

Project Initialization and Planning Phase

Date	23 July 2025
Team ID	xxxxxx
Project Title	Predicting Plant Growth Stages with Environmental and Management Data Using Power BI
Maximum Marks	3 Marks

Project Proposal (Proposed Solution)

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	Predicting Plant Growth Stages with Environmental and Management Data Using Power BI
Scope	Enhanced prediction of plant growth stages, Improved decision making via interactive analytics and visualizations
Problem Statement	
Description	<p>Crop Growth is influenced by environmental conditions such as temperature, soil moisture, and sunlight, as well as management factors like irrigation and fertilization. Predicting plant growth stages is essential for optimizing resource allocation, reducing crop loss, and increasing yields.</p> <p>However, traditional plant growth prediction models rely on static datasets and lack real-time adaptability. Power BI can be used to create interactive dashboards that integrate environmental data, visualize growth patterns, and predict optimal farming decisions.</p>
Impact	<p>Social: Enhancing plant growth prediction helps farmers optimize resources, increase crop yields, and reduce environmental impact, supporting sustainable agriculture.</p>

	Business: This solution can generate revenue through precision agriculture consulting, AI-powered farm management systems and partnerships with agritech startups.
Proposed Solution	
Approach	Data Collection & Integration, Data Preparation & Modeling, Predictive Modeling, Integration with Power BI, Interactive Dashboards & Decision Support, Iterative Improvement
Key Features	It replaces static, inflexible models with a data-driven, real-time, and interactive system that can adapt as conditions change, provide evidence-based recommendations, and continually improve with data. Power BI acts as the hub for visualization, decision support, and stakeholder engagement throughout the agricultural growing season

Resource Requirements

Software		
Frameworks	Python frameworks	Basic Python
Libraries	Additional libraries	NIL
Development Environment	IDE, version control	Microsoft Power BI, Excel
Data		
Data	Source, size, format	https://www.kaggle.com/datasets/gorororororo23/plant-growth-data-classification , 193rows and 7 columns, csv

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	<ul style="list-style-type: none"> - Minimum CPU: 1.4 GHz x64 processor (dual-core minimum). Recommended: 2.0 GHz or faster multi-core processor. - GPU: Not strictly required but modern GPU helps with rendering visuals smoothly.
Memory	RAM specifications	<ul style="list-style-type: none"> - Minimum: 1-2 GB RAM for basic tasks. - Recommended: 4 GB minimum, with 16 GB or more preferred for heavy data and complex reports.
Storage	Disk space for data, models, and logs	<ul style="list-style-type: none"> - Minimum disk space: 1-5 GB free space for installation and data storage. - Recommend SSD for faster load and query performance. - Large datasets/models require more storage accordingly.