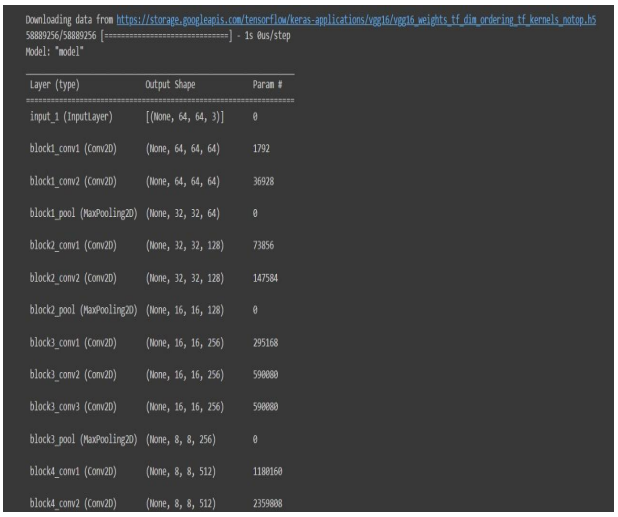
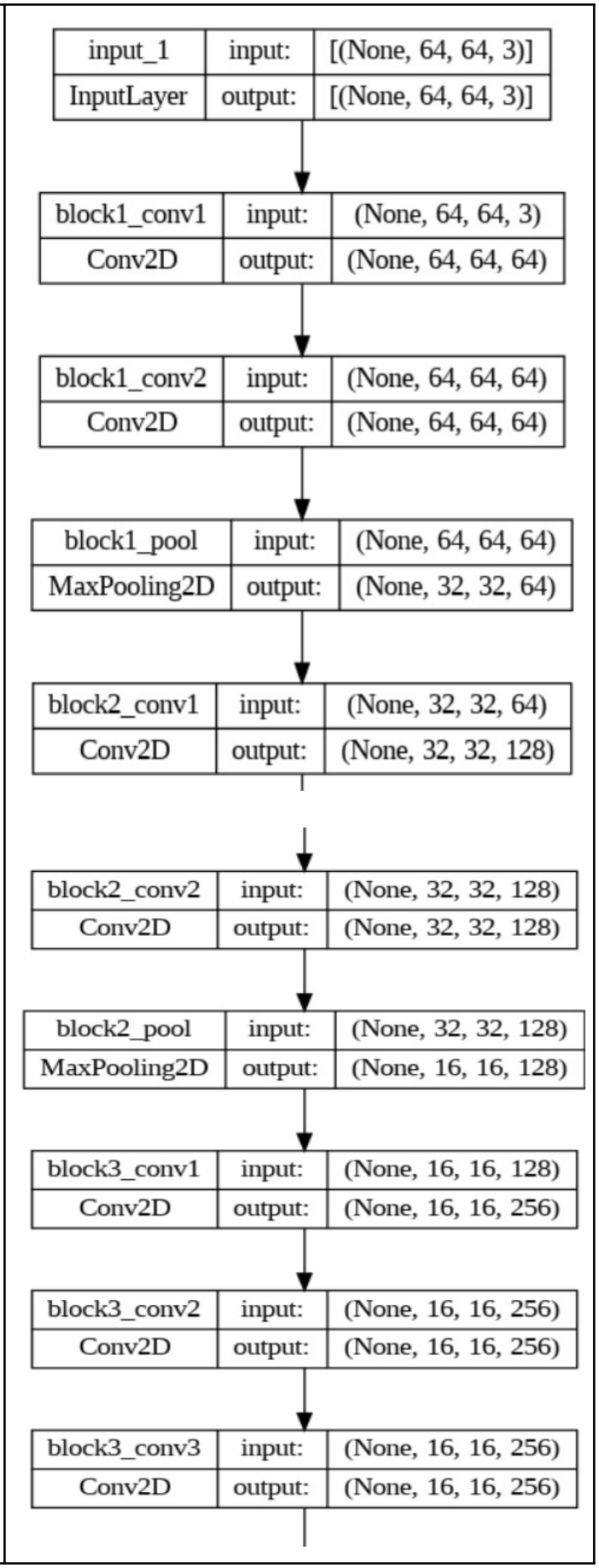
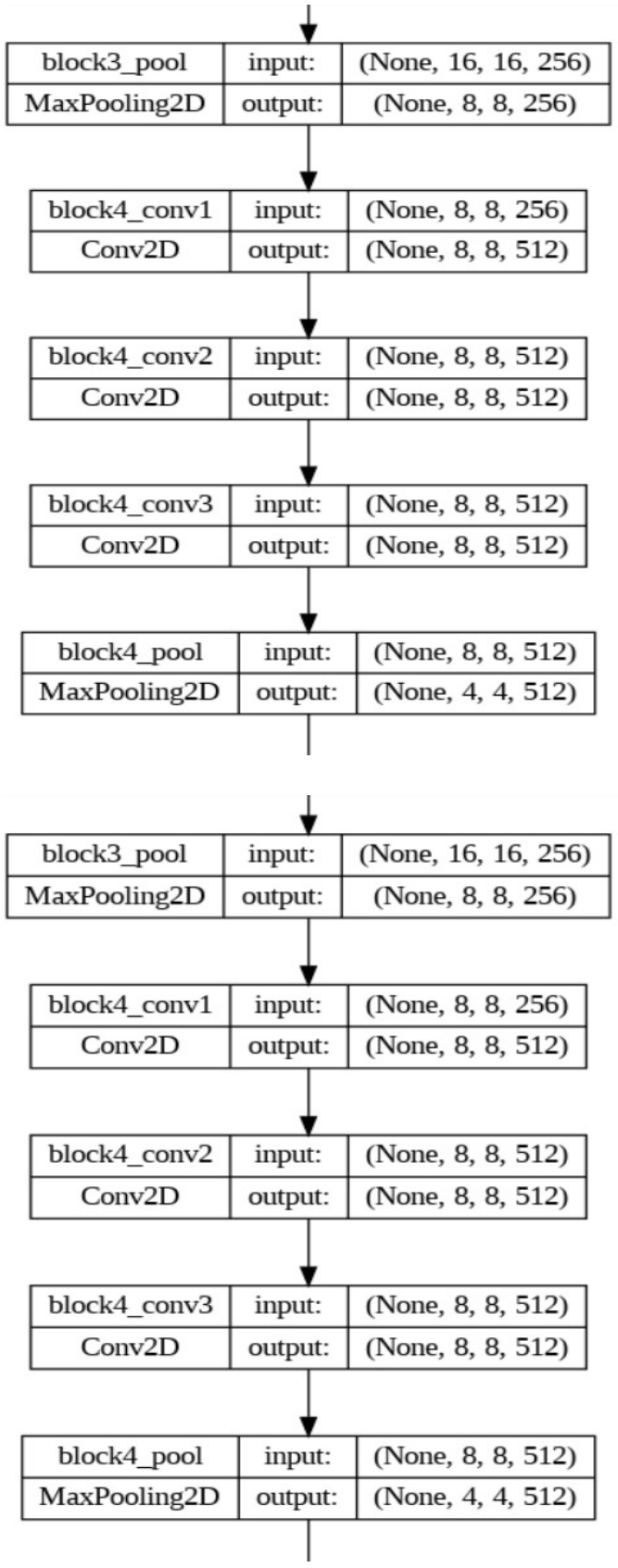
Project Development Phase
Model Performance Test

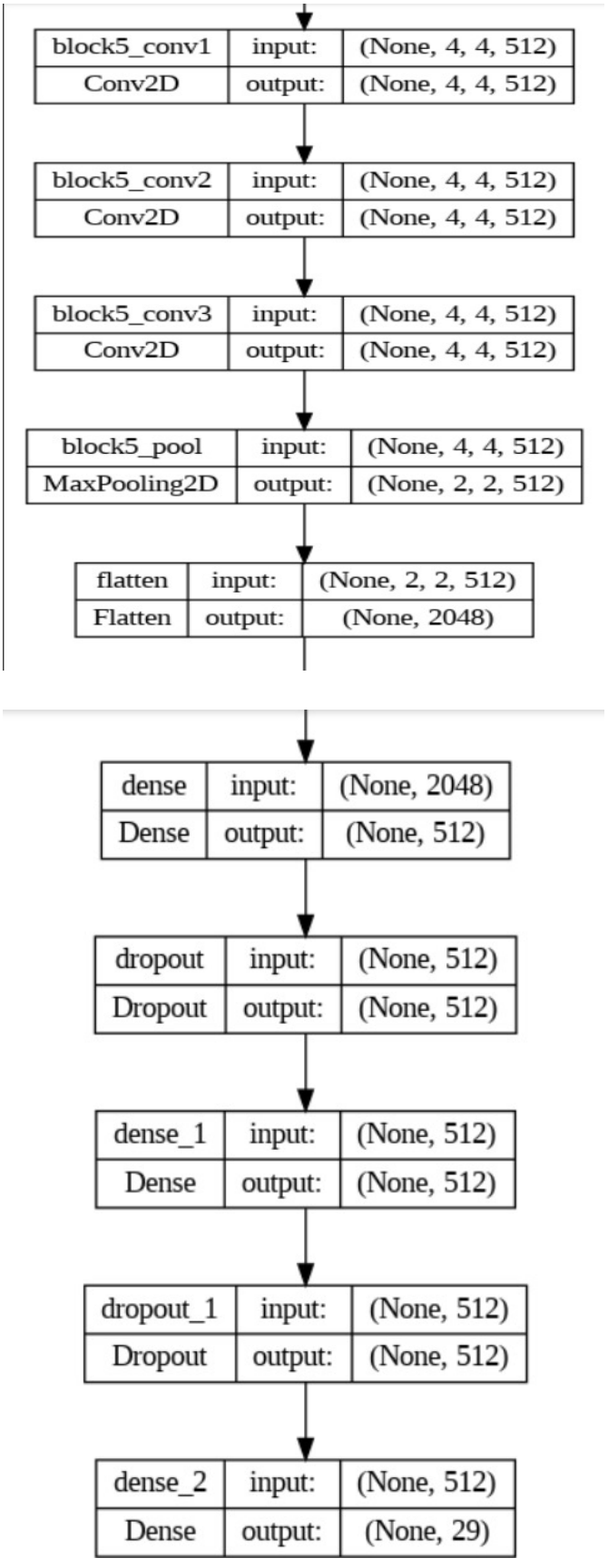
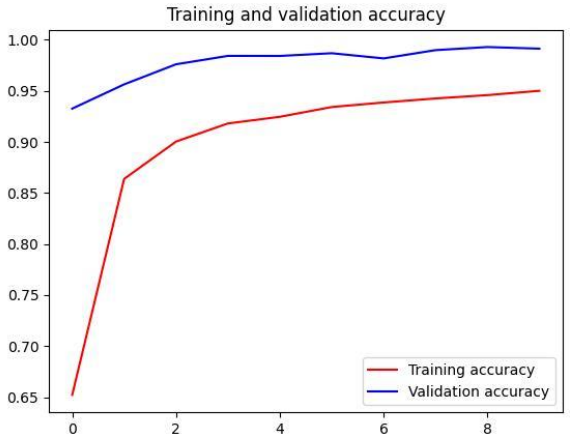
Date	9 November 2023
Team ID	Team-592961
Project Name	ASL- Alphabet Image Recognition
Maximum Marks	10 Marks

S.No	Parameter	Values	Screenshot
1.	Model Summary	Total Params - 16041309 Trainable params - 1326621 Non-trainable params - 14714688	

```
Downloading data from https://storage.googleapis.com/tensorflow/keras-applications/vgg16/vgg16_weights_tf_dim_ordering_tf_kernels_notop.h5
58889256/58889256 [==============================] - 1s 0us/step
Model: "model"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 input_1 (InputLayer)        [(None, 64, 64, 3)]       0

 block1_conv1 (Conv2D)       (None, 64, 64, 64)        1792

 block1_conv2 (Conv2D)       (None, 64, 64, 64)        36928

 block1_pool (MaxPooling2D)  (None, 32, 32, 64)        0

 block2_conv1 (Conv2D)       (None, 32, 32, 128)       73856

 block2_conv2 (Conv2D)       (None, 32, 32, 128)       147584

 block2_pool (MaxPooling2D)  (None, 16, 16, 128)       0

 block3_conv1 (Conv2D)       (None, 16, 16, 256)       295168

 block3_conv2 (Conv2D)       (None, 16, 16, 256)       590080

 block3_conv3 (Conv2D)       (None, 16, 16, 256)       590080

 block3_pool (MaxPooling2D)  (None, 8, 8, 256)         0

 block4_conv1 (Conv2D)       (None, 8, 8, 512)         1180160

 block4_conv2 (Conv2D)       (None, 8, 8, 512)         2359808

 block4_conv3 (Conv2D)       (None, 8, 8, 512)         2359808

 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)
```


input_1 | input: | [(None, 64, 64, 3)]
InputLayer | output: | [(None, 64, 64, 3)]
block1_conv1 | input: | (None, 64, 64, 3)
Conv2D | output: | (None, 64, 64, 64)
block1_conv2 | input: | (None, 64, 64, 64)
Conv2D | output: | (None, 64, 64, 64)
block1_pool | input: | (None, 64, 64, 64)
MaxPooling2D | output: | (None, 32, 32, 64)
block2_conv1 | input: | (None, 32, 32, 64)
Conv2D | output: | (None, 32, 32, 128)
block2_conv2 | input: | (None, 32, 32, 128)
Conv2D | output: | (None, 32, 32, 128)
block2_pool | input: | (None, 32, 32, 128)
MaxPooling2D | output: | (None, 16, 16, 128)
block3_conv1 | input: | (None, 16, 16, 128)
Conv2D | output: | (None, 16, 16, 256)
block3_conv2 | input: | (None, 16, 16, 256)
Conv2D | output: | (None, 16, 16, 256)
block3_conv3 | input: | (None, 16, 16, 256)
Conv2D | output: | (None, 16, 16, 256)


block3_pool
input:
(None, 16, 16, 256)
MaxPooling2D
output:
(None, 8, 8, 256)
block4_conv1
input:
(None, 8, 8, 256)
Conv2D
output:
(None, 8, 8, 512)
block4_conv2
input:
(None, 8, 8, 512)
Conv2D
output:
(None, 8, 8, 512)
block4_conv3
input:
(None, 8, 8, 512)
Conv2D
output:
(None, 8, 8, 512)
block4_pool
input:
(None, 8, 8, 512)
MaxPooling2D
output:
(None, 4, 4, 512)
block3_pool
input:
(None, 16, 16, 256)
MaxPooling2D
output:
(None, 8, 8, 256)
block4_conv1
input:
(None, 8, 8, 256)
Conv2D
output:
(None, 8, 8, 512)
block4_conv2
input:
(None, 8, 8, 512)
Conv2D
output:
(None, 8, 8, 512)
block4_conv3
input:
(None, 8, 8, 512)
Conv2D
output:
(None, 8, 8, 512)
block4_pool
input:
(None, 8, 8, 512)
MaxPooling2D
output:
(None, 4, 4, 512)


block5_conv1 | input: | (None, 4, 4, 512)
Conv2D | output: | (None, 4, 4, 512)
block5_conv2 | input: | (None, 4, 4, 512)
Conv2D | output: | (None, 4, 4, 512)
block5_conv3 | input: | (None, 4, 4, 512)
Conv2D | output: | (None, 4, 4, 512)
block5_pool | input: | (None, 4, 4, 512)
MaxPooling2D | output: | (None, 2, 2, 512)
flatten | input: | (None, 2, 2, 512)
Flatten | output: | (None, 2048)
dense | input: | (None, 2048)
Dense | output: | (None, 512)
dropout | input: | (None, 512)
Dropout | output: | (None, 512)
dense_1 | input: | (None, 512)
Dense | output: | (None, 512)
dropout_1 | input: | (None, 512)
Dropout | output: | (None, 512)
dense_2 | input: | (None, 512)
Dense | output: | (None, 29)

2.	Accuracy	Training Accuracy - 99.37% Validation Accuracy - 99.12%	evaluate Test Accuracy: 99.00% 908/908 [==========] - 241s 265ms/step - loss: 0.0321 - accuracy: 0.9937 evaluate Train Accuracy: 99.37% 248/248 [==========] - 66s 266ms/step - loss: 0.0369 - accuracy: 0.9912 evaluate Validation Accuracy: 99.12% 204/204 [==========] - 54s 264ms/step