In [1]:
```python
import pandas as pd
```

In [2]:
```python
mydata=pd.read_table(r"C:\Users\ANKIT SINGH\Desktop\internship\Files\SMSSpamCollection")
```

```
C:\Users\ANKIT SINGH\Anaconda3\lib\site-packages\ipykernel_launcher.py:1: FutureWarning: read_table is deprecated, use read_csv instead, passing sep
='\t'.
  """Entry point for launching an IPython kernel.
```

In [3]: `mydata`

Out[3]:

	ham	Go until jurong point, crazy.. Available only in bugis n great world la e buffet... Cine there got amore wat...
0	ham	Ok lar... Joking wif u oni...
1	spam	Free entry in 2 a wkly comp to win FA Cup fina...
2	ham	U dun say so early hor... U c already then say...
3	ham	Nah I don't think he goes to usf, he lives aro...
4	spam	FreeMsg Hey there darling it's been 3 week's n...
5	ham	Even my brother is not like to speak with me. ...
6	ham	As per your request 'Melle Melle (Oru Minnamin...
7	spam	WINNER!! As a valued network customer you have...
8	spam	Had your mobile 11 months or more? U R entitle...
9	ham	I'm gonna be home soon and i don't want to tal...
10	spam	SIX chances to win CASH! From 100 to 20,000 po...
11	spam	URGENT! You have won a 1 week FREE membership ...
12	ham	I've been searching for the right words to tha...
13	ham	I HAVE A DATE ON SUNDAY WITH WILL!!
14	spam	XXXMobileMovieClub: To use your credit, click ...
15	ham	Oh k...i'm watching here:)
16	ham	Eh u remember how 2 spell his name... Yes i di...
17	ham	Fine if that□s the way u feel. That□s the way ...
18	spam	England v Macedonia - dont miss the goals/team...
19	ham	Is that seriously how you spell his name?
20	ham	I'm going to try for 2 months ha ha only joking
21	ham	So ü pay first lar... Then when is da stock co...
22	ham	Aft i finish my lunch then i go str down lor. ...
23	ham	Fffffffff. Alright no way I can meet up with ...
24	ham	Just forced myself to eat a slice. I'm really ...

	ham	Go until jurong point, crazy.. Available only in bugis n great world la e buffet... Cine there got amore wat...
25	ham	Lol your always so convincing.
26	ham	Did you catch the bus ? Are you frying an egg ...
27	ham	I'm back & we're packing the car now, I'll...
28	ham	Ahhh. Work. I vaguely remember that! What does...
29	ham	Wait that's still not all that clear, were you...
...	...	...
5541	ham	Armand says get your ass over to epsilon
5542	ham	U still havent got urself a jacket ah?
5543	ham	I'm taking derek & taylor to walmart, if I...
5544	ham	Hi its in durban are you still on this number
5545	ham	Ic. There are a lotta childporn cars then.
5546	spam	Had your contract mobile 11 Mnths? Latest Moto...
5547	ham	No, I was trying it all weekend ;V
5548	ham	You know, wot people wear. T shirts, jumpers, ...
5549	ham	Cool, what time you think you can get here?
5550	ham	Wen did you get so spiritual and deep. That's ...
5551	ham	Have a safe trip to Nigeria. Wish you happines...
5552	ham	Hahaha..use your brain dear
5553	ham	Well keep in mind I've only got enough gas for...
5554	ham	Yeh. Indians was nice. Tho it did kane me off ...
5555	ham	Yes i have. So that's why u texted. Pshew...mi...
5556	ham	No. I meant the calculation is the same. That ...
5557	ham	Sorry, I'll call later
5558	ham	if you aren't here in the next <#> hou...
5559	ham	Anything lor. Juz both of us lor.
5560	ham	Get me out of this dump heap. My mom decided t...
5561	ham	Ok lor... Sony ericsson salesman... I ask shuh...

	ham	Go until jurong point, crazy.. Available only in bugis n great world la e buffet... Cine there got amore wat...
5562	ham	Ard 6 like dat lor.
5563	ham	Why don't you wait 'til at least wednesday to ...
5564	ham	Huh y lei...
5565	spam	REMINDER FROM O2: To get 2.50 pounds free call...
5566	spam	This is the 2nd time we have tried 2 contact u...
5567	ham	Will ü b going to esplanade fr home?
5568	ham	Pity, * was in mood for that. So...any other s...
5569	ham	The guy did some bitching but I acted like i'd...
5570	ham	Rofl. Its true to its name

5571 rows × 2 columns

```
In [4]: mydata=pd.read_table(r"C:\Users\ANKIT SINGH\Desktop\internship\Files\SMSSpamCollection",sep='\t',header=None,names=['Target','Message'])
```

```
C:\Users\ANKIT SINGH\Anaconda3\lib\site-packages\ipykernel_launcher.py:1: FutureWarning: read_table is deprecated, use read_csv instead.
  """Entry point for launching an IPython kernel.
```

In [5]: `mydata`

Out[5]:

	Target	Message
0	ham	Go until jurong point, crazy.. Available only ...
1	ham	Ok lar... Joking wif u oni...
2	spam	Free entry in 2 a wkly comp to win FA Cup fina...
3	ham	U dun say so early hor... U c already then say...
4	ham	Nah I don't think he goes to usf, he lives aro...
5	spam	FreeMsg Hey there darling it's been 3 week's n...
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22	ham	So ü pay first lar... Then when is da stock co...
23	ham	Aft i finish my lunch then i go str down lor. ...
24	ham	Ffffffffff. Alright no way I can meet up with ...

	Target	Message
25	ham	Just forced myself to eat a slice. I'm really ...
26	ham	Lol your always so convincing.
27	ham	Did you catch the bus ? Are you frying an egg ...
28	ham	I'm back & we're packing the car now, I'll...
29	ham	Ahhh. Work. I vaguely remember that! What does...
...	...	...
5542	ham	Armand says get your ass over to epsilon
5543	ham	U still havent got urself a jacket ah?
5544	ham	I'm taking derek & taylor to walmart, if I...
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5559	ham	if you aren't here in the next <#> hou...
5560	ham	Anything lor. Juz both of us lor.
5561	ham	Get me out of this dump heap. My mom decided t...
5562	ham	Ok lor... Sony ericsson salesman... I ask shuh...

	Target	Message
5563	ham	Ard 6 like dat lor.
5564	ham	Why don't you wait 'til at least wednesday to ...
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5568	ham	Will ü b going to esplanade fr home?
5569	ham	Pity, * was in mood for that. So...any other s...
5570	ham	The guy did some bitching but I acted like i'd...
5571	ham	Rofl. Its true to its name

5572 rows × 2 columns

In [6]:
```python
mydata[:2]
```

Out[6]:

	Target	Message
0	ham	Go until jurong point, crazy.. Available only ...
1	ham	Ok lar... Joking wif u oni...

In [7]:
```python
X_input=mydata["Message"]    #selecting feaures or inputs
Y_out=mydata["Target"]       #selscting labels or outputs
```

In [8]:
```python
from sklearn.model_selection import train_test_split
```

In [9]:
```python
#train_test_split is used to convert data explicitly
Xtrain,Xtest,Ytrain,Ytest=train_test_split(X_input,Y_out,test_size=.30,random_state=101)
```

In [10]:
```python
#analysis of shapes of training and testing
print("Shape of Xtrain is {}".format(Xtrain.shape))
print("Shape of Ytrain is {}".format(Ytrain.shape))
print("Shape of Xtest is {}".format(Xtest.shape))
print("Shape of Ytest is {}".format(Ytest.shape))
```

```
Shape of Xtrain is (3900,)
Shape of Ytrain is (3900,)
Shape of Xtest is (1672,)
Shape of Ytest is (1672,)
```

In [11]:
```python
from sklearn.feature_extraction.text import CountVectorizer
```

In [12]:
```python
cont_vect=CountVectorizer()
```

In [13]:
```python
training_data=cont_vect.fit(Xtrain).transform(Xtrain)
testing_data=cont_vect.transform(Xtest)
```

In [14]:
```python
print(f"Shape of training_data is {training_data.shape}")
```

```
Shape of training_data is (3900, 7245)
```

In [15]:
```python
training_data
```

Out[15]:
```
<3900x7245 sparse matrix of type '<class 'numpy.int64'>'
        with 52600 stored elements in Compressed Sparse Row format>
```

In [16]:
```python
# Using Naive_Bayes
from sklearn.naive_bayes import MultinomialNB
```

In [17]:
```python
myobj=MultinomialNB()
```

In [18]:
```python
learner=myobj.fit(training_data,Ytrain)
```

In [19]:
```python
Yp=learner.predict(training_data)
Ya=Ytrain
```

In [20]:
```python
from sklearn.metrics import accuracy_score,confusion_matrix
```

In [21]:
```python
acc=accuracy_score(Yp,Ya)*100
print(acc)
```

99.3076923076923

In [22]:
```python
Text_message=['Hello I miss you so much']
```

In [23]:
```python
learner.predict(cont_vect.transform(Text_message))
```

Out[23]: array(['ham'], dtype='<U4')

In [24]:
```python
cm=confusion_matrix(Ya,Yp)
```

In [25]:
```python
cm
```

Out[25]: array([[3341,   9],
              [18, 532]], dtype=int64)

In [26]:
```python
table=pd.DataFrame({'Ya':Ya,'Yp':Yp})
```

In [27]:
```python
pd.crosstab(table.Ya,table.Yp,rownames=['Ya'],colnames=['Yp'],margins=True)
#this will telling 20 spams to ham
```

Out[27]:

Yp	ham	spam	All
Ya			
ham	3341	9	3350
spam	18	532	550
All	3359	541	3900