# Evergreen Project

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Course: CS2400

Location: Lopez Urban Farm

Project Proposal Submission

## Executive Summary

During discussions with Bianca, the Operations Director of Lopez Urban Farm, it became clear that the farm faces a significant challenge: the inability to log volunteer contact information, timesheets, and completed tasks without internet access. This gap hinders effective communication and management of volunteer resources. To address this issue, we propose developing a user-friendly program that allows volunteers to input essential information—including their name, start time, and completed tasks—without requiring Wi-Fi. This data will be securely stored in a spreadsheet, ensuring all volunteer contributions are captured efficiently and effectively. By implementing this solution, Lopez Urban Farm will enhance its ability to maintain communication with volunteers, enabling tailored messaging and fostering stronger engagement. Additionally, the farm will benefit from a comprehensive and organized database of volunteer details, improving overall operational efficiency and volunteer management.

## Project Background

Lopez Urban Farm is committed to providing sustainable resources to the local community. However, the farm currently faces a critical barrier to effective volunteer management: the inability to collect and manage volunteer data without internet access. This challenge limits the farm's capacity to communicate with volunteers, track hours, and assign tasks, which negatively impacts volunteer engagement and retention. While many volunteer management systems rely on internet-based solutions such as Google Forms or cloud-based platforms, these are not suitable for Lopez Urban Farm's rural location, where reliable internet access is often unavailable. Previous attempts to implement digital solutions have failed to address this gap, leaving the farm to rely on manual record-keeping methods that are time-consuming and prone to error. Our proposed solution fills this gap by creating an offline Java-based program, enabling all volunteers to record their information easily and efficiently, regardless of their internet access. This will ensure that all volunteer contributions are captured, fostering better communication, data accuracy, and increased volunteer engagement.

## Proposed Solution

To resolve the challenge of managing volunteer data offline, we propose developing a Java-based application that allows volunteers to input their personal information, including their name, start time, and completed tasks, without requiring internet access. The program will utilize data structures such as Maps, Lists, and Trees to ensure efficient data

management and organization. The volunteer data will be processed and securely stored in a CSV file, which can later be imported into other systems for reporting or analysis. Additionally, we aim to integrate a QR code scanning feature to simplify the volunteer check-in process. Volunteers will scan a QR code upon arrival, and the program will prompt them to enter their time worked and personal details. This process is quick and user-friendly, minimizing the time spent on data entry and ensuring that the information is consistently recorded. The use of Apache libraries (e.g., Apache POI) will enable the program to generate and manage the CSV file effectively. This solution will enable Lopez Urban Farm to capture volunteer data offline, ensuring efficient data collection, streamlined communication, and improved volunteer engagement. By the end of the project, the farm will have a fully operational system for tracking volunteer participation, regardless of internet connectivity.

## Project Schedule and Milestones:

1. Project Proposal
    a. Completion Date: November 10th
    b. Activities: Review client needs, define project goals, and gather detailed requirements. Document key features and expectations for the program.
2. System Design and Architecture Planning
    a. Completion Date: November 14th
    b. Activities: Design the overall system architecture, including database structure (CSV format), program flow, and UI for QR code input. Finalize the selection of data structures and libraries.
3. Initial Development – Core Features
    a. Completion Date: November 18th
    b. Activities: Implement core functionality, including user input handling, data processing, and CSV writing. Attempt to develop QR code scanning.
4. Final Development and Optimization
    a. Completion Date: November 24th
    b. Activities: Finalize program features, refine the user interface, and optimize performance. Conduct a final round of testing to ensure the program meets all functional requirements.
5. Project Presentation
    a. Completion Date: November 24th
    b. Activities: Present the completed program to the client, demonstrate its functionality, and collect feedback. Provide documentation and source code.
6. Project Technical Paper
    a. Completion Date: December 1st

   b. Activities: Prepare a technical paper summarizing the project, including the development process, challenges faced, and the final solution. Deliver the final technical report and documentation.

## Deliverables and Goals

The primary deliverables for this project include:

1. Java Program
   a. A fully functional Java program that allows volunteers to log their details offline, using QR code scanning and data entry features.
2. CSV Spreadsheet
   a. A CSV file that records volunteer information, including names, time worked, and tasks completed.
3. Technical Paper
   a. A comprehensive report documenting the project, including the design, development process, challenges, and solutions implemented.
4. Project Presentation Slides
   a. A slide deck summarizing the project, including key features, the solution, and the project's impact on Lopez Urban Farm.
5. User Documentation
   a. A guide for Lopez Urban Farm staff on how to use the system, including how to interpret the CSV file and troubleshoot basic issues.

### Goals:

1. Enhance volunteer engagement at Lopez Urban Farm by creating a streamlined and offline-friendly volunteer logging system.
2. Provide Lopez Urban Farm with an efficient way to track volunteer contributions and maintain a database for future communication.
3. Complete the program and deliverables by November 24th, with final documentation submitted by December 1st.

## Required Resources

### Technical Resources (Programmer End):

1. Java Development Kit (JDK): Essential for developing the program.
2. Integrated Development Environment (IDE): We will use Visual Studio Code for coding due to its integration with GitHub and support for unit testing frameworks.

3. Apache Libraries: We will utilize Apache POI for Excel and CSV handling, along with other Apache libraries to assist with file writing.
4. QR Code Scanning Library: A Java-compatible QR code library for scanning and processing QR codes.
5. Google Docs & Slides: For collaborative documentation and presentation preparation.
6. Version Control: GitHub for source code management and team collaboration.

### Non-Technical Resources (Client End):

7. Functional Devices: Laptop(s) or desktop(s) with the capability to run the program.
8. Client Collaboration: Regular communication with Lopez Urban Farm for feedback and ensuring the solution aligns with their needs.

## Conclusion

In conclusion, Project Evergreen aims to provide Lopez Urban Farm with a reliable, offline solution for managing volunteer data. By developing a Java-based program that allows volunteers to easily log their information, regardless of internet access, we will help the farm overcome its current data collection challenges. With features like QR code scanning, efficient data management using Maps, Lists, and Trees, and integration with Apache libraries for CSV handling, this program will significantly improve the farm's volunteer management system. Ultimately, the farm will benefit from enhanced volunteer engagement, better data organization, and more effective communication, contributing to its overall success and community impact.