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**DoGo**

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**Motivation and your pitch:**

The main motivation behind this project was to create a Wikipedia for dogs that also can be used as a Dog breed prediction application. This application is having a breed recommendation system that recommends breeds based on certain filters. Mostly the applications available in the market are paid. We have created an application that is available free of cost to the user. Every detail of the breeds would be available in one place. Additionally, this application would contain features like common problems with pet dogs, providing first aid, pet supplies stores direct links, adoption centers address, etc.

**Problem Statement:**

Creating an android application that predicts the breed of dog, based image taken through the camera and a breed recommendation system based on certain filters and consisting of other dog pet related information.

**Related Work :**

* **Breed Recognition**

An input image of the dog is scanned and given as an input, for the processing OpenCV library and Artificial Neural Networks (ANN) for training model and SQLite database for storing data of breed of dogs. As an output, the scanned dog’s breed is displayed including related information about that breed.

* **Dog Breed Skin Infection Detection**

This is done using an android application by storing data of different types of breeds facing infection in the SQLite database. As an output displaying the type of infection faced by that breed and suggesting measures to take to prevent it.

* **Identification of Lost Dog**

This is done by the android application of the owner of the dog, by sending the photo of the most current lost dog, at the time the loss is registered then, the model places a label on the photo that is saved as additional data. After a dog is lost it becomes one of the many street dogs that exist. When a person finds it, they only have to send a photo of the street dog through their mobile application, this photo will be sent to the recognition model that will classify it with a label. After that, the database will perform a search in real-time, it will match the tag with respect to the tags of the lost dogs, to finally show all the dogs it finds.

**Dataset:**

**For Breed Prediction System:**

We have an image dataset of dog breeds. We have worked on 20 dog breeds. Our dataset consists of around 7000 thousand images which are used for training our neural network.

**For Breed Recommendation System:**

We have worked on the dataset that is scraped from the American Kennel Club website. The dataset consists of breed information of 282 unique breeds.

**Tools/Technology/Skills required:**

**Tools:**

* Android Studio
* Anaconda/google colab (Python notebook)
* Firebase
* Heroku

**Technology:**

* Image processing
* Deep Learning (TensorFlow lite)
* Android Development
* Machine learning (Collaborative filtering and one-hot encoding)

**Skills:**

* Java Programming
* Python Programming
* SQL queries

**Features Proposed:**

It will contain features like :

1. Dog breed recognition and information on various dog breeds.
2. Dog breed recommendations based on certain filters.
3. Login/sign-up functionality with favourites section.
4. Providing first aid information and common problems with pet dogs.
5. Pet supplies store redirect links.
6. Dog adoption center details.

**Features Implemented:**

1. Dog breed recognition and recommendation.
2. Information on various dog breeds(from database).
3. Login/sign-up functionality along with user profile(with database connectivity).
4. Providing first aid information and Common problems with pet dogs(from database).
5. Pet supplies store redirect links(from the database).
6. Dog adoption center details.

**Challenges Faced:**

* Images dataset for various breeds was not available to create a decent size dataset image augmentation was used.
* Creating and deploying of flask application on Heroku was a difficult task.
* Connecting the android application to the Flask application on Heroku was a difficult task.

**Project Outcome:**

* Wikipedia for various breeds
* Favorite section for signed-in users
* Identify breed in real-time
* Breed recommendation of similar and popular breeds.
* Sections for:
* Common problems with pet dogs
* Providing first aid information
* Pet supplies store information
* Adoption center address.

**Future Scope:**

* The breed recognition system was made for 20 breeds only, it can be expanded for all 282 breeds.
* The buy, sell and adopt functionality can be added to the same platform.