

Ideation Phase

Brainstorm & Idea Prioritization Template

Date	27 June 2025
Team ID	LTVIP2025TMID41438
Project Name	GrainPalette - A Deep Learning Odyssey In Rice Type Classification Through Transfer Learning
Maximum Marks	4 Marks

Brainstorm & Idea Prioritization Template:


Brainstorming plays a crucial role in generating creative, practical, and impactful solutions. In this project, our aim is to build a robust deep learning model capable of classifying various rice grain types from images. This model is especially useful for farmers, agri-researchers, and home growers. The brainstorming session allowed our team to explore multiple technical and user-centered possibilities ranging from dataset design, model selection, and feature optimization to user experience and community-level impact.

This template helps structure our thought process, allowing the team to:

- Identify innovative solutions using AI in agriculture
- Address real-world agricultural challenges
- Align deep learning technologies with farmer-centric applications
- Evaluate feasibility, scalability, and real-world usability of proposed ideas




Step-1: Team Gathering, Collaboration and Select the Problem Statement


Template



Brainstorm & idea prioritization


Use this template to launch "Grainpalette" project. This session will align the team on the **core objectives, technical approach, and expected impact** on agriculture, crop planning, and educational outreach.


 10 minutes to prepare
 1 hour to collaborate
 2-8 people recommended





Before you collaborate


A little bit of preparation goes a long way with this session. Here's what you need to do to get going.


 10 minutes

 **Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

 **Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.


 **Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.


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Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

 5 minutes


 **PROBLEM**


How might we use machine learning to accurately identify rice varieties using images so that farmers, researchers, and gardeners can make informed crop and sowing decisions efficiently and affordably?





Key rules of brainstorming


To run an smooth and productive session


 Stay in topic.

 Defer judgment.

 Go for volume.

 Encourage wild ideas.

 Listen to others.

 If possible, be visual.

Step-2: Brainstorm, Idea Listing and Grouping

2 Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TP You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

Person 1
Collecting and labeling diverse rice grain image datasets with correct variety names

Person 2
Choosing a suitable deep learning model like MobileNetv4 or EfficientNet for lightweight deployment.

Person 3
Preprocessing images (resizing, normalization, background removal) to improve model performance.

Person 4
Improving model explainability for users through prediction confidence and visual feedback.

Person 5
Designing a simple web interface for uploading images and viewing rice type predictions.

3 Group Ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

20 minutes

TP Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

Grouped Idea Categories – Summary

- 1. Data Collection & Labeling**
 - Gather high-quality rice grain images
 - Label images by rice variety
- 2. Model Selection**
 - Use MobileNetv4 with transfer learning
 - Ensure lightweight and accurate model
- 3. Preprocessing & Accuracy**
 - Resize, normalize, and clean images
 - Apply data augmentation techniques
- 4. Explainability**
 - Show prediction confidence
 - Add visual feedback (e.g., heatmaps)
- 5. Deployment & Access**
 - Build a simple web app for users
 - Ensure fast predictions and browser compatibility

Step-3: Idea Prioritization

4 Prioritize

Your team should now evaluate the **rice grain classification ideas** based on their **agricultural impact** and **technical feasibility**. Use this grid to categorize which ideas to move forward with—such as dataset preparation, model optimization, or deployment topics.

20 minutes

TP Participants can use their cursor to point at various sticky notes clustered on the grid. The facilitator can control the tool by using the lower number, holding the **H** key on the keyboard.

Importance

It assesses if these tasks should get done without any other technical or business impact?

Feasibility

Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

After you collaborate

you can export your final **GrainPalette brainstorming and prioritization board** as a PDF or slide to share with:

- Agriculture experts, Academic guides, Farmer Cooperatives, AI mentors or project evaluators.

This ensures everyone is aligned and supports better tracking of model iterations, usage, and outcomes.

Quick add-ons

- Share the mural**
Share a view link to the mural with stakeholders to keep them in the loop about the outcomes of the session.
- Export the mural**
Export a copy of the mural as a PNG or PDF to attach to emails, include in slides, or save in your drive.

Keep moving forward

AI Model Planning Blueprint

- Define input: rice grain image
- Dataset: labeled rice images from 5 varieties
- Preprocessing: resize, normalize, augment
- Model: MobileNetv4 with softmax layer
- Outputs: Rice type, prediction confidence

Open the template →

Deployment Integration Map

- Where how the tool will be used:
 - In the field via mobile/laptop
 - For seed verification before sowing
 - In agri labs for research validation
- Decide where predictions + advice will appear
- Enable offline/low-bandwidth support for rural areas

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SWOT Analysis for GrainPalette

Strength: Lightweight, fast, and easy-to-use rice grain classification tool using transfer learning.

Weakness: Limited to 5 rice varieties; accuracy may drop with poor images.

Opportunity: Can expand to more varieties, support offline mode, and integrate with agri platforms.

Threat: Users may prefer custom tools and user trust issues in adopting AI for traditional farming.

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