SUMMARIZING REDUCES
PERUSING TIME

TEXT SUMMARIZATION WRITEUP

PREPARED BY

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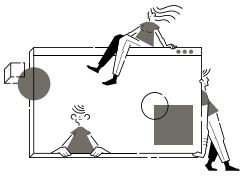
Abstract

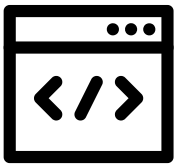
When you open news sites, do you just start reading every news article? Probably not. We typically glance the short news summary and then read more details if interested. Short, informative summaries of the news is now everywhere like magazines, news aggregator apps, research sites. So we built a model to summarize the text.
We get the data from the Kaggle website, then apply the EDA to it, and prepare it for modeling by doing things like expanding contractions, removing punctuation, removing stopwords from text, and so on. For more information, see the following components:

Design



As a group, we wanted to analyze the news text data in order to build the model that summarized it. Instead of manually summarizing the text of the news, you can save time and effort by automating the process.

Algorithms



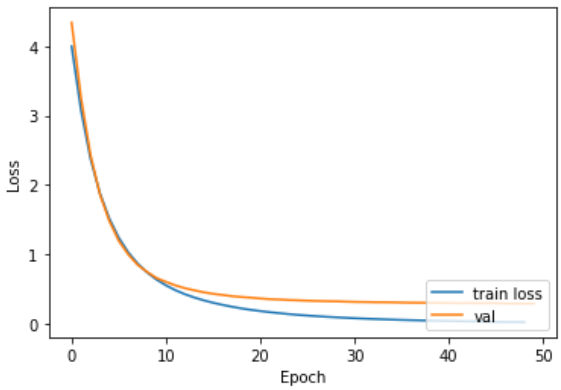
The first step toward achieving our goal was EDA and data preparation, which included removing accented and unnecessary characters, stopwords, numbers, and punctuation from text, among other things. Following that, we created Seq2Seq models using only LSTMs, Bidirectional LSTMs, and hybrid architecture.

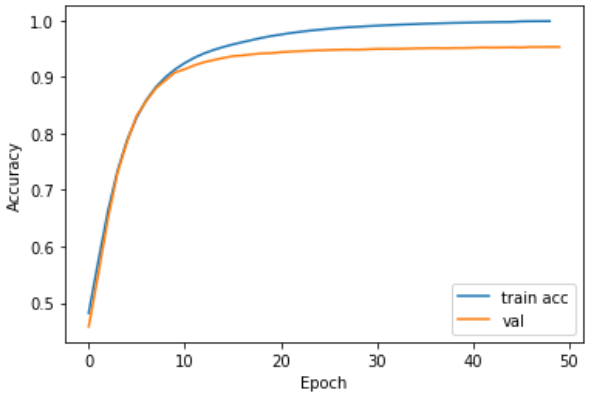
Data

We used two datasets downloaded from the Kaggle website and combined them to create a single dataset with 100132 observations. The data has two features:

- Text: news text
- Summary: the summary of the text

Communication





We have built 3 models (Seq2Seq with LSTMs,Seq2Seq with Bidirectional LSTMs,Seq2Seq with hybrid architecture), and the best model is Seq2Seq with Bidirectional LSTMs. As shown in the figure, the accuracy of the validation data is close to one and the loss is very close to zero.

Tools

SQLAlchemy
NumPy
Pandas

matplotlib
pickle
wordcloud

nltk
tensorflow
Keras

contractions
Sklearn
re