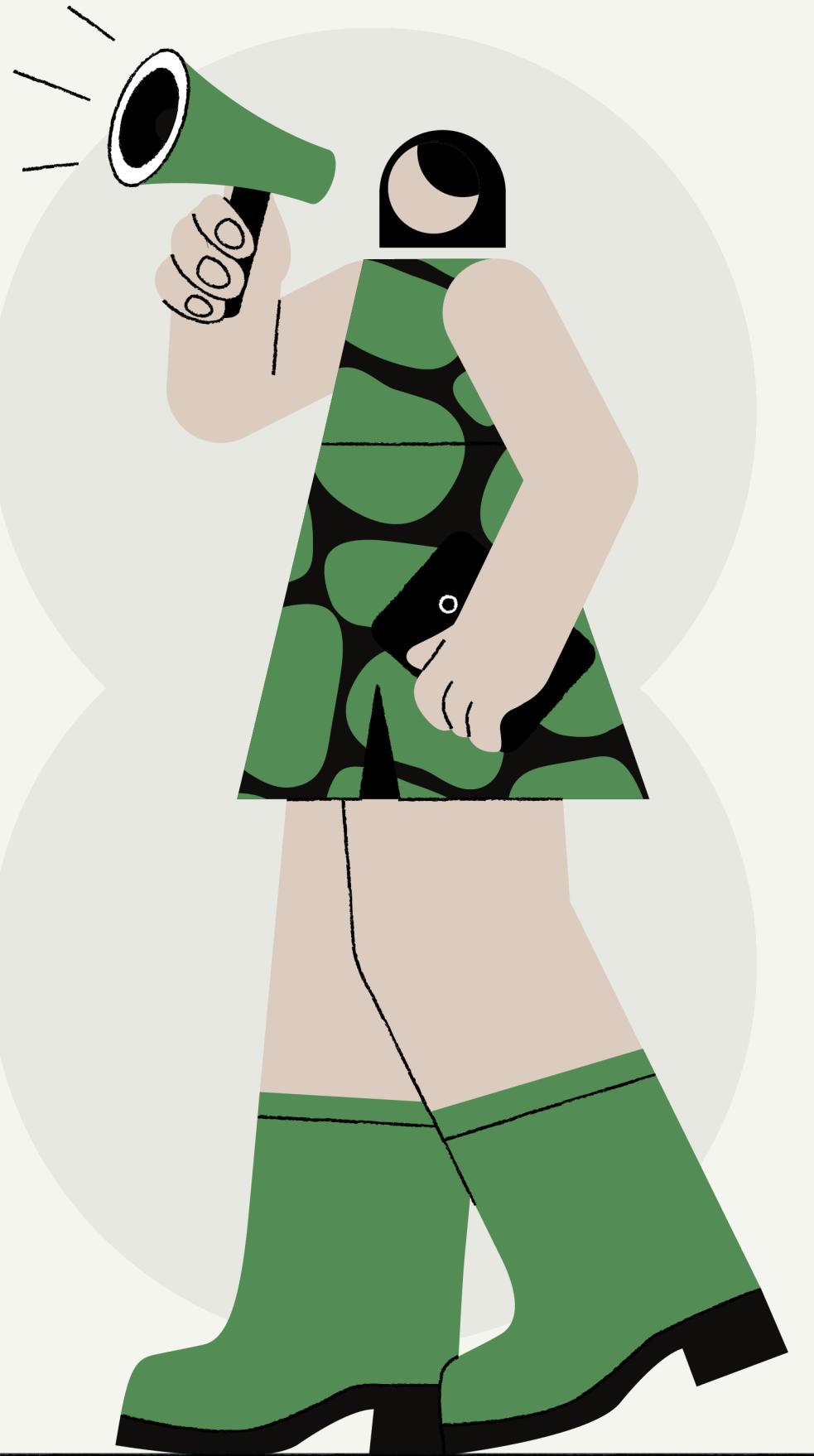


Twitter Sentimental Analysis



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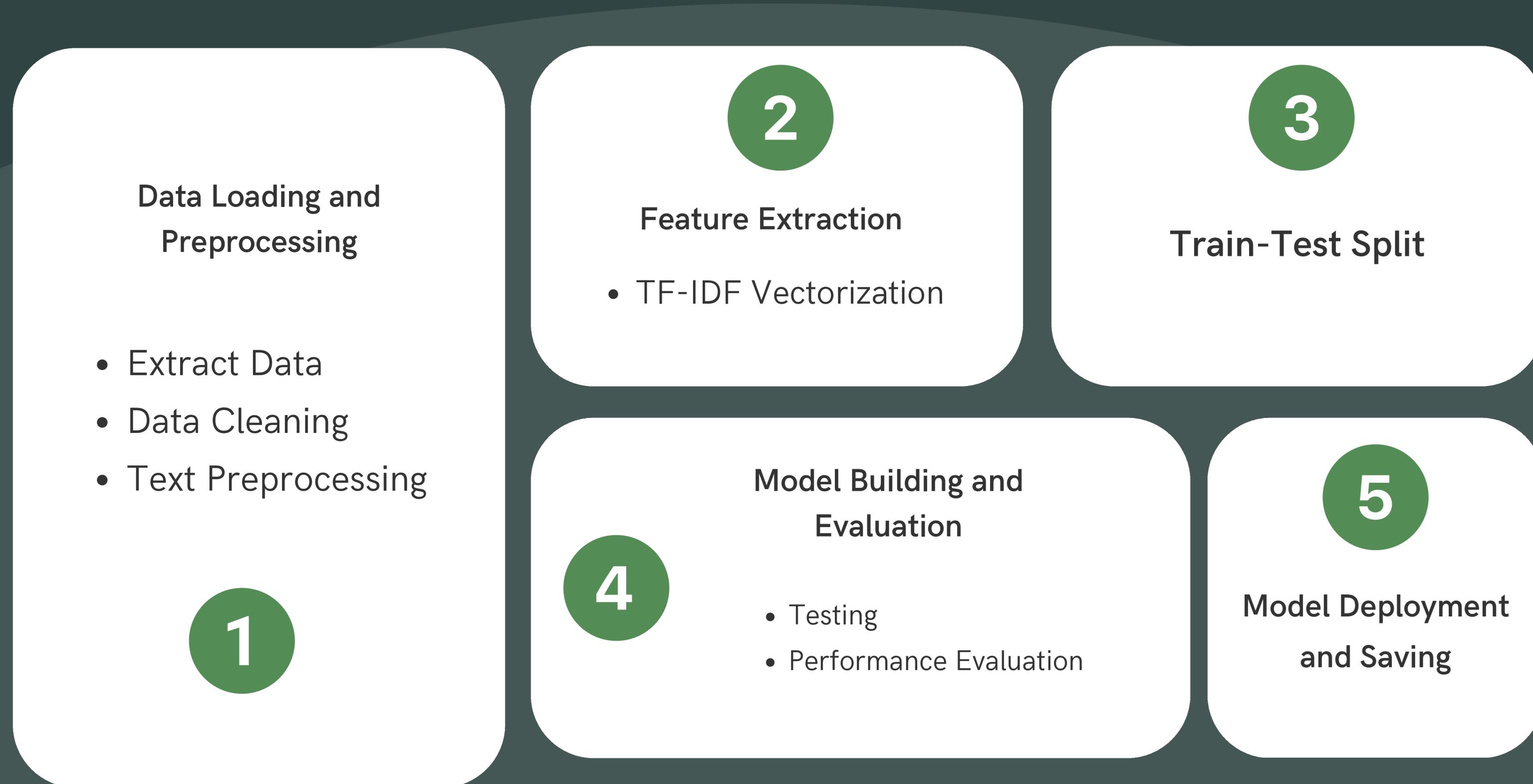


Problem Statement

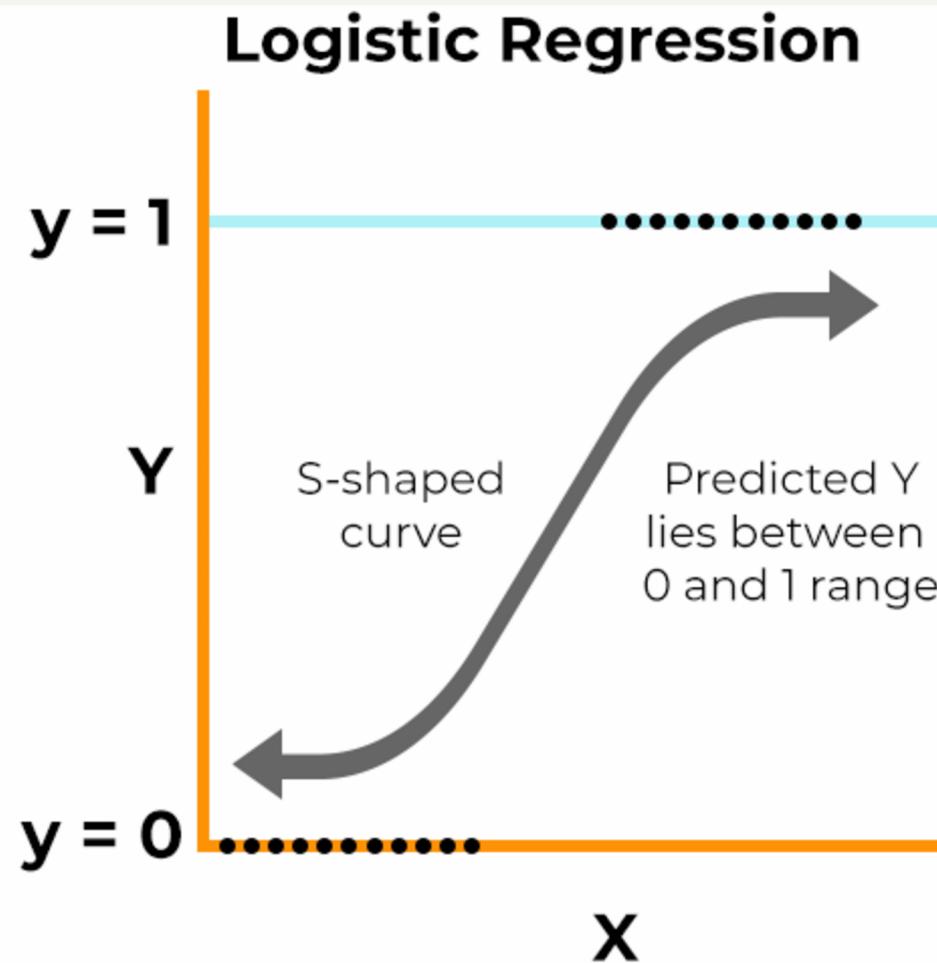
As social media continues to influence public opinion, there is a growing need for effective sentiment analysis tools. This project focuses on classifying sentiments in 1.6 million tweets from the Sentiment140 dataset, providing valuable insights for businesses and researchers to better understand public sentiment and enhance decision-making.



Project Workflow



Model Building



What is Logistic Regression?

Logistic Regression is a binary classification algorithm used to predict the probability of an outcome (e.g., positive or negative sentiment).

How Does It Work?

It models the probability of the positive class using the sigmoid (logistic) function.

Sigmoid Function Formula:

$$P(y = 1|x) = \frac{1}{1 + e^{-(w \cdot x + b)}}$$

Model Evaluation

Model Evaluation

```
# accuracy score on training data
X_train_prediction = model.predict(X_train)
training_data_accuracy = accuracy_score(Y_train ,X_train_prediction)

print('Accuracy Score on Training Data : ' , training_data_accuracy)
```

Accuracy Score on Training Data : 0.79812734375

```
# accuracy score on test data
X_test_prediction = model.predict(X_test)
test_data_accuracy = accuracy_score(Y_test ,X_test_prediction)

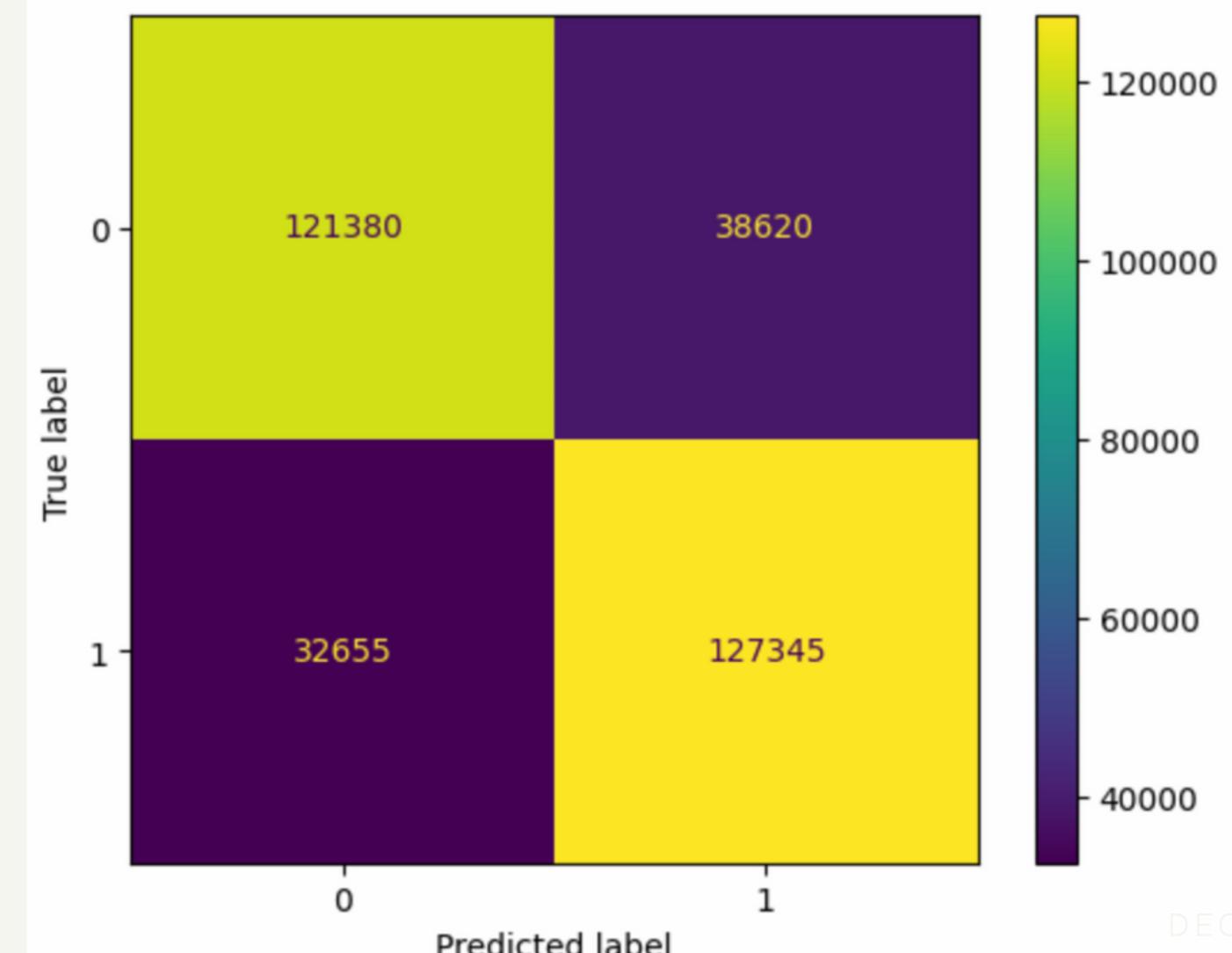
print('Accuracy Score on Test Data : ' , test_data_accuracy)
```

Accuracy Score on Test Data : 0.777265625

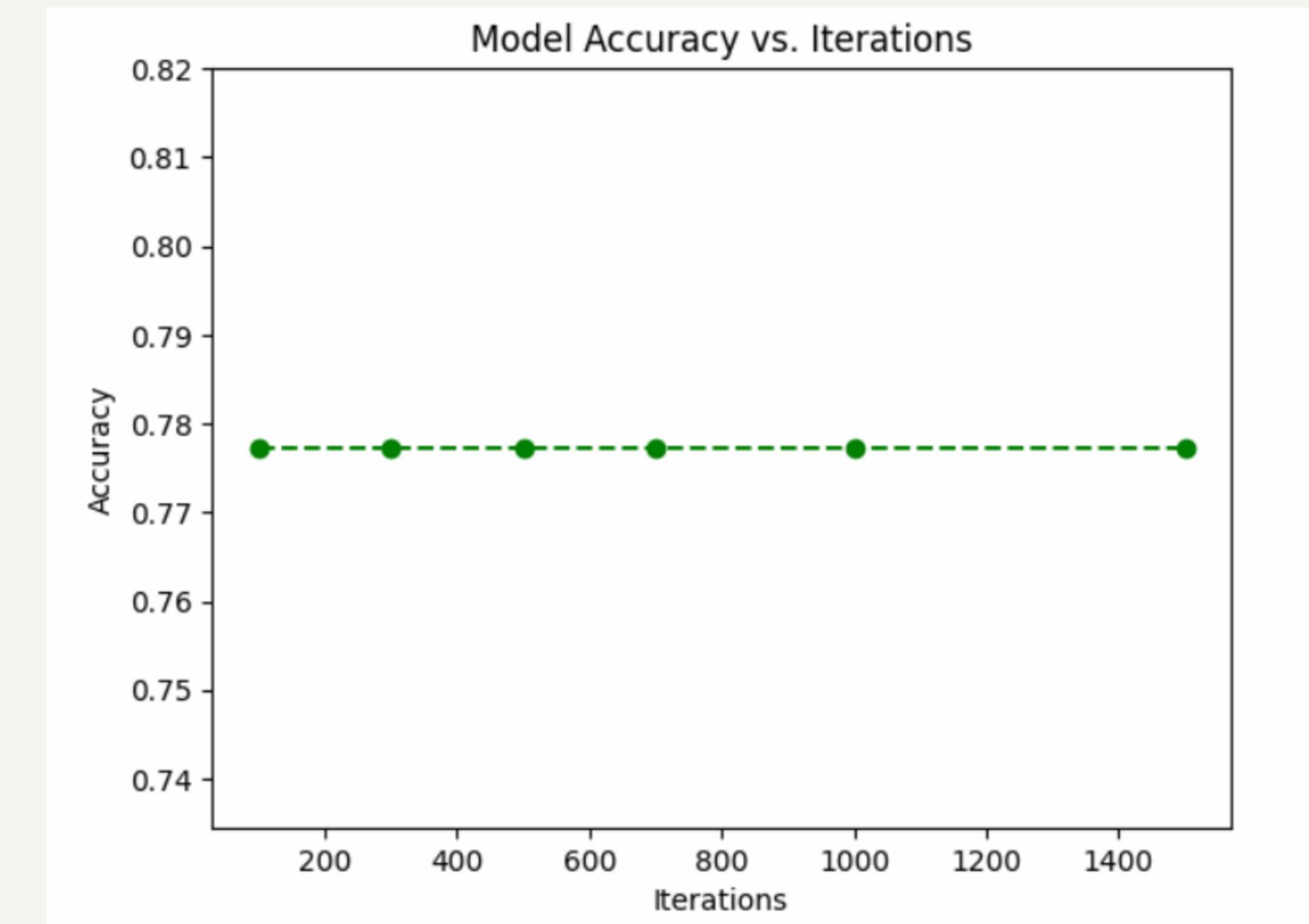
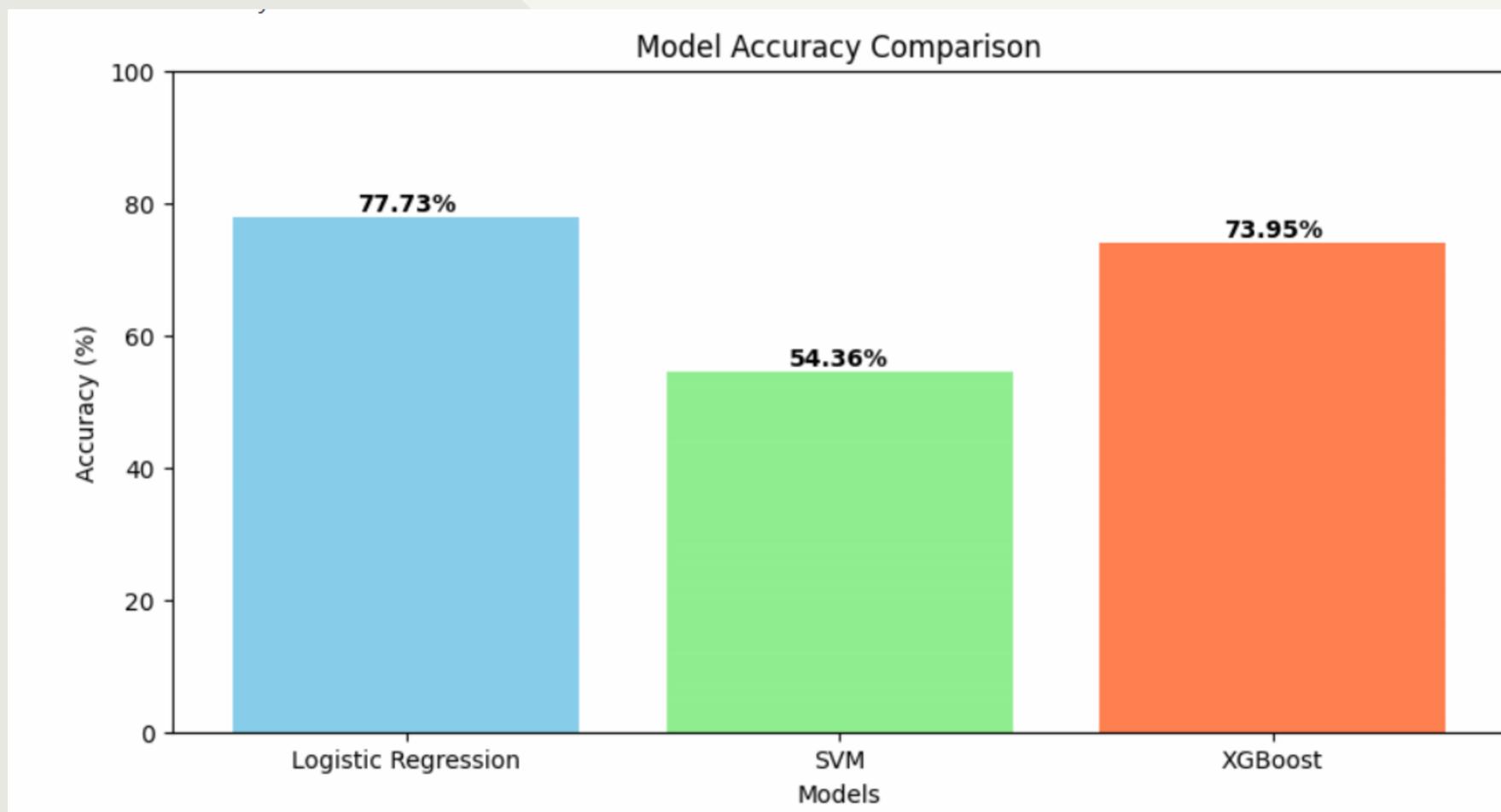
Model Accuracy = 77.8%

```
# Confusion Matrix
cm = confusion_matrix(Y_test, X_test_prediction)
ConfusionMatrixDisplay(cm).plot()
```

<sklearn.metrics._plot.confusion_matrix.ConfusionMatrixDisplay at 0x79b9dd30f760>



Results



Applications

Brand Monitoring:

Companies can track public sentiment toward their brand or products by analyzing tweets.

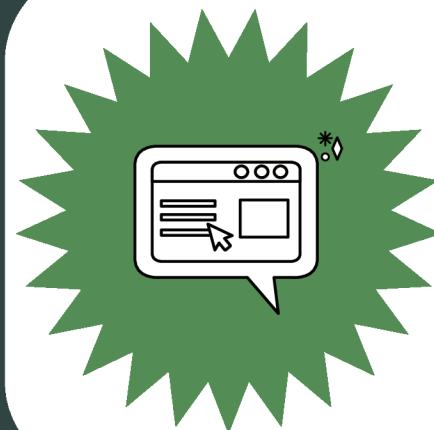
Market Research:

Businesses can analyze consumer opinions on trends, products, or services.

Political Sentiment:

Analyze public opinion about political candidates, policies, or events.

Refference



Scikit-learn Documentation



NLTK Documentaion



Kaggle Dataset