

ASSIGNMENT – 3

Assignment Date	11 October 2022
Student Name	Deepika T
Student Roll Number	111519106022
Maximum Marks	2 Marks

QUESTION – 1:

DOWNLOAD THE DATASET

```
!unzip 'M:\software\AI_TRAINING_IBM\Flowers-Dataset.zip'
```

unzip: cannot find or open M:\software\AI_TRAINING_IBM\Flowers-Dataset.zip, M:\software\AI_TRAINING_IBM\Flowers-Dataset.zip.zip or M:\software\AI_TRAINING_IBM\Flowers-Dataset.zi

QUESTION – 2:

DATA/ IMAGE AUGMENTATION

```
[3]: from tensorflow.keras.preprocessing.image import ImageDataGenerator
```

QUESTION – 3:

TRAINING & TESTING

```
train_datagen=ImageDataGenerator(rescale=1./255, zoom_range=0.2, horizontal_flip=True)
test_datagen=ImageDataGenerator(rescale=1./255)
```

```
xtrain=train_datagen.flow_from_directory('M:\\software\\AI_TRAINING_IBM\\flowers', class_mode='categorical', target_size=(64,64), batch_size=100)
```

Found 4317 images belonging to 5 classes.

```
xtest=test_datagen.flow_from_directory('M:\\software\\AI_TRAINING_IBM\\flowers', class_mode='categorical', target_size=(64,64), batch_size=100)
```

Found 4317 images belonging to 5 classes.

QUESTION – 4 & 5:

CREATE MODEL:

ADD LAYERS

```
[7] from tensorflow.keras.models import Sequential
    from tensorflow.keras.layers import Convolution2D,MaxPooling2D,Flatten,Dense

model=Sequential()
model.add(Convolution2D(64,(3,3),activation='relu',input_shape=(64,64,3)))
model.add(MaxPooling2D(pool_size=(2,2)))
model.add(Flatten())
model.add(Dense(300,activation='relu'))
model.add(Dense(150,activation='relu'))
model.add(Dense(5,activation='softmax'))
```

QUESTION – 6:

COMPILE :

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

QUESTION – 7:

FIT THE MODEL:

```
model.fit_generator(xtrain,
                    steps_per_epoch=len(xtrain),
                    epochs=20,
                    validation_data=xtest,
                    validation_steps=len(xtest))
```

QUESTION – 8:

SAVING THE MODEL

```
[11] model.save('Flower.h5')
```

```
from tensorflow.keras.preprocessing import image
import numpy as np
```

QUESTION – 9:

TEST THE MODEL

```
In [22]: img=image.load_img('M:\\software\\AI_TRAINING_IBM\\flowers\\sunflower\\6953297_8576bf4ea3.jpg',target_size=(64,64))
x=image.img_to_array(img)
x=np.expand_dims(x,axis=0)
prediction=np.argmax(model.predict(x))
op=['daisy','dandelion','rose','sunflower','tulip']
op[prediction]

1/1 [=====] - 0s 22ms/step
Out[22]: 'sunflower'
```

QUESTION -10:

TESTING THE MODEL

```
In [24]: img=image.load_img('M:\\software\\AI_TRAINING_IBM\\download.jpg',target_size=(64,64))#randomly downloaded testing
x=image.img_to_array(img)
x=np.expand_dims(x,axis=0)
prediction=np.argmax(model.predict(x))
op=['daisy','dandelion','rose','sunflower','tulip']
op[prediction]

1/1 [=====] - 0s 22ms/step
Out[24]: 'sunflower'
```