Brainstorming & Idea Prioritization Template

Date: 15 June 2025

Team ID: DL-FABRIC-001

Project Name: Fabric Pattern Classification using Deep Learning

Maximum Marks: 4 Marks

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

Our team gathered to discuss real-world applications of computer vision and deep learning. After evaluating various domains, we decided to focus on automated fabric pattern recognition, a growing need in fashion and textile industries. The selected problem statement is:

"To develop a deep learning model that automatically classifies fabric patterns (e.g., striped, dotted, checked, floral, plain) from images using CNN."

Step 2: Brainstorm, Idea Listing and Grouping

Ideas Generated:

- Use Convolutional Neural Networks (CNN) for image classification.
- Collect or create a dataset with labeled fabric pattern images.
- Apply data augmentation to improve generalization.
- Build a model using TensorFlow/Keras.
- Evaluate the model using accuracy, precision, recall, and confusion matrix.
- Add functionality to test custom fabric images.
- Extend model for real-time fabric recognition using webcam/mobile input.
- Future integration with AR for fabric visualization.

Grouping:

Model Ideas: CNN, Transfer Learning, Data Augmentation

Dataset Ideas: Kaggle, Custom collection

Evaluation Ideas: Accuracy, Confusion Matrix, User Testing

Future Enhancements: Real-time detection, AR application

Step 3: Idea Prioritization

Idea	Priority	Notes
CNN model for classification	High	Core of the project
Data collection and augmentation	High	Critical for accuracy
TensorFlow/Keras implementation	High	Efficient and easy to implement
Performance evaluation (metrics & plots)	High	Essential for validation
Real-time image input (optional)	Medium	Adds bonus functionality
Integration with AR/VR tools	Low	Future scope