TEAM 12
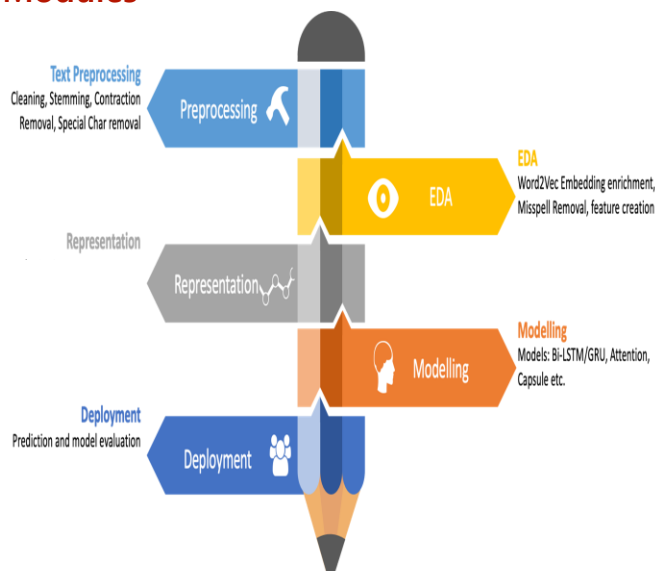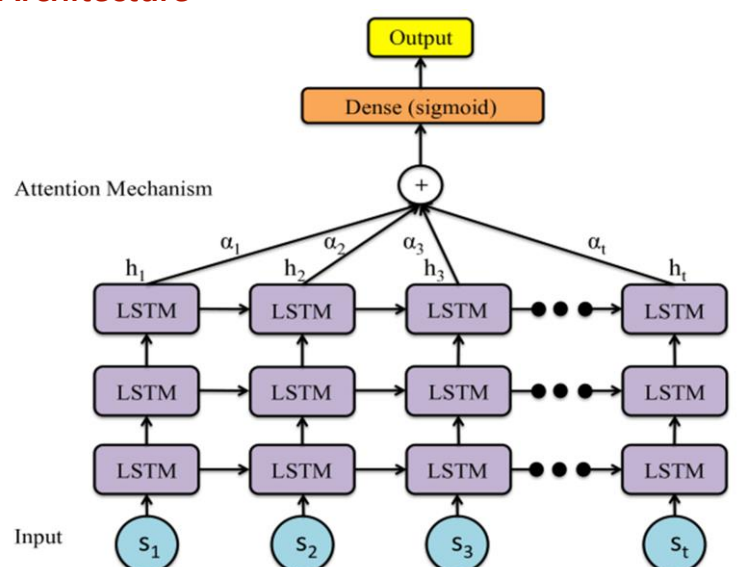
Suggestion Mining using Attention Networks

Abstract

Products and services are heavily discussed on social media, which are conventionally used by brand owners, as well as consumers, to acquire consumer opinions. State-of-the-art opinion mining systems provide summaries of positive and negative sentiment towards a service/product and its various aspects. On a closer look, it is observed that these opinions also contain suggestions, tips and advice, which are often explicitly sought by both brand owners and consumers. Suggestion Mining refers to the task of identifying suggestion expressing sentence in the given text. We study the automatic detection of suggestion expressing words among the opinionated text. The Attention mechanism is used to extract such words that are important to the meaning of the sentence, they enable focusing on specific parts of the input. Various linear methods like CountVectoriser, Bag of words, TFIDF are used in initial classification methods. This project uses Neural Networks like Convolutional Neural Networks (CNN), Recurrent Neural Networks (RNN) and Long short-term memory (LSTM). Using Attention networks, reviews are taken as input and the words which have suggestive sense are highlighted in the output.

Modules

Text Preprocessing — Cleaning, Stemming, Contraction Removal, Special Char removal

Preprocessing

EDA — Word2Vec Embedding enrichment, Misspell Removal, feature creation

Representation

Modelling — Models: Bi-LSTM/GRU, Attention, Capsule etc.

Deployment — Prediction and model evaluation

Architecture

Tools

- Python 3
- Keras with backend as Tensorflow
- Jupyter Notebook

Conclusion & Future Scope

In addition to the positive and negative sentiments expressed by the speakers, opinions on the web also convey suggestions. Such text comprises advice, recommendations and tips on a variety of points of interest. We propose that suggestions can be extracted from the available opinionated text and put to several use cases. Experimental results demonstrate that our model performs significantly better than conventional methods. Visualization of these attention layers illustrates that our model is effective in picking out important words and sentences. The future scope of the project is that, to try improving the model performance by tuning in some hyperparameters and working with a larger dataset.

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Guide

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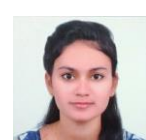Assistant Professor of I.T
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