Analyzing Text Based on Dementia Blog Posts



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Abstract

Our goal is to investigate the viability of using Term Frequency-Inverse Document Frequency (TF-IDF) analysis in combination with artificial intelligence (AI) for analyzing dementia. The project's major aim is to analyze user post information from public discussion boards associated with dementia to identify emotional responses or caregivers' needs. The project contains four stages; data collection, preprocessing, feature extraction, and model generation. While our research is still in the preliminary stage, we have been able to analyze the TF-IDF of two comments.

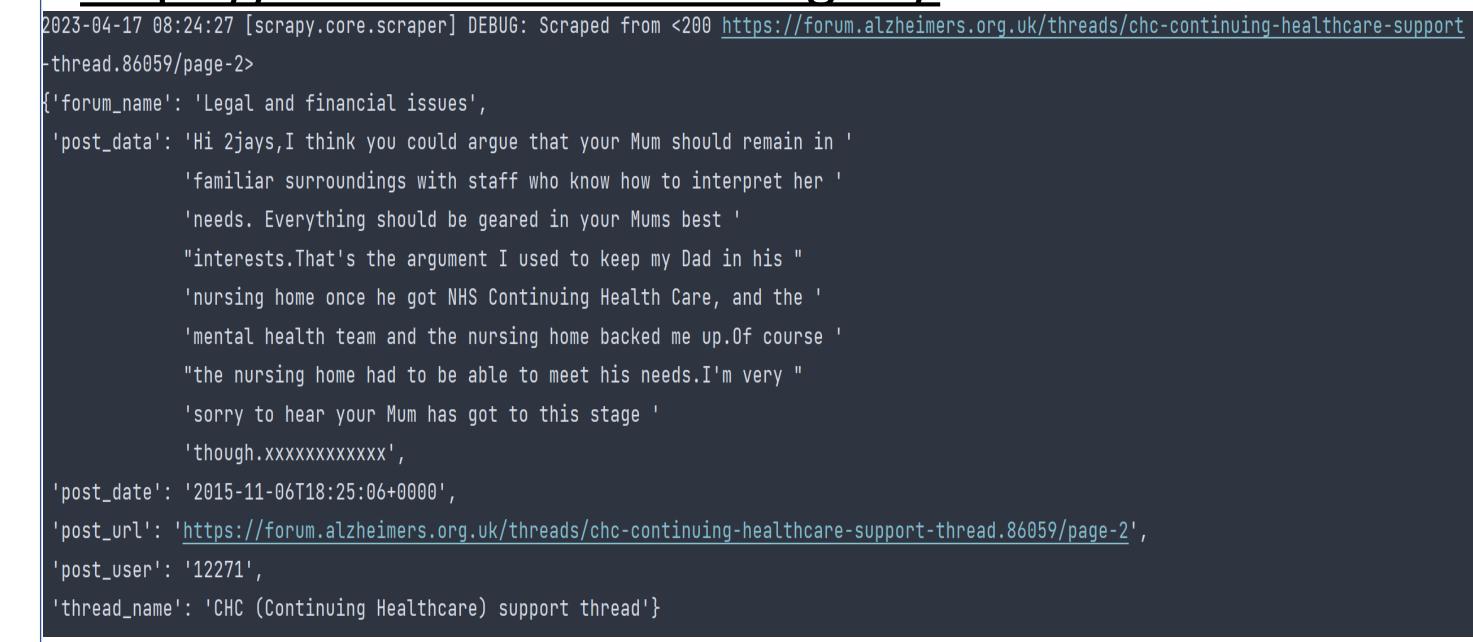
Introduction

Dementia, a debilitating and progressive neurological disorder, encompasses various conditions such as Alzheimer's and Parkinson's. With an increasingly aging global population, dementia is expected to afflict hundreds of millions of individuals. By integrating Al and TF-IDF for early dementia detection, one could potentially expedite the diagnostic process, provide more accurate assessments, enable timely interventions, and ultimately improve patient care and quality of life.

Words ↓↓	Frequency	Frequency
рау	0.004	0.013
	0.000	0.013
new	0.000	0.006
Home	0.000	0.006
take	0.000	0.006
access	0.000	0.006
might	0.000	0.006
account	0.000	0.006
Protection	0.000	0.006
advice!	0.000	0.006
year	0.000	0.006
advised	0.000	0.006

Methods

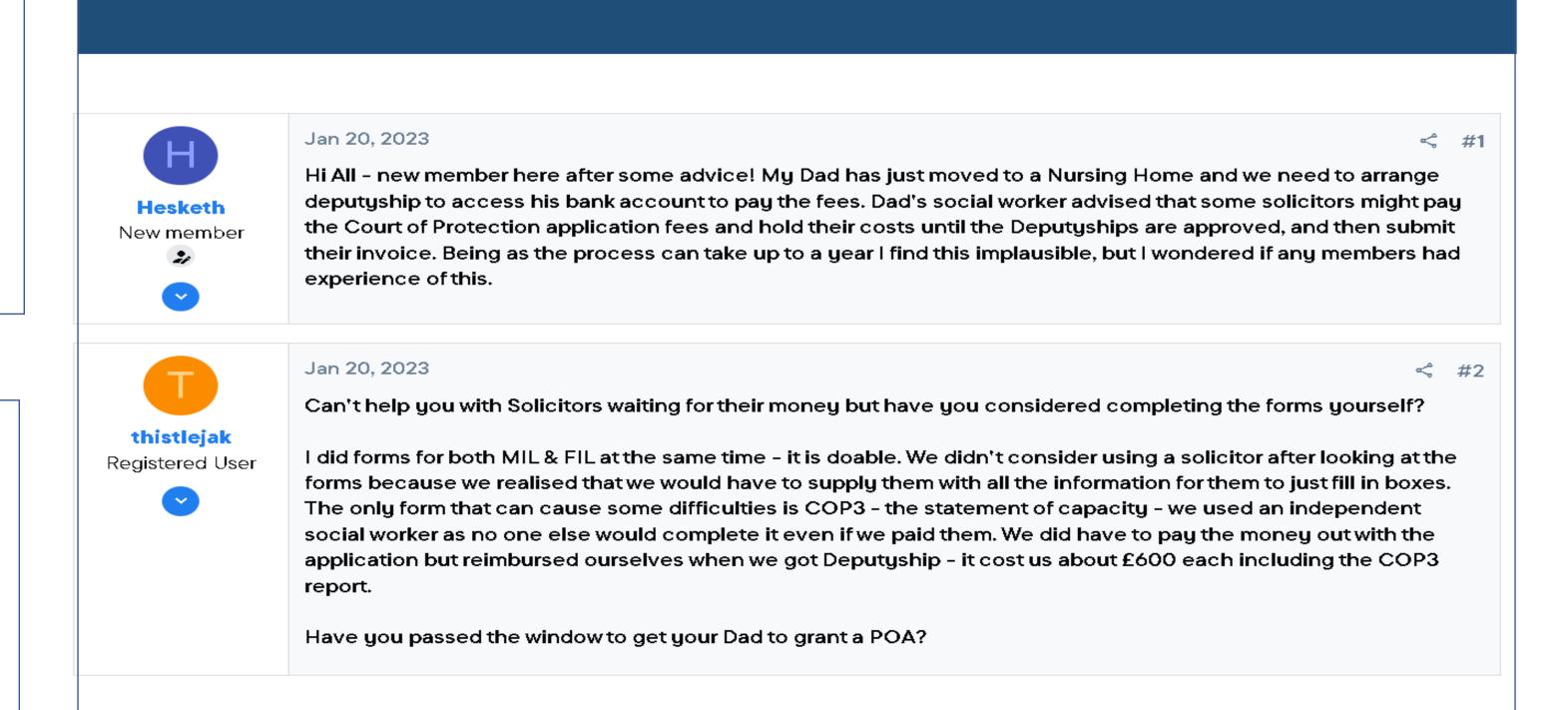
Obtain text from Dementia Forum: https://forum.alzheimers.org.uk/



Preprocess obtained text:

- Collect data
- Remove stop words (the, a, with)
- Compute Term Frequency (TF)
- Compute Inverse Document Frequency (IDF)
- Predictive model generation utilizing machine learning techniques

Results



This sheet shows the TF-IDF analysis of Comment 1 and 2. The words listed come from the two comments. The top number shows the frequency of the word in the first comment. The bottom number shows the frequency of the word in the second comment.

Conclusion

Our research is still in the preliminary stage. We have only been able to analyze two comments as shown in the results portion. Our goal is to broaden our word corpus to include more comments from the Dementia Forum to generate more accurate information. The resulting scores will reflect the term's relative importance in the comment compared to the entire post data. This approach will enhance our understanding of the most relevant topics and concerns within the dementia community.

Discussion

We still have to complete the model generation phase of our research. We have been able to analyze two comments from the dementia forum, but we hope to expand our corpus by preprocessing more comments from the website. We will categorize comments by forums and compute the TF-IDF for each forum. "I have dementia" and others will all have a separate term frequency. Then we will combine the words into a single corpus and measure the overall TF-IDF. This provides more information for the model generation phase of research and will assist with pattern recognition.

Acknowledgements

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