Comparing HMM Algorithms for Sentiment Analysis on the Steam Game Review Dataset

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1 Introduction

Sentiment analysis is the task of identifying and classifying subjective information in text data. In recent years, Hidden Markov Model (HMM) algorithms have become more popular for sentiment analysis due to their ability to model sequential data. In this project, we aim to compare the performance of three HMM algorithms for sentiment analysis on the Steam game review dataset and explore the reasons behind HMM's popularity in sentiment analysis.

2 Objectives

Our objectives are as follows:

- Evaluate and compare the performance of three HMM algorithms for sentiment analysis on the Steam game review dataset.
- Draw conclusions regarding the suitability of HMM algorithms for sentiment analysis on the Steam game review dataset.

3 Methods

We will carry out the project in the following steps:

1. **Data collection and preprocessing:** We will obtain the Steam game review dataset and preprocess it by cleaning, tokenizing, and labeling the data.

   Steam Reviews: https://www.kaggle.com/datasets/andrewmvd/steam-reviews by Larxel

2. **HMM algorithm implementation and training:** We will implement and train three HMM algorithms for sentiment analysis on the preprocessed dataset using Python and relevant libraries.

3. **Performance evaluation:** We will evaluate the performance of each algorithm using standard evaluation metrics such as accuracy, precision, recall, and F1-score.

4. **Result analysis and comparison:** We will compare the results of the three algorithms and draw conclusions regarding the suitability of HMM algorithms for sentiment analysis on the Steam game review dataset.

4 Expected Outcomes

We expect the following outcomes from the project:

- Comparison of the performance of the three HMM algorithms.
- Analysis of the results and conclusions regarding the suitability of HMM algorithms for sentiment analysis on the Steam game review dataset.
- A deeper understanding of HMM algorithms in sentiment analysis.

5 Conclusion

This project aims to advance the understanding of sentiment analysis and HMM algorithms by comparing the performance of three HMM algorithms on the Steam game review dataset.