GROUP 19

Dataset: IMDB Spoiler Dataset

Motivation:

User reviews are one of the first places people look when deciding whether to watch a movie or TV show but these reviews often contain spoilers that unintentionally ruin our viewing experience. Those spoilers may reveal key plot twists or endings, removing the suspense and emotional impact that make storytelling enjoyable. This is a significant problem for audiences who risk having our experiences diminished, and for review platforms which risk lower user trust and engagement. By building systems to automatically detect and filter spoilers, platforms can protect users from unwanted revelations while still allowing them to benefit from genuine reviews. The outcome would benefit casual viewers, streaming platforms and content creators alike, ensuring reviews remain helpful without spoiling the narrative.

Cleaning dataset -> cleaned_data.py
Removing stop words and apply lemmatization to review_text, plot_summary, and plot_synopsis

EDA -> eda.ipynb, pca_cosine_analysis.ipynb

Explore model architecture

TFIDF + LogReg (baseline)	baseline_tfidf.ipynb
TFIDF + Undersample + Tuned hyperparameter LogReg and XGBoost	tfidf_logreg_undersam.ipynb
SBert embeddings + XGBoost	sbert_only.ipynb
Bidirectional LSTM (use review_text only) + pos_weight	RNN_only.ipynb
Selected features + Oversampling + LogReg	bert_oversample_logreg.ipynb
Selected features + XGBoost + pos_weight	sbert_tfidf.ipynb

Related Works:
- Hijikata, Y., Iwai, H., & Nishida, S. (2016). Context-based plot detection from online review comments for preventing spoilers. In 2016 IEEE/WIC/ACM International Conference on Web Intelligence (WI) (pp. 57–65). IEEE. https://doi.org/10.1109/WI.2016.0019

- Tran, R., Xu, C., & McAuley, J. (2023). *Spoiler detection as semantic text matching*. In H. Bouamor, J. Pino, & K. Bali (Eds.), Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (pp. 6109–6113). Association for Computational Linguistics. https://doi.org/10.18653/v1/2023.emnlp-main.373

References:

- Li, B., Zhou, H., He, J., Wang, M., Yang, Y., & Li, L. (2020). *On the Sentence Embeddings from Pre-trained Language Models*. ArXiv.org.

  https://arxiv.org/abs/2011.05864