The background is a light gray gradient. Scattered throughout are various 3D geometric shapes in a light sage green color. These include a small cube in the top left, a rectangular frame in the top center, a wavy line in the top right, a cone in the middle right, another wavy line below it, a cube in the bottom right, a cone in the bottom left, a large sphere in the middle left, a cylinder in the middle left, a large ring in the bottom center, and several other spheres and cylinders of varying sizes and orientations.

Sentiment Analysis Model

Luis Botero
Juan Medina
George Trujillo

Introduction

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

Dummy Classifier

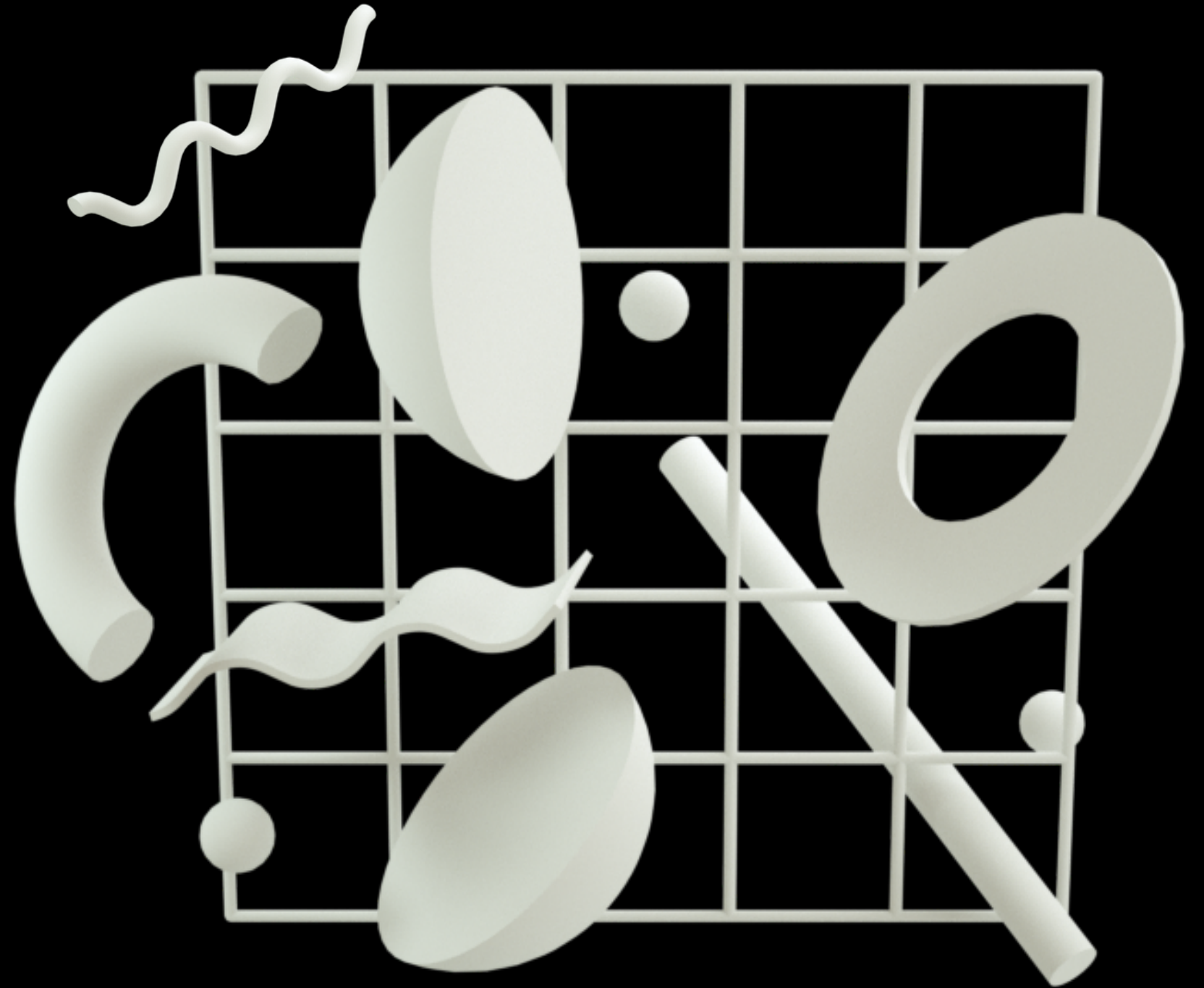
Vanilla RNN

LSTM RNN



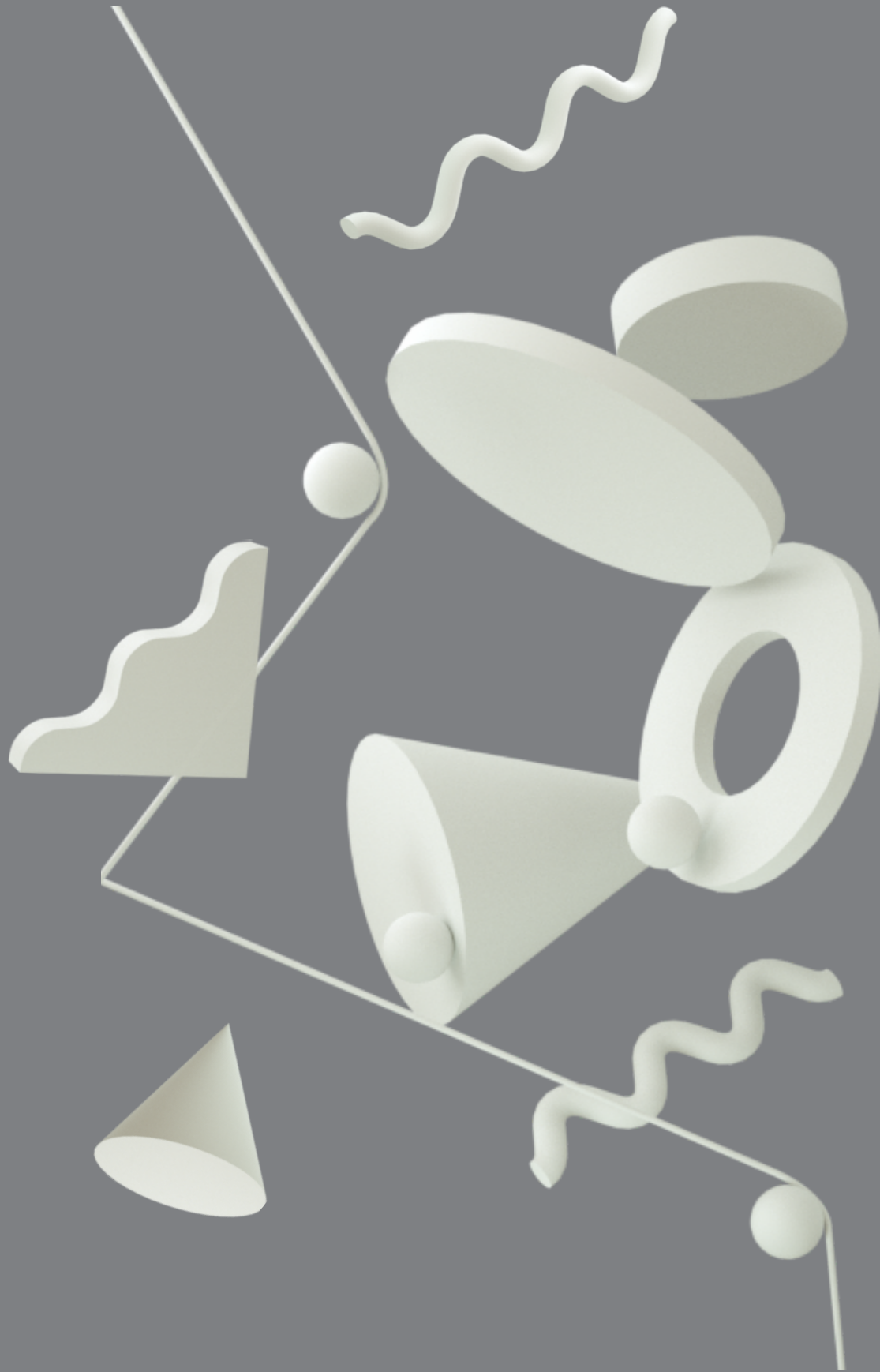
Problem Statement

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

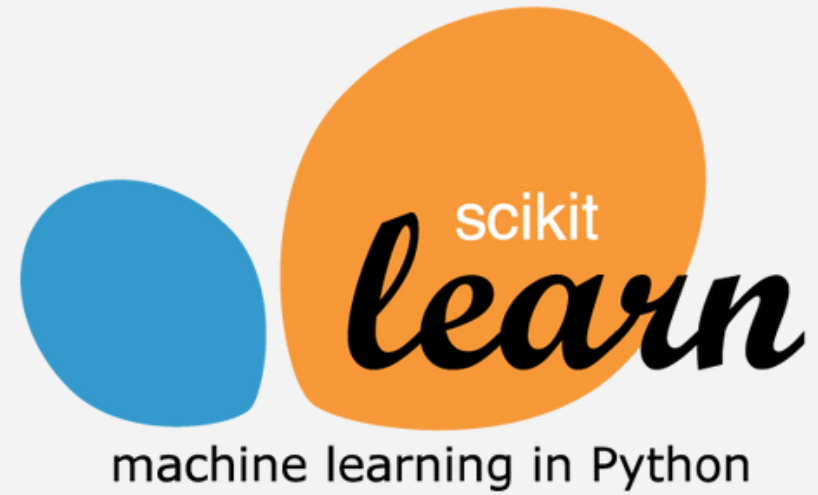
RESULTS

Accuracy : 0,492

Precision : 0,492

Recall : 1

F1 Score : 0,659



RNN

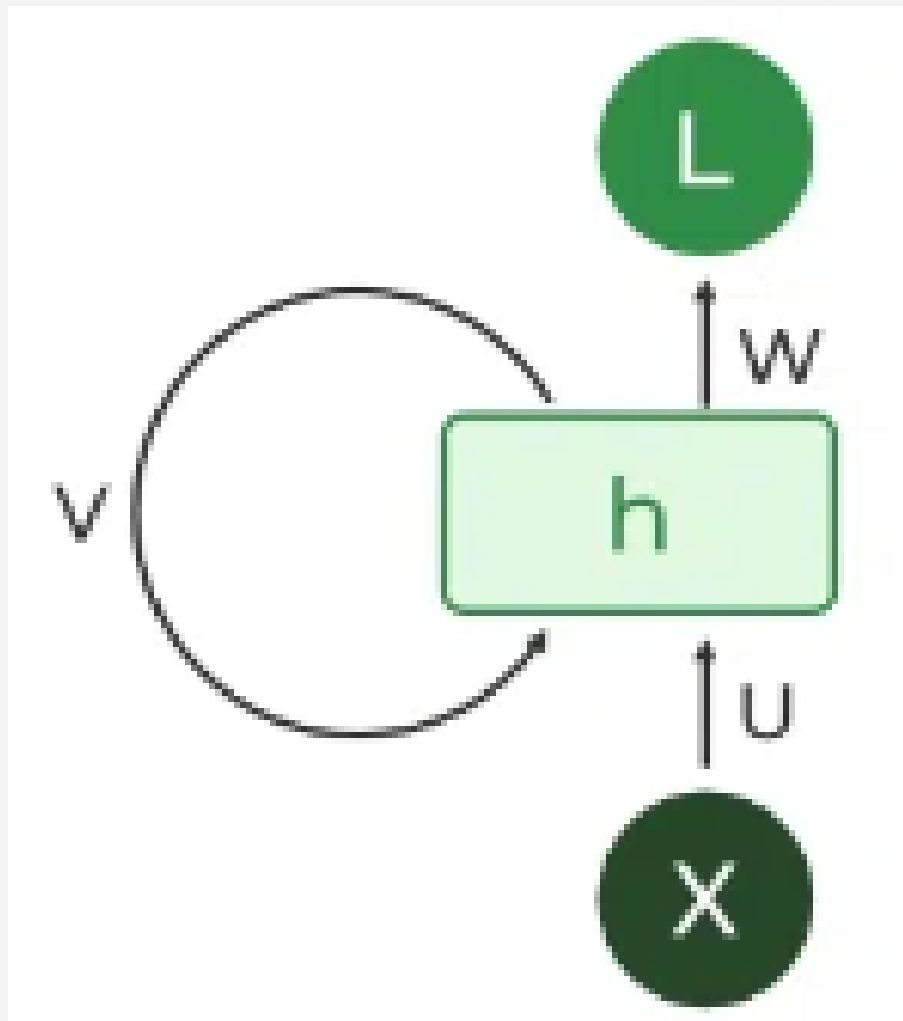
RESULTS WITH TEST CASES

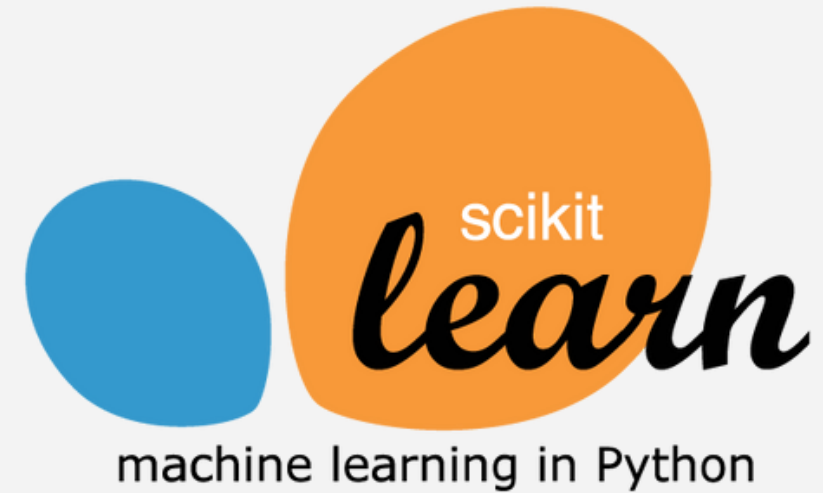
Accuracy: 0.484

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

