Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID19575
Project Name	Project – Fertilizer recommendation system for Disease Prediction.
Maximum Marks	4 Marks

Technical Architecture:

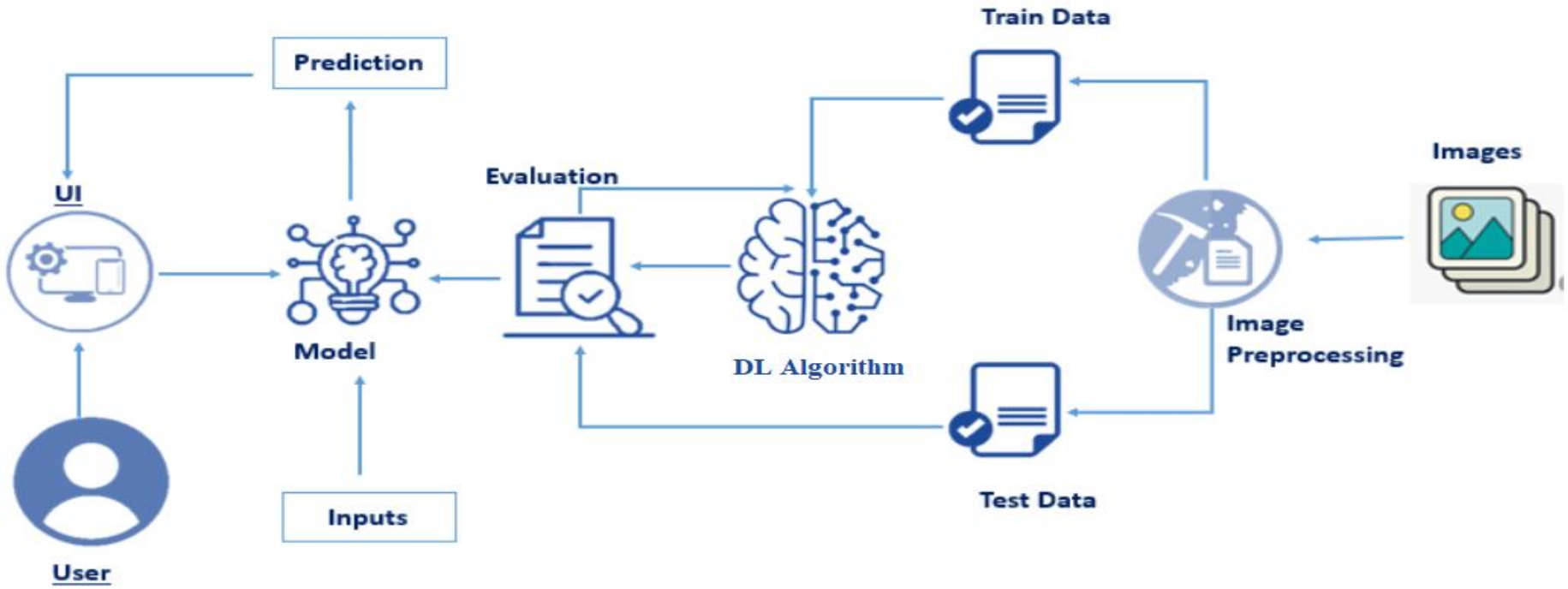

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI.	HTML, CSS, JavaScript
2.	Application Logic-1	The user can interact with the web UI through the general instructions for the first time of their usage.	Python
3.	Application Logic-2	The customers can login into their applications and can upload their images of the crops and ask for the suggestions of fertilizers on the display.	IBM Watson STT service
4.	Application Logic-3	This model will detect the disease of the affected crops and convey the information to the users through the assistants.	IBM Watson Assistant
5.	Database	Image data sets.	MySQL.
6.	Cloud Database	Database Service on Cloud	IBM Cloudant etc.
7.	File Storage	Image files storage system.	Local Filesystem
8.	External API-1	A software is used to process the crop images and detect the diseases.	Anaconda software.
9.	External API-2	The external API is used to recommend the suitable fertilizers for the affected crops.	Jupyter notebooks.
10.	Machine Learning Model	The part of the machine learning model called the Deep Learning model is used here to process the various images and the user uploaded images to identify the absolute disease at the early stage to avoid the yield losses.	Image Recognition Model.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Django Flask	Python web framework.
2.	Security Implementations	Use of firewalls 2 step verifications.	Encryption algorithms.
3.	Scalable Architecture	Better user experience and higher agility.	SAAS services like ECS, data lakes.
4.	Availability	Use of load balancers and elastic storage systems.	Elastic storage
5.	Performance	The performance of the application is enhanced by the various techniques that are widely used for processing the data such as the number of requests per sec and use of Cache is efficiently managed.	Distributed architecture.