Project Development Phase
Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID592632
Project Name	ASL – Alphabet Image Recognition
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	Total params: 16041309 Trainable params: 1326621 Non-trainable params: 14714688	 block4_pool (MaxPooling2D) (None, 4, 4, 512) 0 block5_conv1 (Conv2D) (None, 4, 4, 512) 2359808 block5_conv2 (Conv2D) (None, 4, 4, 512) 2359808 block5_conv3 (Conv2D) (None, 4, 4, 512) 2359808 block5_pool (MaxPooling2D) (None, 2, 2, 512) 0 flatten (Flatten) (None, 2048) 0 dense (Dense) (None, 512) 1049088 dropout (Dropout) (None, 512) 0 dense_1 (Dense) (None, 512) 262656 dropout_1 (Dropout) (None, 512) 0 dense_2 (Dense) (None, 29) 14877 === Total params: 16041309 (61.19 MB) Trainable params: 1326621 (5.06 MB) Non-trainable params: 14714688 (56.13 MB)

| 2. | Accuracy | Training Accuracy - 95.76

Validation Accuracy -99.23 | ```python
# Train the Model
history = model.fit(
    train_generator,
    steps_per_epoch=train_generator.samples // CFG.batch_size,
    epochs=CFG.epochs,
    validation_data=validation_generator,
    validation_steps=validation_generator.samples // CFG.batch_size,
    callbacks=[checkpoint]
)
```
Epoch 1/15
907/907 [==============================] - 90s 87ms/step - loss: 1.1007 - accuracy: 0.6551 - val_loss: 0.2402 - val_accuracy: 0.9323
Epoch 2/15
907/907 [==============================] - 74s 81ms/step - loss: 0.3863 - accuracy: 0.8693 - val_loss: 0.1143 - val_accuracy: 0.9662
Epoch 3/15
907/907 [==============================] - 66s 73ms/step - loss: 0.2834 - accuracy: 0.9035 - val_loss: 0.0963 - val_accuracy: 0.9721
Epoch 4/15
907/907 [==============================] - 67s 74ms/step - loss: 0.2414 - accuracy: 0.9173 - val_loss: 0.0740 - val_accuracy: 0.9786
Epoch 5/15
907/907 [==============================] - 74s 82ms/step - loss: 0.2183 - accuracy: 0.9258 - val_loss: 0.0502 - val_accuracy: 0.9881
Epoch 6/15
907/907 [==============================] - 67s 73ms/step - loss: 0.1998 - accuracy: 0.9326 - val_loss: 0.0623 - val_accuracy: 0.9796
Epoch 7/15
907/907 [==============================] - 65s 72ms/step - loss: 0.1763 - accuracy: 0.9389 - val_loss: 0.0466 - val_accuracy: 0.9864
Epoch 8/15
907/907 [==============================] - 66s 73ms/step - loss: 0.1654 - accuracy: 0.9442 - val_loss: 0.0342 - val_accuracy: 0.9908
Epoch 9/15
907/907 [==============================] - 67s 73ms/step - loss: 0.1610 - accuracy: 0.9452 - val_loss: 0.0313 - val_accuracy: 0.9911
Epoch 10/15
907/907 [==============================] - 73s 81ms/step - loss: 0.1504 - accuracy: 0.9487 - val_loss: 0.0346 - val_accuracy: 0.9907
Epoch 11/15
907/907 [==============================] - 75s 83ms/step - loss: 0.1403 - accuracy: 0.9538 - val_loss: 0.0307 - val_accuracy: 0.9924
Epoch 12/15
907/907 [==============================] - 76s 84ms/step - loss: 0.1407 - accuracy: 0.9526 - val_loss: 0.0400 - val_accuracy: 0.9873
Epoch 13/15
907/907 [==============================] - 67s 73ms/step - loss: 0.1363 - accuracy: 0.9551 - val_loss: 0.0252 - val_accuracy: 0.9929
Epoch 14/15
907/907 [==============================] - 74s 81ms/step - loss: 0.1293 - accuracy: 0.9583 - val_loss: 0.0256 - val_accuracy: 0.9937
Epoch 15/15
907/907 [==============================] - 65s 72ms/step - loss: 0.1291 - accuracy: 0.9576 - val_loss: 0.0272 - val_accuracy: 0.9923 |
| 3. | Confidence Score (Only Yolo Projects) | Class Detected - NA

Confidence Score - NA | NOT APPLICABLE |

SCREENSHOTS

Model Summary

```
block4_pool (MaxPooling2D)    (None, 4, 4, 512)          0

block5_conv1 (Conv2D)         (None, 4, 4, 512)          2359808

block5_conv2 (Conv2D)         (None, 4, 4, 512)          2359808

block5_conv3 (Conv2D)         (None, 4, 4, 512)          2359808

block5_pool (MaxPooling2D)    (None, 2, 2, 512)          0

flatten (Flatten)            (None, 2048)               0

dense (Dense)                (None, 512)                1049088

dropout (Dropout)            (None, 512)                0

dense_1 (Dense)              (None, 512)                262656

dropout_1 (Dropout)          (None, 512)                0

dense_2 (Dense)              (None, 29)                 14877

=================================================================
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Accuracy

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907/907 [==============================] - 65s 72ms/step - loss: 0.1291 - accuracy: 0.9576 - val_loss: 0.0272 - val_accuracy: 0.9923
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