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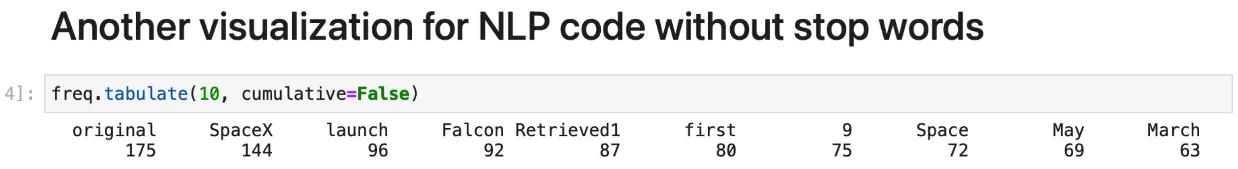
Coding Exercise: Write a code to tokenize the text and grab contents from a webpage where you can find information about SpaceX. Use stopwords and use the above strategy to calculate the frequency. The graph should display the first 10 high distribution words in the webpage while ignoring others. If the frequency of the word is less the 5 times ignore those words as well.

Questions:

1. Why we use stopwords? Why stopwords are not necessary for NLP frequency distribution.
    a. Stop words are words such as ‘and’, ‘the’, ‘but’. These words are marked as unimportant words and are eliminated during pre-processing that allows the NLP algorithm to focus on the important words that add meaning. Stop words are not necessary for NLP frequency because they add clutter to the results, and the important words used for analysis could be missed.

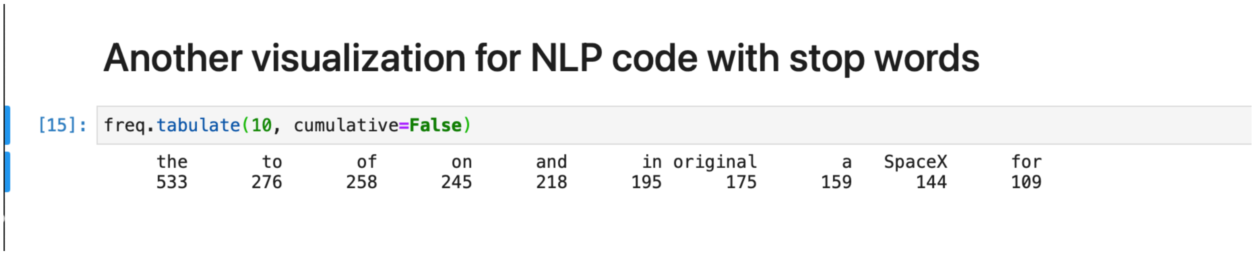
2. Based on high frequency words what information you can extract from the graph?
    a. The Wikipedia article for SpaceX mentions the word – original the most with 175 occurrences. This is due to the citations at the bottom of the article archiving from the original article. SpaceX is ranked second with 144 occurrences which makes sense since the subject of the article is about SpaceX. Other interesting words were launch with 96 occurrences which makes sense for shuttles launching. Falcon was mentioned 92 times, and Falcon is the name of the rockets used for SpaceX launches.
3. Can you provide different visualization for frequency distribution? If yes, please perform. If no, why?
    a. Here is another visualization to show the top 10 words by occurrence in a tabular format:



Another visualization for NLP code without stop words

```
4]: freq.tabulate(10, cumulative=False)
```

```
  original     SpaceX     launch     Falcon Retrieved1      first          9      Space        May      March
       175        144         96         92         87         80         75         72         69         63
```

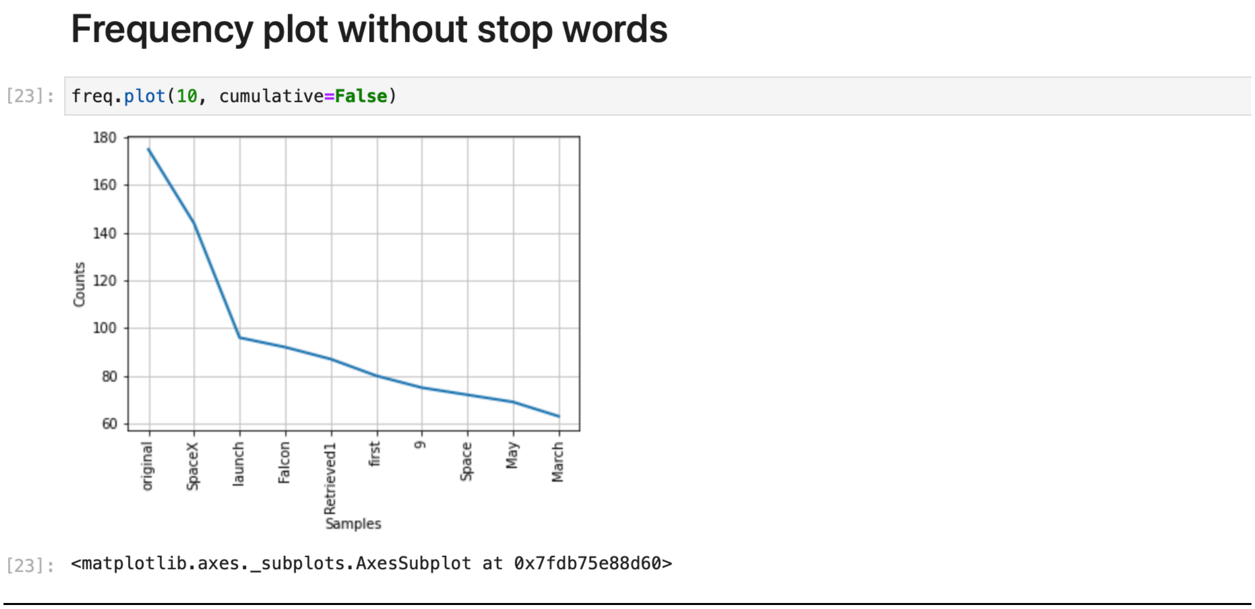


Another visualization for NLP code with stop words

```
[15]: freq.tabulate(10, cumulative=False)
```

```
      the        to        of        on       and        in original         a    SpaceX       for
      533       276       258       245       218       195       175       159       144       109
```

Frequency plot without stop words

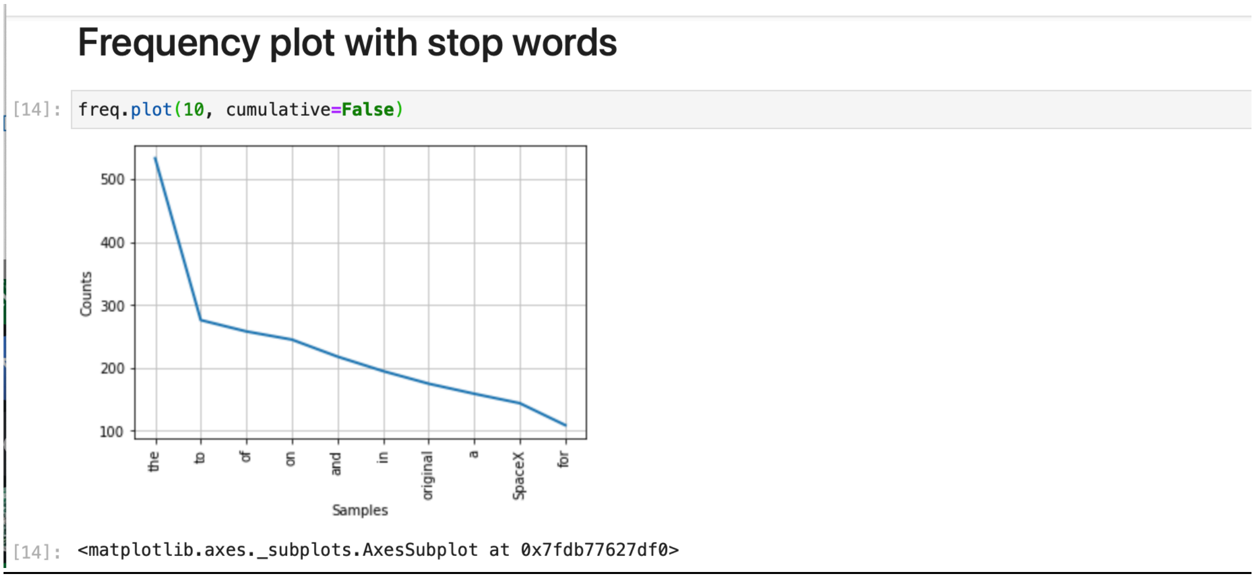


Frequency plot without stop words

```
[23]: freq.plot(10, cumulative=False)
```

```
[23]: <matplotlib.axes._subplots.AxesSubplot at 0x7fdb75e88d60>
```

Frequency plot with stop words



Frequency plot with stop words

```
[14]: freq.plot(10, cumulative=False)
```

```
[14]: <matplotlib.axes._subplots.AxesSubplot at 0x7fdb77627df0>
```

Please upload you code along with outputs to Canvas. The submission should include code file, and word file for explanation. Make sure to comment your code properly.

Github Link: https://github.com/kevinraj127/CSCE5290/tree/main/ICE%231

Github Wiki Link: https://github.com/kevinraj127/CSCE5290/wiki/In-Class-Exercise-1