**Software Engineering**

**Software Requirements Specification**

**(SRS) Document**

**< Leaf Identification Program>**

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1. Introduction

* 1. **Purpose:** My project will be a program or website that accepts a picture of a leaf from the user, identifies the plant it belongs to, and provides information on that plant – medicinal uses, is it edible, etc.
  2. **Document conventions:** None

* 1. **Intended audience:** This document is intended for Mr. Stutler and myself to use as a guide for developing my project.
  2. **Scope:** The requirement for this project is to use coding skills to create software using the correct tools for the job. I will fulfill this requirement by creating a leaf identification program using Python AI tools.
  3. **References:** None

## 2. General Description

**2.1 Product perspective:** The program intends to provide information to people wanting to learn about the uses of their local flora.

**2.2 Product features:** The program will have an upload function that allows the user to upload an image of their leaf to the program. The program will then use AI tools to identify the leaf and use a dataset to write a blurb of informational text about that plant.

* 1. **User class and characteristics:** The program is intended for people with access to a computer who are curious about what the plants around them are and how they can use them. Users are expected to have familiarity with how to upload files, run a program, and take and select decent photographs of leaves
  2. **Operating environment:** The program should be able to run on any desktop or laptop capable of running large Python programs and with access to the program
  3. **Constraints:** The main constraints for this project are time and knowledge because, currently, I don’t have the knowledge needed to create this program, so I will have to take time to learn how to create certain functions.
  4. **Assumptions and dependencies:** The project assumes that the user is able to take high-quality, well-lit photos of leaves that the program has been exposed too.

## 3. System Requirements

**3.1 Functional requirements**

There should be an area where the user can upload a photo or possibly describe the precise characteristics of a leaf, from which the program can somewhat accurately identify the species of plant the leaf belongs to. Then the program should provide a blub of information of that plants uses and/or its potential dangers.

## 4.External Interface Requirements

4.1 User Interfaces

There should be one screen where the user can upload a leaf from their computer and information about the plant can be displayed underneath the upload box on the same screen. A visually appealing user interface would be nice but is not required for the program to work.

4.2 Hardware Interfaces

A computer capable of accessing and running large Python programs is required for this program to run.

4.3 Communications Interfaces

I will be working alone so none are required.

4.4 Software Interfaces

I will use Python to code the program’s functionality. The project will be stored and updated on GitHub. Later into the project I will determine if other software is necessary.

## 5. Non-Functional Requirements

**5.1 Performance requirements**

There needs to be a box or some other entry spot where the user can upload their file to the program. This is necessary for the program to be able to help users with their specific plant. The program then, through machine learning, will use image classification to identify the likely species of the plant it came from. Finally, the program will tell the user, via on-screen text, the species of plant and what that plant is used for. This enables the program to be useful to the user.

**5.2 Safety requirements**

The screen could display the program’s level of confidence about its predictions and have a disclaimer that the program is not always accurate to prevent users from taking a false prediction as truth.

**5.3 Security requirements**

The program won’t access any of the user’s personal data.

**5.4 Software quality attributes**

The program should be pretty easy to use and have visual design that may not be pretty but makes logical sense and doesn’t look disorganized or confusing.

**5.5 Other requirements**

None

[Image classification with Python FULL COURSE | Computer vision (youtube.com)](https://www.youtube.com/watch?v=UuNGmhLpbCI)