Project Initialization and Planning Phase

Date	10 July 2024
Team ID	SWTID1720085076
Project Title	Rice Type Classification using CNN
Maximum Marks	3 Marks

Project Proposal (Proposed Solution)

This project aims to revolutionize rice quality assessment by developing an automated system using Convolutional Neural Networks (CNNs). The proposed solution addresses the inefficiencies of manual inspection, ensuring consistent and accurate classification of rice quality. Key features include a pre-trained CNN model for feature extraction, a user-friendly interface for easy interaction, and scalability for future enhancements. This initiative promises improved operational efficiency, enhanced customer satisfaction, and reliable quality control.

Project Overview	
Objective	To develop an automated system for accurate rice quality classification using Convolutional Neural Networks (CNNs).
Scope	This project will include data collection, model development, and application building. The system will classify rice quality from images and provide results through a user-friendly interface.
Problem Statement	
Description	Current rice quality assessment methods are manual, subjective, and error-prone, leading to inconsistent classification and customer dissatisfaction.
Impact	Automating the rice classification process will improve accuracy, efficiency, and consistency, enhancing customer satisfaction and trust.
Proposed Solution	
Approach	We will collect a dataset of rice images, preprocess the data, and train a CNN model. The model will be integrated into a Flask application to allow users to upload images and receive quality predictions.

Key Features	**Automated Classification:** Eliminates the need for manual inspection. **High Accuracy:** Uses advanced CNN techniques for precise classification. **User-Friendly Interface:** Provides an intuitive UI for easy interaction. **Scalability:** The system can be scaled to classify different types of grains in the future

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPUs
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn, tensorflow
Development Environment	IDE, version control	Google Colaboratory, Git
Data		
Data	Source, size, format	Kaggle dataset