

Final Individual Assignment NLP for Finance

Submission Deadline: Friday, April 11 at 10 PM

Your Task: Use the earnings calls dataset we have worked with during the course. Your task is to **construct different measures of earnings call sentiment, analyze their correlation, and investigate which one best predicts the stock market reaction** following the earnings calls.

We have explored sentiment analysis based on both Bag-of-Words (BoW) approach and large language models (LLMs). Specifically, you should compare the performance of sentiment extraction methods including:

1. Bag-of-Words Methods

- Harvard dictionary
- Loughran-McDonald (LM) dictionary
- Incorporation of negation handling
- Custom-built dictionaries (e.g., by expanding a set of seed words)

2. Large Language Models (LLMs)

- Fine-tuned BERT models (e.g., FinBERT)
- Other fine-tuning strategies (including your own), and knowledge distillation

Ideally, you should consider/try creating sentiment measures using all the methods above. If you tried a method and did not manage to get anything (meaningful) out of it, please briefly discuss what you tried.

One decision you need to make is whether to measure sentiment using the full earnings call transcript, the management presentation, and/or the Q&A section. You may consider all of them and evaluate which is more predictive of the subsequent market reaction.

Your Submission via Blackboard: Submit a short PDF report describing your work and key findings, including tables and figures (around 2-3 pages of text, with up to 10 pages of appendix). Your grade will be based on the effort and thoughtfulness demonstrated—not on the particular result you get and specific market reaction you discover.

You must also submit your Python code as a separate file at the time of submission.