Project Initialization and Planning Phase

Date	10 July 2024
Team ID	SWTID1720067113
Project Title	Dog Breed Identification using Transfer Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	The primary objective of the Dog Breed Classification project is to develop a machine learning model capable of accurately identifying the breed of a dog from an image using advanced transfer learning techniques.
Scope	The project integrates advanced machine learning techniques, specifically transfer learning. It focuses on a curated dataset of 10,222 dog images from Kaggle, implementing rigorous preprocessing steps like resizing and normalization. The goal is to develop a highly accurate classification model capable of distinguishing among 120 distinct dog breeds.
Problem Statement	
Description	With the increasing popularity of pet ownership, accurately identifying dog breeds can assist veterinarians, rescue organizations, and pet owners. Manual identification can be error-prone and time-consuming, especially with mixed breeds or less common breeds.
Impact	Solving this problem will streamline breed identification, provide valuable insights for pet care, and potentially aid in reunification efforts for lost pets. It will also contribute to research in the field of computer vision and machine learning.
Proposed Solution	
Approach	The project employs transfer learning with pretrained models on a

	Kaggle dataset of 10,222 dog images. Data preprocessing includes standardization and augmentation. Model performance is evaluated using metrics like accuracy, aiming for robust breed identification. Deployment as a user-friendly web app enhances accessibility and usability.
Key Features	• Use of multiple pre-trained models for robust feature extraction. • Web-based deployment for user-friendly interaction.

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	12.7GB GPU RAM
Storage	Disk space for data, models, and logs	107GB ROM
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Tensorflow, Keras, Numpy, Pandas, shutil
Development Environment	IDE, version control	Jupyter Notebook, Git, Google Colab, VS Code, Spyder
Data		
Data	Source, size, format	https://www.kaggle.com/competitions/dog-breed-identification/data Kaggle dataset of 10,222 training JPEG images and 10,357 testing JPEG images