

Garden Maintenance System

Team 5

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Software Requirements Specification

Document

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1.Introduction

Gardening is a thriving hobby which is soothing not just to the eyes but also to the soul. Since ancient times gardening has been an important architectural element of not just big empires but also for the common people. Modern day gardens employ the newest technologies to produce the best results. But unfortunately, busy schedules often hold back people from giving time to their gardens resulting in their eventual neglect.

This website helps people to take care of their plants by prescribing customized solutions based on region and also provides options for real time soil monitoring. One can set reminders to water plants and also learn more about plants courtesy an expansive database. Tutorial videos on different gardening styles help you to achieve your perfect garden.

1.1 Purpose

Home gardens often face neglect owing to today's fast-paced life and this website aims to help people to better manage their gardens by prescribing customized solutions and also reminding them to water their plants from time to time. Real time soil monitoring and tutorial videos on different gardening styles would aid people to better understand their gardens and further enhance its beauty.

1.2 Document Conventions

The following conventions are used throughout the document:

GMS	Garden Maintenance System
RTM	Real Time Monitoring

1.3 Intended Audience and Suggested Reading

This project is a prototype for the GMS and will be published on the internet for general reference. This has been implemented as part of a group assignment. This project is useful in general to all gardening enthusiasts and people who desire to learn more about plants and plant care routines.

1.4 Project Scope

The purpose of the online garden maintenance system is to ease garden maintenance and to create a convenient and easy-to-use application for gardening enthusiasts and people who desire to take care of their plants with a customized routine. The system is based on two relational databases describing different plant attributes and weather conditions. We hope to provide a comfortable user experience with the most reliable care routines.

1.5 References

<https://ieee-dataport.org/>

<https://edis.ifas.ufl.edu/>

2. Overall Description

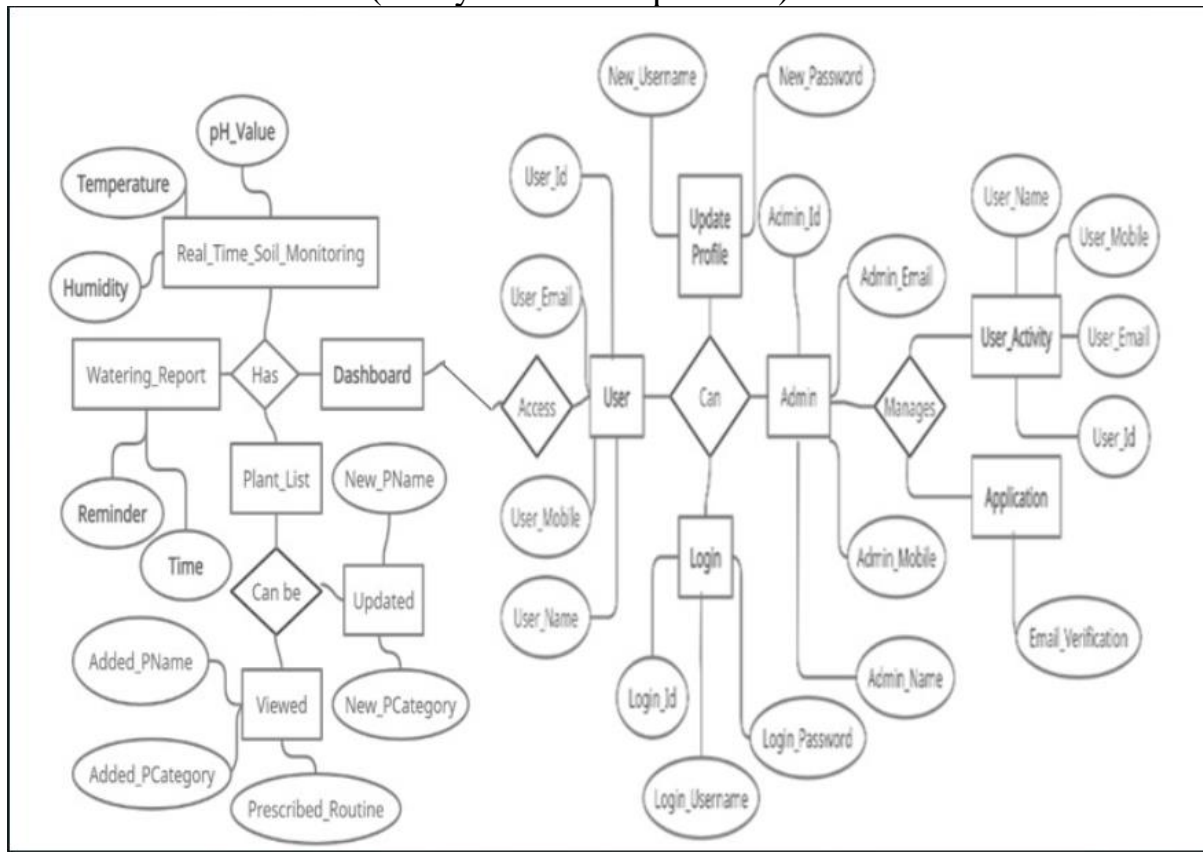
2.1 Product Perspective

The website uses a relational dataset linking weather conditions to suggested care routine. A second dataset is used which describes different plant attributes. Video links on specific topics are embedded into the page. The login/signup page stores the following details into a client database:

- 1) User Id
- 2) Password
- 3) Added plants
- 4) Region
- 5) Email address

2.2 Product Features

The major features of the Garden Management System are shown in an ER (Entity Relationship Model) :



2.3 User Classes and Characteristics

A user should be able to add plants to their profile as well as update that list as and when desired. A care routine should be prescribed based on the region and a reminder to water plants, if opted for. They should have access to an expansive dataset describing attributes of different plants.

The system user should be able to do the following functions:

- View Added Plants
 - i. Add plants
- Login and logout system
- Update Profile
- Obtain Plant Details
 - i. Documents
 - ii. Videos
- Create Watering Report
 - i. Add reminders
- Real Time Soil Monitoring

The Admin should have the following management functionalities:

- Login and Logout System
- Update Profile
- Manage Users and Full Applications

2.4 Operating Environment

The server-side components of the software system must operate within a Linux operating system environment.

The client-side components of the software system must operate within common web browser environments using Secure Sockets Layer (SSL) / Transport Layer Security (TLS) cryptographic protocols at a minimum encryption level of 128 bits. The minimum set of browsers that must be supported is:

- Apple Safari 7+
- Google Chrome 44+
- Microsoft Internet Explorer 10+
- Mozilla Firefox 40+

2.5 Design and Implementation Constraints

The server-side components of the software system must operate within a Linux operating system environment. The client-side components of the software system must operate within common web browser environments using Secure Sockets Layer (SSL) / Transport Layer Security (TLS) cryptographic protocols at a minimum encryption level of 128 bits. This project only employs web browsers that support CGI and HTML.

2.6 User Documentation

Any user of the software system is the target audience for user documentation generated about the software system. A range of short document types (e.g., guidelines, tutorials, frequently asked questions) in HyperText Markup Language (HTML) and/or Portable Document Format (PDF) format must describe the use of the software system.

2.7 Assumptions and Dependencies

No specific assumptions or dependencies are considered at this time.

3. System Features

3.1 Login/Sign-Up

The Dashboard features a Login/Sign-Up option for existing/new users. It stores details like user-id, password and e-mail address of the user.

3.2 View/Update Plant List

After Login, the user is directed to their profile where options for viewing and updating the names of their plants in a list is visible.

3.3 Gardening Tutorials

A page having tutorial videos on various gardening styles

3.4 Real time Soil Monitoring

An option for real time soil monitoring taking into consideration factors like soil pH, temperature and humidity.

3.5 Know Any Plant

A page offering information about any plant that the user searches for.

3.6 Know About Plants in your Garden

Prescribes care routine for the plants that the user has added to the Plant List in their profile.

4. External Interface Requirements

4.1 User Interfaces

Front-end Software: WordPress

Back-end Software: Python

4.2 Hardware Interfaces

- Windows
- Mac
- Browser supporting CGI and HTML

4.3 Software Interfaces

Following are the software used for the garden maintenance:

Software Used	Description
Operating system	We have chosen Windows and Mac operating systems for their best support and user-friendliness.

Database	To save profiles of users
WordPress	To implement the project, we have chosen WordPress for its interactive interface

4.4 Communications Interface

This project supports web browsers that support CGI and HTML.

5 Other Non-Functional Requirements

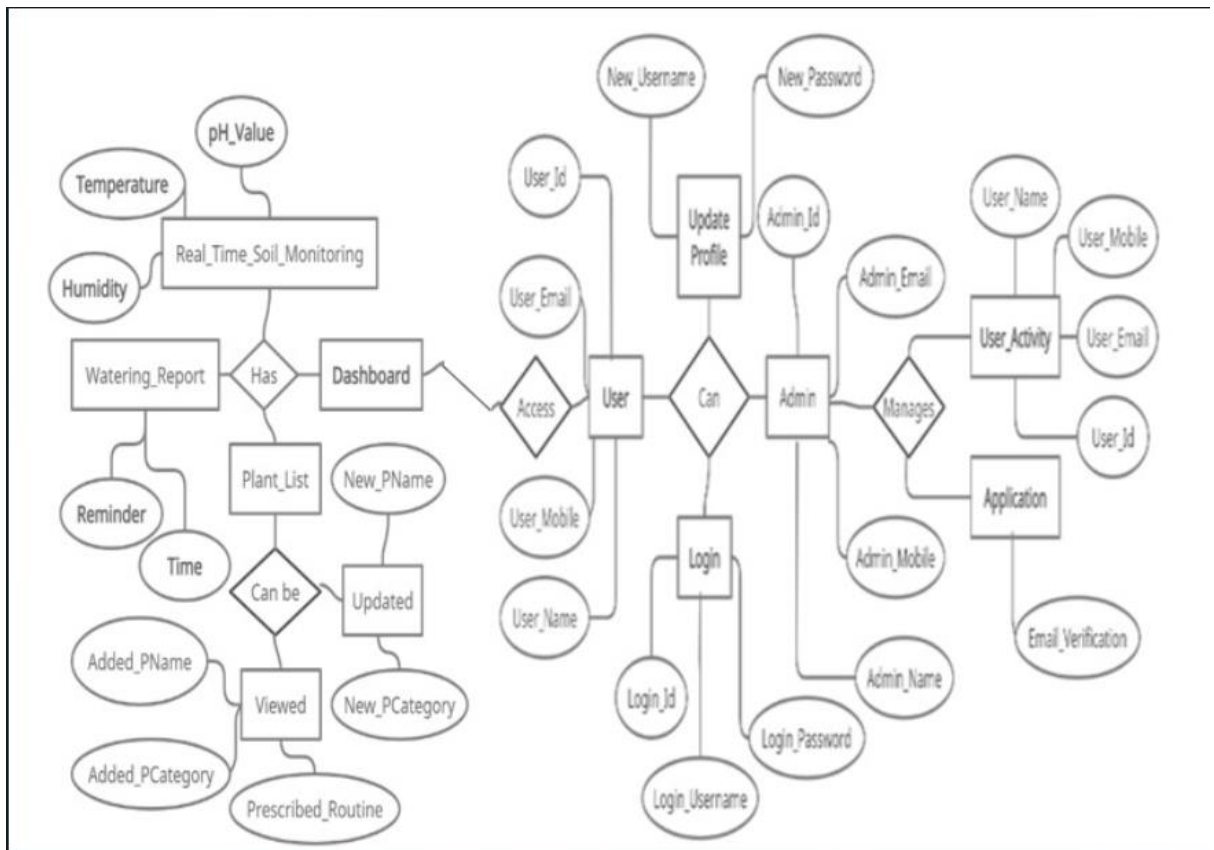
5.1 Performance Requirements

The steps involved to perform the implementation of airline database are as listed below.

A) E-R DIAGRAM

The E-R Diagram constitutes a technique for representing the logical structure of a database in a pictorial manner. This analysis is then used to organize data as a relation, normalizing relation and finally obtaining a relation database.

- **ENTITIES:** Which specify distinct real-world items in an application.
- **PROPERTIES/ATTRIBUTES:** Which specify properties of an entity and relationships.
- **RELATIONSHIPS:** Which connect entities and represent meaningful dependencies between them.



B) NORMALIZATION:

The basic objective of normalization is to reduce redundancy which means that information is to be stored only once. Storing information several times leads to wastage of storage space and increase in the total size of the data stored.

If a database is not properly designed it can give rise to modification anomalies. Modification anomalies arise when data is added to, changed or deleted from a database table. Similarly, in traditional databases as well as improperly designed relational databases, data redundancy can be a problem. These can be eliminated by normalizing a database.

Normalization is the process of breaking down a table into smaller tables. So that each table deals with a single theme.

5.2 Safety Requirements

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed-up log, up to the time of failure.

5.3 Security Requirements

Security systems need database storage just like many other applications. However, the special requirements of the security market mean that vendors must choose their database partner carefully.

5.4 Software Quality Attributes

CORRECTNESS: The displayed care routine and requested plant attributes should be correct.

MAINTAINABILITY: The administrator should maintain profiles correctly and update them as updated by the user.

USABILITY: The displayed information should satisfy a maximum number of user's needs.