Project Design Phase
Proposed Solution Template

Date	15 March 2025
Team ID	PNT2025TMID06851
Project Name	Predicting Plant Growth Stages with Environmental and Management Data Using Power BI
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	How to Predict Plant growth stages. With environmental and management data using Power BI.
2.	Idea / Solution description	Use Power BI to visualize relationships between environmental factors and plant growth stages. Identify key variables that influence growth stages through correlation analysis. Dashboard Creation: Develop interactive dashboards that display: Current environmental conditions (temperature, humidity, soil moisture). Cumulative GDD and predicted growth stages. Historical trends of growth stages against environmental factors.
3.	Novelty / Uniqueness	Power BI's interactive dashboards make complex data easily interpretable for users with varying levels of technical expertise. Visual elements such as charts and maps help in quickly identifying trends and anomalies.

4.	Social Impact / Customer Satisfaction	1. Knowledge: The educational component of using Power BI dashboards helps farmers understand the relationship between environmental factors and plant growth, enhancing their agricultural knowledge and skills. 2. Cost Savings: Efficient resource management leads to reduced operational costs for farmers. By minimizing inputs like water and fertilizers, farmers can increase their profit margins.
5.	Business Model (Revenue Model)	The proposed solution of predicting plant growth stages using Power BI fits well into various business models that can generate revenue while providing significant value to farmers and agricultural businesses. By leveraging subscription services, consulting, partnerships, data monetization, and educational programs, the solution can create a sustainable revenue stream while contributing to the advancement of precision agriculture and improved farming practices.
6.	Scalability of the Solution	Predicting plant growth stages involves utilizing machine learning models, such as Random Forest and deep learning techniques, to analyze environmental and management data. Integrating these models with tools like Power BI can enhance scalability by enabling real-time data visualization and decision-making in agricultural practices Data Collection: Gather environmental data (temperature, humidity, soil moisture) and management data (fertilization, irrigation schedules) to create a comprehensive dataset. Integration with Power BI: Use Power BI to visualize the predictions and insights derived from the machine learning models, allowing for better understanding and communication of results.