News Text Summarization

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Business Overview

- Content being published is increasing everyday

- To make use of automatic text summarization on the latest news articles to create short and concise summaries in order to save time on reading.

Technical Overview

- Web Scraping
- Importing and Data Cleaning
- Exploratory Data Analysis
- Modelling
- Evaluation
- Conclusion

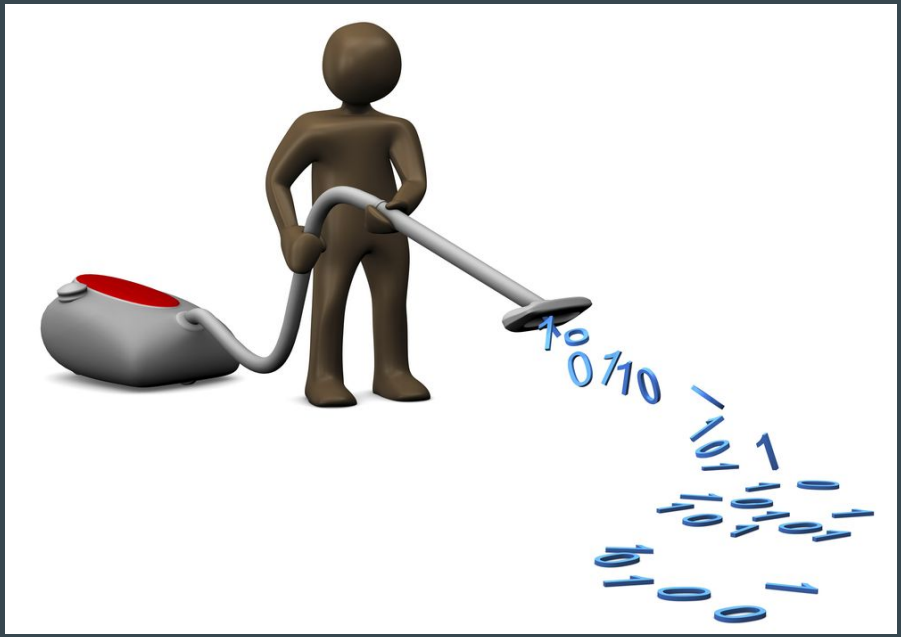
Data Set

- Web Scraping News Sources:
  - Associated Press News
  - BBC
  - NPR

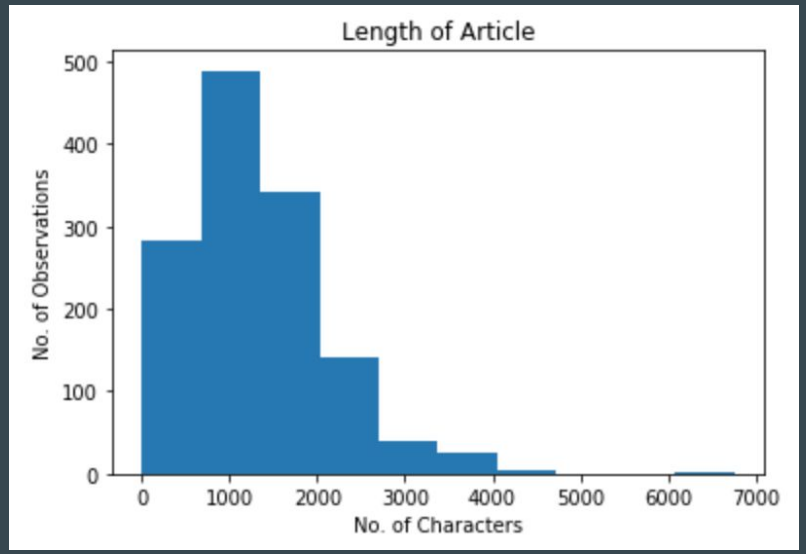
- Kaggle Data Set:
  - Contains articles & summaries from inshorts
  - Feb - Aug 2017

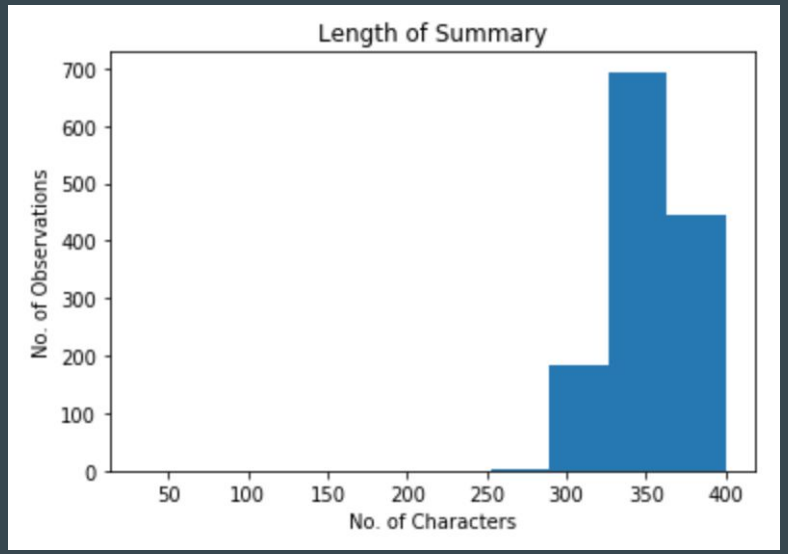
Data Cleaning

- Mainly on Kaggle Data Set
  - Non-alphanumic characters
  - Hashtags
  - Url links

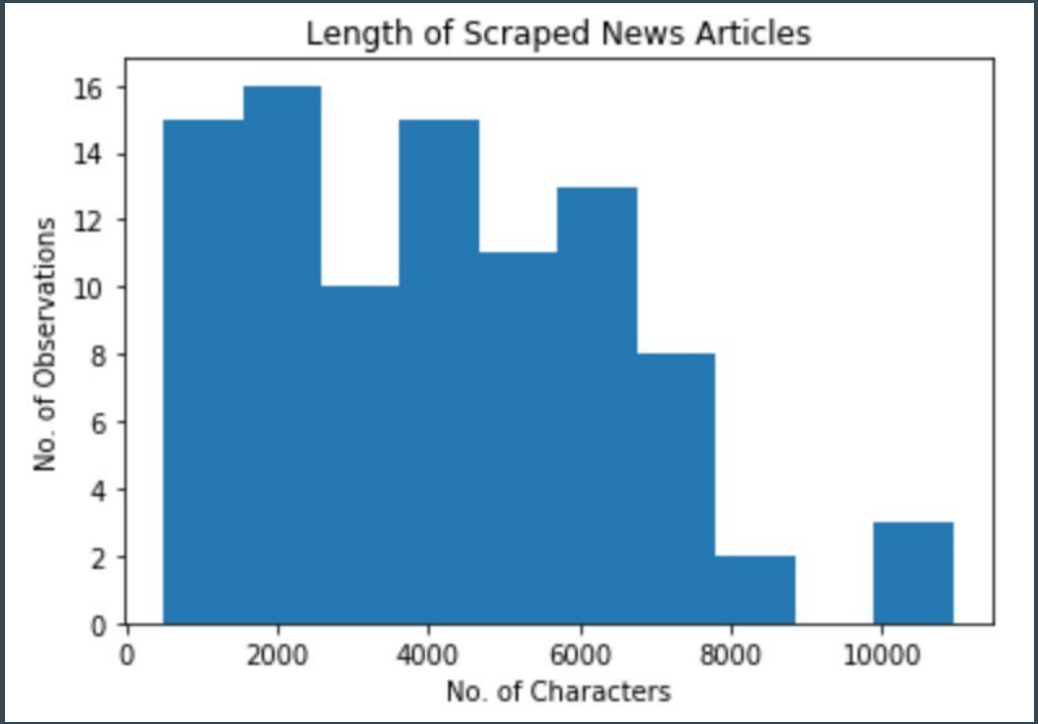


Exploratory Data Analysis





Exploratory Data Analysis



Modelling

- Lede-3 (Baseline Model)
- LexRank
- Luhn
- LSA
- TextRank
- Edmundson
- GloVe + TextRank

Evaluation

- Evaluation is based on Rouge Score
  - ROUGE-n recall=40% means that 40% of the n-grams in the reference summary are also present in the generated summary.
  - ROUGE-n precision=40% means that 40% of the n-grams in the generated summary are also present in the reference summary
  - ROUGE-n F1-score=40% is more difficult to interpret, like any F1-score.

	lede_3	lexrank	luhn	lsa	textrank	edmundson	glove_textrank
recall	0.513883	0.465951	0.494760	0.376341	0.483477	0.376341	0.472039
precision	0.397336	0.327083	0.282885	0.298557	0.270421	0.298557	0.296741
f1	0.439107	0.377744	0.355731	0.327353	0.342800	0.327353	0.359540

Conclusion

- Lede-3 algorithm best performing
- Likely due to nature of how news articles are written
- Other applications for automatic text summarization
  - Reviews
  - Non-news articles
  - Blogpost

Future Work

- Look into other strategies for text summarization
  - Abstractive text summarization
  - Mixed strategy text summarization
- Multiclass classification for news category
- Named Entity Recognition Sentiment Analysis

Thank You

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