```
{
 "nbformat": 4,
 "nbformat_minor": 0,
 "metadata": {
  "colab": {
   "provenance": []
  },
  "kernelspec": {
   "name": "python3",
   "display_name": "Python 3"
  },
  "language_info": {
   "name": "python"
  }
```

```
},
"cells": [
{
"cell_type": "code",
"execution_count": null,
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/"
},
"id": "VnfDHSL-jhQX",
"outputId": "c6d7f8ac-6855-47e5-8cdf-c3107c48eb4d"
},
"outputs": [
{
```

```
"output_type": "stream",
"name": "stdout",
"text": [
"Mounted at /content/drive\n"
]
}
],
"source": [
"from google.colab import drive\n",
"drive.mount('/content/drive')"
]
},
{
"cell_type": "code",
```

```
"source": [
"!pip install tensorflow\n",
"!pip install opencv-python\n",
"!pip install opencv-contrib-python\n",
"import tensorflow as tf\n",
"import numpy as np\n",
"from tensorflow import keras\n",
"import os\n",
"import cv2\n",
"from tensorflow.keras.preprocessing.image import ImageDataGenerator\n",
"from tensorflow.keras.preprocessing import image"
],
"metadata": {
"colab": {
```

```
"base_uri": "https://localhost:8080/"
},
"id": "uwei0k6EjzxD",
"outputId": "cb49595d-e084-4289-9981-0de67da1c1ec"
},
"execution_count": null,
"outputs": [
{
"output_type": "stream",
"name": "stdout",
"text": [
"Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/\n",
"Requirement already satisfied: tensorflow in /usr/local/lib/python3.7/dist-packages (2.9.2)\n",
"Requirement already satisfied: wrapt>=1.11.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.14.1)\n",
```

"Requirement already satisfied: astunparse>=1.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.6.3)\n",

72

"Requirement already satisfied: flatbuffers<2,>=1.12 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.12)\n",

73

"Requirement already satisfied: google-pasta>=0.1.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (0.2.0)\n",

74

"Requirement already satisfied: setuptools in /usr/local/lib/python3.7/dist-packages (from tensorflow) (57.4.0)\n",

75

"Requirement already satisfied: opt-einsum>=2.3.2 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (3.3.0)\n",

76

"Requirement already satisfied: keras<2.10.0,>=2.9.0rc0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (2.9.0)\n",

77

"Requirement already satisfied: keras-preprocessing>=1.1.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.1.2)\n",

78

"Requirement already satisfied: grpcio<2.0,>=1.24.3 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.50.0)\n",

79

"Requirement already satisfied: h5py>=2.9.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (3.1.0)\n",

80

"Requirement already satisfied: termcolor>=1.1.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (2.1.0)\n",

81

"Requirement already satisfied: typing-extensions>=3.6.6 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (4.1.1)\n",

82

"Requirement already satisfied: numpy>=1.20 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.21.6)\n",

83

"Requirement already satisfied: gast<=0.4.0,>=0.2.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (0.4.0)\n",

84

"Requirement already satisfied: tensorboard<2.10,>=2.9 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (2.9.1)\n",

85

"Requirement already satisfied: packaging in /usr/local/lib/python3.7/dist-packages (from tensorflow) (21.3)\n",

86

"Requirement already satisfied: libclang>=13.0.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (14.0.6)\n",

87

"Requirement already satisfied: protobuf<3.20,>=3.9.2 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (3.17.3)\n",

88

"Requirement already satisfied: tensorflow-io-gcs-filesystem>=0.23.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (0.27.0)\n",

89

"Requirement already satisfied: six>=1.12.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.15.0)\n",

90

"Requirement already satisfied: tensorflow-estimator<2.10.0,>=2.9.0rc0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (2.9.0)\n",

91

"Requirement already satisfied: absl-py>=1.0.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.3.0)\n",

92

"Requirement already satisfied: wheel<1.0,>=0.23.0 in /usr/local/lib/python3.7/dist-packages (from astunparse>=1.6.0->tensorflow) (0.38.1)\n",

93

"Requirement already satisfied: cached-property in /usr/local/lib/python3.7/dist-packages (from h5py>=2.9.0->tensorflow) (1.5.2)\n",

94

"Requirement already satisfied: google-auth<3,>=1.6.3 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.10,>=2.9->tensorflow) (1.35.0)\n",

95

"Requirement already satisfied: requests<3,>=2.21.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.10,>=2.9->tensorflow) (2.23.0)\n",

96

"Requirement already satisfied: tensorboard-data-server<0.7.0,>=0.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.10,>=2.9->tensorflow) (0.6.1)\n",

97

"Requirement already satisfied: werkzeug>=1.0.1 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.10,>=2.9->tensorflow) (1.0.1)\n",

98

"Requirement already satisfied: markdown>=2.6.8 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.10,>=2.9->tensorflow) (3.4.1)\n",

99

"Requirement already satisfied: tensorboard-plugin-wit>=1.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.10,>=2.9->tensorflow) (1.8.1)\n",

100

"Requirement already satisfied: google-auth-oauthlib<0.5,>=0.4.1 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.10,>=2.9->tensorflow) (0.4.6)\n",

101

"Requirement already satisfied: pyasn1-modules>=0.2.1 in /usr/local/lib/python3.7/dist-packages (from google-auth<3,>=1.6.3->tensorboard<2.10,>=2.9->tensorflow) (0.2.8)\n",

102

"Requirement already satisfied: cachetools<5.0,>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from google-auth<3,>=1.6.3->tensorboard<2.10,>=2.9->tensorflow) (4.2.4)\n",

103

"Requirement already satisfied: rsa<5,>=3.1.4 in /usr/local/lib/python3.7/dist-packages (from google-auth<3,>=1.6.3->tensorboard<2.10,>=2.9->tensorflow) (4.9)\n",

104

"Requirement already satisfied: requests-oauthlib>=0.7.0 in /usr/local/lib/python3.7/dist-packages (from google-auth-oauthlib<0.5,>=0.4.1->tensorboard<2.10,>=2.9->tensorflow) (1.3.1)\n",

105

"Requirement already satisfied: importlib-metadata>=4.4 in /usr/local/lib/python3.7/dist-packages (from markdown>=2.6.8->tensorboard<2.10,>=2.9->tensorflow) (4.13.0)\n",

106

"Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata>=4.4->markdown>=2.6.8->tensorboard<2.10,>=2.9->tensorflow) (3.10.0)\n",

107

"Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in /usr/local/lib/python3.7/dist-packages (from pyasn1-modules>=0.2.1->google-auth<3,>=1.6.3->tensorboard<2.10,>=2.9->tensorflow) (0.4.8)\n",

108

"Requirement already satisfied: urllib3!=1.25.0,!=1.25.1,<1.26,>=1.21.1 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard<2.10,>=2.9->tensorflow) (1.24.3)\n",

109

"Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard<2.10,>=2.9->tensorflow) (2.10)\n",

110

"Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard<2.10,>=2.9->tensorflow) (3.0.4)\n",

111

"Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard<2.10,>=2.9->tensorflow) (2022.9.24)\n",

112

"Requirement already satisfied: oauthlib>=3.0.0 in /usr/local/lib/python3.7/dist-packages (from requests-oauthlib>=0.7.0->google-auth-oauthlib<0.5,>=0.4.1->tensorboard<2.10,>=2.9->tensorflow) (3.2.2)\n",

113

"Requirement already satisfied: pyparsing!=3.0.5,>=2.0.2 in /usr/local/lib/python3.7/dist-packages (from packaging->tensorflow) (3.0.9)\n",

114

"Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/\n",

115

"Requirement already satisfied: opencv-python in /usr/local/lib/python3.7/dist-packages (4.6.0.66)\n",

116

"Requirement already satisfied: numpy>=1.14.5 in /usr/local/lib/python3.7/dist-packages (from opencv-python) (1.21.6)\n",

117

"Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/\n",

118

"Requirement already satisfied: opencv-contrib-python in /usr/local/lib/python3.7/dist-packages (4.6.0.66)\n",

119

"Requirement already satisfied: numpy>=1.14.5 in /usr/local/lib/python3.7/dist-packages (from opencv-contrib-python) (1.21.6)\n"

120

]

121

}

122

]

123

},

124

{

125

"cell_type": "code",

126

"source": [

127

"train=ImageDataGenerator(rescale=1./255,\n",

128

" shear_range=0.2,\n",

129

" rotation_range=180,\n",

130

" zoom_range=0.2,\n",

131

" horizontal_flip=True)\n",

"train = ImageDataGenerator(rescale=1/255)\n",
"test = ImageDataGenerator(rescale=1/255)"
],
"metadata": {
"id": "4mOdBR1BkCOZ"
},
"execution_count": null,
"outputs": []
},
{
"cell_type": "code",
"source": [
"train_dataset = train.flow_from_directory(\"/content/drive/MyDrive/Dataset/Dataset/train_set\",\n",
" target_size=(128,128),\n",

```
" batch_size = 32,\n",
" class_mode = 'binary' )"
],
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/"
},
"id": "Mv7vksB9klYK",
"outputId": "e216fc79-b711-46a0-8ff0-3b8fc39b77e9"
},
"execution_count": null,
"outputs": [
{
"output_type": "stream",
```

```
"name": "stdout",
"text": [
"Found 436 images belonging to 2 classes.\n"
]
}
]
},
{
"cell_type": "code",
"source": [
"test_dataset = test.flow_from_directory(\"/content/drive/MyDrive/Dataset/Dataset/test_set\",\n",
" target_size=(128,128),\n",
" batch_size = 32,\n",
" class_mode = 'binary' )"
```

],
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/"
},
"id": "r3gWVNLgkM4F",
"outputId": "4b24776a-84af-40be-fe9a-f6b772cb1329"
},
"execution_count": null,
"outputs": [
{
"output_type": "stream",
"name": "stdout",
"text": [

```
"Found 121 images belonging to 2 classes.\n"
]
}
]
},
{
"cell_type": "code",
"source": [
"test_dataset.class_indices"
],
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/"
},
```

```
"id": "K7kRkC4YkPgl",
"outputId": "929549b5-fcf8-44e0-d0c2-8ecd415b6ae6"
},
"execution_count": null,
"outputs": [
{
"output_type": "execute_result",
"data": {
"text/plain": [
"{'forest': 0, 'with fire': 1}"
]
},
"metadata": {},
"execution_count": 7
```

```
}
]
},
{
"cell_type": "code",
"source": [
"#to define linear initialisation import sequential\n",
"from keras.models import Sequential\n",
"#to add layer import Dense\n",
"from keras.layers import Dense\n",
"#to create convolution kernel import convolution2D\n",
"from keras.layers import Convolution2D\n",
"#import Maxpooling layer\n",
"from keras.layers import MaxPooling2D\n",
```

```
230
"#import flatten layer\n",
231
"from keras.layers import Flatten\n",
232
"import warnings\n",
233
"warnings.filterwarnings('ignore')"
234
],
235
"metadata": {
236
"id": "F9eyEUqKkRBR"
237
},
238
"execution_count": null,
239
"outputs": []
240
},
241
{
242
"cell_type": "code",
243
"source": [
```

```
244
"model = keras.Sequential()\n",
245
"model.add(Convolution2D(32,(3,3),input_shape=(128,128,3),activation='relu'))\n",
246
"model.add(MaxPooling2D(pool_size=(2,2)))\n",
247
"model.add(Convolution2D(32,(3,3),activation='relu'))\n",
248
"model.add(MaxPooling2D(pool_size=(2,2)))\n",
249
"model.add(Convolution2D(32,(3,3),activation='relu'))\n",
250
"model.add(MaxPooling2D(pool_size=(2,2)))\n",
251
"model.add(Convolution2D(32,(3,3),activation='relu'))\n",
252
"model.add(MaxPooling2D(pool_size=(2,2)))\n",
253
"model.add(Flatten())"
254
],
255
"metadata": {
256
"id": "_fy9tvO0kTWo"
257
},
```

```
"execution_count": null,
"outputs": []
},
{
"cell_type": "code",
"source": [
"model.add(Dense(150,activation='relu'))\n",
"\n",
"model.add(Dense(1,activation='sigmoid'))"
],
"metadata": {
"id": "SBGnl4iMkVAy"
},
"execution_count": null,
```

```
272
"outputs": []
273
},
274
{
275
"cell_type": "code",
276
"source": [
277
"model.compile(loss = 'binary_crossentropy',\n",
278
" optimizer = \"adam\",\n",
279
" metrics = [\"accuracy\"])"
280
],
281
"metadata": {
282
"id": "9S22QmvIkXjo"
283
},
284
"execution_count": null,
285
"outputs": []
```

```
},
{
"cell_type": "code",
"source": [
"r = model.fit(train_dataset, epochs = 5, validation_data = test_dataset)"
],
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/"
},
"id": "RD4bBxo-kZUb",
"outputId": "e2f81de2-5c45-4c76-97fa-f8244101e194"
},
"execution_count": null,
```

```
300
"outputs": [
301
{
302
"output_type": "stream",
303
"name": "stdout",
304
"text": [
305
"Epoch 1/5\n",
306
"14/14 [==============================] - 92s 7s/step - loss: 0.5798 - accuracy: 0.6628 - val_loss: 0.3330 - val_accuracy: 0.8595\n",
307
"Epoch 2/5\n",
308
"14/14 [==============================] - 26s 2s/step - loss: 0.4139 - accuracy: 0.8280 - val_loss: 0.1400 - val_accuracy: 0.9504\n",
309
"Epoch 3/5\n",
310
"14/14 [==============================] - 26s 2s/step - loss: 0.2800 - accuracy: 0.8922 - val_loss: 0.1375 - val_accuracy: 0.9587\n",
311
"Epoch 4/5\n",
312
```

"14/14 [==============================] - 27s 2s/step - loss: 0.2440 - accuracy: 0.9014 - val_loss: 0.1224 - val_accuracy: 0.9669\n",

313

"Epoch 5/5\n",

314

"14/14 [==============================] - 26s 2s/step - loss: 0.1856 - accuracy: 0.9243 - val_loss: 0.0586 - val_accuracy: 0.9752\n"

315

]

316

}

317

]

318

},

319

{

320

"cell_type": "code",

321

"source": [

322

"predictions = model.predict(test_dataset)\n",

323

"predictions = np.round(predictions)"

324

],

325

"metadata": {

```
"colab": {
"base_uri": "https://localhost:8080/"
},
"id": "UTwKaugikbAM",
"outputId": "61103b72-ae2a-4560-b227-92425bde2a34"
},
"execution_count": null,
"outputs": [
{
"output_type": "stream",
"name": "stdout",
"text": [
"4/4 [==============================] - 5s 1s/step\n"
]
```

```
}
]
},
{
"cell_type": "code",
"source": [
"predictions"
],
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/"
},
"id": "ix0ycxeClr1O",
"outputId": "a8e61ef5-753d-4878-b23a-1e14670dd267"
```

```
},
"execution_count": null,
"outputs": [
{
"output_type": "execute_result",
"data": {
"text/plain": [
"array([[0.],\n",
" [1.],\n",
" [1.],\n",
" [0.],\n",
" [1.],\n",
" [0.],\n",
" [1.],\n",
```

```
368
" [0.],\n",
369
" [1.],\n",
370
" [0.],\n",
371
" [1.],\n",
372
" [0.],\n",
373
" [1.],\n",
374
" [1.],\n",
375
" [1.],\n",
376
" [1.],\n",
377
" [0.],\n",
378
" [1.],\n",
379
" [1.],\n",
380
" [0.],\n",
381
" [1.],\n",
```

```
382
" [0.],\n",
383
" [0.],\n",
384
" [1.],\n",
385
" [1.],\n",
386
" [0.],\n",
387
" [1.],\n",
388
" [1.],\n",
389
" [0.],\n",
390
" [0.],\n",
391
" [0.],\n",
392
" [0.],\n",
393
" [0.],\n",
394
" [0.],\n",
395
" [1.],\n",
```

```
396
" [0.],\n",
397
" [1.],\n",
398
" [0.],\n",
399
" [0.],\n",
400
" [0.],\n",
401
" [0.],\n",
402
" [0.],\n",
403
" [0.],\n",
404
" [0.],\n",
405
" [0.],\n",
406
" [1.],\n",
407
" [0.],\n",
408
" [0.],\n",
409
" [0.],\n",
```

```
410
" [1.],\n",
411
" [0.],\n",
412
" [0.],\n",
413
" [1.],\n",
414
" [0.],\n",
415
" [1.],\n",
416
" [1.],\n",
417
" [0.],\n",
418
" [0.],\n",
419
" [1.],\n",
420
" [1.],\n",
421
" [1.],\n",
422
" [0.],\n",
423
" [0.],\n",
```

```
424
" [0.],\n",
425
" [0.],\n",
426
" [0.],\n",
427
" [1.],\n",
428
" [1.],\n",
429
" [0.],\n",
430
" [0.],\n",
431
" [1.],\n",
432
" [1.],\n",
433
" [0.],\n",
434
" [0.],\n",
435
" [1.],\n",
436
" [0.],\n",
437
" [1.],\n",
```

```
438
" [1.],\n",
439
" [1.],\n",
440
" [1.],\n",
441
" [0.],\n",
442
" [0.],\n",
443
" [0.],\n",
444
" [0.],\n",
445
" [0.],\n",
446
" [0.],\n",
447
" [0.],\n",
448
" [1.],\n",
449
" [0.],\n",
450
" [0.],\n",
451
" [1.],\n",
```

```
452
" [0.],\n",
453
" [1.],\n",
454
" [1.],\n",
455
" [1.],\n",
456
" [0.],\n",
457
" [0.],\n",
458
" [1.],\n",
459
" [0.],\n",
460
" [0.],\n",
461
" [1.],\n",
462
" [1.],\n",
463
" [0.],\n",
464
" [0.],\n",
465
" [0.],\n",
```

```
466
" [0.],\n",
467
" [1.],\n",
468
" [1.],\n",
469
" [1.],\n",
470
" [0.],\n",
471
" [0.],\n",
472
" [1.],\n",
473
" [0.],\n",
474
" [0.],\n",
475
" [1.],\n",
476
" [0.],\n",
477
" [1.],\n",
478
" [1.],\n",
479
" [0.],\n",
```

```
480
" [1.],\n",
481
" [0.]], dtype=float32)"
482
]
483
},
484
"metadata": {},
485
"execution_count": 14
486
}
487
]
488
},
489
{
490
"cell_type": "code",
491
"source": [
492
"print(len(predictions))"
493
],
```

```
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/"
},
"id": "bEnOs5ewlvd7",
"outputId": "f58e5ce5-db13-4b04-c541-0cd7ababdb5e"
},
"execution_count": null,
"outputs": [
{
"output_type": "stream",
"name": "stdout",
"text": [
"121\n"
```

```
]
}
]
},
{
"cell_type": "code",
"source": [
"model.save(\"/content/drive/MyDrive/archive (1)/forest1.h5\")"
],
"metadata": {
"id": "6QLmVFqFlx9Q"
},
"execution_count": null,
"outputs": []
```

```
522
},
523
{
524
"cell_type": "code",
525
"source": [
526
"#import load_model from keras.model\n",
527
"from keras.models import load_model\n",
528
"#import image class from keras\n",
529
"import tensorflow as tf\n",
530
"from tensorflow.keras.preprocessing import image\n",
531
"#import numpy\n",
532
"import numpy as np\n",
533
"#import cv2\n",
534
"import cv2"
535
],
```

```
536
"metadata": {
537
"id": "Jyc3MylSlztP"
538
},
539
"execution_count": null,
540
"outputs": []
541
},
542
{
543
"cell_type": "code",
544
"source": [
545
"model = load_model(\"/content/drive/MyDrive/archive (1)/forest1.h5\")"
546
],
547
"metadata": {
548
"id": "C9eUcTWXmIgP"
549
},
```

```
"execution_count": null,
"outputs": []
},
{
"cell_type": "code",
"source": [
"def predictImage(filename):\n",
" img1 = image.load_img(filename,target_size=(128,128))\n",
" Y = image.img_to_array(img1)\n",
" X = np.expand_dims(Y,axis=0)\n",
" val = model.predict(X)\n",
" print(val)\n",
" if val == 1:\n",
" print(\" fire\")\n",
```

```
" elif val == 0:\n",
" print(\"no fire\")"
],
"metadata": {
"id": "IKU2o8qxmLGO"
},
"execution_count": null,
"outputs": []
},
{
"cell_type": "code",
"source": [
"predictImage(\"/content/drive/MyDrive/Dataset/Dataset/test_set/with fire/19464620_401.jpg\")"
],
```

```
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/"
},
"id": "9Y4J0xcRmMrO",
"outputId": "9b6daec0-186c-4208-e9b6-45287fd84d9d"
},
"execution_count": null,
"outputs": [
{
"output_type": "stream",
"name": "stdout",
"text": [
"1/1 [==============================] - 0s 125ms/step\n",
```

```
592
"[[1.]]\n",
593
" fire\n"
594
]
595
}
596
]
597
},
598
{
599
"cell_type": "code",
600
"source": [
601
"pip install twilio"
602
],
603
"metadata": {
604
"colab": {
605
"base_uri": "https://localhost:8080/"
```

```
},
"id": "L5ro8SE3mO86",
"outputId": "297e1bec-44cb-49a8-dc53-73b15b46cd30"
},
"execution_count": null,
"outputs": [
{
"output_type": "stream",
"name": "stdout",
"text": [
"Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/\n",
"Collecting twilio\n",
" Downloading twilio-7.15.1-py2.py3-none-any.whl (1.4 MB)\n",
"\u001b[K |████████████████████████████████| 1.4 MB 4.9 MB/s \n",
```

"\u001b[?25hRequirement already satisfied: requests>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from twilio) (2.23.0)\n",
"Requirement already satisfied: pytz in /usr/local/lib/python3.7/dist-packages (from twilio) (2022.6)\n",
"Collecting PyJWT<3.0.0,>=2.0.0\n",
" Downloading PyJWT-2.6.0-py3-none-any.whl (20 kB)\n",
"Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests>=2.0.0->twilio) (2.10)\n",
"Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-packages (from requests>=2.0.0->twilio) (3.0.4)\n",
"Requirement already satisfied: urllib3!=1.25.0,!=1.25.1,<1.26,>=1.21.1 in /usr/local/lib/python3.7/dist-packages (from requests>=2.0.0->twilio) (1.24.3)\n",
"Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-packages (from requests>=2.0.0->twilio) (2022.9.24)\n",
"Installing collected packages: PyJWT, twilio\n",
"Successfully installed PyJWT-2.6.0 twilio-7.15.1\n"
]
}

```
]
},
{
"cell_type": "code",
"source": [
"pip install playsound"
],
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/"
},
"id": "u1GFVreJnKlT",
"outputId": "d631c790-2ad6-4f4b-96c8-cb09084bddfb"
},
```

"execution_count": null,

"outputs": [

{

"output_type": "stream",

"name": "stdout",

"text": [

"Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/\n",

"Collecting playsound\n",

" Downloading playsound-1.3.0.tar.gz (7.7 kB)\n",

"Building wheels for collected packages: playsound\n",

" Building wheel for playsound (setup.py) ... \u001b[?25l\u001b[?25hdone\n",

" Created wheel for playsound: filename=playsound-1.3.0-py3-none-any.whl size=7035 sha256=6cc8a594765dc045811d54129bc5e3fbe95669eecf509234f657cb6a9be4eb0c\n",

" Stored in directory: /root/.cache/pip/wheels/ba/f8/bb/ea57c0146b664dca3a0ada4199b0ecb5f9dfcb7b7e22b65ba2\n",

"Successfully built playsound\n",

```
"Installing collected packages: playsound\n",
"Successfully installed playsound-1.3.0\n"
]
}
]
},
{
"cell_type": "code",
"source": [
"#import opencv librariy\n",
"import cv2\n",
"#import numpy\n",
"import numpy as np\n",
"#import image function from keras\n",
```

```
674
"from keras.preprocessing import image\n",
675
"#import load_model from keras\n",
676
"from keras.models import load_model\n",
677
"#import client from twilio API\n",
678
"from twilio.rest import Client\n",
679
"#imort playsound package\n",
680
"from playsound import playsound"
681
],
682
"metadata": {
683
"colab": {
684
"base_uri": "https://localhost:8080/"
685
},
686
"id": "lRYUXaKdnnA_",
687
"outputId": "c0e95e37-90e6-4af0-ca72-c65019c4bf19"
```

```
},
"execution_count": null,
"outputs": [
{
"output_type": "stream",
"name": "stderr",
"text": [
"WARNING:playsound:playsound is relying on another python subprocess. Please use `pip install pygobject` if you want playsound to run more efficiently.\n"
]
}
]
},
{
```

```
"cell_type": "code",
"source": [
"#load the saved model\n",
"model = load_model(r'/content/drive/MyDrive/archive (1)/forest1.h5')\n",
"#define video\n",
"video = cv2.VideoCapture('/content/Fighting Fire with Fire _ Explained in 30 Seconds.mp4')\n",
"#define the features\n",
"name = ['forest','with forest']"
],
"metadata": {
"id": "p6I7mDNen2KO"
},
"execution_count": null,
"outputs": []
```

},
{
"cell_type": "code",
"source": [
"account_sid = 'ACde2b15dad8f6e39c32b35eaa64921cf2'\n",
"auth_token = '1928bb64202abc74a3ff94b70d5deec4'\n",
"client = Client(account_sid, auth_token)\n",
"\n",
"message = client.messages \\\n",
" .create(\n",
" body='Forest fire is detected , stay alert',\n",
" from_='+16075363954',\n",
" to='+919488200286'\n",
")\n",

```
"\n",
"print(message.sid)"
],
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/"
},
"id": "C0mzy3T6oBUu",
"outputId": "79041895-7dda-4771-9d49-f39072dd4bcb"
},
"execution_count": null,
"outputs": [
{
"output_type": "stream",
```

"name": "stdout",
"text": [
"SMcd33e58fa6f60aa349ecba81dce9b48d\n"
]
}
]
}
]
}