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Watch Dog For A Plant House

Advisor
Dr. Soon-Ok Park

Presented by
Yashwanth Kumar, Kalwa
Vamshider Reddy, Dasari
Vinay, Keerthipati
Ranjith Kiran, Motru
TEAM S7

Vamshider Reddy Dasari
Yashwanth Kumar Kalwa
Vinay Keerthipati
Ranjith Kiran Motru
Introduction

Plant house is a place where different types of plants, which may include some rare species, experimental plants, and medical plants, are grown while maintaining all the conditions appropriately.

In the existing system, maintaining the attributes of nature responsible for a plant to grow has been a very difficult task.

Here we propose a solution for that...!!
Project Description

- We are designing a web application system which controls and maintains the plant house.
- All the conditions required to a plant to grow are stored in the database.
- The place where the plants grown is called a Room.
- The attributes which effect the plant growth are Temperature, Soil Acidity, Humidity, Fertilizer, Water and Sunlight.
• The system allows the Admin user to Login, Register, Add a room, Modify a room, Delete a room, authorize normal user.

• The sample virtual values are stored in the database. We assume that these values are provided by the sensors.

• The sample values are compared with the room value if they are not in the range or interval of the room values warning is given.
Attributes

- Each attribute will have a controller like
- The temperature is controlled by the Air-conditioned, measured by the thermomoter
- Soil Acidity is increased by adding the lime stone and decreased by adding Sulphur. Measured using pH level meter
- Using the Humidifier the humidity is increased and decreased. It is measured by using the hygrometer.
- Fertilizer are added when they are needed as given in the room details.
- Water is sprinkled by using the sprinklers as stated in the database.
- Sunlight is controlled by using the shades (on and off)
We have six attributes they are divided under three sections, they are:

**Range:** The range attributes will have the minimum and maximum limits. Temperature, Humidity and Soil Acidity comes under this section.

**Interval:** The interval attribute will have the interval type and the frequency. The interval type will be daily or monthly. The attributes which come under interval are Fertilizer and Water.

**Boolean:** Sunlight comes under Boolean attribute it has only two option weather the sunlight is needed or not (Yes or no / True or false).
Project Design.

- The application design and development is divided into three parts, they are:
  1. Developing the Front End (View).
  2. Developing the Database (Model).
  3. Establishing the connection between View and Model (Controller).

Validation are also created for the front end pages so that the user can get a warning if he enters wrong data.

The front end is made responsive for any screen resolution using Bootstrap.
System Requirements

- **Hardware Requirements.**
  1) Hard disk 250 GB
  2) Ram 4 GB and above
  3) Processor i3 and above.

- **Software Requirements.**
  1) Eclipse
  2) My SQL Database
  3) Postman
  4) Operating System Windows 2008 and above
  5) Java
User Interface (View)

- The user interface is developed by using the HTML and CSS. They are also responsive designed.
- The Validations are provided at the front end part of the application by using JQuery.
- We have included the library files of the Bootstrap, jQuery, Handlebars for support.
- We have developed seven web pages, here are the screen shots of the web pages.
User page:
Home Page:

![Home Page Image]
Room details:

**PLANT ROOM 101**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min Value</th>
<th>Max Value</th>
<th>Current Value</th>
<th>Updated On</th>
<th>Controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>73</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil Acidity</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>75</td>
<td>95</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer</td>
<td>4</td>
<td></td>
<td>monthly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>3</td>
<td></td>
<td>daily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunlight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>false</td>
</tr>
</tbody>
</table>

User: Thokalia Anusha

[Image of a computer screen displaying the plant room details]
Add room:
Add new user:
Update room:
Our Database has been Reduced to 3\textsuperscript{rd} Normal form. It consists of 17 tables which will store the data of the user, room, attributes of the room, and the sample values (sensor values). We have created the stored procedures to reduce the duplication of queries and increase the efficiency. The tool used to develop the Database is MySQL Workbench 6.3. Here we attach few screen shots regarding the Database.
We have used Spring framework to redirect the pages as the user click the button.

The controllers we used are
- AddRoomController.java
- HomePageController.java
- LoginController.java
- ModifyRoomController.java
- RegistrationController.java
- RoomDetailsController.java
- SensorController.java
- UpdateRoomController.java
DEMO
Conclusion:

- We have worked with a team effort to complete the project successfully.
- 100% of the project is completed.
- All the deadlines as we planned are met.
- We are looking for further more Improvisations.
- The Project will be delivered on time.
THANK YOU