Assignment 3

- Download the Dataset : https://drive.google.com/file/d/1xkynpL15pt6KT3YSlDimu4A5iRU9qYck/view
- Image Augmentation
- Create Model
- Add Layers (Convolution,MaxPooling,Flatten,Dense-(Hidden Layers),Output)
- Compile The Model
- Fit The Model
- Save The Model
- Test The Model

Importing Packages

```
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Convolution2D,MaxPooling2D,Flatten,Dense
from tensorflow.keras.preprocessing.image import ImageDataGenerator as idm
import numpy as np
import warnings
#Supressing warnings
warnings.filterwarnings('ignore')
```

2.Image Augmentation

```
# Creating augmentation on training variable
train_flowers=idm(rescale=1./255,zoom_range=0.2,horizontal_flip=True)

# Passing training data to train variable
Xtrain = train_flowers.flow_from_directory('/content/drive/MyDrive/IBM/Flowers-Dataset',ta
```

```
---------------------------------------------------------------------------
FileNotFoundError                         Traceback (most recent call last)
<ipython-input-2-ef61f13bf170> in <module>
      3
      4 # Passing training data to train variable
----> 5 Xtrain =
train_flowers.flow_from_directory('/content/drive/MyDrive/IBM/Flowers-
Dataset',target_size=(76,76),class_mode='categorical',batch_size=100)
```

```
# Creating augmentation on testing variable
test_flowers=idm(rescale=1./255)

# Passing testing data to test variable
Xtest = test_flowers.flow_from_directory('/content/drive/MyDrive/IBM/Flower_Training',targ
```

```
---------------------------------------------------------------------------
FileNotFoundError                         Traceback (most recent call last)
<ipython-input-3-c2aeffef8675> in <module>
      3
      4 # Passing testing data to test variable
----> 5 Xtest =
test_flowers.flow_from_directory('/content/drive/MyDrive/IBM/Flower_Training',target_
(76,76),class_mode='categorical',batch_size=100)

                                 2 frames
/usr/local/lib/python3.7/dist-
packages/keras_preprocessing/image/directory_iterator.py in __init__(self,
directory, image_data_generator, target_size, color_mode, classes, class_mode,
batch_size, shuffle, seed, data_format, save_to_dir, save_prefix, save_format,
follow_links, subset, interpolation, dtype)
    113         if not classes:
    114             classes = []
--> 115             for subdir in sorted(os.listdir(directory)):
    116                 if os.path.isdir(os.path.join(directory, subdir)):
    117                     classes.append(subdir)
```

3.Create Model

```
Flower_model = Sequential()
Flower_model.add(Convolution2D(32,(3,3),activation='relu',input_shape=(76,76,3)))
Flower_model.add(MaxPooling2D(pool_size=(2,2)))
Flower_model.add(Flatten())
Flower_model.add(Dense(300,activation='relu'))
Flower_model.add(Dense(150,activation='relu'))
Flower_model.add(Dense(5,activation='softmax'))
```

4. Compile the Model

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

5. Fit the Model

```
Flower_model.fit_generator(Xtrain,steps_per_epoch= len (Xtrain),epochs= 10,validation_data
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-6-5a265c472b93> in <module>
----> 1 Flower_model.fit_generator(Xtrain,steps_per_epoch= len (Xtrain),epochs=
10,validation_data=Xtest,validation_steps= len (Xtest))

NameError: name 'Xtrain' is not defined
```

SEARCH STACK OVERFLOW

7. Save the model

```
Flower_model.save('Flower.h5')
```

8. Test the model

```
test_img=image.load_img('/content/drive/MyDrive/IBM/Flowers-Dataset/sunflower/200557977_bf
test_img
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-8-12c5d85b7d9d> in <module>
----> 1 test_img=image.load_img('/content/drive/MyDrive/IBM/Flowers-
Dataset/sunflower/200557977_bf24d9550b.jpg',target_size=(76,76))
      2 test_img

NameError: name 'image' is not defined
```

SEARCH STACK OVERFLOW

```
x=image.img_to_array(test_img)
x=np.expand_dims(x,axis=0)
predicted=np.argmax(Flower_model.predict(x))
Prediction_category=['daisy','dandelion','rose','sunflower','tulip']
Prediction_category[predicted]
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-9-3d679be82375> in <module>
----> 1 x=image.img_to_array(test_img)
      2 x=np.expand_dims(x,axis=0)
      3 predicted=np.argmax(Flower_model.predict(x))
      4 Prediction_category=['daisy','dandelion','rose','sunflower','tulip']
```

```
test_img1=image.load_img('/content/drive/MyDrive/IBM/Flowers-Dataset/daisy/1140299375_3aa7
test_img1
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-10-a3cdb644bdec> in <module>
----> 1 test_img1=image.load_img('/content/drive/MyDrive/IBM/Flowers-
Dataset/daisy/1140299375_3aa7024466.jpg',target_size=(76,76))
      2 test_img1

NameError: name 'image' is not defined
```

SEARCH STACK OVERFLOW

```
x=image.img_to_array(test_img1)
x=np.expand_dims(x,axis=0)
predicted=np.argmax(Flower_model.predict(x))
Prediction_category[predicted]
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-11-f0ca654b3de8> in <module>
----> 1 x=image.img_to_array(test_img1)
      2 x=np.expand_dims(x,axis=0)
      3 predicted=np.argmax(Flower_model.predict(x))
      4 Prediction_category[predicted]

NameError: name 'image' is not defined
```

SEARCH STACK OVERFLOW

```
test_img2=image.load_img('/content/drive/MyDrive/IBM/Flowers-Dataset/rose/7251352826_69b62
test_img2
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-13-2edc92223712> in <module>
----> 1 test_img2=image.load_img('/content/drive/MyDrive/IBM/Flowers-
Dataset/rose/7251352826_69b62cba2c_m.jpg',target_size=(76,76))
      2 test_img2

NameError: name 'image' is not defined
```

SEARCH STACK OVERFLOW

```
x=image.img_to_array(test_img2)
x=np.expand_dims(x,axis=0)
```

```
predicted=np.argmax(Flower_model.predict(x))
Prediction_category[predicted]
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-12-9c985364d602> in <module>
----> 1 x=image.img_to_array(test_img2)
      2 x=np.expand_dims(x,axis=0)
      3 predicted=np.argmax(Flower_model.predict(x))
      4 Prediction_category[predicted]

NameError: name 'image' is not defined
```

SEARCH STACK OVERFLOW

✓ 0s completed at 10:10 PM