In [1]:
```
# https://www.youtube.com/watch?v=J1jhfAw5Uvo
```

In [1]:
```
import numpy as np
```

In [3]:
```
import random
import matplotlib.pyplot as plt
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Conv2D, MaxPooling2D, Dense, Flatten
```

In [4]:
```
X_train = np.loadtxt('F:\Data\input.csv', delimiter = ',')
```

```
---------------------------------------------------------------------------
FileNotFoundError                         Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_15772\3397508607.py in <module>
----> 1 X_train = np.loadtxt('F:\Data\input.csv', delimiter = ',')
      2 # Data imort  form local computer

~\anaconda3\lib\site-packages\numpy\lib\npyio.py in loadtxt(fname, dtype, comments, d
elimiter, converters, skiprows, usecols, unpack, ndmin, encoding, max_rows, quotecha
r, like)
   1371         delimiter = delimiter.decode('latin1')
   1372
-> 1373     arr = _read(fname, dtype=dtype, comment=comment, delimiter=delimiter,
   1374                 converters=converters, skiplines=skiprows, usecols=usecols,
   1375                 unpack=unpack, ndmin=ndmin, encoding=encoding,

~\anaconda3\lib\site-packages\numpy\lib\npyio.py in _read(fname, delimiter, comment,
quote, imaginary_unit, usecols, skiplines, max_rows, converters, ndmin, unpack, dtyp
e, encoding)
    990             fname = os.fspath(fname)
    991         if isinstance(fname, str):
--> 992             fh = np.lib._datasource.open(fname, 'rt', encoding=encoding)
    993             if encoding is None:
    994                 encoding = getattr(fh, 'encoding', 'latin1')

~\anaconda3\lib\site-packages\numpy\lib\_datasource.py in open(path, mode, destpath,
encoding, newline)
    191
    192     ds = DataSource(destpath)
--> 193     return ds.open(path, mode, encoding=encoding, newline=newline)
    194
    195

~\anaconda3\lib\site-packages\numpy\lib\_datasource.py in open(self, path, mode, enco
ding, newline)
    531                                       encoding=encoding, newline=newline)
    532         else:
--> 533             raise FileNotFoundError(f"{path} not found.")
    534
    535

FileNotFoundError: F:\Data\input.csv not found.
```

In [ ]:
```

```

In [3]:

```
Y_train = np.loadtxt('F:\Data\labels.csv', delimiter = ',')
X_test = np.loadtxt('F:\Data\input_test.csv', delimiter = ',')
Y_test = np.loadtxt('F:\Data\labels_test.csv', delimiter = ',')
```

In [4]:

```
X_train = X_train.reshape(len(X_train), 100, 100, 3)
Y_train = Y_train.reshape(len(Y_train), 1)

X_test = X_test.reshape(len(X_test), 100, 100, 3)
Y_test = Y_test.reshape(len(Y_test), 1)

X_train = X_train/255.0
X_test = X_test/255.0
```

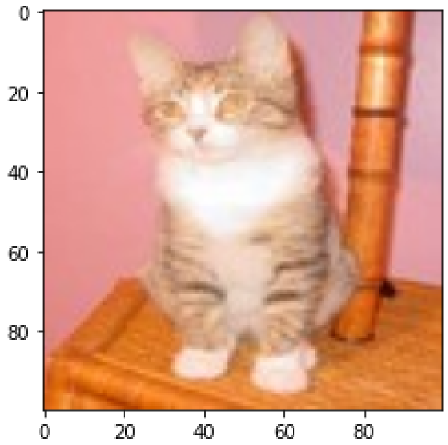
In [5]:

```
print("Shape of X_train: ", X_train.shape)
print("Shape of Y_train: ", Y_train.shape)
print("Shape of X_test: ", X_test.shape)
print("Shape of Y_test: ", Y_test.shape)
```

```
Shape of X_train:  (2000, 100, 100, 3)
Shape of Y_train:  (2000, 1)
Shape of X_test:  (400, 100, 100, 3)
Shape of Y_test:  (400, 1)
```

In [17]:

```
idx = random.randint(0, len(X_train))
plt.imshow(X_train[idx])
plt.show()
```



In [7]:

```
model = Sequential()

model.add(Conv2D(32, (3,3), activation = 'relu', input_shape = (100, 100, 3)))
model.add(MaxPooling2D((2,2)))

model.add(Conv2D(32, (3,3), activation = 'relu'))
model.add(MaxPooling2D((2,2)))

model.add(Flatten())
model.add(Dense(64, activation = 'relu'))
model.add(Dense(1, activation = 'sigmoid'))
```

In [8]:

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

In [9]:

```
model.fit(X_train, Y_train, epochs = 5, batch_size = 64)
```

```
Epoch 1/5
32/32 [==============================] - 20s 336ms/step - loss: 0.7220 - accuracy: 0.
5210
Epoch 2/5
32/32 [==============================] - 11s 335ms/step - loss: 0.6701 - accuracy: 0.
5975
Epoch 3/5
32/32 [==============================] - 11s 337ms/step - loss: 0.6095 - accuracy: 0.
6680
Epoch 4/5
32/32 [==============================] - 11s 333ms/step - loss: 0.5404 - accuracy: 0.
7340
Epoch 5/5
32/32 [==============================] - 11s 338ms/step - loss: 0.4994 - accuracy: 0.
7590
```

Out[9]:

```
<keras.callbacks.History at 0x26c97629a50>
```

In [15]:

```
model.evaluate(X_test, Y_test)
```

```
13/13 [==============================] - 1s 36ms/step - loss: 0.6059 - accuracy: 0.69
00
```

Out[15]:

```
[0.6059412360191345, 0.6899999976158142]
```

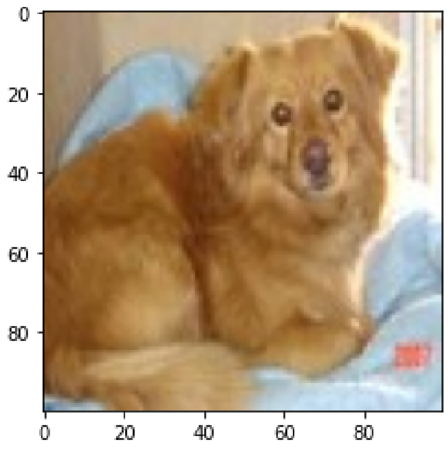
In [21]:

```
idx2 = random.randint(0, len(Y_test))
plt.imshow(X_test[idx2, :])
plt.show()

y_pred = model.predict(X_test[idx2, :].reshape(1, 100, 100, 3))
y_pred = y_pred > 0.5

if(y_pred == 0):
    pred = 'dog'
else:
    pred = 'cat'

print("Our model says it is a :", pred)
```



```
1/1 [==============================] - 0s 39ms/step
Our model says it is a : dog
```

In [ ]: