# Assignment -4

# **SMS SPAM Classification**

Assignment Date	22 October 2022
Student Name	Ishani S
Student Roll Number	211419104107
Maximum Marks	2 Marks

# Question-1:

Download the dataset

### Question-2:

Import required library

**Solution** import nltk import pandas as pd import re

from nltk.corpus import stopwords from nltk.stem.porter import PorterStemmer from sklearn.feature\_extraction.text import CountVectorizer from sklearn.model\_selection import train\_test\_split from tensorflow.keras.models import Sequential from tensorflow.keras.layers import Dense

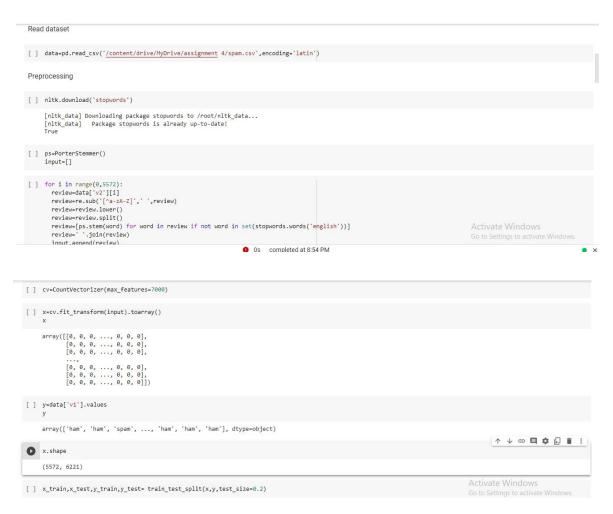


### Question-3:

Read dataset and do pre-processing

Solution

```
data=pd.read_csv('/content/drive/MyDrive/assignment 4/spam.csv',encoding='latin')
nltk.download('stopwords') ps=PorterStemmer() input=[] for i in range(0,5572):
review=data['v2'][i] review=re.sub('[^a-zA-Z]',' ',review)
review=review.lower() review=review.split() review=[ps.stem(word) for word in review
if not word in set(stopwords.words('english'))] review=' '.join(review)
input.append(review) cv=CountVectorizer(max_features=7000)
x=cv.fit_transform(input).toarray() y=data['v1'].values x_train,x_test,y_train,y_test=
train_test_split(x,y,test_size=0.2)
```



#### Question-4:

Create Model

#### **Solution**

model=Sequential()

#### Question-5:

Add Layers (LSTM, Dense-(Hidden Layers), Output) **Solution** model.add(Dense(units=6221,activation='relu'))

model.add(Dense(units=7000,activation='relu'))

model.add(Dense(units=1,activation='sigmoid'))



# Question-6:

# Compile The Model

#### **Solution**

model.compile(optimizer='adam',loss='binary\_crossentropy',metrics=['accuracy'])



### Question-7:

# Fit The Model

#### **Solution**

model.fit(x\_train,y\_train,epochs=5)



# Question-7:

#### Save The Model

### **Solution**

model.save("Flowers.h5")

Fit the model
[ ] model.save('spam.h5')