

Ideation Phase

Define the Problem Statements

Date: 31 January 2025

Team ID: LTVIP2025TMID32946

Project Name: GrainPalette - A Deep Learning Odyssey In Rice Type Classification Through Transfer Learning

Maximum Marks: 2 Marks

Customer Problem Statement Template:

Create a problem statement to understand your customer's point of view. The Customer Problem Statement template helps you focus on what matters to create experiences people will love.

A well-articulated customer problem statement allows you and your team to find the ideal solution for the challenges your customers face. Throughout the process, you'll also be able to empathize with your customers, which helps you better understand how they perceive your product or service.

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A rice farmer and trader	accurately identify different rice varieties for proper pricing and market positioning	I struggle with manual identification methods that are time-consuming and inconsistent	visual differences between rice varieties are subtle and require expert knowledge that I don't always have access to	frustrated and concerned about potential financial losses due to misclassification
PS-2	An agricultural researcher	quickly classify large quantities of rice samples for research and quality assessment	the traditional identification process is slow and prone to human error	I need to process hundreds of samples efficiently while maintaining accuracy for research validity	overwhelmed by the manual workload and worried about research timeline delays
PS-3	A rice exporter	ensure consistent quality classification before shipping to international markets	manual sorting and identification creates bottlenecks in my export process	different staff members sometimes classify the same variety differently, leading to inconsistent quality standards	anxious about potential quality disputes with international buyers and reputation damage
PS-4	A grain storage facility manager	properly categorize incoming rice batches for storage and inventory management	current identification methods are not standardized across different staff shifts	lack of consistent classification leads to mixing of varieties and inventory confusion	stressed about operational inefficiencies and potential customer complaints
PS-5	A new farmer or agricultural student	learn to identify different rice varieties accurately	I lack the experience and expertise to distinguish between similar-looking grains	traditional learning methods require extensive mentorship and years of practice	uncertain about my ability to make correct decisions and worried about making costly mistakes

Key Insights from Problem Statements:

Common Challenges:

- **Accuracy:** Manual identification is prone to human error and inconsistency
- **Speed:** Traditional methods are time-consuming for large-scale operations
- **Expertise Gap:** Limited access to rice classification experts
- **Standardization:** Lack of consistent identification standards across different people
- **Scalability:** Manual processes don't scale well for commercial operations

Emotional Impact:

- **Frustration** with current inefficient processes
- **Anxiety** about financial losses and reputation damage
- **Uncertainty** about decision-making capabilities
- **Stress** from operational bottlenecks

Core Need:

A **reliable, fast, and accessible digital solution** that can provide consistent rice variety identification to support better decision-making in agricultural and commercial operations.

Solution Direction:

The GrainPalette application addresses these problems by providing:

- **AI-powered accuracy** through deep learning models
- **Instant classification** via simple image upload
- **Standardized results** consistent across all users
- **Accessible technology** requiring minimal technical expertise
- **Scalable solution** suitable for individual farmers to large commercial operations