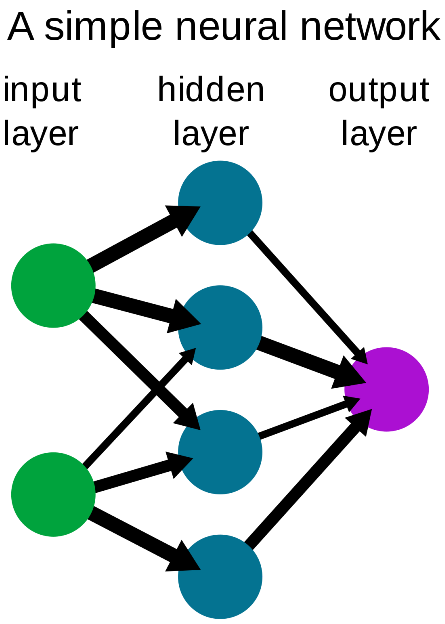
IMAGE CLASSIFICATION USING DEEP LEARNING AND AI

Overview:

What do we do when we see a certain kind of object and don’t recognize it?Just open the so helpful tool, Google lens.Isn’t it?.But have you ever wondered what goes in the backend of this tool.That’s where the modern prophecy comes into picture,Machine Learning. I don’t think we would have been imagining this thing a decade year ago or so.But now the entire world is ruled by the governance of Artificial Intelligence and techniques of Computer Vision.

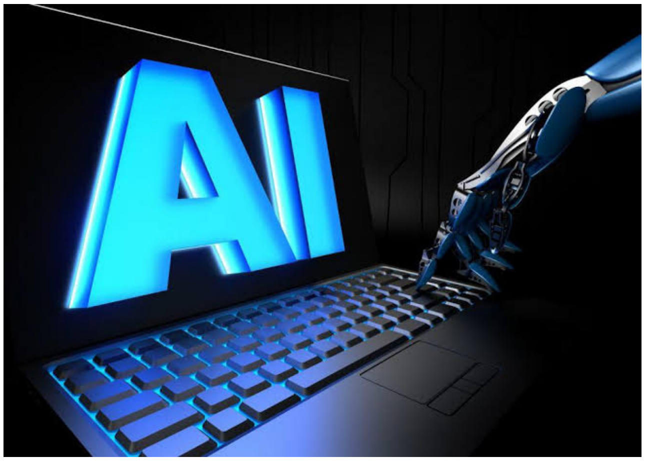


Abstract:

Let’s analyze how a human brain recognizes different objects.When you see an object for the first time and get to know what it is, the next time you see it ,many a times it happens that you don’t recall the same object. But on seeing the object over and over many times, you surely recognize the next time you see it.So what if we do this same thing to a system which would process the same way as would a human brain would.This drives the way to deep learning.

The actual BACKEND:

What the model does is, on providing a dataset , in the form of images, it recognizes the patterns and similar properties in the whole dataset, thus accompanying itself to this kind of problem and predicting the outcome.The next you provide it an image of the same kind but a different one, it will recognize the desired output and give result on the basis of accuracy.



Problem Statement:

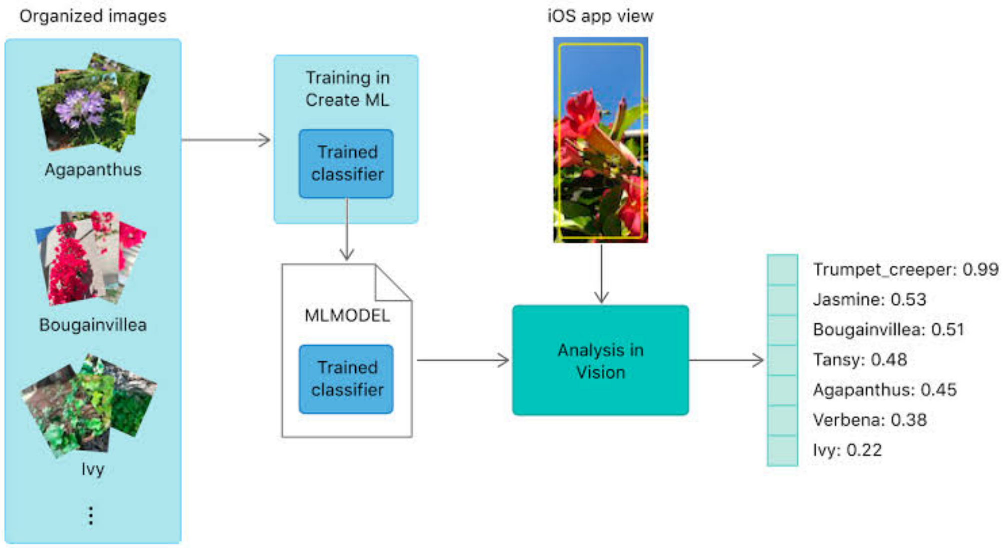
So here’s what I was given to appear a solution with-There are more than a million species of flowers present on this planet and the task is to recognize some of them. You are given a dataset of 102 different categories of flowers having nearly 20,000 images of the same, you have to come up with a model which would predict the name of the flower upon passing a new image to the model.

Solution:

The language platform was python and the process which was to be undergone was CNN(Convolutional Neural Network).So there are 2 ways in which you can implement CNN, one is you create your own neural network which will consist of layers to recognize different patterns(might have to compromise with accuracy), or the other way round, using pre-trained models such as fastai,Vgg,GoogleNet,Inception etc(accuracy is not an issue).So I did proceed with both the approaches but found the accuracy around 99% in the later case.

Closing:

So the thing is that once you get acquainted with these kind of problems,it is quite easy for one to explore beyond the given problem statement.


Organized images
Agapanthus
Bougainvillea
Ivy
Training in Create ML
Trained classifier
MLMODEL
Trained classifier
iOS app view
Analysis in Vision
Trumpet_creeper: 0.99
Jasmine: 0.53
Bougainvillea: 0.51
Tansy: 0.48
Agapanthus: 0.45
Verbena: 0.38
Ivy: 0.22