Sentiment Analysis Model

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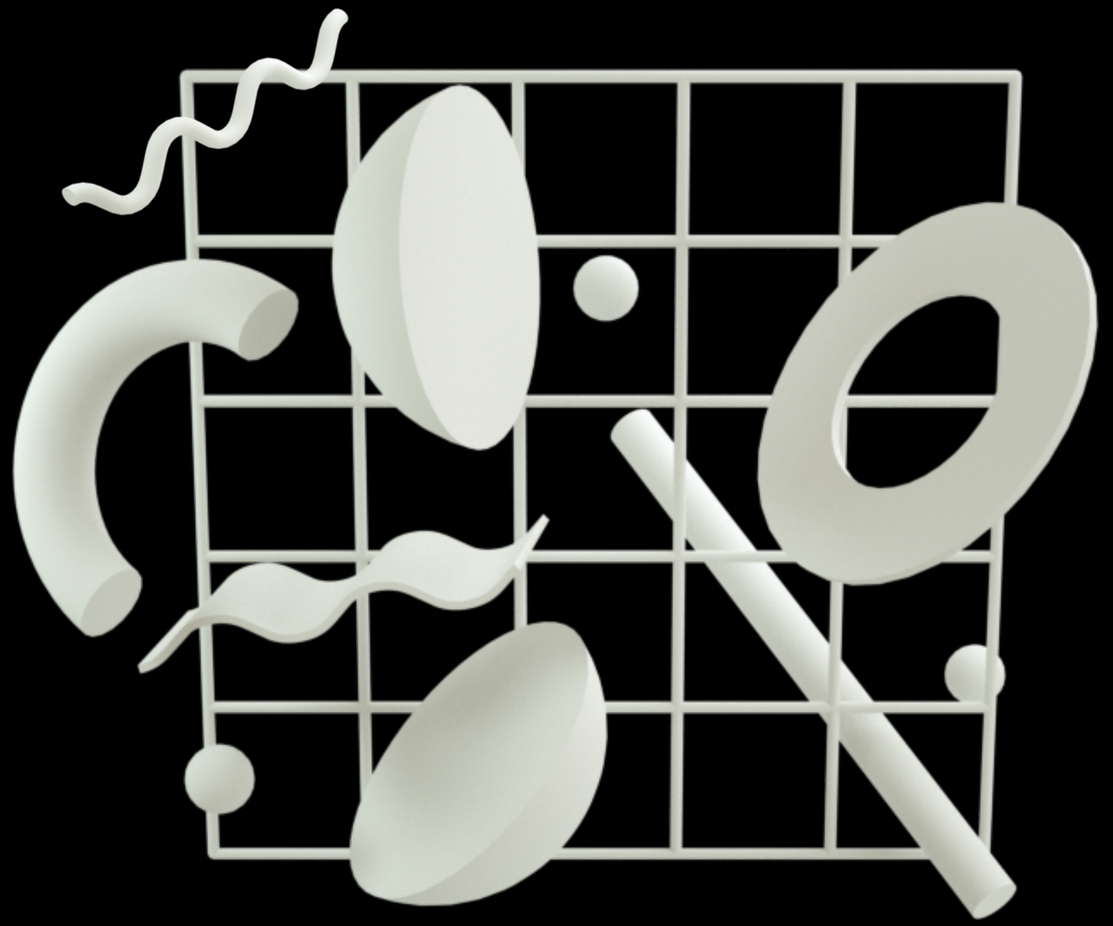
Introduction

Our goal is to build a sentiment analysis model using supervised learning

Dummy Classifier
Vanilla RNN
LSTM RNN

Problem Statement

The problem at hand involves developing robust sentiment analysis models capable of accurately discerning between positive and negative sentiments within a diverse dataset



DATASET

Our dataset, the "Sentiment Labelled Sentences Dataset," serves as the foundation for our sentiment analysis exploration. Sourced from the UC Irvine Machine Learning Repository

METHODOLOGY

Gathering the dataset from UCI ML Repository.

Preprocessing text data using NLTK (tokenization, lowercasing, and removing stopwords).

- DummyClassifier as a baseline.
- Vanilla RNN and LSTM sentiment analysis model.
- Evaluating model

DUMMY Classifier

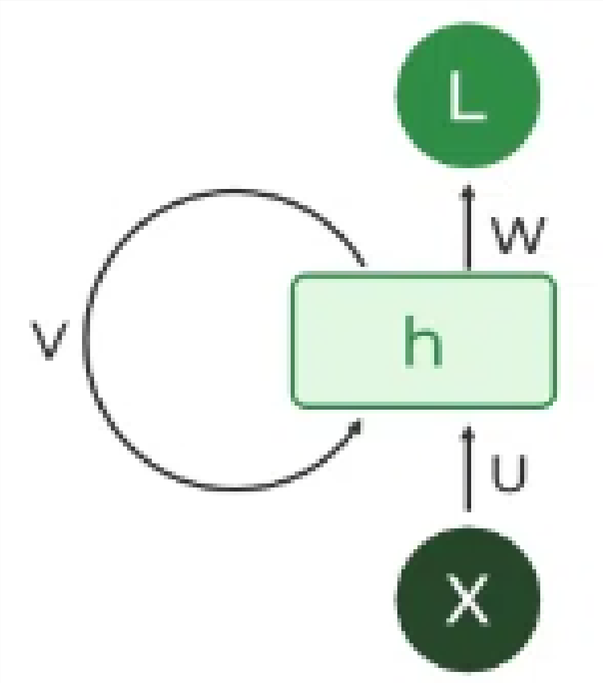
RESULTS

Accuracy : 0,492

Precision : 0,492

Recall : 1

F1 Score : 0,659



RNN

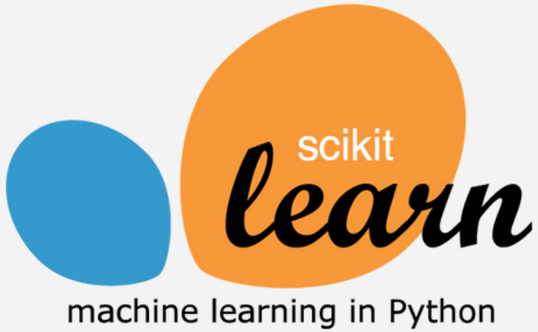
RESULTS WITH TEST CASES

Accuracy: 0.484

Precision: 0.480

Recall: 0.571

F1-score: 0.521



LSTM RNN

RESULTS OF TESTING

Accuracy : 0,777

Precision : 0,726

Recall : 0.83

F1 Score : 0,774

Key Insights

Preprocessing and
Text Preparation

Baseline
Performance

Model Evaluation

Comparative and
Analysis

Backpropagation
GridSearchCV