PROJECT DEVELOPMENT PHASE

DELIVERY OF SPRINT-1

Date	09 November 2022
Team ID	PNT2022TMID33575
Project Name	Emerging methods for the early detection of forest fires

Executable Program

```
from tensorflow.keras.preprocessing.image import ImageDataGenerator
train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,rotation_range=180,
z oom_range=0.2,horizontal_flip=True)
test_datagen=ImageDataGenerator(rescale=1./255)
x_train=train_datagen.flow_from_directory(r'C:\Users\USER\Documents\Sem7\Naalaiyathir
an\Dataset\Dataset\train_set', target_size=(128,128),
                    batch_size=32,
                    class_mode='bi
                    nary')
x_test=train_datagen.flow_from_directory(r'C:\Users\USER\Documents\Sem7\Naalaiyathira
n\Dataset\Dataset\test_set', target_size=(128,128),
                    batch_size=32,
                    class_mode='bi
                    nary')
x_train.class_indices
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers
import Dense
from tensorflow.keras.layers import Convolution2D,MaxPooling2D,
Flatten import warnings warnings.filterwarnings('ignore')
model=Sequential()
model.add(MaxPooling2D(pool_size=(2,2)))
model.add(Flatten())
```

model.summary()

```
In [1]: from tensorflow.keras.preprocessing.image import ImageDataGenerator
```

```
In [2]: train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,rotation_range=180,zoom_range=0.2,horizontal_flip=True)
```

```
In [3]: test_datagen=ImageDataGenerator(rescale=1./255)
```

```
In [5]: x_train=train_datagen.flow_from_directory(r'C:\Users\USER\Documents\Sem7\Naalaiyathiran\Dataset\Dataset\train_set', target_size=(
                                                   batch_size=32,
                                                   class_mode='binary')
```

Found 436 images belonging to 2 classes.

```
In [6]: x_test=train_datagen.flow_from_directory(r'C:\Users\USER\Documents\Sem7\Naalaiyathiran\Dataset\Dataset\test_set', target_size=(1
                                                  batch_size=32,
                                                  class_mode='binary')
```

Found 121 images belonging to 2 classes.

```
In [7]: x_train.class_indices
```

```
Out[7]: {'forest': 0, 'with fire': 1}
```

```
In [8]: from tensorflow.keras.models import Sequential
```

```
In [8]: from tensorflow.keras.models import Sequential
        from tensorflow.keras.layers import Dense
```

```
In [9]: from tensorflow.keras.layers import Convolution2D,MaxPooling2D, Flatten
```

```
In [10]: import warnings
         warnings.filterwarnings('ignore')
```

```
In [11]: model=Sequential()
```

```
In [13]: model.add(MaxPooling2D(pool_size=(2,2)))
```

```
In [14]: model.add(Flatten())
```

```
In [70]: model.summary()
```

Model: "sequential_3"

Layer (type)	Output Shape	Param #
conv2d_4 (Conv2D)	(None, 126, 126, 32)	896
max_pooling2d_4 (MaxPooling 2D)	(None, 63, 63, 32)	0
flatten_4 (Flatten)	(None, 127008)	0

Total params: 896