Dogpedia

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Our **Purpose**

Simplify the dog identification process through **image recognition**

360

dog breeds worldwide, identifying a particular dog breed is challenging!

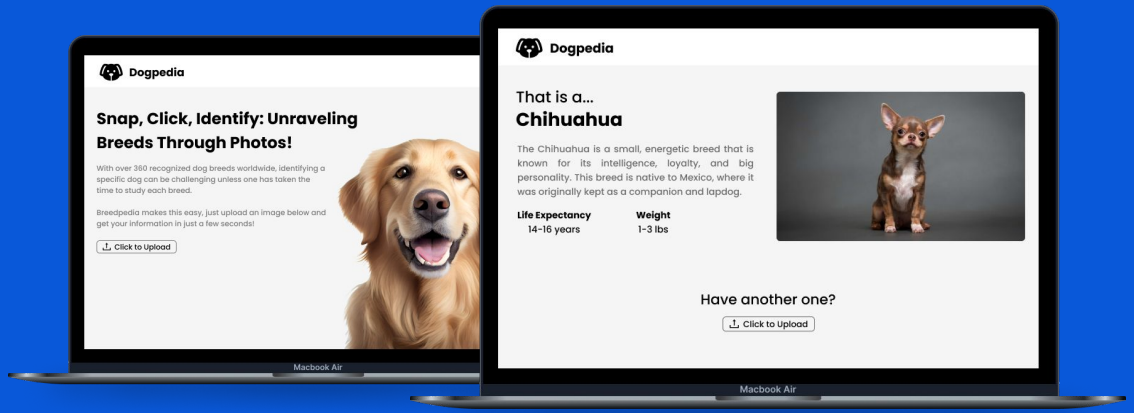
Why?

Scenarios of health scares based on a certain breed's needs

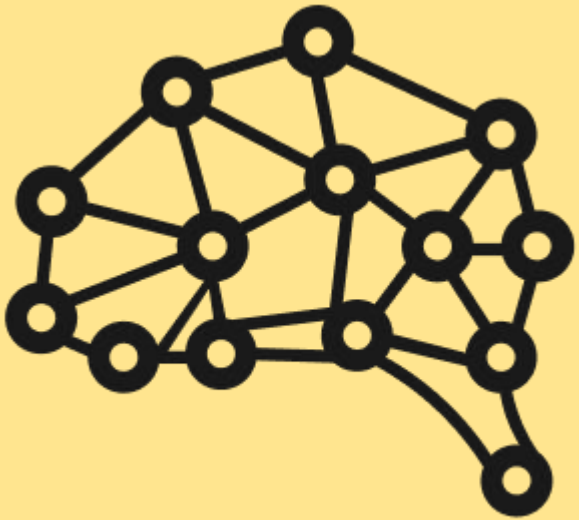
Curious about a breed's needs and care for adoption

Solution

A **React.js** web application, in which a user can submit a photo of a dog too. Once the photo is submitted, **our model** will identify the breed of dog shown.
Finally, an **API** will be called to gather several important facts on that particular breed to display



Model Type



Convolutional Neural Network

A type of neural network architecture designed specifically for tasks involving images and visual data.

CNNs are widely used for image classification, object detection, image segmentation, and various other computer vision tasks.

The key strength of CNNs lies in their ability to automatically learn hierarchical features from input images.

Model

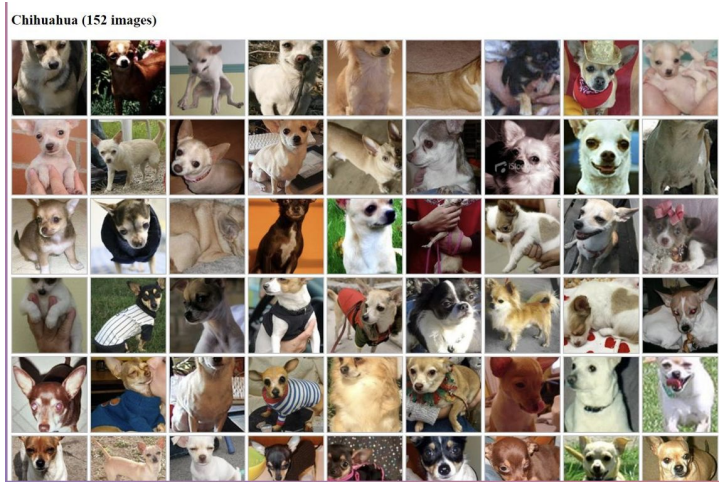
1. Utilize Inception-v3, a pretrained Convolutional Neural Network specializing in image analysis tasks

2. The ImageNet dataset will be used to weight our model before we train with our breed data.

3. This model will allow us to use transfer learning for the image recognition model used for Dogpedia.

Dataset

For our dataset, we will be using “The Stanford Dogs” dataset



120
dog breeds

20.6k
images

Our Approach

Pre-Process

our dataset using the **NumPy** library of Python

Training

Python **Tensorflow** and the **Keras API** will be used

Our Goal

We will customize the number of parameters and epochs using Keras API to achieve this

95% accuracy on at least

120 breeds

Data Augmentation

To achieve our accuracy goals we may need to use data augmentation, which involves techniques like inverting, rotating and flipping our images.

The opencv library contains tools for performing these augmentations.

Technologies

- React.JS: We will this to create the front end and back end of our Webapp
- Tensorflow: This will be used for training our model
- Numpy: This will be used for data manipulation
- Sklearn: This will be used for further handling our model
- CV2: To load and analyze Images
- Jupyter Notebook: Our environment for our code

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Thank you!