Project Initialization and Planning Phase

Date	1 July 2024
Team ID	SWTID1720176710
Project Title	Visual Diagnostics: Detecting Tomato Plant Diseases Through Leaf Image Analysis
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	Develop a deep learning model for detecting tomato plant diseases from leaf images. By analysing leaf characteristics and symptoms, this project aims to accurately classify various diseases, enabling early detection, targeted treatment, and crop management practices for tomato farmers, ensuring crop health and yield.
Scope	The project comprehensively assesses and enhances the detection of tomato leaf disease, incorporating deep learning for a more robust and efficient system. It predicts whether the leaf is healthy or diseased, ensuring accurate and timely identification.
Problem Statement	
Description	Tomato plants are vulnerable to diseases that affect crop health and yield. Traditional manual inspections are slow and error-prone. This project aims to develop a deep learning model to detect tomato leaf diseases from images, enabling early and accurate disease classification. This will help farmers with targeted treatments and better crop management, ensuring healthier plants and improved yields.
Impact	Solving these issues Implement this deep learning model to assist tomato farmers in early disease detection and management. Improve crop yield, reduce economic losses due to disease outbreaks, and promote sustainable farming practices.

Proposed Solution	
Approach	In our project, we employed advanced deep learning techniques to develop an efficient and accurate system for detecting tomato leaf diseases.
Key Features	This project aims to develop a deep learning model that predicts whether a tomato leaf is disease-free or diseased simply by analyzing its image.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	RTX 3080 , 8GB VRAM
Memory	RAM specifications	32 GB
Storage	Disk space for data, models, and logs	2 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Tensorflow, Numpy, Matplotlib, Keras
Development Environment	IDE, version control	Jupyter Notebook, Git, Google Collab
Data		
Data	Source, size, format	Kaggle dataset, 12,000 images