

Functional Requirements

Functional requirements are the specifications of the product's functions (features). Simply put, functional requirements define what a system must do and how the system must respond to inputs. Functional requirements define the software's goals, meaning that the software will not work if these requirements are not met. The following are the functional requirements that the system is expected to perform.

Ref. no		Functional description	Category
F1	Management of users.		
	F1.1	The system shall allow users to register by providing their username, email, and password.	EVIDENT
	F1.2	The system should allow users to log in using email and password.	EVIDENT
	F1.3	The system shall authenticate users upon login with a username and password.	HIDDEN
	F1.4	The system shall provide a profile page for each user, where the following information is displayed: full name, email address, and previous recommendations.	EVIDENT
	F1.5	The system shall ensure that the user profile page is accessible only to the authenticated user, except for system administrators who may have view access for support and moderation purposes.	HIDDEN
	F1.6	The system shall allow users to edit their profile information, which includes updating their full name, contact information, password, and preferred settings for receiving notifications or recommendations	EVIDENT

Table 1: Management of users

Ref. no		Functional description	Category
F2	Location and crop setup.		
	F2.1	The system shall prompt users to set up their location using Google Maps to tailor recommendations to their specific geographic area.	EVIDENT
	F2.2	The system shall allow users to specify the type of crops they are cultivating or interested in cultivating to further personalize the recommendations.	EVIDENT

Table 2: Location and Crop Setup

Ref. no		Functional description	Category
F3	Data retrieval for recommendations.		
	F3.1	The system shall retrieve soil data from ISDA to generate crop and improvement recommendations.	HIDDEN
	F2.2	The system shall retrieve environmental data from Open Meteo to generate crop and improvement recommendations.	HIDDEN
	F3.3	The system shall notify the user and suggest manual data input as an alternative.	EVIDENT

Table 3: Data Retrieval for Recommendation

Ref No.		Functional description	Category
F4	Recommendation Generation.		
	F4.1	The system shall provide initial crop recommendations based on user-provided location and crop preferences, utilizing the latest soil and environmental data for new farmers.	EVIDENT
	F4.2	The system shall offer improvement recommendations by analyzing historical soil and environmental data and comparing it with current data trends for ongoing farmers.	EVIDENT

Table 4: Recommendation Generation

Ref No.		Functional description	Category
F5	Report Generation.		
	F5.1	The system shall generate detailed soil data reports that include key metrics such as pH level, nutrient composition (nitrogen, phosphorus, potassium), and soil moisture level.	EVIDENT
	F5.2	The system shall produce environmental data reports covering local weather conditions, humidity levels, and temperature fluctuations relevant to the user's specific geographic location.	EVIDENT
	F5.3	The system shall offer the option to download soil and environmental data reports as PDF documents.	EVIDENT

Table 5: Report Generation