PROJECT DEVOLPMENT PHASE
DELIVERY OF SPRINT-2

Date	03 November 2022
Team ID	PNT2022TMID18921
Project Name	Emerging methods for the early detection of forest fires

Executable ProgramModel

Building:

```
model.add(Dense(150,activation='relu')) model.add(Dense(1,activation='sigmoid'))
model.compile(loss='binary_crossentropy',optimizer='adam',metrics=['accuracy'])
len(x_train)
len(x_test) model.fit_generator(x_train,steps_per_epoch=len(x_train),epochs=10,
            validation_data=x_test,validation_steps=len(x_test)) import
tensorflow as tf
from keras.models import load_model
from tensorflow.keras.preprocessing import imageimport
numpy as np
import cv2 model.save('forestfire.h5')
model=load_model('forestfire.h5')testImg =
image.load_img(r'C:\Users\win\Desktop\Project_NT\test_set\forest\_101542074_g
ettyimages_956391468.jpg')s
testImgarrayImg = image.img_to_array(testImg)
arrayImg
x = np.expand_dims(arrayImg , axis = 0)X
images = np.vstack([x])
pred=model.predict(images)
Pred x_train.class_indicesif
(pred[0] > 0.5):
   print("forest with fire")else:
   print("forest without fire")
```

```
14/14 [==============================]  - 46s 3s/step - loss: 3.7642 - ac<ura<y  0.5S50 - val_losz: 8.93 2 - ›aI_arcu any: 8.50S

14/14 [==============================]  - 21s 2s/step - loss: B.42E7 - acsua<y %SB59 - val los: 8.II6B - i I a  usay: B.9%

Epoch 3/10
14/14 [==============================]  - 22s 2s/step - loss: O.2i9i-  accuracy  0.9083-  ..al luss: 0.11°1-  Lai a<cu•acy: B.158

14/14 [==============================]   22s 2s/step - loss: 0.2520 - accuracy: 0.8991 - val_loss: 0.1058 - val_accuracy: 0.975

14/14 [==============================]  - 22s 2s/step - loss:  0.2i92  accuracy  0.9014  val_loss:  B.100s  ›aI_a  cu acy:  0.96o

14/14 [==============================]  - 22s 2s/step - loss: 0.ié42 - ac<urac,' 0.9ie5 - val_loss: B.093B - :'ai_a<cunacy: B.07S

14/14 [==============================]  - 21s 2s/step - loss:     0.iF8° - ac<ura<y  0.e3sa - l_l«ss: O.i ss - .a"_a<c« any: 0.u4z

14/14 [==============================]  - 22s 2s/step - loss: 0.ible - accurac)'  0.9268 - val l ss: B.15 7 - :al a<cu-a<y: B.9Q0

Epoch 9/10
14/14 [==============================]  - 25s 2s/step - loss: S.£643-  accura<)  0.93iI-  val loss: B.08?4-  cal a<cu-acy: B.983

14/14 [==============================]  - 62s 5s/step - loss: 0.1640 - accuracy: 0.9220 - val_loss: 0.0809 - val_accuracy: 0.975
```

```
[[ii, iam, i7P],


 [ I6., 7?.,  %j,

 [221., 223., 212.]]]], dtype=float32)
```

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```
In [28]: if (pred[0] > 0.5):
             print("forest with fire"
```