Fit and Save the Model

```
from google.colab import drive
drive.mount('/content/drive')
```

```
from keras.preprocessing.image import ImageDataGenerator
train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,zoom_range=0.2,horizontal_
test_datagen=ImageDataGenerator(rescale=1./255)
```

```
x_train = train_datagen.flow_from_directory('/content/Dataset/training_set',target_size=(6
```

```
Found 15750 images belonging to 9 classes.
```

```
x_test = test_datagen.flow_from_directory('/content/Dataset/test_set',target_size=(64,64),
```

```
Found 2250 images belonging to 9 classes.
```

```
from keras.models import Sequential
from keras.layers import Dense
from keras.layers import Convolution2D
from keras.layers import MaxPooling2D
from keras.layers import Dropout
from keras.layers import Flatten
```

```
model = Sequential()
```

```
model.add(Convolution2D(32,(3,3),input_shape=(64,64,1), activation='relu'))
#no. of feature detectors, size of feature detector, image size, activation function
```

```
model.add(MaxPooling2D(pool_size=(2,2)))
```

```
model.add(Flatten())
```

```
model.add(Dense(units=512, activation = 'relu'))
```

```
model.add(Dense(units=9,  activation = 'softmax'))
```

```
model.compile(loss='categorical_crossentropy', optimizer = 'adam', metrics = ['accuracy'])
```

```
model.fit_generator(x_train,steps_per_epoch=24,epochs=10,validation_data = x_test, validat
#steps_per_epoch = no. of train images//batch size
```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: UserWarning: `Model.f
```

```
  """Entry point for launching an IPython kernel.
Epoch 1/10
24/24 [==============================] - ETA: 0s - loss: 1.0716 - accuracy: 0.7176WAI
24/24 [==============================] - 96s 4s/step - loss: 1.0716 - accuracy: 0.717
Epoch 2/10
24/24 [==============================] - 82s 3s/step - loss: 0.2010 - accuracy: 0.946
Epoch 3/10
24/24 [==============================] - 94s 4s/step - loss: 0.0867 - accuracy: 0.975
Epoch 4/10
24/24 [==============================] - 85s 4s/step - loss: 0.0403 - accuracy: 0.989
Epoch 5/10
24/24 [==============================] - 82s 3s/step - loss: 0.0289 - accuracy: 0.991
Epoch 6/10
24/24 [==============================] - 82s 3s/step - loss: 0.0209 - accuracy: 0.994
Epoch 7/10
24/24 [==============================] - 83s 3s/step - loss: 0.0137 - accuracy: 0.995
Epoch 8/10
24/24 [==============================] - 81s 3s/step - loss: 0.0090 - accuracy: 0.997
Epoch 9/10
24/24 [==============================] - 82s 3s/step - loss: 0.0153 - accuracy: 0.995
Epoch 10/10
24/24 [==============================] - 81s 3s/step - loss: 0.0086 - accuracy: 0.998
<keras.callbacks.History at 0x7fc0ea424290>
```

```
model.save('aslpng1.h5')
```

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