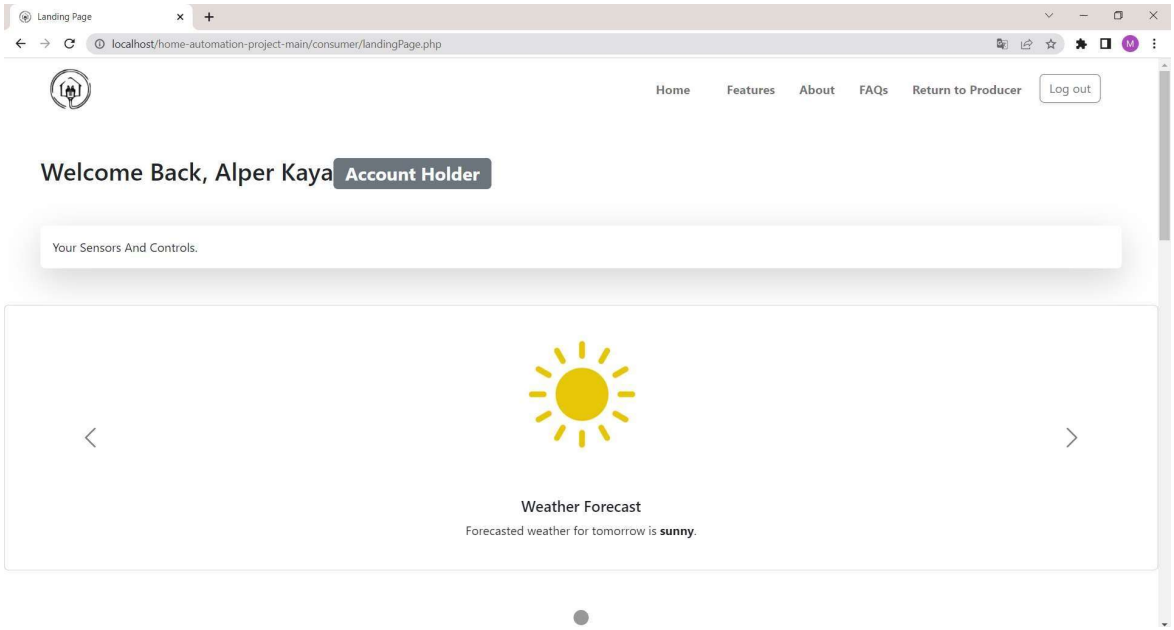


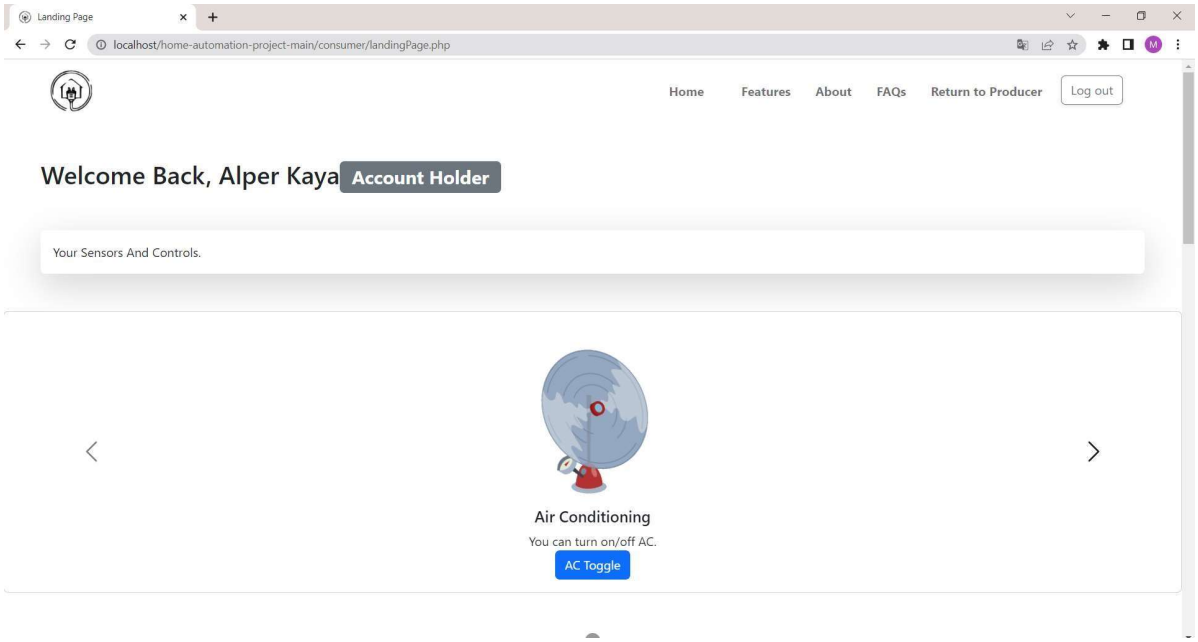

Energy Consumption
Last Decade
This Year
This Week
Today
Last Decade: 487.01458658752114

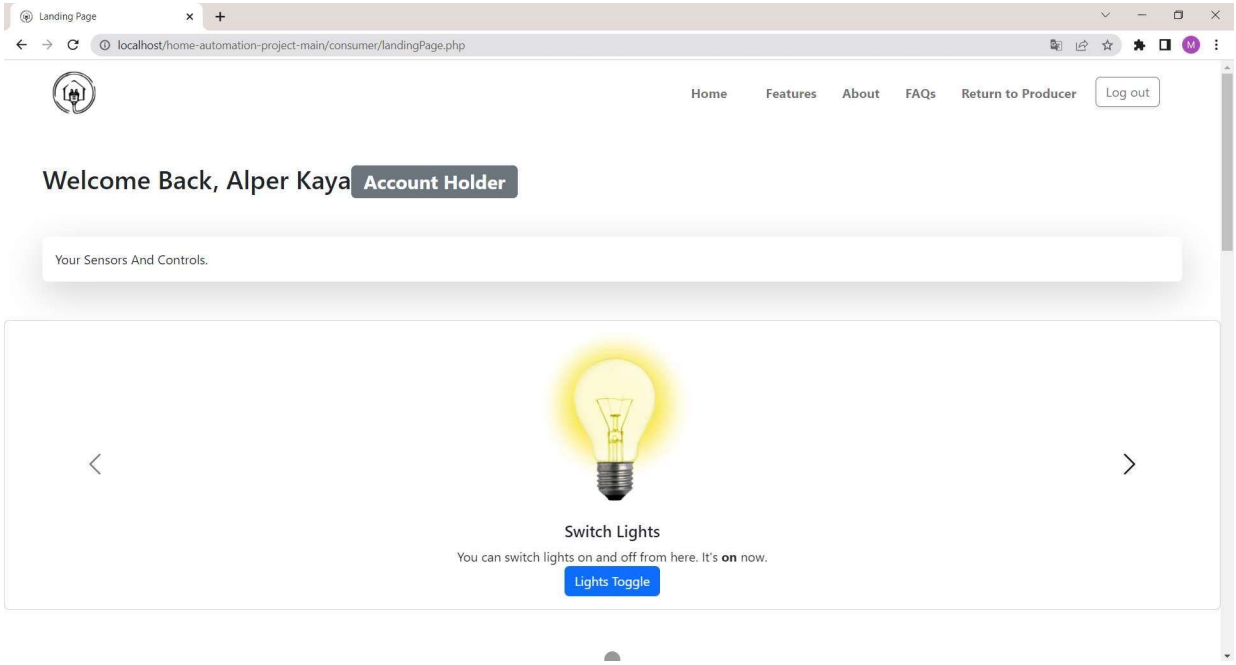

Weather of Last Year
sunny
rainy
cloudy
stormy
windy
windy: 200

- **After Click “Toggle Alarm”**

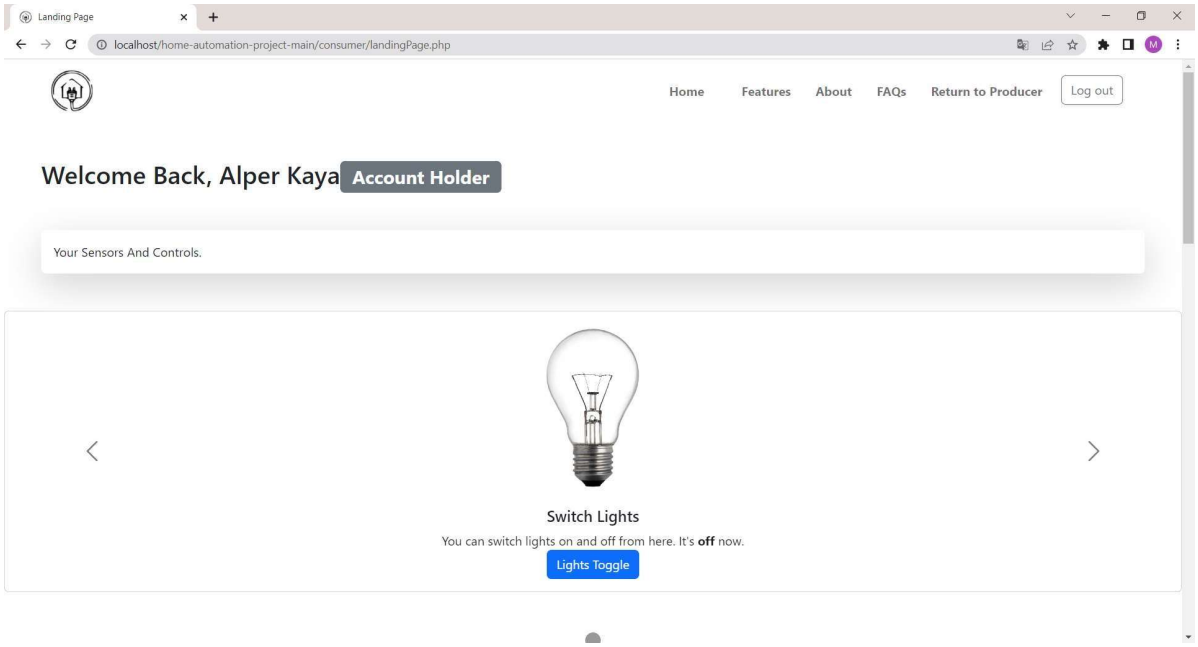


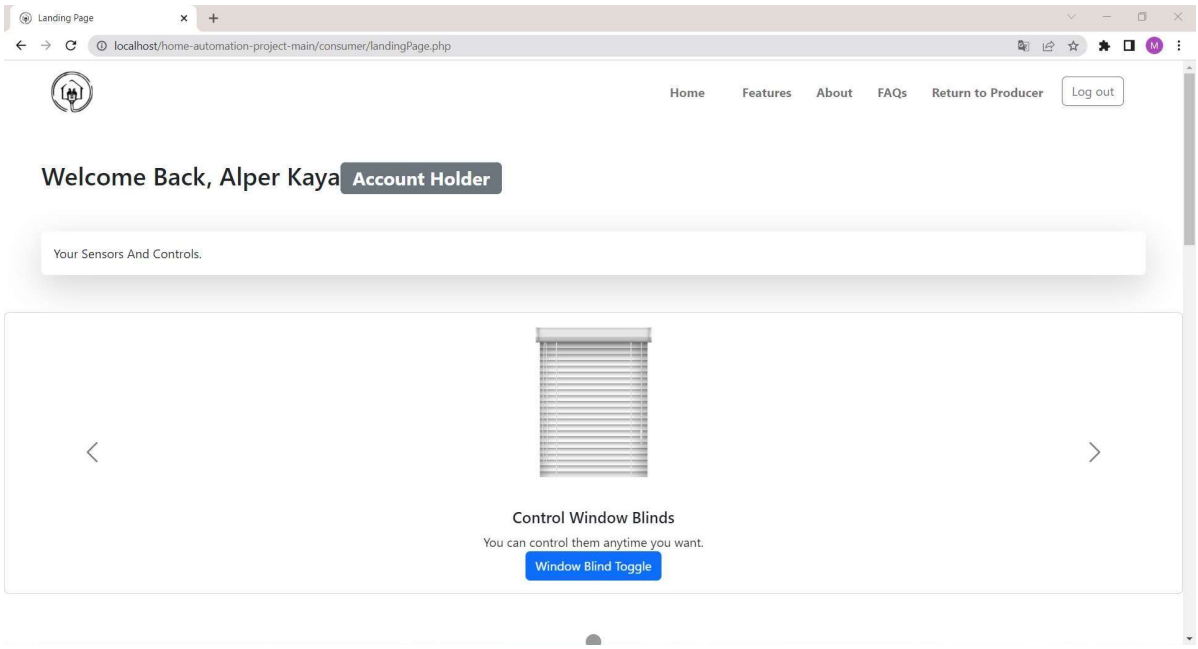



Landing Page
localhost/home-automation-project-main/consumer/landingPage.php
Home
Features
About
FAQs
Return to Producer
Log out
Welcome Back, Alper Kaya
Account Holder
Your Sensors And Controls.
Air Conditioning
You can turn on/off AC.
AC Toggle

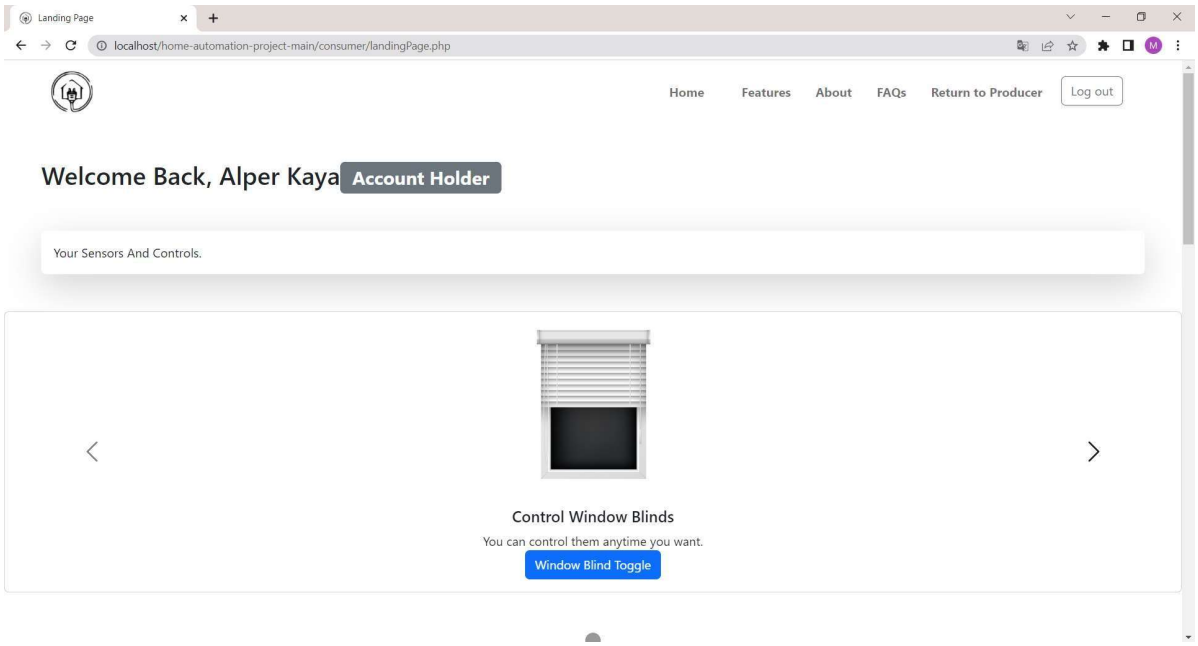

Landing Page
localhost/home-automation-project-main/consumer/landingPage.php
Home
Features
About
FAQs
Return to Producer
Log out
Welcome Back, Alper Kaya
Account Holder
Your Sensors And Controls.
Switch Lights
You can switch lights on and off from here. It's on now.
Lights Toggle

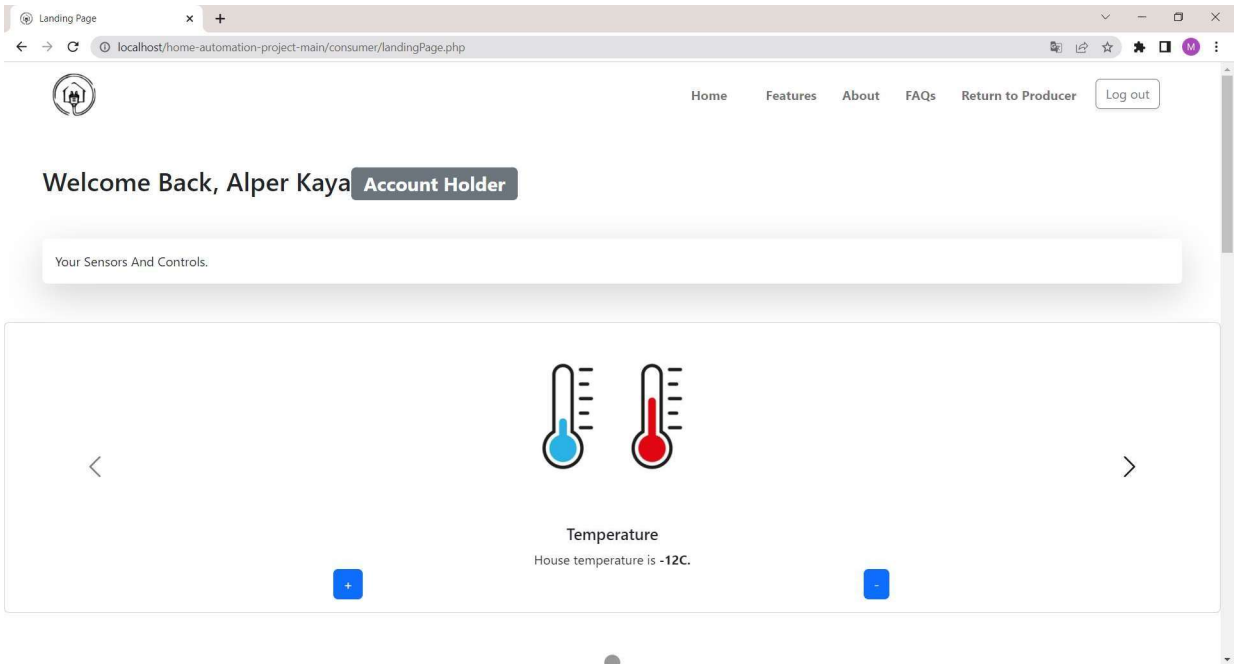
- **After Click “Lights Toggle”**



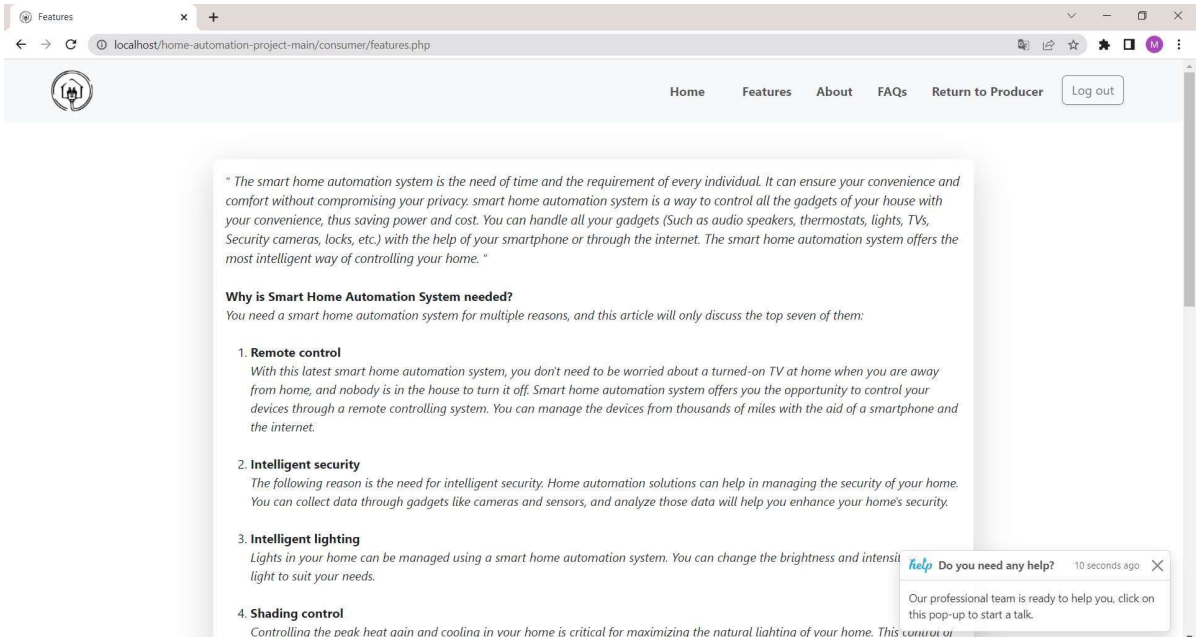


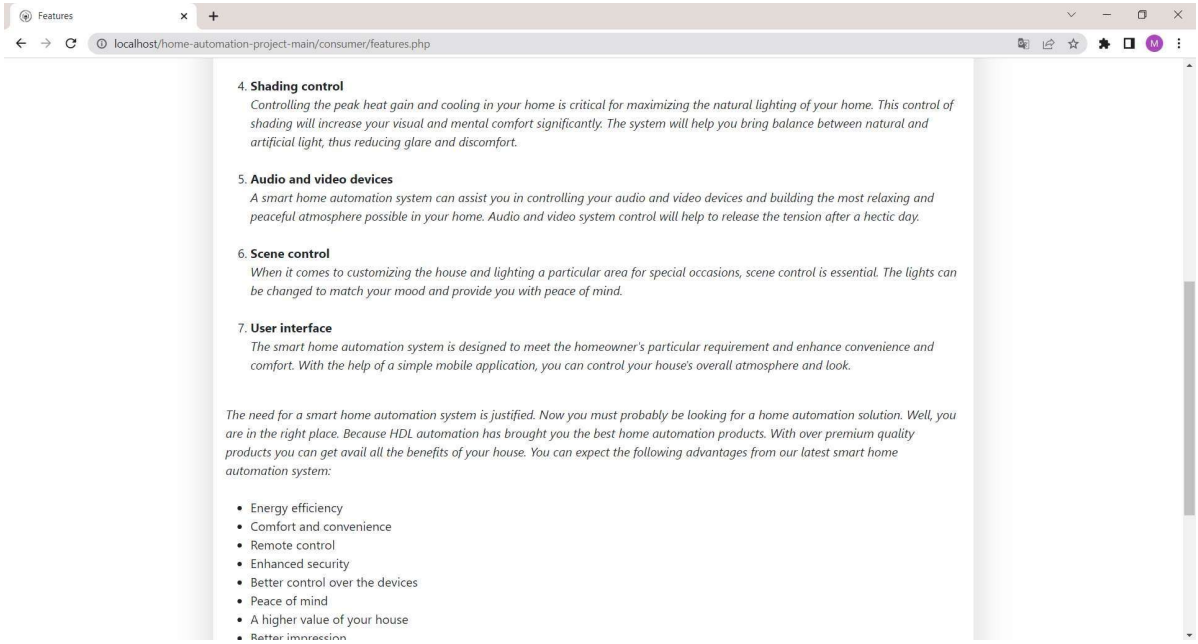
- **After Click “Window BlindToggle”**

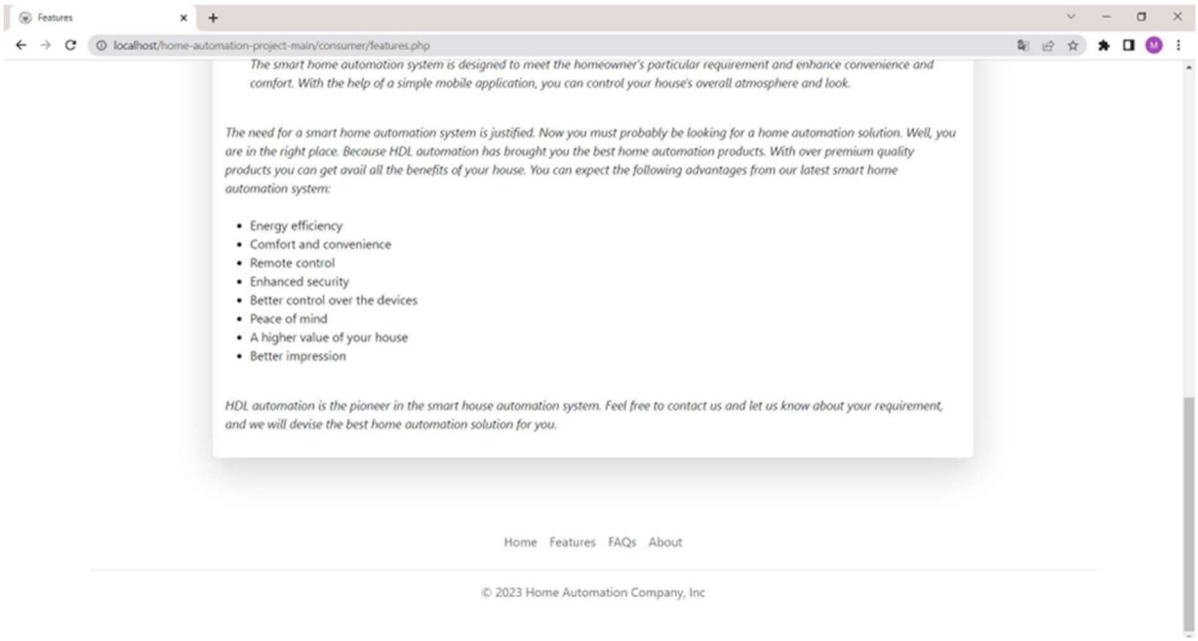




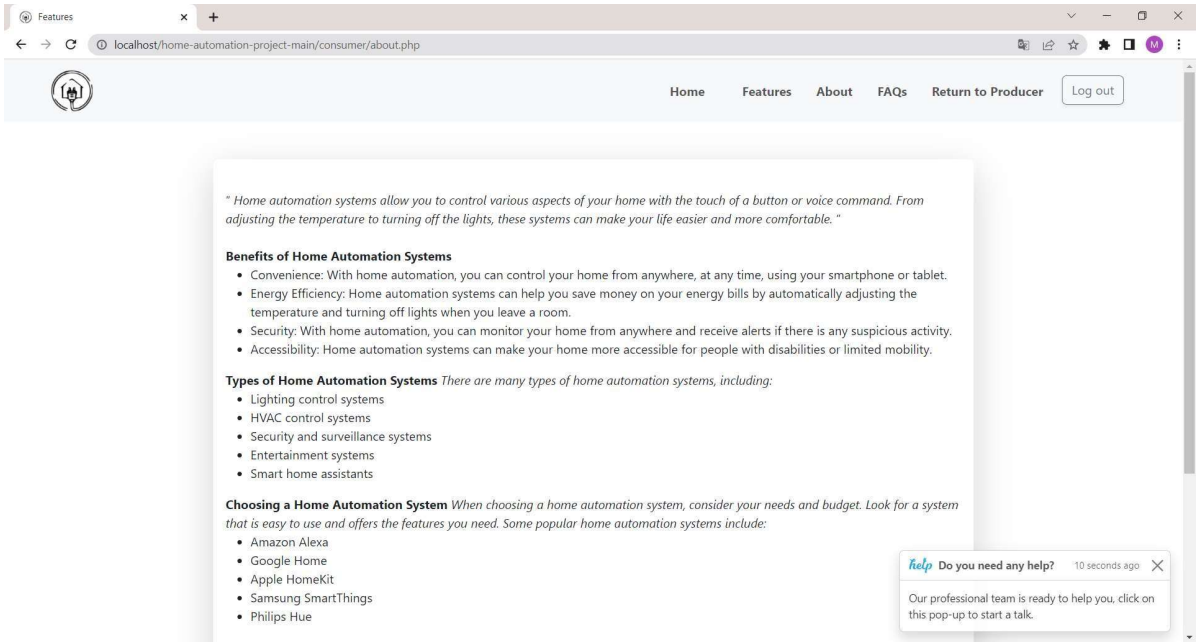
- **Features Page**

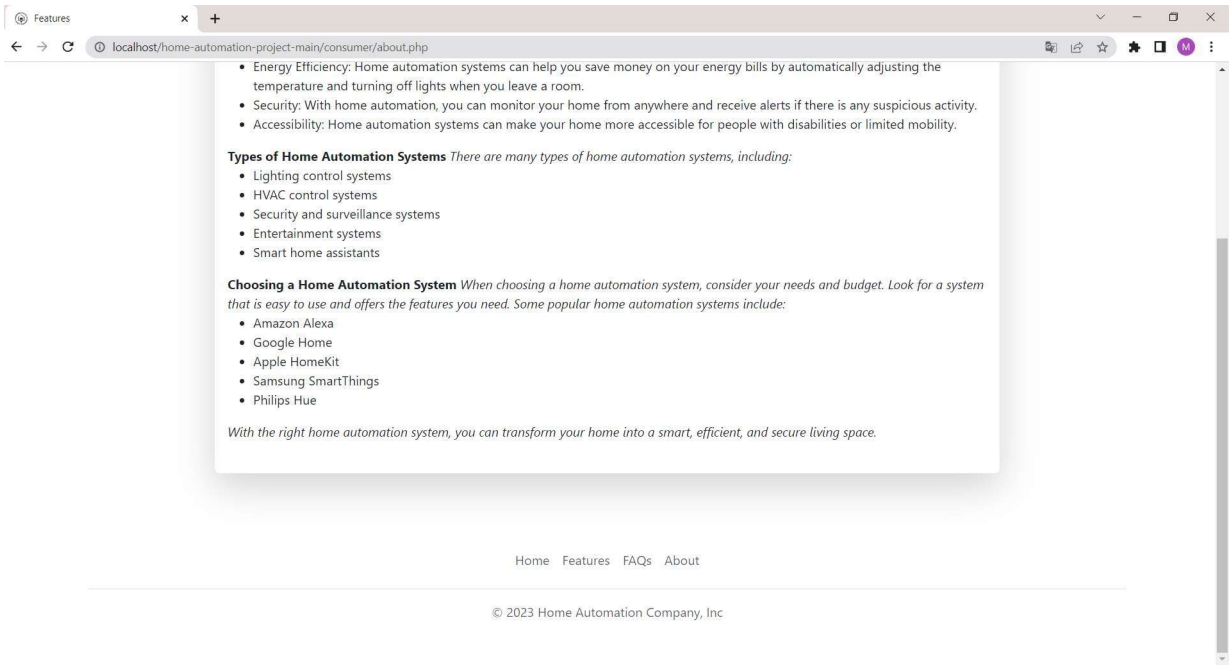





Features
localhost/home-automation-project-main/consumer/features.php
The smart home automation system is designed to meet the homeowner's particular requirement and enhance convenience and comfort. With the help of a simple mobile application, you can control your house's overall atmosphere and look.
The need for a smart home automation system is justified. Now you must probably be looking for a home automation solution. Well, you are in the right place. Because HDL automation has brought you the best home automation products. With over premium quality products you can get avail all the benefits of your house. You can expect the following advantages from our latest smart home automation system:
Energy efficiency
Comfort and convenience
Remote control
Enhanced security
Better control over the devices
Peace of mind
A higher value of your house
Better impression
HDL automation is the pioneer in the smart house automation system. Feel free to contact us and let us know about your requirement, and we will devise the best home automation solution for you.
Home Features FAQs About
© 2023 Home Automation Company, Inc

- **About Page**


Features
localhost/home-automation-project-main/consumer/about.php
Home Features About FAQs Return to Producer Log out
" Home automation systems allow you to control various aspects of your home with the touch of a button or voice command. From adjusting the temperature to turning off the lights, these systems can make your life easier and more comfortable. "
Benefits of Home Automation Systems
Convenience: With home automation, you can control your home from anywhere, at any time, using your smartphone or tablet.
Energy Efficiency: Home automation systems can help you save money on your energy bills by automatically adjusting the temperature and turning off lights when you leave a room.
Security: With home automation, you can monitor your home from anywhere and receive alerts if there is any suspicious activity.
Accessibility: Home automation systems can make your home more accessible for people with disabilities or limited mobility.
Types of Home Automation Systems There are many types of home automation systems, including:
Lighting control systems
HVAC control systems
Security and surveillance systems
Entertainment systems
Smart home assistants
Choosing a Home Automation System When choosing a home automation system, consider your needs and budget. Look for a system that is easy to use and offers the features you need. Some popular home automation systems include:
Amazon Alexa
Google Home
Apple HomeKit
Samsung SmartThings
Philips Hue
help Do you need any help? 10 seconds ago
Our professional team is ready to help you, click on this pop-up to start a talk.


Features
localhost/home-automation-project-main/consumer/about.php
Energy Efficiency: Home automation systems can help you save money on your energy bills by automatically adjusting the temperature and turning off lights when you leave a room.
Security: With home automation, you can monitor your home from anywhere and receive alerts if there is any suspicious activity.
Accessibility: Home automation systems can make your home more accessible for people with disabilities or limited mobility.
Types of Home Automation Systems There are many types of home automation systems, including:
Lighting control systems
HVAC control systems
Security and surveillance systems
Entertainment systems
Smart home assistants
Choosing a Home Automation System When choosing a home automation system, consider your needs and budget. Look for a system that is easy to use and offers the features you need. Some popular home automation systems include:
Amazon Alexa
Google Home
Apple HomeKit
Samsung SmartThings
Philips Hue
With the right home automation system, you can transform your home into a smart, efficient, and secure living space.
Home Features FAQs About
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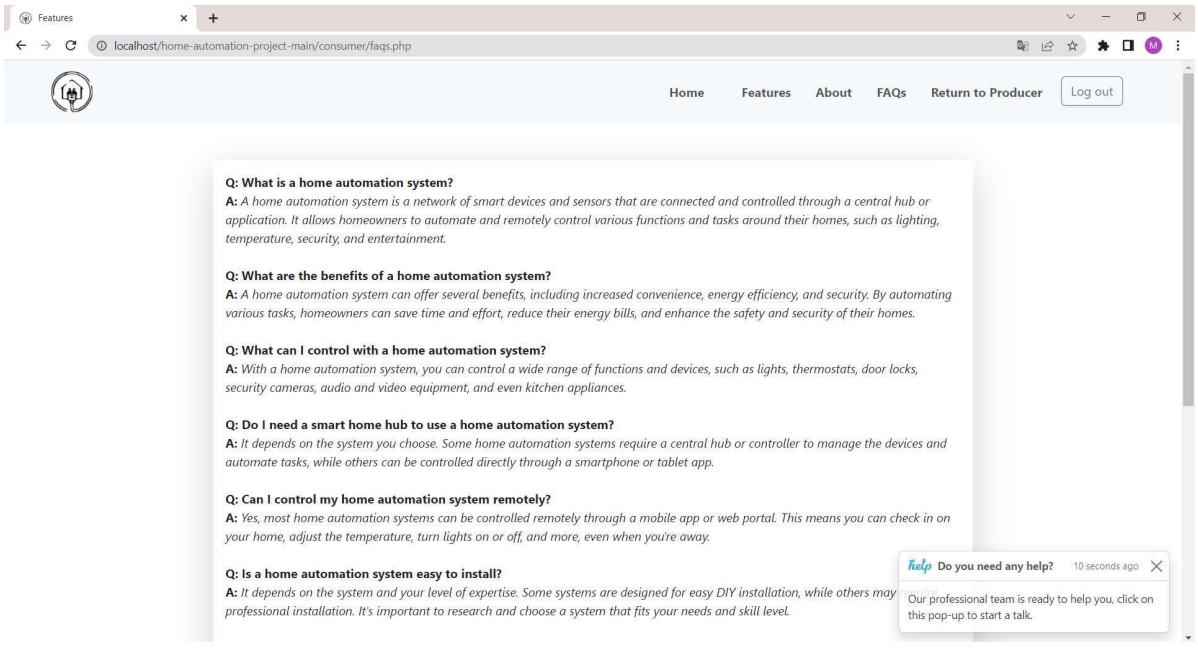
- **FAQs Page**


Features
localhost/home-automation-project-main/consumer/faqs.php
Home
Features
About
FAQs
Return to Producer
Log out
Q: What is a home automation system?
A: A home automation system is a network of smart devices and sensors that are connected and controlled through a central hub or application. It allows homeowners to automate and remotely control various functions and tasks around their homes, such as lighting, temperature, security, and entertainment.
Q: What are the benefits of a home automation system?
A: A home automation system can offer several benefits, including increased convenience, energy efficiency, and security. By automating various tasks, homeowners can save time and effort, reduce their energy bills, and enhance the safety and security of their homes.
Q: What can I control with a home automation system?
A: With a home automation system, you can control a wide range of functions and devices, such as lights, thermostats, door locks, security cameras, audio and video equipment, and even kitchen appliances.
Q: Do I need a smart home hub to use a home automation system?
A: It depends on the system you choose. Some home automation systems require a central hub or controller to manage the devices and automate tasks, while others can be controlled directly through a smartphone or tablet app.
Q: Can I control my home automation system remotely?
A: Yes, most home automation systems can be controlled remotely through a mobile app or web portal. This means you can check in on your home, adjust the temperature, turn lights on or off, and more, even when you're away.
Q: Is a home automation system easy to install?
A: It depends on the system and your level of expertise. Some systems are designed for easy DIY installation, while others may professional installation. It's important to research and choose a system that fits your needs and skill level.
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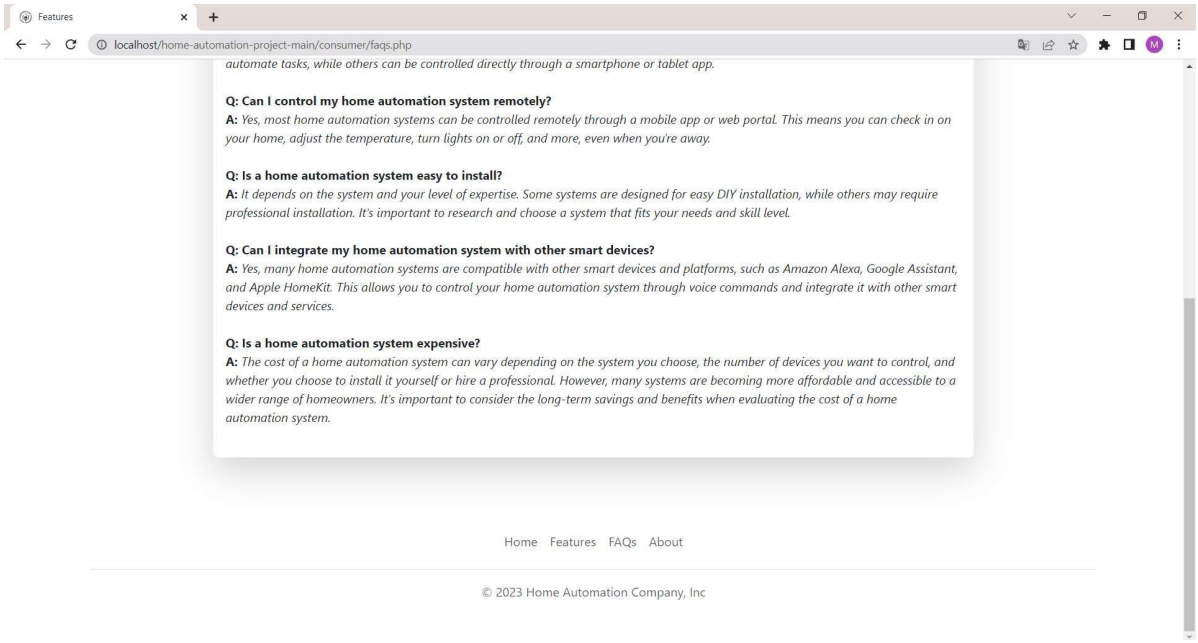
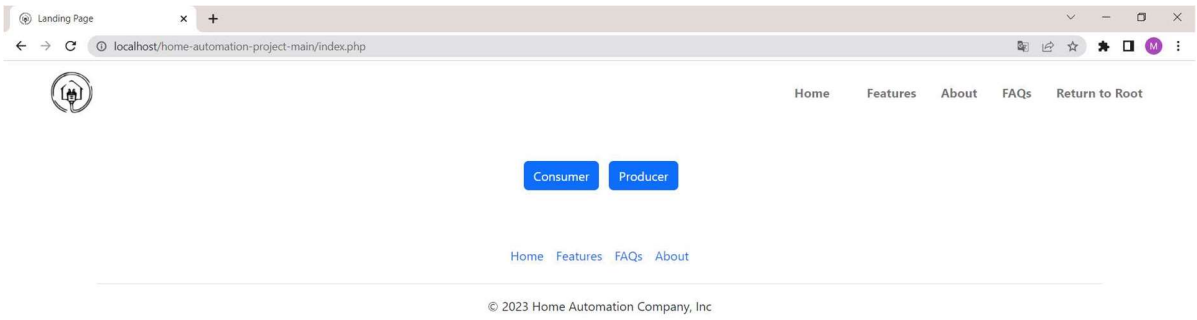


- **Return to Producer, Return to Root**

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