Cal Poly Pomona

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Evergreen Project Seed

Socially Reponsible Computing

Prepared for
Lopez Urban Farm

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Executive Summary

After discussing with Steven, an operational lead at Lopez Urban Farm, it became known to us that the seed exchange program at the farm had begun facing issues with inventory, maintenance, and informational usage on how to provide optimal growth environments for the seeds. To address this issue, we proposed developing a user-friendly program that would allow volunteers and workers at the farm to input essential information to the seed program. This would include keeping inventory of the seeds and maintaining an organized digital database of seed information, allowing for users to scan a QR code and accessing detailed instructions on proper seed care and optimal growing conditions for the farm.

Project Background

The nonprofit Lopez Urban farm states that their goal is to sow the seeds of a sustainable and just future. This is done by ensuring access to locally grown food , fostering education, and community engagement, cultivating green spaces to all. They are driven by community support to eco-education programs and food access initiatives. Their seed exchange program over the last few years has begun declining, which we hope to solve by providing a user-friendly program and database which would create a more frictionless experience for the seed exchange users. Additionally, the farm would benefit from having this organized database of seeds, and the ability to know exactly which seeds are needed will prevent the workers from having to manually check every seed drawer, as well as hopefully providing increased community engagement from the improved service. We believe that these small projects, like Indigeknowledge and Bodega Comunitaria hold the potential to create lasting, positive change.

Proposed Solution

Our solution would be to provide the farm employees and volunteers with an accessible database of common seed types included in the exchange program and basic knowledge would be provided on how to properly care for and maintain the seeds for optimal growth. This would be combined with the ability to track seed inventory, which will help the farm maintain seed levels. The program will use data structures like a hashmap or dictionary to efficiently keep track. We also would like to integrate QR codes for each seed container. This would allow seed users to scan it on their phones and quickly log seed inventory. Additionally, if workers and volunteers are picking up seeds, scanning the QR code would allow them to access a detailed database of knowledge about how to care for the seeds.

Deliverables & Goals

Primary Deliverables:

1. Java Program
    a. A Java web program that supports QR code based access to manage seed inventory and data entry features.
2. Database
    a. A database will store the seed ID, seed name, seed inventory count, care and growth instructions.
3. QR Code Labels
    a. QR code labels that will be linked with each unique seed ID.
4. SRC Technical Paper
    a. A technical paper including introduction, literature review, methodology, results, discussion and a conclusion.
5. User Documentation
    a. A short guide attached to the QR code labels that will show the staff on how to use the system.

Goals:

1. Improve community engagement at Lopez Urban Farm by providing a frictionless way of checking what seeds are in inventory or not, as well as providing detailed information on how to optimize their seed growth.
2. Provide Lopez Urban Farm with a more efficient way to manage their seed inventory without having to manually check each container and count.
3. Complete the program and deliverables by the end of the semester.

Required Resources

Technical Resources:

1. JDK (Java Development Kit) needed to write the program in Java
2. IDE. We will use VS Code and/or intelliJ due to its popularity and integrations.
3. QR code scanning library: Java compatible QR code scanning for processing QR codes. This will most likely use ZXing (Zebra Crossing) library.
4. Spring Boot. We may need to use spring boot as a web framework for Java.
5. HTML, we will have a very basic HTML page for our frontend.
6. Canva/Google Slides: For collaborative documentation and presentation preparation.
7. Github/Git for version control and team collaboration

Non-Technical Resources:

8. A phone with a working camera and internet connection to run the program and access database information.
9. Client Collaboration: Regular communication with Lopez Urban Farm for consistent feedback and to make sure our project fits within their needs and expectations.

Conclusion

In conclusion, we aim to provide Lopez Urban Farms with a reliable and frictionless database that can store and track seed inventory and provide seed care knowledge to any volunteer, worker, or contributor with a working cellphone. This would ultimately help the Lopez Urban Farm in maintaining and caring for the seed exchange program and ensure that the seeds will be properly taken care for. Additionally, this would encourage further contributors to the program and increase traffic at the farm.