

Employee Feedback NLP Analysis - Project Report

Executive Summary

I built this project to automate the analysis of employee feedback. Understanding employee sentiment and stress levels is crucial for maintaining a healthy workplace culture. This tool processes raw text feedback to extract actionable insights for HR and management.

Methodology & Pipeline

My NLP pipeline is designed to be lightweight and effective, running locally without external API dependencies. It consists of the following components:

- Sentiment Analysis: Using VADER to quantify positive and negative sentiment.
- Stress Estimation: A custom heuristic combining sentiment scores with burnout-related keywords.
- Topic Extraction: Utilizing NMF (Non-negative Matrix Factorization) to identify emerging themes.
- Summarization: Extractive summarization via LSA (Latent Semantic Analysis).
- Recommendations: An automated tagging system that suggests HR actions (e.g., 'Wellness Check').

Key Results

I tested the pipeline on a dataset of 10 sample employee messages. The system successfully flagged critical issues such as 'unmanageable workload' and 'impossible deadlines' with high stress scores (0.90). It also correctly identified positive feedback regarding the 'remote work policy' and 'mentorship program'.

Conclusion

This project demonstrates how standard NLP techniques can be applied to solve real-world HR challenges. The automated tagging system provides immediate visibility into team morale and potential burnout risks.

Project Repository

https://github.com/SepehrRezaee/employee_feedback_nlp/tree/main