

Analysis:

1- Looking at the aggregated ROUGE-2 and cosine similarity matrices, which methods produced similar results.

Based on aggregated ROUGE-2 matrices, it is observed that TF-IDF and LSA based summarization methods produced similar results. While looking at cosine similarity matrices, TextRank and Google Pegasus-large summarization methods produced similar results.

2- Among the tried methods, which method took lesser time?

TF-IDF based summarization method took less time as compared to all the other tried methods.

3- In your opinion, which summarization method performed the best overall.

In my opinion, Facebook-Bart and TextRank methods performed the best overall, due to their higher ROUGE-2 and cosine similarity scores as compared to other methods.

4- Were there any articles that were particularly difficult to summarize using any of the methods? If so, why?

No, there weren't any articles which were difficult to summarize using any of the methods.

5- Discuss the strengths and weaknesses of the different summarization methods. Which method(s) would you recommend for future use and why?

Extractive summarization methods:

These methods takes lesser computation time to process and are also language independent. They mostly use semantic relationships between words and sentences to generate a summary. Their limitation is that they don't perform well on very long documents or large datasets, and hence the information in the summary is not meaningful sometimes.

Abstractive summarization methods:

The abstractive methods used in this assignment have transformer-based architecture, which are trained on a huge corpus of text, hence providing high quality abstractive summaries with meaningful information. On the other hand, it requires higher computation time to process, which is its limitation.

I would recommend abstractive summarization methods to use in future, because of their ability to generate more meaningful summaries as compared to extractive methods.