

Project Development Phase

Model Performance Test

Date	18 November 2022
Team ID	PNT2022TMID18498
Project Name	Project – Natural Disasters Intensity Analysis and Classification Using Artificial Intelligence
Maximum Marks	10 Marks

Model Performance Testing:

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

S.No.	Parameter	Values	Screenshot
1.	Metrics	Deep Learning Model – CNN Accuracy through epoch	<pre> Epoch 13/20 40/40 [=====] - 16s 405ms/step - loss: 0.3743 - accuracy: 0.8434 - val_loss: 0.6143 - val_accuracy: 0.7778 Epoch 16/20 40/40 [=====] - 16s 406ms/step - loss: 0.4161 - accuracy: 0.8535 - val_loss: 0.8941 - val_accuracy: 0.6717 Epoch 17/20 40/40 [=====] - 18s 457ms/step - loss: 0.3945 - accuracy: 0.8636 - val_loss: 0.4245 - val_accuracy: 0.8232 Epoch 18/20 40/40 [=====] - 19s 465ms/step - loss: 0.3385 - accuracy: 0.8636 - val_loss: 0.7405 - val_accuracy: 0.7071 Epoch 19/20 40/40 [=====] - 20s 507ms/step - loss: 0.3422 - accuracy: 0.8838 - val_loss: 0.3495 - val_accuracy: 0.8687 Epoch 20/20 40/40 [=====] - 21s 543ms/step - loss: 0.3131 - accuracy: 0.8939 - val_loss: 0.1926 - val_accuracy: 0.9242 </pre> <p style="color: red; font-weight: bold;">Out[16]:</p> <pre><keras.callbacks.History at 0x2133fde0e10></pre>

2.	Preprocess and Train the model	Using data augmentation and train test split method	<pre>In []: #performing data agumentation to train data x_train = train_datagen.flow_from_directory(r'C:\Users\hp\Desktop\IBM\dataset\test_set',target_size=(64, 64), color_mode='rgb',class_mode='categorical') #performing data agumentation to test data x_test = test_datagen.flow_from_directory(r'C:\Users\hp\Desktop\IBM\dataset\test_set',target_size=(64, 64), color_mode='rgb',class_mode='categorical') Found 198 images belonging to 4 classes. Found 198 images belonging to 4 classes. In []: print(x_train.class_indices)#checking the number of classes {'Cyclone': 0, 'Earthquake': 1, 'Flood': 2, 'Wildfire': 3} In []: print(x_test.class_indices)#checking the number of classes {'Cyclone': 0, 'Earthquake': 1, 'Flood': 2, 'Wildfire': 3} In []: from collections import Counter as c c(x_train.labels) Out[11]: Counter({0: 64, 1: 29, 2: 61, 3: 44})</pre>
3.	Test the model	By loading the pretrained model and predicting the results	<pre>In [17]: from tensorflow.keras.models import load_model from tensorflow.keras.utils import load_img,img_to_array model = load_model("/content/disaster.h5") #Loading the model for testing In [18]: img = load_img(r"/content/e2.jpg",grayscale=False,target_size= (64,64))#loading of the image x = img_to_array(img)#image to array x = np.expand_dims(x,axis = 0)#changing the shape pred = classifier.predict_classes(x)#predicting the classes predict=model.predict(x) classes_x=np.argmax(predict,axis=1) classes_x 1/1 [=====] - 0s 394ms/step Out[18]: array([1]) In []: In [19]: index=['Cyclone', 'Earthquake', 'Flood', 'Wildfire'] result=str(index[classes_x[0]]) result Out[19]: 'Earthquake'</pre>

Submitted by

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