

CA – Assignment 4: Argument Generation

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Structure

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├── argument-generation-assignment
│   ├── Documentation.pdf
│   ├── README
│   ├── data
│   │   ├── essay_prompt_corpus.json
│   │   ├── sample_predictions.json
│   │   ├── predictions.json
│   │   └── train-test-split.csv
│   └── code
│       ├── evaluation.py
│       ├── page_rank.py
│       └── t5.py
```

Scripts

page_rank.py: The ML model that we use for generating predictions. **evaluation.py**: Script to evaluate the Rouge F score.

How to run the scripts

- Make sure you have the same directory structure as above otherwise adjust the paths in the scripts accordingly.
- Run **page_rank.py** to generate the predictions in **data/** directory with name **predictions.json**
- Run **evaluation** script with **predictions.json** as predictions.

Model Explanation

We started to use a random selection of sentences, to figure out what the lowest baseline is, with results around **0.12 rouge-1 f score**. Based on that we realized, that to reach the given baseline marginally a not too complex method of sentence selection should suffice.

We followed up by picking sentences by basic features we read about, that indicate a good summarising sentence. These included the longest sentence and selecting sentences based on preselected keywords (e.g.

In conclusion..., The best...). This however was not successful enough, as it was in the range of the random selection results.

Finally, we tried extractive summarization using the PageRank style evaluation on text, inspired by the given paper from Alshomary et.al.[2]. This lead to a **rouge-1 f score of 0.138**, with which we reached our goal.

Additionally, we tested Google's T5 (Text-To-Text Transfer Transformer)[1], which easily produced results higher than the baseline, but we just plugged in the library which didn't seem adequate for the course.

[1] <https://arxiv.org/pdf/1910.10683.pdf>

[2] https://webis.de/downloads/publications/papers/alshomary_2020b.pdf