Abstract:

This project is an attempt on performing Natural Language Processing on data pertaining to the appointments that pregnant women have had during the course of their pregnancies, in order to determine if there are any major concerns that majority of women face during their pregnancies. Once the concerns are identified, appropriate medical measures may be carried out to tackle these problems and many women can benefit from getting treated in the early stages of their pregnancies.

Analysis:

For the purpose of analysis, these columns have been merged into the primary dataset with respect to the patient Id and Natural Language Processing (NLP) has been used to analyze these three columns. In order to make the data viable for NLP, a few preprocessing steps have been performed on the same as follows:

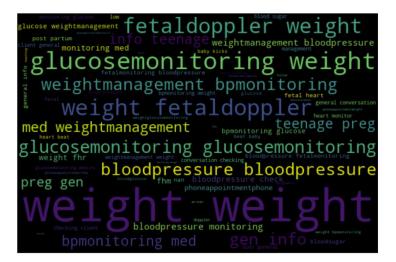
- Entire text has been converted into lowercase
- The columns have been converted into tokens
- Lemmatization: converting multiple forms of the same word into one word for the sake of being recognized as one by NLP (eg: maintain, maintenance, maintaining etc. will be converted into one form of the word maintain, and will be counted as such by NLP)
- Stopwords have been removed (eg: words such as patient, her, the, for, she etc. that are not significant to the analysis)
- Infrequent words have been removed

Visualizing NLP

The results of the NLP have been visualized with the aid of word plots and frequency distribution plots as seen below:

Word Plots:

Appointment reasons:



Clinical Observations:

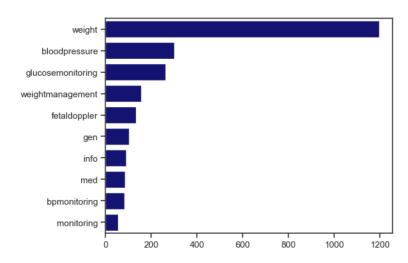


Doctor's Advice Notes:

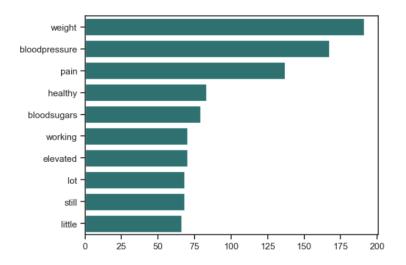


Frequency Distribution plots:

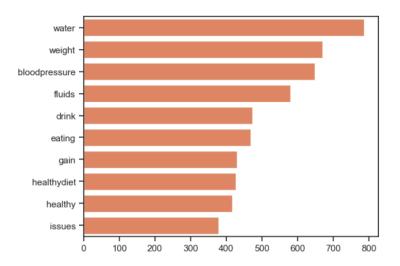
Appointment reasons:



Clinical Observations:



Doctor's Advice Notes:



Results of NLP

Appointment Reasons:

As observed by the frequency distribution plots and wordplots, the most important and frequently observed words across the records of all the patients in their appointment reasons are as follows:

- Glucose Monitoring
- Weight
- Blood Pressure
- Fetal Doppler
- Weight Management

Clinical Observations:

As observed by the frequency distribution plots and wordplots, the most important and frequently observed words across the records of all the patients in their clinical observations are as follows:

- Blood Sugars
- Blood Pressure
- Weight

Doctor's Advice Notes:

As observed by the frequency distribution plots and wordplots, the most important and frequently observed words across the records of all the patients in their Doctor's Advice Notes are as follows:

- Water
- Weight gain
- Blood Sugars
- Blood Pressure
- Eating Healthy
- Exercise