Classification of Dogs and Cats Images using Neural Networks

Data Source: https://github.com/luke4u/Image-Classification/tree/master/animal_detection
Google Drive Link: https://drive.google.com/drive/folders/1-BY4mmaJ6ejZADSmuQlAw2LhGyNgoDtI?usp=sharing

Context:

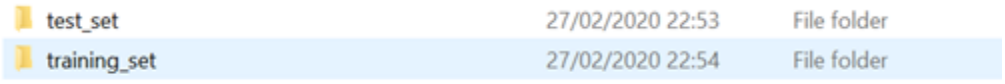
This problem aims to do image classification from scratch, starting from JPEG image files on disk, without leveraging pre-trained weights or a pre-made Keras Application model. You must build a simple neural network, train and test the network.

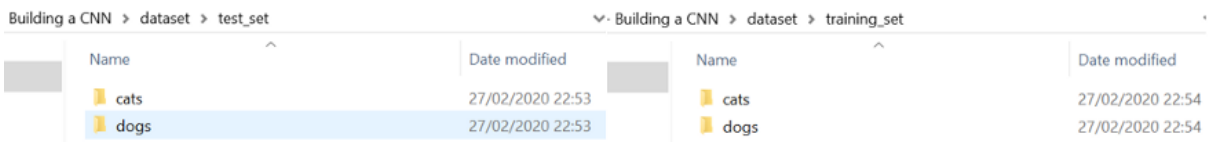
The dataset to be used is the Kaggle Cats vs Dogs binary classification dataset. You are given a set of dog and cat images. The task is to build a model to predict the category of an animal: dog or cat?

Description of Dataset:

The data we collected is a subset of the Kaggle dog/cat dataset. In total, there are 10, 000 images, 80% for the training set, and 20% for the test set.
In the training set, 4,000 images of dogs, while the test set has 1,000 images of dogs, and the rest are cats.

All images are saved in a special folder structure, making it easy for Keras to understand and differentiate the animal category of each image, as shown below:





Solve these questions

1. Load the data: the Cats vs Dogs dataset
2. Display a dog image from the dataset
3. Display a cat image from the dataset
4. Define the neural network model, and explain in your presentation the layers, the number of nodes and all the choices that you made
5. Compile the neural network model
6. Train the model, and show how the accuracy is improving at each iteration
7. Test the model, and show the accuracy of the model

Important Guidelines:

1. Group has to prepare one Presentation with 5-10 Slides answering all the questions asked above (maximum 10 mins).
2. Slides should include the followings (1-2 Slide(s) for each): Project Title and Student Names, Problem Statement, Data Description and Source, Answers to the Questions asked (2-4 slides), Name of the Methods used, What did you learn from this.
3. Present the project in front of a Jury followed by Question and Answer Session. Evaluation will be based on your work, presentation and answers to questions raised by the Jury.

BEST OF LUCK !