

PROJECT PROPOSAL

Testing

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PROJECT TITLE

Semester-Long Project: Socially Responsible Computing - Computer Aided Farming

EXECUTIVE SUMMARY

The Lopez Urban Farm is supported by Pomona and CPP. The farm uses no technology which limits the efficiency of inventory management, done on paper, and therefore the farm. Our solution to this problem will be creating an application that organizes their inventory and needed resources with the most optimal times for purchasing items based on past data/data online. The farm will soon be getting electricity and computers, so this application will greatly impact how they manage their crops and budget to maintain them.

PROJECT BACKGROUND

Lopez Urban Farm provides access to fresh produce from locally grown crops through the Evergreen Equal Access Market, pantry items, preserved foods, and seed exchange/banking. Most of these items can be logged, along with the necessary resources for crop cultivation. However, volunteers have highlighted the difficulty in managing available items for the community without a systematic plan/system in place. Since the farm is in its early stages, there is limited previous work done specifically tailored to its needs. Drawing insights from other farms in the community becomes imperative to establish methods required to boost the efficiency of the farm. The scarcity of non-profits in the area demonstrates how important implementing an effective inventory management system is. Existing research in this area lacks specificity to Lopez Urban Farm's unique context and requirements, further emphasizing the need for a customized solution, with some guidance from the Don B. Huntley College of Agriculture, Kellogg Farm. Our proposed project to develop an inventory management application directly aligns with the farm's mission, offering a practical and sustainable solution to enhance operational efficiency and resource allocation.

PRESENT A SOLUTION

VISION STATEMENT

In the conclusion of our project, we hope to develop a user-friendly inventory management application tailored to the specific needs of Lopez Urban Farm in their transition into technology. This application will streamline and support the farm's mission to foster community well-being. We also look forward to developing our group knowledge and skills through real-world applications of computer science.

PROJECT SCHEDULE

Requirements Gathering and Analysis	(Saturday, March 23rd)
Design, Prototyping, Unit Tests	(Sunday, March 31st)
Software Development, Debugging, Further Testing, QA	(Tuesday, April 9th)
Deployment, Implementation, Tests	(Sunday, April 14th)
Revising Technical Paper and GitHub Project	(Sunday, April 21st)
Project Submittal	(Sunday, April 28th)

ROLES AND RESPONSIBILITIES

- **Project Leader: Julianna Arzola** - Oversees overall project execution, coordinates team activities, and ensures adherence to project specifications
- **Program Design: All** - Responsible for designing and testing abstract program requirements
- **Program Development: Kekoa McWilliams, David Agekyan** - Responsible for developing, and implementing the inventory management application
- **Program Testing and Debugging: Kristopher Walsh, Catherine Lopez-Ruiz, Julianna Arzola** - Responsible for QA and debugging the program to specification
- **Project Technical Paper: All** - Responsible for working on MLA-styled technical paper, collaborating effectively with team members

PROJECT DELIVERABLES

We will develop an application that will organize product inventory and returns an estimated quantity of resources required to grow selected crops of the season as well as the cost. This will be accomplished with the following applications, GitHub, and VSCode.

RISK MANAGEMENT

Risk 1: Limited Technology Adoption

1. **Risk Identification:** Identify potential barriers to technology adoption
2. **Risk Description:** Limited technology adoption may hinder the effectiveness of inventory management
3. **Risk Likelihood:** Likely, the adoption of electricity and computers will suit implementation
4. **Risk Mitigation:** Work with farm staff to establish technology use
5. **Risk Priority:** Medium, addressing this risk is crucial for operational efficiency, long-term sustainability
6. **Risk Ownership:** Coordination, Project Leader

Risk 2: Resource Constraints

1. **Risk Identification:** Identify potential resource constraints, including budget limitations
2. **Risk Description:** Production of produce from crops may fluctuate
3. **Risk Likelihood:** Medium to high, considering the farm's status as a new organization
4. **Risk Mitigation:** Categorize likely times of cheaper resources, higher production
5. **Risk Priority:** Low
6. **Risk Ownership:** Project Design, Implementation

Risk 4: Technological Dependencies

1. **Risk Identification:** Identify critical technological dependencies, reliance on electricity, WiFi/Data
2. **Risk Description:** Technological dependencies pose a risk of system downtime, which is not imperative to operation functions but can slow down or glitch functional use
3. **Risk Likelihood:** Medium
4. **Risk Mitigation:** Back-up and keep copies of farm data
5. **Risk Priority:** Medium
6. **Risk Ownership:** Development Team

PROJECT DELIVERABLES

The end result of the project will be a fully functional application in which the employees of the Lopez Urban Farm can easily access information about the current growing crops, inventory, and inventory planning.

GOALS

The overarching goal of our project is to empower the Lopez Urban Farm through the development and implementation of a user-friendly inventory management application. By seamlessly integrating technology into their operations, we aim to enhance the efficiency of inventory control, resource allocation, and crop planning. Through close collaboration with the farm's staff and volunteers, our application will address the unique challenges faced by the Lopez Urban Farm, providing a tailored solution that aligns with their mission to foster community well-being. Our primary objectives include creating an intuitive interface that accommodates users transitioning into technology, ensuring data security, and promoting sustainable farming practices. By the conclusion of the project, our goal is to deliver a fully functional application that not only meets the immediate needs of the farm but also serves as a foundation for future technological advancements. Ultimately, we aspire to make a positive and lasting impact on the Lopez Urban Farm, enabling them to better serve their community and contribute to the overall success of their mission.

REQUIRED RESOURCES

Other than crop and resource data collection, most of the necessary tools such as JUnit for unit testing or VS Code for development are free and available to the public as open-source. There is no needed budget, and we will utilize information from our instructor, classmates, and school farm to build up our project. Through collaboration with the Lopez Urban Farm, we aim to document the specific resources they currently employ in their agricultural practices. This includes but is not limited to soil amendments, fertilizers, pesticides, water usage, and equipment. Understanding the seasonal variations in the types of crops grown and the corresponding resources needed is paramount. Our engagement with the farm will extend to gathering data on crop cycles, planting schedules, and environmental conditions essential for optimal growth.

CONCLUSION

In order to help this local farm, our group is aiming to make an application simple enough in which the farm's volunteers can easily manage their inventory and slowly, but efficiently introduce their farm to technology. Our plan is to finish parts of the project in a timely manner that will easily flow in a manner where our project remains well attended and effective. Each group member has an important task to fulfill but are all expected to be in communication with the group in order to all be on the same page to run a successful program. Our big goal is to make an application that will positively impact a non-profit farm that gives their community resources and knowledge.