Model Development Phase Template

Date	15 March 2024
Team ID	LTVIP2024TMID24955
Project Title	SMS Spam Detection - AIML
Maximum Marks	4 Marks

Initial Model Training Code, Model Validation and Evaluation Report

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include classification reports, accuracy, and confusion matrices for multiple models, presented through respective screenshots.

Initial Model Training Code:

Paste the screenshot of the model training code

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
Multinomial Naive Bayes	Screenshot of the classification report	0.9681	Screenshot of the confusion matrix
SVC(sigmoid)	Screenshot of the classification report	0.9652	Screenshot of the confusion matrix
SVC(rbf)		0.9623	…
Decision Tree Classifier		0.9497	

MODEL -- SVC(rbf) ** ACCURACY -- [0.9623]

```
y_pred6=dt.predict(X_test)
from sklearn.metrics import accuracy_score
dec_tree=accuracy_score(y_test,y_pred6)
dec_tree
```

```
0.9497584541062802
```

```
models = pd.DataFrame({
    'Model': ['MultinomialNB','SVC(rbf)','SVC(sigmoid)','DecisionTreeClassifier'],
    'Test Score': [score,svm_rbf,svm_sig,dec_tree]})
models.sort_values(by='Test Score', ascending=False)
```

	Model	Test Score
0	MultinomialNB	0.968116
2	SVC(sigmoid)	0.965217
1	SVC(rbf)	0.962319
3	DecisionTreeClassifier	0.949758

MODEL – Decision tree classifier ** ACCURACY – [0.9497]

Model Evaluation

```
from sklearn.metrics import confusion_matrix,accuracy_score
cm = confusion_matrix(y_test, y_pred)
score = accuracy_score(y_test,y_pred)
print(cm)
print('Accuracy Score Is:- ', score*100)
```

```
[[716  16]
 [ 17 286]]
Accuracy Score Is:-  96.81159420289856
```

```
from sklearn.svm import SVC
svm1=SVC(kernel='rbf')
svm1.fit(X_train,y_train)
```

```
SVC()
```

```
y_pred4=svm1.predict(X_test)
from sklearn.metrics import accuracy_score
svm_rbf=accuracy_score(y_test,y_pred4)
svm_rbf
```

```
0.9623188405797102
```