**Project Initialization and Planning Phase**

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| Date | 03 February 2025 |
| Team ID | xxxxxx |
| Project Title | Implementing AgriPrediction using Machine Learning |
| 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.

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| **Project Overview** | |
| Objective | Develop a machine learning-based AgriPrediction system to forecast crop yield, soil health, and weather patterns for data-driven farming decisions. |
| Scope | Utilize historical and real-time agricultural data to predict crop performance, optimize resource allocation, and deploy a user-friendly application for farmers. |
| **Problem Statement** | |
| Description | Farmers struggle with unpredictable weather, soil degradation, and inefficient resource use, leading to reduced crop yield and economic losses. |
| Impact | Implementing a predictive solution will enhance productivity, reduce resource wastage, improve food security, and support sustainable farming. |
| **Proposed Solution** | |
| Approach | Collect and preprocess agricultural datasets, implement supervised and deep learning models, deploy an API for integration, and continuously update the model with real-time data. |
| Key Features | Predict crop yield, analyze soil health, provide weather forecasts, optimize fertilizer and water usage, and detect pests and diseases using image processing. |

**Resource Requirements**

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| **Resource Type** | **Description** | **Specification/Allocation** |
| **Hardware** | | |
| Computing Resources | CPU/GPU specifications, number of cores | 2 x NVIDIA V100 GPUs. |
| Memory | RAM specifications | 16 GB RAM. |
| Storage | Disk space for data, models, and logs | 1 TB SSD. |
| **Software** | | |
| Frameworks | Python frameworks | Flask, TensorFlow, PyTorch. |
| Libraries | Additional libraries | scikit-learn, pandas, numpy, OpenCV. |
| Development Environment | IDE, version control | Jupyter Notebook, VS Code, GitHub. |
| **Data** | | |
| Data | Source, size, format | Kaggle, government datasets, CSV/JSON format. |