Project Initialization and Planning Phase

Date	25 July 2025
Team ID	Satya Prakash Sharma
Project Title	PredictingPlant Growth Stages with Environmental and Management Data Using Power BI
Maximum Marks	3 Marks

Project Proposal(ProposedSolution) 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	To predict plant growth stages using environmental and management data by leveraging Power BI visualizations and models.
Scope	The project focuses on analyzing factors such as soil type, sunlight hours, watering frequency, fertilizer type, temperature, and humidity to predict and improve plant growth across different farming setups and greenhouses.
Problem Statement	
Description	Inconsistent plant growth across greenhouse and organic farming environments due to lack of data-driven insights into optimal growth conditions.
Impact	Solving this issue will allow agricultural businesses to standardize optimal growth conditions, resulting in improved yields, better resource allocation, and more sustainable farming practices.
Proposed Solution	
Approach	Use Power BI to develop predictive analytics dashboards with decomposition trees, bar charts, pie charts, and scatter plots, enhanced by calculated measures and columns. These visuals will help uncover the optimal combinations of environmental and management variables that influence plant growth.

Key Features	– Decomposition tree for breakdown analysis – Interactive Power BI dashboards – Predictive models using calculated columns – Insight into best soil–fertilizer–water combos – Support for smart sensor validation and recommendations

Resource Requirements

Resource Type	Description	Specification /Allocation
Hardware		
Computing Resources	CPU /GPU specifications، number of cores	٢ x NVIDIA V١٠٠ GPUs or equivalent Azure Power BI Embedded capacity (A٣ /A٤ SKU)
Memory	RAM specifications	٨–١٦ GB RAM (local for development)، scalable cloud memory for large datasets
Storage	Disk space for data، models، and logs	١ TB SSD for storing historical data، Power BI datasets، and logs
Software		
Frameworks	Python	Flask
Libraries	frameworks	scikit–learn، pandas، numpy
Development Environment	Additional	Jupyter Notebook، Git
Data	libraries IDE،	
Data	source، size، format	Kaggle dataset