

Project Initialization and Planning Phase

Date	27 th June 2024
Team ID	SWTID1720073336
Project Title	Dog breed identification using transfer learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution):

The primary objective of this project is to create a machine learning-based system for accurate and efficient dog breed identification. By automating the breed identification process with transfer learning, we aim to enhance user satisfaction and trust through quick and reliable results. Key features include advanced image recognition and real-time processing.

Project Overview	
Objective	The primary objective of this project is to develop a reliable and efficient dog breed identification system using transfer learning. By automating the process with advanced machine learning models, we aim to provide accurate, quick, and user-friendly breed identification, enhancing customer satisfaction and trust.
Scope	This project will focus on developing a machine learning model using transfer learning for dog breed identification from images. It will encompass data collection, model training, and implementation of a user-friendly interface for real-time breed identification. The scope is limited to popular dog breeds and image-based inputs.
Problem Statement	
Description	The problem to be addressed is the inefficiency and inaccuracy of manual dog breed identification, which is time-consuming and error-prone. This affects proper care and training, leading to customer frustration and dissatisfaction.
Impact	Solving this problem will provide quick and accurate dog breed identification, enhancing customer satisfaction and trust. It will also ensure better care and training for dogs, ultimately fostering a stronger bond between pet owners and their pets.

Proposed Solution	
Approach	Employing machine learning techniques to analyze and predict the breed, creating a robust model that can identify a variety of breeds.
Key Features	<ul style="list-style-type: none"> - Implementing a deep learning model for accurate breed classification. - Utilizing transfer learning to leverage pre-trained models like ResNet or MobileNet for efficiency. - Developing a user-friendly interface for uploading and testing images. - Integrating real-time predictions for quick breed identification. - Continuous model refinement through feedback and updated datasets.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 - GPUs
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, keras, matplotlib, tensorflow, SciPy
Development Environment	IDE, version control	Google collab Notebook, GitHub
Data		
Data	Source, size, format	Kaggle dataset, 20,580 images