

Assignment - 4**Team ID : PNT2022TMID45080****Date : 19 November , 2022**

- Download the Dataset**

In [4]:

Mounted at /content/gdrive

In [5]:

Out[5]:

| | v1 | v2 | Unnamed: 2 | Unnamed: 3 | Unnamed: 4 |
|---|------|---|------------|------------|------------|
| 0 | ham | Go until jurong point, crazy.. Available only ... | NaN | NaN | NaN |
| 1 | ham | Ok lar... Joking wif u oni... | NaN | NaN | NaN |
| 2 | spam | Free entry in 2 a wkly comp to win FA Cup fina... | NaN | NaN | NaN |
| 3 | ham | U dun say so early hor... U c already then say... | NaN | NaN | NaN |
| 4 | ham | Nah I don't think he goes to usf, he lives aro... | NaN | NaN | NaN |

- Import required library**

In [16]:

- Read dataset and do pre-processing**

In [6]:

```
<class
'pandas.core.frame.DataFrame'>RangeIndex: 5572
entries, 0 to 5571
Data columns (total 2 columns):
#   Column  Non-Null Count  Dtype

```

| | | | |
|---|----|---------------|--------|
| 0 | v1 | 5572 non-null | object |
| 1 | v2 | 5572 non-null | object |

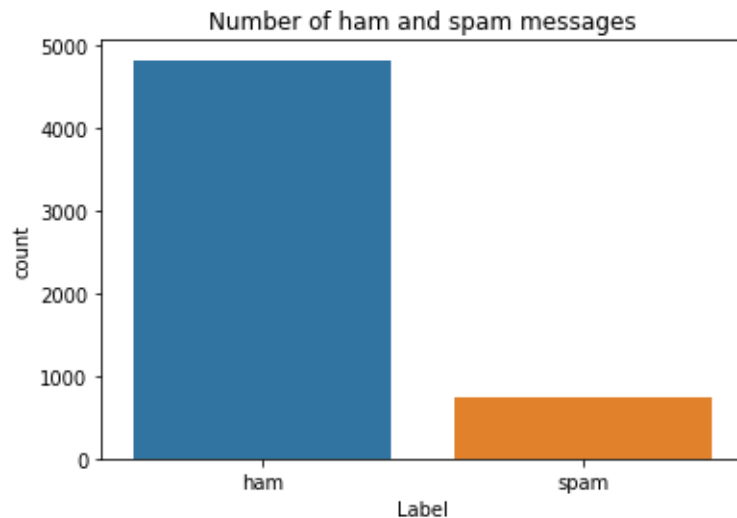
```
dtypes: object(2)
memory usage: 87.2+ KB
```

In [7]:

```
/usr/local/lib/python3.7/dist-packages/seaborn/_decorators.py:43: FutureWarning: Pass the following variable as a keyword arg: x. From version 0.12, the only valid positional argument will be `data`, and passing other arguments without an explicit keyword will result in an error or misinterpretation.
```

```
F  
ut  
ur  
eW  
ar  
ni  
ng  
Ou  
t[  
7]  
:
```

```
Text(0.5, 1.0, 'Number of ham and spam messages')
```



- **Create Model**

In [8]:

In [9]:

In [17]:

- **Add Layers (LSTM, Dense-(Hidden Layers), Output)**

In [18]:

- **Compile the Model**

In [19]:

Model: "model"

| Layer (type) | Output Shape | Param # |
|---------------------------|-----------------|---------|
| ===== | | |
| inputs (InputLayer) | [(None, 150)] | 0 |
| embedding (Embedding) | (None, 150, 50) | 50000 |
| lstm (LSTM) | (None, 64) | 29440 |
| FC1 (Dense) | (None, 256) | 16640 |
| activation (Activation) | (None, 256) | 0 |
| dropout (Dropout) | (None, 256) | 0 |
| out_layer (Dense) | (None, 1) | 257 |
| activation_1 (Activation) | (None, 1) | 0 |

=====

Total params: 96,337
 Trainable params: 96,337
 Non-trainable params: 0

- **Fit the Model**

In [20]:

Epoch 1/10
 30/30 [=====] - 12s 305ms/step - loss: 0.3157 - accuracy: 0.8762 - val_loss: 0.1607 - val_accuracy: 0.9747
 Epoch 2/10
 30/30 [=====] - 9s 285ms/step - loss: 0.0761 - ac

```
curacy: 0.9813 - val_loss: 0.0772 -  
val_accuracy: 0.9778Out[20]:  
<keras.callbacks.History at 0x7f853b80bd10>
```

- **Save and Test The Model**

In [22]:

11/2/22, 9:34 PM

Assignment_4(Chandira_Seikaran_N_S)

In [23]:

```
27/27 [=====] - 1s 39ms/step - loss: 0.0361 - acc  
uracy: 0.9916
```

In [24]:

Test set

Loss: 0.036

Accuracy: 0.992