IDEATION PHASE

Date	7 Jul 2025
Team ID	LTVIP2025TMID40710
Project Name	Grain Palette
Maximum Marks	4

2.1 Problem Statement

Farmers often struggle with identifying rice varieties, leading to ineffective agricultural practices. Misidentification can result in poor yield, incorrect use of water and fertilizers, and economic losses.

2.2 Empathy Map Canvas

SAYS	**THINKS**
"I'm not sure what type of rice this is."	"I hope this variety gives me a good yield."
"It takes time to get expert advice on rice variety."	"What if I'm using the wrong fertilizer or watering too much?"
"It takes time to get expert advice on rice variety."	"Can technology help me know the rice type instantly?"

DOES	**FEELS**
Visits nearby seed sellers for advice.	Frustrated due to lack of accurate information.
Plants crops based on rough assumptions.	Anxious about yield and income.
Asks peers or waits for expert visits	Curious and open to trying tech-based solutions if they're simple.

2.3 Brainstorming

During the ideation phase of GrainPalette, we explored multiple approaches to tackle the problem of rice grain classification using artificial intelligence. The objective was to create a simple, scalable, and impactful solution for real-world agricultural use.

Key Ideas Generated

- **AI-Based Image Classification Model**
  Utilize Convolutional Neural Networks (CNNs) to detect patterns and features in rice grain images, enabling accurate type identification.

- **Transfer Learning with MobileNetV4**
  Leverage the MobileNetV4 architecture to apply pre trained knowledge to our smaller rice dataset, ensuring high accuracy with fewer computational resources.

- **User-Friendly Web Interface**
  Develop a lightweight web application with an intuitive UI where users can upload rice images and receive instant results.