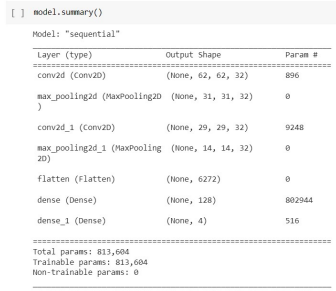



Project Development Phase Model Performance Test

Date	20 November 2022
Team ID	PNT2022TMID39414
Project Name	Natural Disaster Intensity Analysis and Classification using Artificial Intelligence
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in the model performance testing template.

S.No	Parameter	Values	Screenshot
1.	Model Summary	Total params: 813,604 Trainable params: 813,604 Non-trainable params: 0	 <pre> [] model.summary() Model: "sequential" Layer (type) Output Shape Param # ----- conv2d (Conv2D) (None, 62, 62, 32) 896 max_pooling2d (MaxPooling2D) (None, 31, 31, 32) 0 conv2d_1 (Conv2D) (None, 29, 29, 32) 9248 max_pooling2d_1 (MaxPooling2D) (None, 14, 14, 32) 0 flatten (Flatten) (None, 6272) 0 dense (Dense) (None, 128) 802944 dense_1 (Dense) (None, 4) 516 ----- Total params: 813,604 Trainable params: 813,604 Non-trainable params: 0 </pre>
2.	Accuracy	Training Accuracy – 94.3% Validation Accuracy -83.33%	 <pre> model.evaluate(x_test, y_test, batch_size=batch_size) 1/1 [0.000s] - loss: 0.0000 - accuracy: 0.9430 - val_loss: 0.0000 - val_accuracy: 0.8333 </pre>

			<pre>Epoch 17/20 340/340 [=====] - loss: 0.0000 - accuracy: 0.9999 - val_loss: 0.0000 - val_accuracy: 0.9999 Epoch 18/20 340/340 [=====] - loss: 0.0000 - accuracy: 0.9999 - val_loss: 0.0000 - val_accuracy: 0.9999 Epoch 19/20 340/340 [=====] - loss: 0.0000 - accuracy: 0.9999 - val_loss: 0.0000 - val_accuracy: 0.9999 Epoch 20/20 340/340 [=====] - loss: 0.0000 - accuracy: 0.9999 - val_loss: 0.0000 - val_accuracy: 0.9999 Overfitting detected at epoch 20/20</pre>
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Model Summary:

```
[ ] model.summary()

Model: "sequential"

```

Layer (type)	Output Shape	Param #
conv2d (Conv2D)	(None, 62, 62, 32)	896
max_pooling2d (MaxPooling2D)	(None, 31, 31, 32)	0
conv2d_1 (Conv2D)	(None, 29, 29, 32)	9248
max_pooling2d_1 (MaxPooling2D)	(None, 14, 14, 32)	0
flatten (Flatten)	(None, 6272)	0
dense (Dense)	(None, 128)	802944
dense_1 (Dense)	(None, 4)	516

```

Total params: 813,604
Trainable params: 813,604
Non-trainable params: 0

```

Accuracy:

```
model.fit_generator(generator=x_train,steps_per_epoch=len(x_train),validation_data=x_test,validation_steps=len(x_test),epochs=20)

/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: UserWarning: `Model.fit_generator` is deprecated and will be removed in a future version. Please use `Model.fit`, which
"""Entry point for launching an IPython kernel.
Epoch 1/20
149/149 [=====] - 429s 3s/step - loss: 1.1075 - accuracy: 0.5431 - val_loss: 0.8727 - val_accuracy: 0.6414
Epoch 2/20
149/149 [=====] - 35s 231ms/step - loss: 0.7546 - accuracy: 0.6873 - val_loss: 0.6263 - val_accuracy: 0.7525
Epoch 3/20
149/149 [=====] - 34s 225ms/step - loss: 0.6689 - accuracy: 0.7318 - val_loss: 0.7319 - val_accuracy: 0.7273
Epoch 4/20
149/149 [=====] - 33s 217ms/step - loss: 0.5827 - accuracy: 0.7574 - val_loss: 0.7686 - val_accuracy: 0.7424
Epoch 5/20
149/149 [=====] - 33s 219ms/step - loss: 0.5061 - accuracy: 0.8100 - val_loss: 0.5469 - val_accuracy: 0.8030
Epoch 6/20
149/149 [=====] - 34s 226ms/step - loss: 0.4730 - accuracy: 0.8315 - val_loss: 0.5556 - val_accuracy: 0.8182
Epoch 7/20
149/149 [=====] - 32s 218ms/step - loss: 0.4642 - accuracy: 0.8221 - val_loss: 0.5224 - val_accuracy: 0.8283
Epoch 8/20
149/149 [=====] - 32s 217ms/step - loss: 0.4213 - accuracy: 0.8288 - val_loss: 0.6842 - val_accuracy: 0.8030
Epoch 9/20
149/149 [=====] - 33s 223ms/step - loss: 0.3917 - accuracy: 0.8544 - val_loss: 0.6540 - val_accuracy: 0.7727
Epoch 10/20
149/149 [=====] - 33s 219ms/step - loss: 0.3245 - accuracy: 0.8827 - val_loss: 0.8957 - val_accuracy: 0.7475
Epoch 11/20
149/149 [=====] - 32s 216ms/step - loss: 0.3467 - accuracy: 0.8747 - val_loss: 0.5863 - val_accuracy: 0.8283
Epoch 12/20
149/149 [=====] - 32s 217ms/step - loss: 0.3061 - accuracy: 0.8787 - val_loss: 0.7613 - val_accuracy: 0.7980
Epoch 13/20
149/149 [=====] - 33s 220ms/step - loss: 0.2523 - accuracy: 0.9137 - val_loss: 0.7057 - val_accuracy: 0.7980
Epoch 14/20
149/149 [=====] - 32s 216ms/step - loss: 0.2450 - accuracy: 0.9272 - val_loss: 0.7239 - val_accuracy: 0.8030
Epoch 15/20
149/149 [=====] - 32s 218ms/step - loss: 0.2441 - accuracy: 0.9164 - val_loss: 0.6528 - val_accuracy: 0.8182
Epoch 16/20
149/149 [=====] - 33s 222ms/step - loss: 0.2148 - accuracy: 0.9111 - val_loss: 0.8139 - val_accuracy: 0.7929
Epoch 17/20
149/149 [=====] - 33s 219ms/step - loss: 0.2063 - accuracy: 0.9299 - val_loss: 0.8902 - val_accuracy: 0.7879
Epoch 18/20
149/149 [=====] - 34s 228ms/step - loss: 0.1718 - accuracy: 0.9407 - val_loss: 0.8917 - val_accuracy: 0.7980
Epoch 19/20
149/149 [=====] - 34s 232ms/step - loss: 0.1728 - accuracy: 0.9340 - val_loss: 1.5961 - val_accuracy: 0.6717
Epoch 20/20
149/149 [=====] - 34s 225ms/step - loss: 0.1809 - accuracy: 0.9299 - val_loss: 0.7846 - val_accuracy: 0.8182
<keras.callbacks.History at 0x7f6a5c2fd310>
```