Importing Keras libraries

In [75]:
```
import keras
```

Importing ImageDataGenerat from Keras

In [76]:
```
from matplotlib import pyplot as
from keras.preprocessing.image i
```

In [77]:
```
import os, types
import pandas as pd
from botocore.client import Conf
import ibm_boto3

def __iter__(self): return 0

# @hidden_cell
# The following code accesses a
# You might want to remove those
cos_client = ibm_boto3.client(se
    ibm_api_key_id='KXjEkgUBwu4d
    ibm_auth_endpoint="https://i
    config=Config(signature_vers
    endpoint_url='https://s3.pri

bucket = 'forestfire-donotdelete
object_key = 'Dataset.zip'

streaming_body_2 = cos_client.ge

# Your data file was loaded into
# Please read the documentation
# ibm_boto3 documentation: https
# pandas documentation: http://p
```

In [78]:
```
from io import BytesIO
import zipfile
unzip = zipfile.ZipFile(BytesIO(
file_paths = unzip.namelist()
for path in file_paths:
    unzip.extract(path)
```

In [79]:
```
pwd
```

Out[79]:
```
'/home/wsuser/work'
```

In [80]:
```
import os
filenames = os.listdir('/home/ws
```

Defining the Parameters

In [81]:
```
train_datagen=ImageDataGenerator
test_datagen=ImageDataGenerator(
```

Applying ImageDataGenerat functionality to train dataset

In [82]:
```
x_train=train_datagen.flow_from_
```

```
Found 436 images belonging to 2 c
lasses.
```

Applying ImageDataGenerat functionality to test dataset

In [83]:
```
x_test=test_datagen.flow_from_di
```

In [83]:
```
x_test=test_datagen.flow_from_di
```

```
Found 121 images belonging to 2 c
lasses.
```

Importing Model Building Libraries

In [84]:
```
#to define the linear Initialisa
from keras.models import Sequenti
#to add layers import Dense
from keras.layers import Dense
#to create Convolutional kernel
from keras.layers import Convolu
#import Maxpooling layer
from keras.layers import MaxPool
#import flatten layer
from keras.layers import Flatten
import warnings
warnings.filterwarnings('ignore'
```

Initializing the model

In [85]:
```
model = Sequential()
```

Adding CNN Layers

In [86]:
```
model.add(Convolution2D(32,(3,3)
#add maxpooling layers
model.add(MaxPooling2D(pool_size
#add faltten layer
model.add(Flatten())
```

Add Dense layers

In [87]:
```
#add hidden layers
model.add(Dense(150,activation='
#add output layer
model.add(Dense(1,activation='si
```

configuring the learning process

In [88]:
```
model.compile(loss='binary_cross
```

Training the model

In [89]:
```
model.fit_generator(x_train,step
```

```
Epoch 1/10
14/14 [==============================] - 23s 2s/step - loss: 0.8269 - accuracy: 0.6835 - val_loss: 0.1792 - val_accuracy: 0.9504
Epoch 2/10
14/14 [==============================] - 23s 2s/step - loss: 0.2426 - accuracy: 0.8876 - val_loss: 0.1126 - val_accuracy: 0.9587
Epoch 3/10
14/14 [==============================] - 22s 2s/step - loss: 0.2107 - accuracy: 0.9128 - val_loss: 0.1256 - val_accuracy: 0.9421
Epoch 4/10
14/14 [==============================] - 22s 2s/step - loss: 0.2927 - accuracy: 0.8784 - val_loss: 0.1423 - val_accuracy: 0.9256
Epoch 5/10
14/14 [==============================] - 21s 1s/step - loss: 0.198
```

Creating An Account in Twilio Service

In [113…

```
import os, types
import pandas as pd
from botocore.client import Conf
import ibm_boto3

def __iter__(self): return 0

# @hidden_cell
# The following code accesses a
# You might want to remove those
cos_client = ibm_boto3.client(se
    ibm_api_key_id='KXjEkgUBwu4d
    ibm_auth_endpoint="https://i
    config=Config(signature_vers
    endpoint_url='https://s3.pri

bucket = 'forestfire-donotdelete
object_key = 'Vishwaroopam.mp3'

streaming_body_3 = cos_client.ge

# Your data file was loaded into
# Please read the documentation
# ibm_boto3 documentation: https
# pandas documentation: http://p
```

In [117…

```
from twilio.rest import Client
from playsound import playsound
if pred==1:
  print('Forest fire')
  account_sid='AC34c4bee5e03df7b
  auth_token='1fc522239435d0c251
  client=Client(account_sid,auth
  message=client.messages \
  .create(
      body='forest fire is detec
      #use twilio free number
      from_='+19803934024',
      #to number
      to='+919962082226')
  print(message.sid)
  print("Fire detected")
  print("SMS Sent!")
```

In [117…

```
from twilio.rest import Client
from playsound import playsound
if pred==1:
  print('Forest fire')
  account_sid='AC34c4bee5e03df7b
  auth_token='1fc522239435d0c251
  client=Client(account_sid,auth
  message=client.messages \
  .create(
      body='forest fire is detec
      #use twilio free number
      from_='+19803934024',
      #to number
      to='+919962082226')
  print(message.sid)
  print("Fire detected")
  print("SMS Sent!")
```

```
Forest fire
SM8520469cbcb2d1a83aba6aeaff9dbbc
a
Fire detected
SMS Sent!
```