Emotion Lens
Term Project:CS-384 Introduction to Data Science

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1   Introduction

Sentiment analysis, also called opinion mining, is a technique used to find out the emotion or feeling behind a piece of text. It helps businesses and organizations understand how people feel about products, services, or events. It is widely used to analyze social media posts, product reviews, and surveys.

2   Classification

Sentiment analysis looks at text and assigns one of three categories: positive, negative, or neutral. More advanced systems can detect more specific emotions, like joy or anger. Here are the main steps involved:

- **Text Preprocessing:** This step cleans the text, removing things like extra spaces, punctuation, and irrelevant words. It also breaks the text into smaller parts.

- **Feature Extraction:** The cleaned text is turned into numbers or vectors that the computer can understand.

- **Modeling:** The computer uses machine learning models to learn from text and classify it as positive, negative, or neutral.

- **Prediction:** Once the model is trained, it can predict the sentiment of new text.

3   Applications

- **Customer Feedback:** Companies use it to understand how customers feel about their products or services.

- **Social Media Monitoring:** Brands use it to check how people are talking about them online.

- **Market Research:** Businesses use it to find out what customers like or dislike.

- **Politics:** It can show public opinion on political issues or candidates.

- **Healthcare:** It can track patients' feelings and help monitor mental health.

4   Conclusion

Sentiment analysis is a powerful tool for understanding people's opinions and feelings from text. It helps improve customer experiences and supports decision-making. However, it must handle the complexity of language carefully to give accurate results. As technology advances, sentiment analysis will get even better at understanding emotions.