

Model Development Phase Template

Date	10 April 2025
Team ID	259453
Project Title	SMS Spam Detection using NLP
Maximum Marks	10 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 a summary and training and validation performance metrics for multiple models, presented through respective screenshots.

Initial Model Training Code (5 marks):

```
[ ] # Step 7: Train-Test Split
    X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

[ ] # Step 8: Model Training (Multinomial Naive Bayes)
    model = MultinomialNB()
    model.fit(X_train, y_train)
```

▼ MultinomialNB ⓘ ?
MultinomialNB()

Model Validation and Evaluation Report (5 marks):

Model	Summary	Training and Validation Performance Metrics
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Model 1

```

y_pred = model.predict(X_test)

print("Accuracy:", accuracy_score(y_test, y_pred))
print("Classification Report:\n", classification_report(y_test, y_pred))

# Confusion matrix
sns.heatmap(confusion_matrix(y_test, y_pred), annot=True, fmt='d', cmap='Blues')
plt.xlabel("Predicted")
plt.ylabel("Actual")
plt.title("Confusion Matrix")
plt.show()

```

