

Dog breed identification using transfer learning

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TEAM ID	LTVIP2026TMIDS90703
PROJECT NAME	Dog breed identification using transfer learning
MAXIMUM MARKS	2 MARKS

3.2 - Solution Requirement

In the Requirement Analysis phase of the Dog Breed Identification using Transfer Learning project, solution requirements define the technical and functional expectations that the proposed system must fulfill to address user needs effectively. These requirements ensure that the system not only solves the identified problem but also operates efficiently, accurately, and reliably in real-world scenarios.

The primary solution requirement is the development of an intelligent image classification system capable of accurately identifying dog breeds from uploaded images. The system must utilize deep learning techniques, specifically transfer learning, to leverage pre-trained Convolutional Neural Network (CNN) models. By using pre-trained models trained on large datasets such as ImageNet, the system can reduce training time while maintaining high accuracy. The solution must allow fine-tuning of the final layers to adapt the model specifically to the selected dog breed dataset.

Another essential requirement is image preprocessing capability. The system must automatically resize images to a standard input size compatible with the selected pre-trained model architecture. It should normalize pixel values and, if necessary, apply data augmentation techniques during training to improve generalization and reduce overfitting. The preprocessing pipeline must handle different image qualities, lighting conditions, and orientations to ensure consistent performance.