Import model building libraries #import keras libraries import numpy as np import tensorflow from tensorflow.keras.models import Sequential from tensorflow.keras import layers from keras.layers import Dense from keras.layers import Conv2D from keras.layers import MaxPooling2D,Dropout from keras.layers import Flatten

Initializing the model

model=Sequential() *Add*

CNN Layer

```python
model.add(Convolution2D(32,(3,3),input_shape=(128,128,3) ,activation ='relu'))
#add maxpooling layer

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

#add flatten layer  model.add(Flatten())
```

Add Hidden Layer

```python
#add hidden layer
model.add(Dense(units=128,activation='relu'))
#add output layer
model.add(Dense(units=46,activation='softmax')
```

Configure the learning process

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

Train the model

```python
model.fit(x_train,epochs=10,steps_per_epochs=len((x_train)

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

Save The Model

```python
model.save("forestwithfire.h5")
```

Predictions

```python
# import load_model from keras.model from
keras.models import load_model # import image
class from keras from
tensorflow.keras.preprocessing import image

# import numpy
import numpy as np
# import cv2 import
cv2

#load the saved model model =
load_model("forestwithfire.h5")

#give any random image path

img=image.load_img(r'/content/drive/MyDrive/DataCollection/training/Forest with fire/with fire (10).jpg') x = image.img_to_array(img)
res = cv2.resize(x,dsize=(128,128),interpolation=cv2.INTER_CUBIC)

#expand the image shape
x=np.expand_dims(res,axis=0)
pred= model.predict(x_train)
pred
```