CATS VS DOGS IMAGE CLASSIFICATION TASK

ARCHITECTURE USED:

EXP3.1: Convolutional Layers:

Conv1: From 3 input channels to 32 feature maps. Conv2: From 32 to 64 feature maps. Conv3: From 64 to 128 feature maps. Pooling: After each convolution, max pooling reduces spatial dimensions (height and width) but keeps the number of feature maps unchanged.

Flattening: After the third convolutional block, the 128 feature maps are flattened into a 1D vector, which is passed to fully connected layers.

Fully Connected Layers:

First fully connected layer: 512 neurons. Output layer: 2 neurons (for binary classification). So, the number of features starts from 3 (input channels) and increases to 128 (after the final convolution), then the features are flattened into a vector passed through 512 neurons before the final 2-class output.

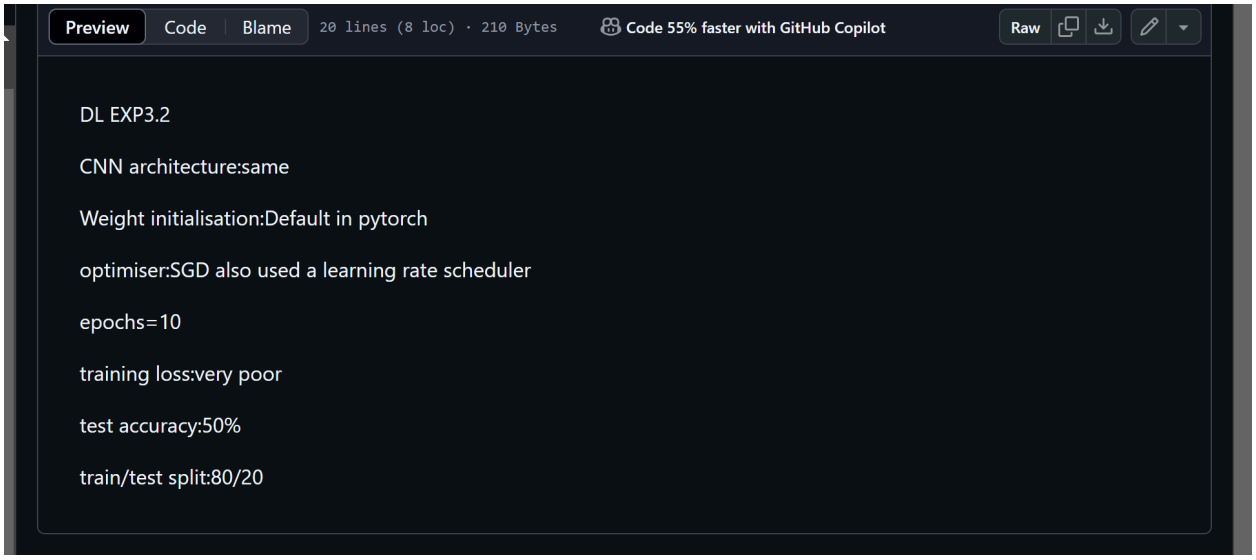
dataset: cats vs dogs optimiser: adam,lr=0.001

weight initialisation:default

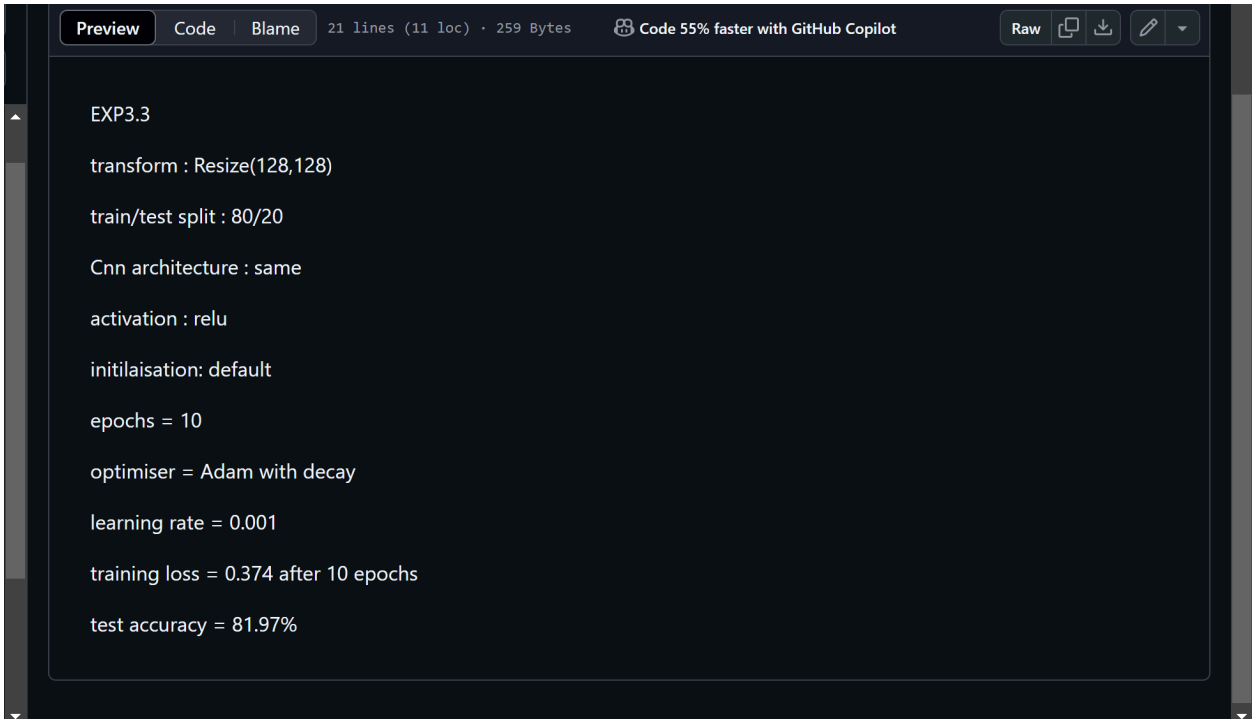
activation function :relu

learnings: I am satisfied with this architecture i have applied batch normalisation a well as dropout layer to reduce the chance overfitting will experiment with more different types of optimisers

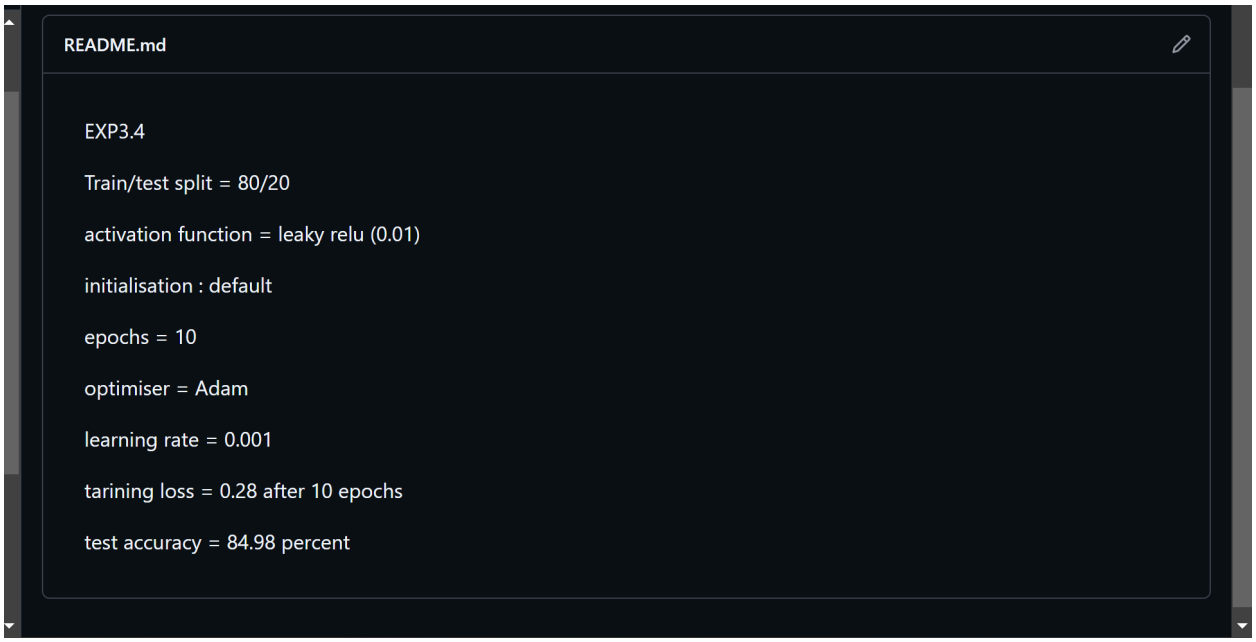
EXP3.2



EXP3.3



EXP3.4(BEST MODEL)



EXP3.5

README.md

EXP3.6

train/test split : 80/20

activation : tanh

initialisation : xavier

eposchs = 10

training loss = 0.4145

Test accuracy = 77.9%

EXP3.7

Preview | Code | Blame | 19 lines (9 loc) · 195 Bytes | Code 55% faster with GitHub Copilot | Raw

EXP3.7

train/test split = 80/20

activation function = tanh

initialisation = xavier

eposchs = 10

optimiser = Rmsprop

learning rate = 0.001

training loss = 1.0168

test accuracy = 66.53%

EXP 3.8

README.md

EXP3.8 train/test split = 80/20

activation func = tanh

initialisation = xavier

optimiser = SGD

learning rate = 0.01

training loss = 0.5657 after 10 epochs

test accuracy = 75.46%

EXP3.9

Preview Code Blame 13 lines (7 loc) · 152 Bytes Code 55% faster with GitHub Copilot Raw

train/test : 80/20

initilisation : He

activation: relu

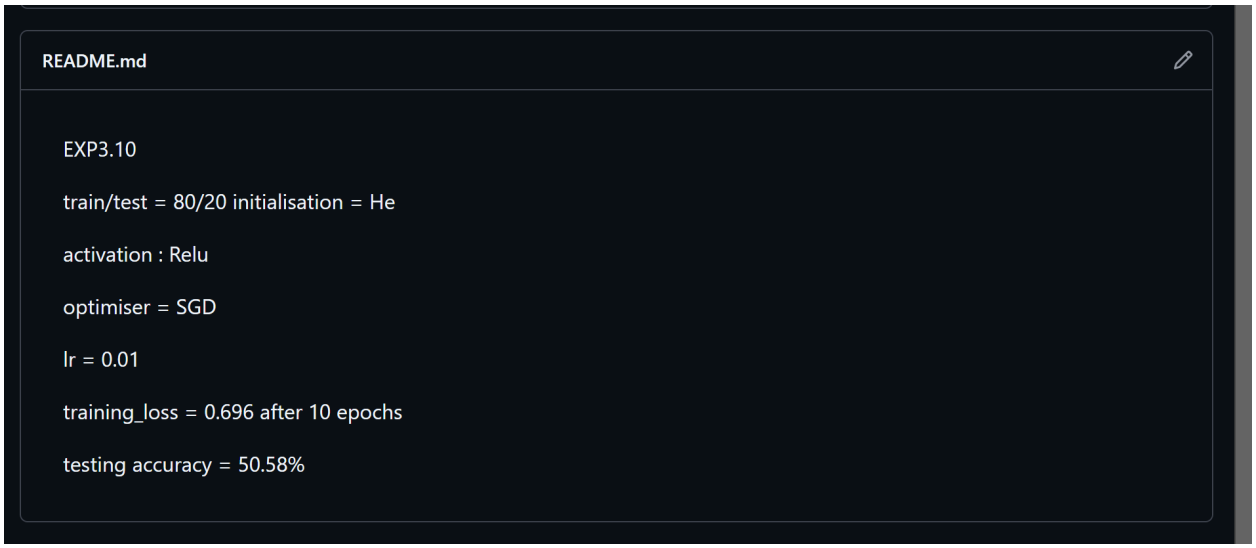
optimiser = Adam

lr = 0.001

training loss= 0.404 after 10 epochs

testing accuracy = 78.83%

EXP3.10



EXP 3.11