In [1]:

```python
#import required library
import numpy as np
import pandas as pd
```

In [ ]:

In [35]:

```python
#Read dataset
from google.colab import files


uploaded = files.upload()
```

Choose File **No file selected**

Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.

Saving spam.csv to spam (1).csv

In [24]:

```python
#Create model
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import LSTM, Dense
from tensorflow.keras.layers import Convolution2D, MaxPooling2D, Flatten, Dense
```

In [25]:

```python
#Add Layers
model = Sequential()
model.add(LSTM(50, input_shape=(60, 1),return_sequences=True))
model.add(LSTM(50,return_sequences=True))
model.add(LSTM(50,return_sequences=True))
model.add(LSTM(50,return_sequences=True))
model.add(Dense(1))
model.add(Dense(300,activation='relu')) # Hidden layer 1
model.add(Dense(150,activation='relu')) # Hidden layer 2
model.add(Dense(4,activation='softmax')) # Output layer
```

In [26]:

```python
#Compile the model
model.compile(optimizer='adam',loss='mse')
```

In [33]:

```python
#Fit the model
from sklearn.model_selection import train_test_split
x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.33, random_state=42)
model.fit_generator(xtrain,
                    steps_per_epoch=len(xtrain),
                    epochs=10,
                    validation_data=xtest,
                    validation_steps=len(xtest))
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-33-89bca00cd962> in <module>
      1 #Fit the model
      2 from sklearn.model_selection import train_test_split
----> 3 x train, x test, y train, y test = train test split(x, y, test size=0.33, random
```

```
_state=42)
      4 model.fit_generator(xtrain,
      5                     steps_per_epoch=len(xtrain),

NameError: name 'x' is not defined
```

In [34]:

```
#Save the model
model.save('LSTM.h5')
```

In [43]:

```
#Test the model
```

In [ ]: