Assignment – 3 (Report)

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Q1) Develop a simple CNN model for cat vs. dog classification. Use 150 images from cat and 150 dog images for training the model. The trained model should be evaluated on 150 test images from cats and 150 from dogs. Please report the precision, recall and accuracy of the classifier.

Ans:

Results Obtained:

Precision, recall and accuracy:

	precision	recall	f1-score	support
0	0.64	0.45	0.53	150
1	0.58	0.74	0.65	150
accuracy			0.60	300
macro avg	0.61	0.60	0.59	300
weighted avg	0.61	0.60	0.59	300

Network Training and validation accuracy results:

```
Epoch 1/10
10/10 [==============================] - 8s 616ms/step - loss: 0.7108 - accuracy: 0.5133 - val_loss: 0.6932 - val_accuracy: 0.5000
Epoch 2/10
10/10 [==============================] - 5s 551ms/step - loss: 0.6952 - accuracy: 0.4833 - val_loss: 0.6918 - val_accuracy: 0.5000
Epoch 3/10
10/10 [==============================] - 4s 406ms/step - loss: 0.6921 - accuracy: 0.5267 - val_loss: 0.6914 - val_accuracy: 0.6100
Epoch 4/10
10/10 [==============================] - 6s 658ms/step - loss: 0.6872 - accuracy: 0.5400 - val_loss: 0.6845 - val_accuracy: 0.6100
Epoch 5/10
10/10 [==============================] - 7s 742ms/step - loss: 0.6798 - accuracy: 0.5633 - val_loss: 0.6889 - val_accuracy: 0.5133
Epoch 6/10
10/10 [==============================] - 5s 539ms/step - loss: 0.6684 - accuracy: 0.6367 - val_loss: 0.6640 - val_accuracy: 0.6200
Epoch 7/10
10/10 [==============================] - 6s 609ms/step - loss: 0.5956 - accuracy: 0.7100 - val_loss: 0.7028 - val_accuracy: 0.6067
Epoch 8/10
10/10 [==============================] - 6s 678ms/step - loss: 0.5761 - accuracy: 0.6967 - val_loss: 0.6741 - val_accuracy: 0.6200
Epoch 9/10
10/10 [==============================] - 4s 407ms/step - loss: 0.5041 - accuracy: 0.7667 - val_loss: 0.6903 - val_accuracy: 0.5900
Epoch 10/10
10/10 [==============================] - 5s 515ms/step - loss: 0.4549 - accuracy: 0.7833 - val_loss: 0.6939 - val_accuracy: 0.5967
<keras.callbacks.History at 0x7f4e98608430>
```