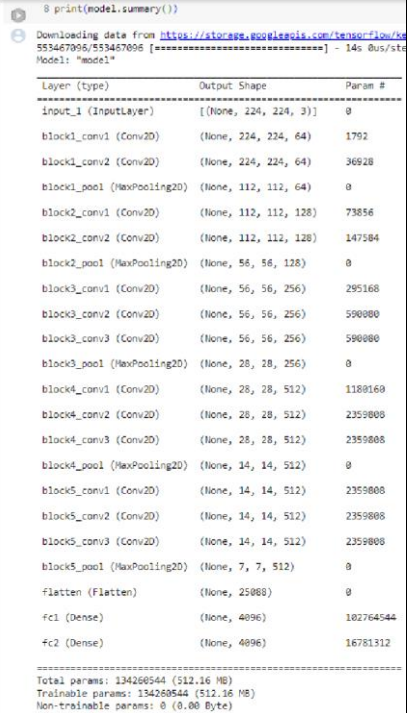
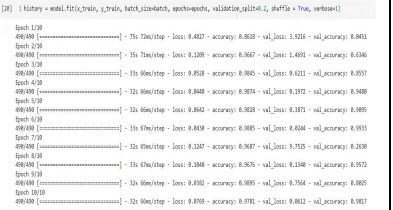


Project Development Phase Model Performance Test

Date	15 November 2023
Team ID	Team-591950
Project Name	Project - Image Caption Generation
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.	Model Summary	<p>Total params: 134260544</p> <p>Trainable params: 134260544</p> <p>Non-trainable params: 0</p>	 <pre> print(model.summary()) Downloading data from https://storage.googleapis.com/tensorflow/553467006/553467006 [*****] - 14s Out/st Model: "model" Layer (type) Output Shape Param # ----- input_1 (InputLayer) [(None, 224, 224, 3)] 0 block1_conv1 (Conv2D) (None, 224, 224, 64) 1792 block1_conv2 (Conv2D) (None, 224, 224, 64) 36928 block1_pool (MaxPooling2D) (None, 112, 112, 64) 0 block2_conv1 (Conv2D) (None, 112, 112, 128) 73856 block2_conv2 (Conv2D) (None, 112, 112, 128) 147584 block2_pool (MaxPooling2D) (None, 56, 56, 128) 0 block3_conv1 (Conv2D) (None, 56, 56, 256) 295168 block3_conv2 (Conv2D) (None, 56, 56, 256) 590880 block3_conv3 (Conv2D) (None, 56, 56, 256) 590880 block3_pool (MaxPooling2D) (None, 28, 28, 256) 0 block4_conv1 (Conv2D) (None, 28, 28, 512) 1189168 block4_conv2 (Conv2D) (None, 28, 28, 512) 2359008 block4_conv3 (Conv2D) (None, 28, 28, 512) 2359008 block4_pool (MaxPooling2D) (None, 14, 14, 512) 0 block5_conv1 (Conv2D) (None, 14, 14, 512) 2359008 block5_conv2 (Conv2D) (None, 14, 14, 512) 2359008 block5_conv3 (Conv2D) (None, 14, 14, 512) 2359008 block5_pool (MaxPooling2D) (None, 7, 7, 512) 0 flatten (Flatten) (None, 25088) 0 fc1 (Dense) (None, 4096) 102764544 fc2 (Dense) (None, 4096) 16781312 Total params: 134260544 (512.16 MB) Trainable params: 134260544 (512.16 MB) Non-trainable params: 0 (0.00 Byte) </pre>
2.	Accuracy	<p>Training Accuracy - 97.81%</p> <p>Validation Accuracy – 98.17%</p>	 <pre> [0] : history = model.fit(x_train, y_train, batch_size=batch_size, epochs=epochs, validation_data=(x_val, y_val), verbose=1) Epoch 1/20 400/400 [*****] - 75s 70m/step - loss: 0.4027 - accuracy: 0.8038 - val_loss: 1.0218 - val_accuracy: 0.8061 Epoch 2/20 400/400 [*****] - 75s 70m/step - loss: 0.3288 - accuracy: 0.8647 - val_loss: 1.4051 - val_accuracy: 0.8346 Epoch 3/20 400/400 [*****] - 75s 70m/step - loss: 0.8528 - accuracy: 0.8845 - val_loss: 0.6211 - val_accuracy: 0.8557 Epoch 4/20 400/400 [*****] - 75s 70m/step - loss: 0.8888 - accuracy: 0.8554 - val_loss: 0.3372 - val_accuracy: 0.9480 Epoch 5/20 400/400 [*****] - 75s 70m/step - loss: 0.8562 - accuracy: 0.8528 - val_loss: 0.3371 - val_accuracy: 0.9585 Epoch 6/20 400/400 [*****] - 75s 70m/step - loss: 0.8509 - accuracy: 0.8685 - val_loss: 0.4084 - val_accuracy: 0.9503 Epoch 7/20 400/400 [*****] - 75s 70m/step - loss: 0.2247 - accuracy: 0.9887 - val_loss: 0.7525 - val_accuracy: 0.9209 Epoch 8/20 400/400 [*****] - 75s 70m/step - loss: 0.2040 - accuracy: 0.9678 - val_loss: 0.1340 - val_accuracy: 0.9572 Epoch 9/20 400/400 [*****] - 75s 70m/step - loss: 0.8392 - accuracy: 0.8895 - val_loss: 0.7564 - val_accuracy: 0.8882 Epoch 10/20 400/400 [*****] - 75s 70m/step - loss: 0.8393 - accuracy: 0.9376 - val_loss: 0.8412 - val_accuracy: 0.9187 </pre>

3.	Confidence Score (Only Yolo Projects)	Class Detected - NA Confidence Score - NA	NOT APPLICABLE
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Model Summary:-



```
8 print(model.summary())
```



Downloading data from <https://storage.googleapis.com/tensorflow/keras-applications/553467096/553467096> [=====] - 14s 0us/step
Model: "model"

Layer (type)	Output Shape	Param #
=====		
input_1 (InputLayer)	[(None, 224, 224, 3)]	0
block1_conv1 (Conv2D)	(None, 224, 224, 64)	1792
block1_conv2 (Conv2D)	(None, 224, 224, 64)	36928
block1_pool (MaxPooling2D)	(None, 112, 112, 64)	0
block2_conv1 (Conv2D)	(None, 112, 112, 128)	73856
block2_conv2 (Conv2D)	(None, 112, 112, 128)	147584
block2_pool (MaxPooling2D)	(None, 56, 56, 128)	0
block3_conv1 (Conv2D)	(None, 56, 56, 256)	295168
block3_conv2 (Conv2D)	(None, 56, 56, 256)	590080
block3_conv3 (Conv2D)	(None, 56, 56, 256)	590080
block3_pool (MaxPooling2D)	(None, 28, 28, 256)	0
block4_conv1 (Conv2D)	(None, 28, 28, 512)	1180160
block4_conv2 (Conv2D)	(None, 28, 28, 512)	2359808
block4_conv3 (Conv2D)	(None, 28, 28, 512)	2359808
block4_pool (MaxPooling2D)	(None, 14, 14, 512)	0
block5_conv1 (Conv2D)	(None, 14, 14, 512)	2359808
block5_conv2 (Conv2D)	(None, 14, 14, 512)	2359808
block5_conv3 (Conv2D)	(None, 14, 14, 512)	2359808
block5_pool (MaxPooling2D)	(None, 7, 7, 512)	0
flatten (Flatten)	(None, 25088)	0
fc1 (Dense)	(None, 4096)	102764544
fc2 (Dense)	(None, 4096)	16781312
=====		
Total params: 134260544 (512.16 MB)		
Trainable params: 134260544 (512.16 MB)		
Non-trainable params: 0 (0.00 Byte)		

Accuracy:-

```
[20] 1 history = model.fit(x_train, y_train, batch_size=batch, epochs=epochs, validation_split=0.2, shuffle = True, verbose=1)
```

```
Epoch 1/10
490/490 [=====] - 75s 72ms/step - loss: 0.4827 - accuracy: 0.8618 - val_loss: 3.9216 - val_accuracy: 0.0451
Epoch 2/10
490/490 [=====] - 35s 71ms/step - loss: 0.1209 - accuracy: 0.9667 - val_loss: 1.4691 - val_accuracy: 0.6346
Epoch 3/10
490/490 [=====] - 33s 66ms/step - loss: 0.0528 - accuracy: 0.9845 - val_loss: 0.6211 - val_accuracy: 0.8557
Epoch 4/10
490/490 [=====] - 32s 66ms/step - loss: 0.0440 - accuracy: 0.9874 - val_loss: 0.1972 - val_accuracy: 0.9480
Epoch 5/10
490/490 [=====] - 32s 66ms/step - loss: 0.0642 - accuracy: 0.9828 - val_loss: 0.3871 - val_accuracy: 0.9095
Epoch 6/10
490/490 [=====] - 33s 67ms/step - loss: 0.0430 - accuracy: 0.9885 - val_loss: 0.0244 - val_accuracy: 0.9933
Epoch 7/10
490/490 [=====] - 32s 65ms/step - loss: 0.1247 - accuracy: 0.9687 - val_loss: 9.7525 - val_accuracy: 0.2630
Epoch 8/10
490/490 [=====] - 33s 67ms/step - loss: 0.1040 - accuracy: 0.9676 - val_loss: 0.1340 - val_accuracy: 0.9572
Epoch 9/10
490/490 [=====] - 32s 66ms/step - loss: 0.0382 - accuracy: 0.9895 - val_loss: 0.7564 - val_accuracy: 0.8025
Epoch 10/10
490/490 [=====] - 32s 66ms/step - loss: 0.0769 - accuracy: 0.9781 - val_loss: 0.0612 - val_accuracy: 0.9817
```