Requirement Document

CU EBIO Boulder Apple Tree Project Data Collection Application

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1. Introduction

1.1 Purpose of Document

This document is a Requirements Specification for an interactive user interface to share the data that is owned by Boulder Apple Tree Project (BATP). BATP is working on sharing a rich history with a vast knowledge of apples to people all around Colorado. The new system will be held on mobile platforms, majoring in Android. And new features will be added like off-line mode, uploading images locally, and real-time updates if users are online. This document describes the scope, objectives, and goal of the new system. The requirements specification document also models the functional requirements with use cases. This document is intended to demonstrate the design and implementation of the new system.

1.2 Project Summary

Project Name:	CU EBIO Boulder Apple Tree Project Data Collection Application
Project Manager:	Amy Dunbar-Wallis
Project Analysts:	
Responsible Users:	

1.3 Background

Colorado's historical apple tree orchards are sparsely intact and the remnants of these orchards are highly valued for historical and intrinsic purposes alike. A higher volume of accurate data will allow for better monitoring and analysis of the remaining apple trees in Colorado and subsequently support their protection.

1.4 Project Scope

In-Scope:

- IOS/Android data collection app will have fields for all necessary entries, involving several data types including pictures.
- Users can upload the entered data, which requires an internet connection.

- The app will automatically take the users GPS coordinates, or have an option to manually enter their coordinates
- The app will populate the existing Boulder Apple Tree Map.
- Uploaded data will be approved by an administrator (Amy, Addie, Jude & associates), then posted on the map

Out-of-Scope:

- Map doesn't need to show up on the app (user can check by existing map, will link to it on app)
- User can't use existing map to navigate to trees
- User can't view existing data

1.5 System Purpose

1.5.1 Users

Those who will primarily benefit from the new system and those who will be affected by the new system include users, product owners, and the office of information technology.

- Users:
    - Upon implementation, the interactive map allows users to search and filter for the location of generalized or specific apple trees including unic information, pictures, and their heritage information.
- Product Owners:
    - Product owners will be allowed to maintain the data about their products thoroughly and the ability to make change in the database.
- Future Project Groups
    - Future project groups will be responsible for putting in new information into the database, maintaining and servicing the mobile app, and maintaining the system.

1.5.2 Location

The system will be available to any users with or without the Internet. If the user is in off-line mode, the app is still able to check the local map saved in cache. And when the user is in online mode, the app will update new data to renew the local map.

1.5.3 Responsibilities

The primary responsibilities of the new app:

- An interactive mobile app as the main product.
- The app allows new data insertion in the Apple Tree database.
- The app interface is scalable and suitable for some mobile platforms.
- Engaging and accessible.
- Allow users to update apple tree information: location, picture, other information.

- Allow users to use the local map in off-line mode, and update new data while online.
- Allow users to see different apple trees' brief introduction when single click, and detailed information when double click.

Other desired features of the app:

- Email address credential for login process.
- Online and offline modes for the update process.

1.5.4 Need

The Boulder Apple Tree Project will have a highly accessible data collection app which allows the entry of various data types, and updates the information on an existing interactive map.

2. Functional Objectives

2.1 High Priority

- The Boulder Apple Tree Project Data Collection App will provide any mobile user with the ability to collect and contribute data to a statewide apple tree database. By using this application, the user can update apple tree photos, location and other information to keep the application more accurate.

2.2 Medium Priority

- The app's database shall have support for uploading or updating of authorized data such that it can be extended or modified when more data is collected about the apples.

2.3 Low Priority

- The app shall have cross-platform support, i.e. be a native application for iOS, Android, or any other mobile platform.
- The app shall provide notifications that notify the user for viewing the description of the tree which is near to the user.
- The app shall support different languages.

3.Non-Functional Objectives

3.1 Reliability

- The system shall be completely operational at least 50% of the time.
- Down time after a failure shall not exceed 48 hours.

3.2 Usability

- A new user should be able to use the system immediately or after reading the UI in the app.

3.3 Security

- The system shall send confirmation email for registration only if the user is using CU gmail to register.

3.4 Supportability

- The app shall be compatible on Android platform.

3.5 Interfaces

The system must interface with

- The current apple tree database systems for product and order information.
- The current apple tree location system.

4. The Use Case Model

4.1 Use Case Descriptions (for selected cases)

Notes:

- For all use cases, the user can cancel the use case at any step that requires user input. This action ends the use case. Any data collected during that use case is lost.
- For all use cases that require a logged in user, the current login session is updated during the use case to reflect the navigation paths through the use case.

Login User

Use Case Name:	Login User
Summary:	In order to get personalized or restricted information.
Basic Flow:	1. The use case starts when a user indicates that he wants to login. 2. The system requests the email address. 3. The user enters his email address. 4. The system verifies the email address against all registered users. 5. The system starts a login session and displays a welcome message.
Alternative Flows:	Step 4: if the email address is invalid, the use case goes back to step 2.
Extension Points:	*None*
Preconditions:	The user is registered.
Postconditions:	The user can now obtain data and perform functions according to his registered access level.
Business Rules:	Some data and functions are restricted to certain types of users or users with a particular access level.

Register User

Use Case Name:	Register User
Summary:	In order to get personalized or restricted information.
Basic Flow:	1. The use case starts when a user indicates that he wants to register. 2. The system requests CU email addresses. 3. The user enters their email address and phone number. 4. The system sends a confirmation email to the user . 5. The system verifies the user's email address. 6. The system starts a login session and displays a welcome message.
Alternative Flows:	● Step 3: if the email address is invalid, the use case goes back to step 2. ● Step 5: If the system can not verify the email address, a message is displayed and the use case repeats step 2.
Extension Points:	*None*
Preconditions:	*None*
Postconditions:	The user can now obtain data and perform functions according to his registered access level.
Business Rules:	● Registered users are divided into different access levels. ● Access levels are - 0: Users can access all sources in the app. - 1: Users can access data and update or report. - 2: Users can access only view data. ● The default access level is 2.