



News Headline Generation

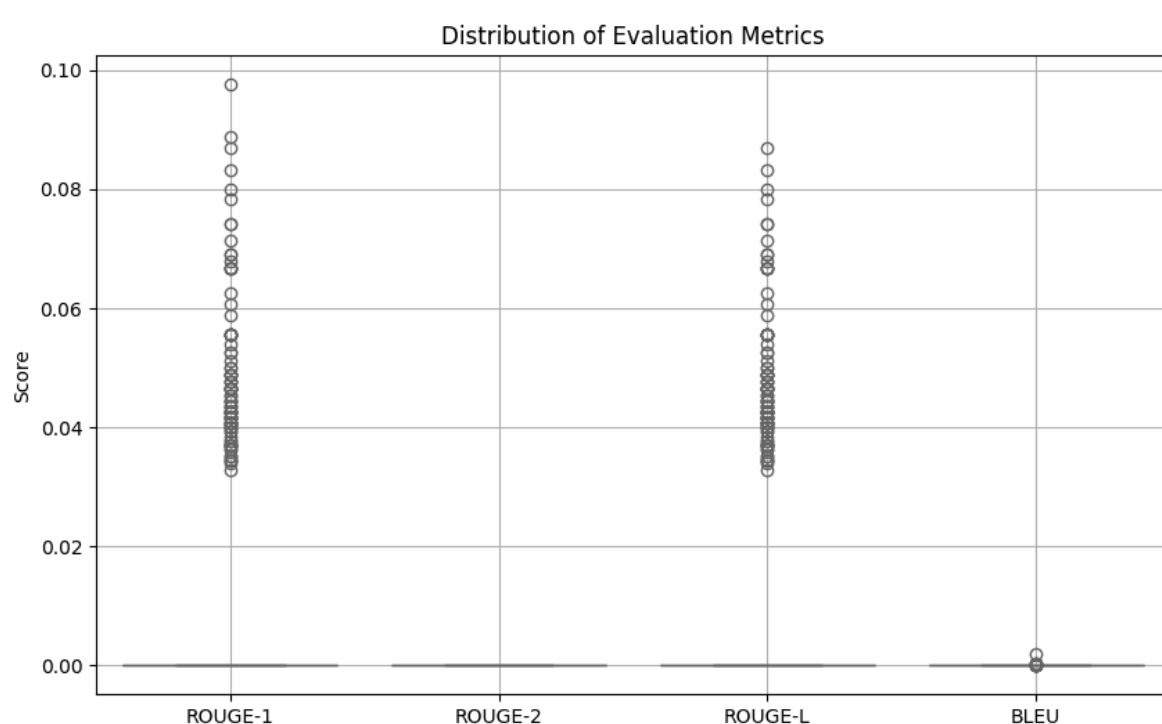


Guidence by :- Prof. Diptee Ghusse

INTRODUCTION

News headline generation is a key task in NLP that involves summarizing articles into concise, informative titles. It requires understanding context, grammar, and relevance. This study explores neural architectures to improve headline quality and generation efficiency.

EVALUATION METRICS



RESULTS

- Transformers achieved the highest accuracy and fluency in headlines.
- Attention-based LSTM models performed better than plain LSTM.
- LSTM without attention showed limited performance.
- Transformers were faster during inference but took longer to train.
- Metric scores (BLEU, ROUGE) clearly support these findings.

CONCLUSION

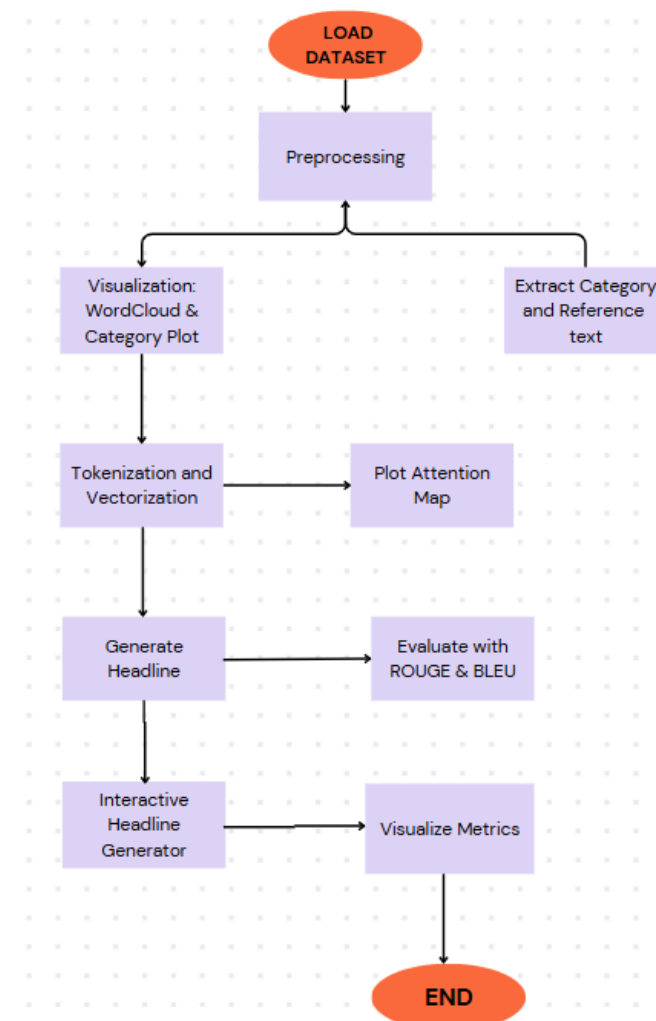
Transformer outperformed LSTM and Attention models in generating accurate, fluent headlines. Attention mechanisms greatly enhanced relevance, showing their value in text summarization.

GROUP MEMEBRS

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• [Click here for GitHub Repo](#)

ARCHITECTURE DIAG.

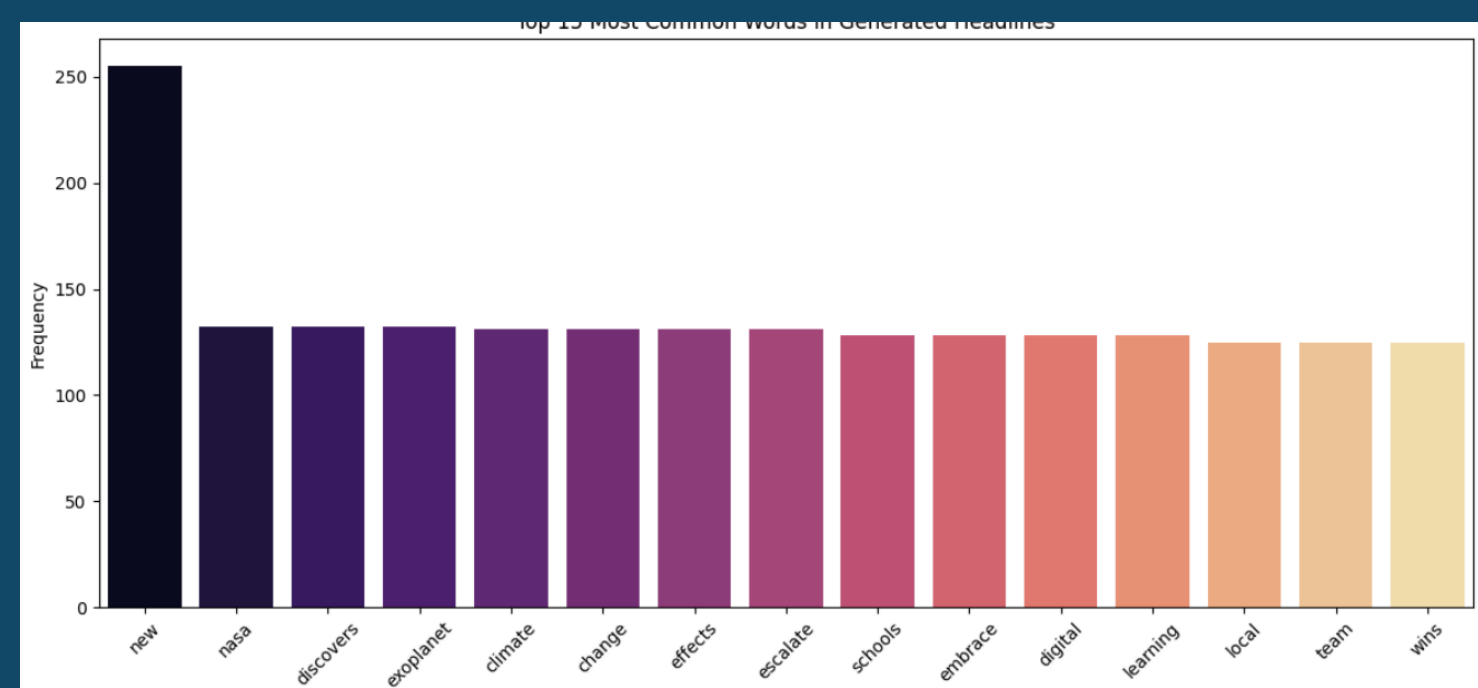


METHODOLOGY

To implement and compare encoder-decoder architectures for news headline generation:

- LSTM/GRU without Attention
- Bahdanau/Luong Attention-based models
- Transformer with Self-Attention

Top 15 Most Common words Generated headlines



Criteria	LSTM/GRU (No Attention)	Attention (Bahdanau/Luong)	Transformer (Self-Attention)
Accuracy / BLEU	0.60	0.75	0.80
ROUGE / METEOR	Low	Moderate	High
CIDEr / SPICE (if applicable)	Not Applicable	Not Applicable	Not Applicable
Training Time	Low	Moderate	High
Inference Speed	Fast	Moderate	Moderate
Model Complexity	Low	Moderate	High
Interpretability		✓ (Attention Maps)	✓ (Attention Heads)

REFERENCES

LSTM/GRU:

- [Sequence to Sequence Learning with Neural Networks](#) (Sutskever et al., 2014)

• [Click here to access the Kaggle News Headline Generation Dataset](#)