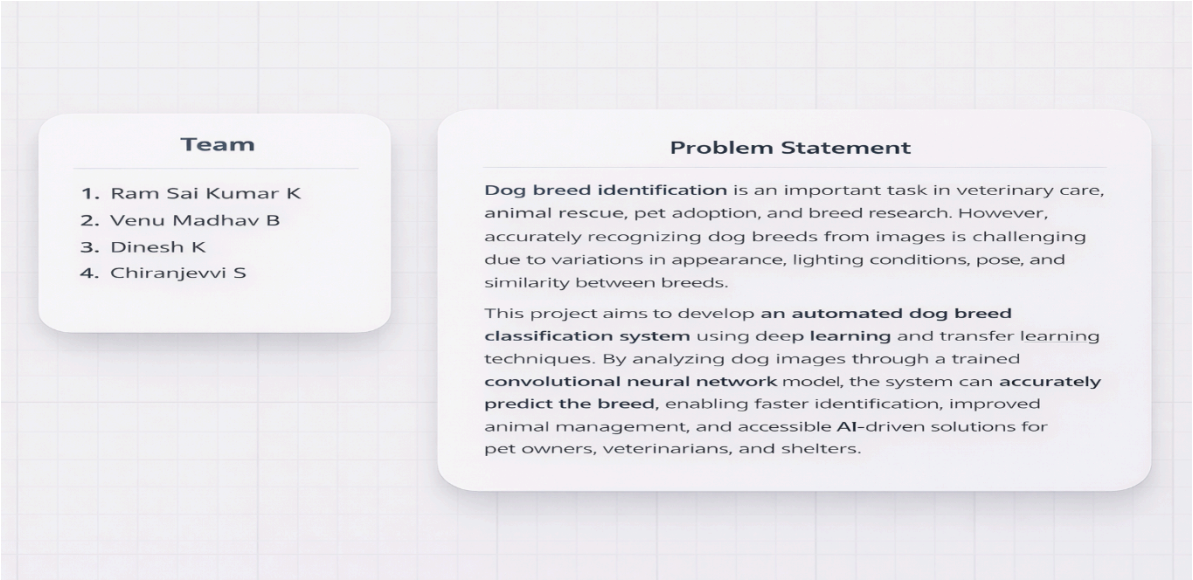
Ideation Phase
Brainstorm & Idea Prioritization Template

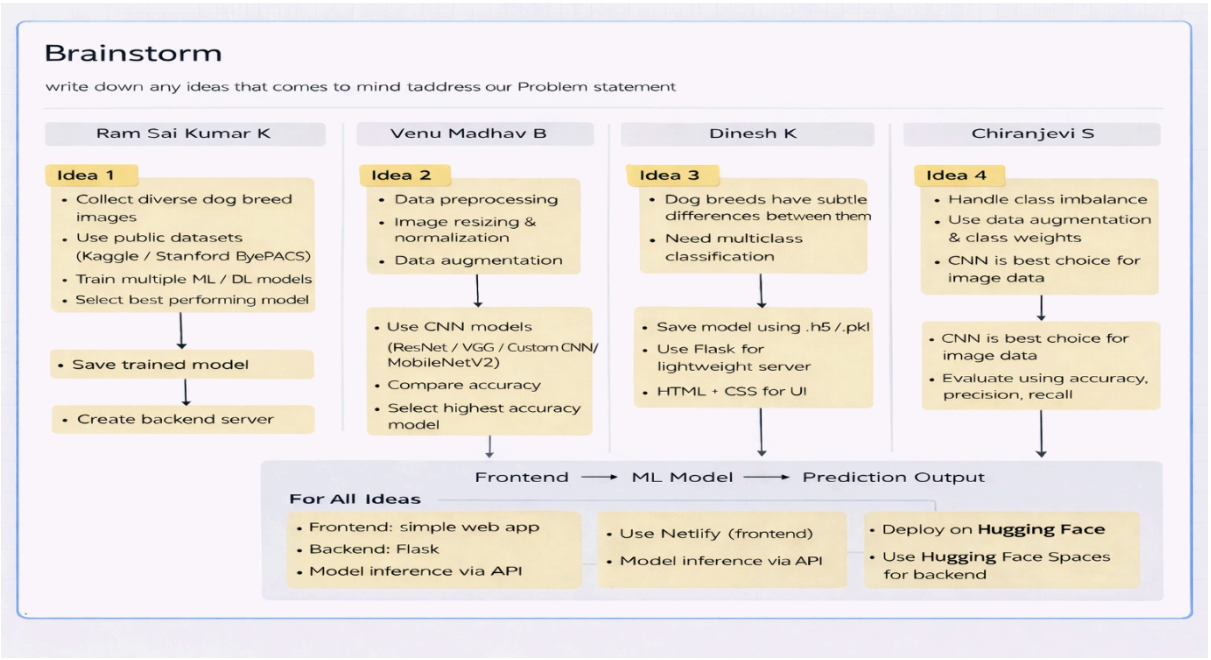
Date	14 Feb 2026
Team ID	LTVIP2026TMIDS52481
Project Name	Dog Breed Identification using Transfer Learning
Maximum Marks	4 Marks

Brainstorm & Idea Prioritization Template:

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



Step-2: Brainstorm, Idea Listing and Group



Brainstorm – Group Idea Flow (Dog Breed Classification)

1. Data Collection

• Collect dog images for multiple breeds
• Use publicly available datasets from **Kaggle dog-breed dataset**
• Ensure balanced images for each breed class

2. Data Preprocessing

• Resize images to MobileNetV2 input size (224×224)
• Normalize pixel values
• Apply data augmentation (flip, rotation, zoom)
• Improve model generalization and reduce overfitting

3. Problem Understanding

• Dog breed identification is a **multiclass image classification** problem
• Requires learning fine visual differences between breeds
• High-dimensional image data handled using deep learning

4. Model Selection

• Use **Transfer Learning with MobileNetV2**
• Fine-tune final layers for dog-breed classes
• Compare training accuracy and validation accuracy
• Select best-performing trained model

5. Handling Challenges

• Manage class imbalance in dataset
• Use augmentation and proper train-validation split
• Prevent overfitting with dropout and regularization

6. Model Training & Saving

• Train MobileNetV2 on prepared dataset
• Save trained model in **.h5 format**
• Prepare model for inference and deployment

7. Backend Development

• Build backend using **Flask**
• Load trained MobileNetV2 model
• Create prediction API for uploaded dog images

8. Frontend Development

• Design simple web interface using **HTML, CSS, JavaScript**
• Provide image upload and preview
• Show predicted dog breed with confidence score

9. System Integration

• Connect frontend with Flask backend
• Send uploaded image to model API
• Display prediction result and probability

10. Deployment

• Deploy trained model and app using **Hugging Face Spaces**
• Ensure public access through web browser
• Enable real-time prediction from anywhere

11. Final Output Flow

User Upload → Flask Backend → MobileNetV2 Model → Dog Breed Prediction → Result Display

Step-3: Idea Prioritization