## **IMAGE PRE-PROCESSING**

## **Importing The Image Data Generator Library**

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     "train_datagen =
ImageDataGenerator(rescale=1/255,zoom_range=0.2,horizontal_flip=True,vertical_flip=
False)\n",
     "# Testing Datagen\n".
     "test_datagen = ImageDataGenerator(rescale=1/255)\n"
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g set',target size=(64,64), class mode='categorical',batch size=900)\n",
    "# Testing Dataset\n",
     "x test=test datagen.flow from directory(r'/content/drive/MyDrive/Dataset/test set
',target_size=(64,64), class_mode='categorical',batch_size=900)\n"
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   "Len x-train: 18\n",
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 "# The Class Indices in Training Dataset\n",
 "x train.class indices"
"metadata": {
 "colab": {
```

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 "# Importing Libraries\n",
 "from tensorflow.keras.models import Sequential\n",
 "from tensorflow.keras.layers import Convolution2D,MaxPooling2D,Flatten,Dense"
],
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 "# Creating Model\n",
 "model=Sequential()"
```

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 "# Adding Layers\n",
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 "model.add(Flatten())"
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 "# Adding Dense Layers\n",
 "model.add(Dense(300,activation='relu'))\n",
```

```
"model.add(Dense(150,activation='relu'))\n",
     "model.add(Dense(9,activation='softmax'))"
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cy'])"
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     "# Fitting the Model Generator\n",
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ata=x test, validation steps=len(x test))"
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       "/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:2: UserWarning:
'Model.fit generator' is deprecated and will be removed in a future version. Please use
`Model.fit`, which supports generators.\n",
       " \n"
```

```
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    "Epoch 1/10\n",
    accuracy: 0.9991 - val_loss: 0.3700 - val_accuracy: 0.9756\n",
    "Epoch 2/10\n",
    accuracy: 0.9996 - val_loss: 0.3347 - val_accuracy: 0.9751\n",
    "Epoch 3/10\n".
    accuracy: 0.9996 - val_loss: 0.3324 - val_accuracy: 0.9756\n",
    "Epoch 4/10\n",
    accuracy: 0.9996 - val_loss: 0.3712 - val_accuracy: 0.9747\n".
    "Epoch 5/10\n",
    accuracy: 0.9995 - val loss: 0.3011 - val accuracy: 0.9764\n",
    "Epoch 6/10\n",
    accuracy: 0.9997 - val loss: 0.2759 - val accuracy: 0.9769\n",
    "Epoch 7/10\n",
    accuracy: 0.9997 - val_loss: 0.3056 - val_accuracy: 0.9769\n",
    "Epoch 8/10\n".
    accuracy: 0.9997 - val loss: 0.3332 - val accuracy: 0.9760\n",
    "Epoch 9/10\n",
    accuracy: 0.9997 - val loss: 0.3236 - val accuracy: 0.9760\n",
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  "model.save('asl_model_84_54.h5')"
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  "from tensorflow.keras.models import load_model\n",
  "from tensorflow.keras.preprocessing import image"
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 "execution_count": 16,
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{
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    "model=load_model('asl_model_84_54.h5')\n",
    "img=image.load_img(r'/content/drive/MyDrive/Dataset/test_set/D/2.png',\n",
    " target_size=(64,64))"
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}
```