Pet Classification Model Using CNN

Project Objective: Building a CNN model that classifies the given pet images correctly into dog and cat images. To achieve the project objective: Will divide the project into 4 parts to have a better understandability and will follow below specifications to build CNN.

Part-1: Importing required libraries for the project

Part-2: Data Pre-processing

Part-3: Building the CNN

● Input layer

● Convolutional layer 1 with 32 filters of kernel size[5,5]

● Pooling layer 1 with pool size[2,2] and stride 2

● Convolutional layer 2 with 64 filters of kernel size[5,5]

● Pooling layer 2 with pool size[2,2] and stride 2

● Dense layer whose output size is fixed in the hyper parameter: fc_size=32

● Dropout layer with dropout probability 0.4 Predict the class by doing a softmax on the output of the dropout layers.

Part-4: Training and evaluation:

● For the training step, define the loss function and minimize it

● For the evaluation step, calculate the accuracy Running the program for 100, 200, and 300 iterations, respectively. Following this by a report on the final accuracy and loss on the evaluation data.

Result: After building the model with the above specification, an accuracy of 85% with 61% loss is attained on training set. On the test set there is a loss of 71% with an accuracy of 45%.

Summary:
- *As the data set size is very low, the accuracy was very low.*
- *Accuracy could have been improved by adjusting the size of feature detector, fully connected layer.*