

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	03 October 2022
Team ID	PNT2022TMID07696
Project Name	Estimate the Crop Yield Using Data Analytics
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail
FR-2	User Confirmation	You will Receive Conformation Message and Login By entering email & password.
FR-3	User Profile	User specific information, Farm details, Yield history and IGM Cognos Registration.
FR-4	Knowledge about factors that influence the yield	The four most important factors that influence crop yield are soil fertility, availability of water, climate, and diseases or pests.
FR-5	Estimation Module	Crop models are a formal way to present quantitative knowledge about how a crop grows in interaction with its environment. Using weather data and other data about the crop environment, these models can simulate crop development, growth, yield, water, and nutrient uptake.
FR-6	Analysis	With the help of data analysis for agriculture businesses, farmers can observe the impact that extreme weather conditions and other phenomena can have on their crops. But even more valuable is the ability to predict and adjust to these things.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Usability has been defined as a measurement of system effectiveness, efficiency, and satisfaction . Usability is also an assessment to measure quality level and human point of view about the systems .
NFR-2	Security	Crop production is predicted using machine learning techniques based on parameters such as rainfall, crop, and meteorological conditions.

		The most popular and powerful supervised machine learning algorithm, Random Forest, can do both classification and regression tasks.
NFR-3	Reliability	As a result, precision farming can improve time management, reduce water and chemical use, and produce healthier crops and higher yields—all of which benefit farmers' bottom lines and conserve resources while reducing chemical runoff.
NFR-4	Performance	The performance is measured in terms of the value of production at constant prices and at current prices. It focuses on the measurement of the whole sector (agriculture) and its sub-commodity groups (crops, livestock, poultry and fisheries) and commodities.
NFR-5	Availability	There are poor people growing rain-fed crops on very marginal lands, obtaining a very meagre output, and crops might also be grown on desert land, albeit at higher costs and using specific technology such as computer-driven localised drip irrigation. Also, some previously unsuitable land might be rendered suitable by supplying extra water through new or improved irrigation works.
NFR-6	Scalability	Whether it is crop farming or livestock keeping, farm produce is usually sold by weight. When buying livestock, animals may be put on the scale to ensure that they meet the average weight for that specific breed. As for crops, weighing is a standard practice of the trade.