```
%pip install urllib3
%pip install wordcloud

# Importing necessary library
import pandas as pd
import numpy as np
import nltk
import os
import nltk.corpus
import urllib3
from os import path
from PIL import Image
from wordcloud import WordCloud, STOPWORDS, ImageColorGenerator

import matplotlib.pyplot as plt
% matplotlib inline
```

```
⌐→    Requirement already satisfied: urllib3 in /usr/local/lib/python3.6/dist-packages (1.2
      Requirement already satisfied: wordcloud in /usr/local/lib/python3.6/dist-packages (1
      Requirement already satisfied: numpy>=1.6.1 in /usr/local/lib/python3.6/dist-packages
      Requirement already satisfied: pillow in /usr/local/lib/python3.6/dist-packages (from
```

```
filepath = "http://www.sthda.com/sthda/RDoc/example-files/martin-luther-king-i-have-a-drea

# Get file contents from URL
http = urllib3.PoolManager()
req = http.request('GET', filepath)

# Get data
text = str(req.data)
text
```

```
⌐→    "b'\\nAnd so even though we face the difficulties of today and tomorrow, I still have
```

```
# importing word_tokenize from nltk
from nltk.tokenize import word_tokenize
nltk.download('punkt')

# Passing the string text into word tokenize for breaking the sentences
token = word_tokenize(text)
token
```

```
⌐→
```

```
[nltk_data] Downloading package punkt to /root/nltk_data...
[nltk_data]    Package punkt is already up-to-date!
["b'\\nAnd",
 'so',
 'even',
 'though',
 'we',
 'face',
 'the',
 'difficulties',
 'of',
 'today',
 'and',
 'tomorrow',
 ',',
 'I',
 'still',
 'have',
 'a',
 'dream',
 '.',
 'It',
 'is',
 'a',
 'dream',
 'deeply',
 'rooted',
 'in',
 'the',
 'American',
 'dream.\\n',
 '\\nI',
 'have',
 'a',
 'dream',
 'that',
 'one',
 'day',
 'this',
 'nation',
 'will',
 'rise',
 'up',
 'and',
 'live',
 'out',
 'the',
 'true',
 'meaning',
 'of',
 'its',
 'creed',
 ':',
 '\\n',
 '\\nWe',
 'hold',
 'these',
 'truths',
 'to',
 'be',
 'self-evident',
```

```
    ',',
    'that',
    'all',
    'men',
    'are',
    'created',
    'equal.\\n',
    '\\nI',
    'have',
    'a',
    'dream',
    'that',
    'one',
    'day',
    'on',
    'the',
    'red',
    'hills',
    'of',
    'Georgia',
    ',',
    'the',
    'sons',
    'of',
    'former',
    'slaves',
    'and',
    'the',
    'sons',
    'of',
    'former',
    'slave',
    'owners',
    'will',
    'be',
    'able',
    'to',
    'sit',
    'down',
    'together',
    'at',
    'the',
    'table',
    'of',
    'brotherhood.\\n',
    '\\nI',
    'have',
    'a',
    'dream',
    'that',
    'one',
    'day',
    'even',
    'the',
    'state',
    'of',
    'Mississippi',
    ',',
    'a',
    'state',
    'sweltering',
    'with',
```

```
    'with',
    'the',
    'heat',
    'of',
    'injustice',
    ',',
    'sweltering',
    'with',
    'the',
    'heat',
    'of',
    'oppression',
    ',',
    'will',
    'be',
    'transformed',
    'into',
    'an',
    'oasis',
    'of',
    'freedom',
    'and',
    'justice.\\n',
    '\\nI',
    'have',
    'a',
    'dream',
    'that',
    'my',
    'four',
    'little',
    'children',
    'will',
    'one',
    'day',
    'live',
    'in',
    'a',
    'nation',
    'where',
    'they',
    'will',
    'not',
    'be',
    'judged',
    'by',
    'the',
    'color',
    'of',
    'their',
    'skin',
    'but',
    'by',
    'the',
    'content',
    'of',
    'their',
    'character.\\n',
    '\\nI',
    'have',
    'a',
    'dream',
```

```
'today',
'!',
'\\n',
'\\nI',
'have',
'a',
'dream',
'that',
'one',
'day',
',',
'down',
'in',
'Alabama',
',',
'with',
'its',
'vicious',
'racists',
',',
'with',
'its',
'governor',
'having',
'his',
'lips',
'dripping',
'with',
'the',
'words',
'of',
'interposition',
'and',
'nullification',
',',
'one',
'day',
'right',
'there',
'in',
'Alabama',
'little',
'black',
'boys',
'and',
'black',
'girls',
'will',
'be',
'able',
'to',
'join',
'hands',
'with',
'little',
'white',
'boys',
'and',
'white',
'girls',
'as',
'sisters',
```

```
       'and',
       'brothers.\\n',
       '\\nI',
       'have',
       'a',
       'dream',
       'today',
       '!',
       '\\n',
       '\\nI',
       'have',
       'a',
       'dream',
       'that',
       'one',
       'day',
       'every',
       'valley',
       'shall',
       'be',
       'exalted',
       ',',
       'and',
       'every',
       'hill',
       'and',
       'mountain',
       'shall',
       'be',
       'made',
       'low',
       ',',
       'the',
       'rough',
       'places',
       'will',
       'be',
       'made',
       'plain',
       ',',
       'and',
       'the',
       'crooked',
       'places',
       'will',
       'be',
       'made',
       'straight',
       ';',
       'and',
       'the',
       'glory',
       'of',
       'the',
       'Lord',
       'shall',
       'be',
       'revealed',
       'and',
       'all',
       'flesh',
```

```
        'shall',
        'see',
        'it',
        'together.\\n',
        '\\nThis',
        'is',
        'our',
        'hope',
        ',',
        'and',
        'this',
        'is',
        'the',
        'faith',
        'that',
        'I',
        'go',
        'back',
        'to',
        'the',
        'South',
        'with.\\n',
        '\\nWith',
        'this',
        'faith',
        ',',
        'we',
        'will',
        'be',
        'able',
        'to',
        'hew',
        'out',
        'of',
        'the',
        'mountain',
        'of',
        'despair',
        'a',
        'stone',
        'of',
        'hope',
        '.',
        'With',
        'this',
        'faith',
        ',',
        'we',
        'will',
        'be',
        'able',
        'to',
        'transform',
        'the',
        'jangling',
        'discords',
        'of',
        'our',
        'nation',
        'into',
        'a',
        'beautiful'.
```

```
    'symphony',
    'of',
    'brotherhood',
    '.',
    'With',
    'this',
    'faith',
    ',',
    'we',
    'will',
    'be',
    'able',
    'to',
    'work',
    'together',
    ',',
    'to',
    'pray',
    'together',
    ',',
    'to',
    'struggle',
    'together',
    ',',
    'to',
    'go',
    'to',
    'jail',
    'together',
    ',',
    'to',
    'stand',
    'up',
    'for',
    'freedom',
    'together',
    ',',
    'knowing',
    'that',
    'we',
    'will',
    'be',
    'free',
    'one',
    'day.\\n',
    '\\nAnd',
    'this',
    'will',
    'be',
    'the',
    'day',
    ',',
    'this',
    'will',
    'be',
    'the',
    'day',
    'when',
    'all',
    'of',
    'God',
```

```
's',
'children',
'will',
'be',
'able',
'to',
'sing',
'with',
'new',
'meaning',
':',
'\\n',
'\\nMy',
'country',
'tis',
'of',
'thee',
',',
'sweet',
'land',
'of',
'liberty',
',',
'of',
'thee',
'I',
'sing.\\nLand',
'where',
'my',
'fathers',
'died',
',',
'land',
'of',
'the',
'Pilgrim',
's',
'pride',
',',
'\\nFrom',
'every',
'mountainside',
',',
'let',
'freedom',
'ring',
'!',
'\\nAnd',
'if',
'America',
'is',
'to',
'be',
'a',
'great',
'nation',
',',
'this',
'must',
'become',
'true.\\nAnd',
'so',
```

```
'let',
'freedom',
'ring',
'from',
'the',
'prodigious',
'hilltops',
'of',
'New',
'Hampshire.\\nLet',
'freedom',
'ring',
'from',
'the',
'mighty',
'mountains',
'of',
'New',
'York.\\nLet',
'freedom',
'ring',
'from',
'the',
'heightening',
'Alleghenies',
'of',
'Pennsylvania.\\nLet',
'freedom',
'ring',
'from',
'the',
'snow-capped',
'Rockies',
'of',
'Colorado.\\nLet',
'freedom',
'ring',
'from',
'the',
'curvaceous',
'slopes',
'of',
'California.\\n',
'\\nBut',
'not',
'only',
'that',
':',
'\\nLet',
'freedom',
'ring',
'from',
'Stone',
'Mountain',
'of',
'Georgia.\\nLet',
'freedom',
'ring',
'from',
'Lookout',
'Mountain',
```

```
 'of',
 'Tennessee.\\nLet',
 'freedom',
 'ring',
 'from',
 'every',
 'hill',
 'and',
 'molehill',
 'of',
 'Mississippi.\\nFrom',
 'every',
 'mountainside',
 ',',
 'let',
 'freedom',
 'ring.\\nAnd',
 'when',
 'this',
 'happens',
 ',',
 'when',
 'we',
 'allow',
 'freedom',
 'ring',
 ',',
 'when',
 'we',
 'let',
 'it',
 'ring',
 'from',
 'every',
 'village',
 'and',
 'every',
 'hamlet',
 ',',
 'from',
 'every',
 'state',
 'and',
 'every',
 'city',
 ',',
 'we',
 'will',
 'be',
 'able',
 'to',
 'speed',
 'up',
 'that',
 'day',
 'when',
 'all',
 'of',
 'God',
 's',
 'children',
 ',',
```

```
        'black',
        'men',
        'and',
        'white',
        'men',
        ',',
        'Jews',
        'and',
        'Gentiles',
        ',',
        'Protestants',
        'and',
        'Catholics',
        ',',
        'will',
        'be',
        'able',
        'to',
        'join',
        'hands',
        'and',
        'sing',
        'in',
        'the',
        'words',
        'of',
        'the',
        'old',
        'Negro',
        'spiritual',
        ':',
        '\\nFree',
        'at',
        'last',
        '!',
        'Free',
        'at',
        'last',
        '!',
        '\\n',
        '\\nThank',
        'God',
        'Almighty',
        ',',
        'we',
        'are',
        'free',
        'at',
        'last',
        '!',
        '\\n',
        "'"]
```

```
from nltk.probability import FreqDist
fdist = FreqDist(token)
fdist
```

⤷

```
FreqDist({'!': 6,
          "'": 1,
          ',': 39,
          '.': 3,
          ':': 4,
          ';': 1,
          'Alabama': 2,
          'Alleghenies': 1,
          'Almighty': 1,
          'America': 1,
          'American': 1,
          'California.\\n': 1,
          'Catholics': 1,
          'Colorado.\\nLet': 1,
          'Free': 1,
          'Gentiles': 1,
          'Georgia': 1,
          'Georgia.\\nLet': 1,
          'God': 3,
          'Hampshire.\\nLet': 1,
          'I': 3,
          'It': 1,
          'Jews': 1,
          'Lookout': 1,
          'Lord': 1,
          'Mississippi': 1,
          'Mississippi.\\nFrom': 1,
          'Mountain': 2,
          'Negro': 1,
          'New': 2,
          'Pennsylvania.\\nLet': 1,
          'Pilgrim': 1,
          'Protestants': 1,
          'Rockies': 1,
          'South': 1,
          'Stone': 1,
          'Tennessee.\\nLet': 1,
          'With': 2,
          'York.\\nLet': 1,
          '\\n': 6,
          '\\nAnd': 2,
          '\\nBut': 1,
          '\\nFree': 1,
          '\\nFrom': 1,
          '\\nI': 8,
          '\\nLet': 1,
          '\\nMy': 1,
          '\\nThank': 1,
          '\\nThis': 1,
          '\\nWe': 1,
          '\\nWith': 1,
          'a': 15,
          'able': 8,
          'all': 4,
          'allow': 1,
          'an': 1,
          'and': 21,
          'are': 2,
          'as': 1,
          'at': 4,
          "b'\\nAnd": 1,
```

```
'back': 1,
'be': 20,
'beautiful': 1,
'become': 1,
'black': 3,
'boys': 2,
'brotherhood': 1,
'brotherhood.\\n': 1,
'brothers.\\n': 1,
'but': 1,
'by': 2,
'character.\\n': 1,
'children': 3,
'city': 1,
'color': 1,
'content': 1,
'country': 1,
'created': 1,
'creed': 1,
'crooked': 1,
'curvaceous': 1,
'day': 10,
'day.\\n': 1,
'deeply': 1,
'despair': 1,
'died': 1,
'difficulties': 1,
'discords': 1,
'down': 2,
'dream': 10,
'dream.\\n': 1,
'dripping': 1,
'equal.\\n': 1,
'even': 2,
'every': 9,
'exalted': 1,
'face': 1,
'faith': 4,
'fathers': 1,
'flesh': 1,
'for': 1,
'former': 2,
'four': 1,
'free': 2,
'freedom': 13,
'from': 10,
'girls': 2,
'glory': 1,
'go': 2,
'governor': 1,
'great': 1,
'hamlet': 1,
'hands': 2,
'happens': 1,
'have': 9,
'having': 1,
'heat': 2,
'heightening': 1,
'hew': 1,
'hill': 2,
'hills': 1,
'hilltops': 1,
```

```
'hilltops': 1,
'his': 1,
'hold': 1,
'hope': 2,
'if': 1,
'in': 5,
'injustice': 1,
'interposition': 1,
'into': 2,
'is': 4,
'it': 2,
'its': 3,
'jail': 1,
'jangling': 1,
'join': 2,
'judged': 1,
'justice.\\n': 1,
'knowing': 1,
'land': 2,
'last': 3,
'let': 4,
'liberty': 1,
'lips': 1,
'little': 3,
'live': 2,
'low': 1,
'made': 3,
'meaning': 2,
'men': 3,
'mighty': 1,
'molehill': 1,
'mountain': 2,
'mountains': 1,
'mountainside': 2,
'must': 1,
'my': 2,
'nation': 4,
'new': 1,
'not': 2,
'nullification': 1,
'oasis': 1,
'of': 34,
'old': 1,
'on': 1,
'one': 8,
'only': 1,
'oppression': 1,
'our': 2,
'out': 2,
'owners': 1,
'places': 2,
'plain': 1,
'pray': 1,
'pride': 1,
'prodigious': 1,
'racists': 1,
'red': 1,
'revealed': 1,
'right': 1,
'ring': 11,
'ring.\\nAnd': 1,
'rise': 1,
```

```
             'rooted': 1,
             'rough': 1,
             's': 3,
             'see': 1,
             'self-evident': 1,
             'shall': 4,
             'sing': 2,
             'sing.\\nLand': 1,
             'sisters': 1,
             'sit': 1,
             'skin': 1,
             'slave': 1,
             'slaves': 1,
             'slopes': 1,
             'snow-capped': 1,
             'so': 2,
             'sons': 2,
             'speed': 1,
             'spiritual': 1,
             'stand': 1,
             'state': 3,
             'still': 1,
             'stone': 1,
             'straight': 1,
             'struggle': 1,
             'sweet': 1,
             'sweltering': 2,
             'symphony': 1,
             'table': 1,
             'that': 11,
             'the': 31,
             'thee': 2,
             'their': 2,
             'there': 1,
             'these': 1,
             'they': 1,
             'this': 9,
             'though': 1,
             'tis': 1,
             'to': 16,
             'today': 3,
             'together': 6,
             'together.\\n': 1,
             'tomorrow': 1,
             'transform': 1,
             'transformed': 1,
             'true': 1,
             'true.\\nAnd': 1,
             'truths': 1,
             'up': 3,
             'valley': 1,
             'vicious': 1,
             'village': 1,
             'we': 9,
             'when': 5,
             'where': 2,
             'white': 3,
             'will': 17,
             'with': 7,
             'with.\\n': 1,
             'words': 2,
             'work': 1})
```

```
work + 1))
```

```python
filter_words = dict([(m, n) for m, n in fdist.items() if len(m) > 3])
filter_words
```

```
{'Alabama': 2,
 'Alleghenies': 1,
 'Almighty': 1,
 'America': 1,
 'American': 1,
 'California.\\n': 1,
 'Catholics': 1,
 'Colorado.\\nLet': 1,
 'Free': 1,
 'Gentiles': 1,
 'Georgia': 1,
 'Georgia.\\nLet': 1,
 'Hampshire.\\nLet': 1,
 'Jews': 1,
 'Lookout': 1,
 'Lord': 1,
 'Mississippi': 1,
 'Mississippi.\\nFrom': 1,
 'Mountain': 2,
 'Negro': 1,
 'Pennsylvania.\\nLet': 1,
 'Pilgrim': 1,
 'Protestants': 1,
 'Rockies': 1,
 'South': 1,
 'Stone': 1,
 'Tennessee.\\nLet': 1,
 'With': 2,
 'York.\\nLet': 1,
 '\\nAnd': 2,
 '\\nBut': 1,
 '\\nFree': 1,
 '\\nFrom': 1,
 '\\nLet': 1,
 '\\nMy': 1,
 '\\nThank': 1,
 '\\nThis': 1,
 '\\nWe': 1,
 '\\nWith': 1,
 'able': 8,
 'allow': 1,
 "b'\\nAnd": 1,
 'back': 1,
 'beautiful': 1,
 'become': 1,
 'black': 3,
 'boys': 2,
 'brotherhood': 1,
 'brotherhood.\\n': 1,
 'brothers.\\n': 1,
 'character.\\n': 1,
 'children': 3,
 'city': 1,
 'color': 1,
 'content': 1,
 'country': 1,
 'created': 1,
 'creed': 1,
 'crooked': 1,
 'curvaceous': 1,
 'day.\\n': 1,
```

```
        'deeply': 1,
        'despair': 1,
        'died': 1,
        'difficulties': 1,
        'discords': 1,
        'down': 2,
        'dream': 10,
        'dream.\\n': 1,
        'dripping': 1,
        'equal.\\n': 1,
        'even': 2,
        'every': 9,
        'exalted': 1,
        'face': 1,
        'faith': 4,
        'fathers': 1,
        'flesh': 1,
        'former': 2,
        'four': 1,
        'free': 2,
        'freedom': 13,
        'from': 10,
        'girls': 2,
        'glory': 1,
        'governor': 1,
        'great': 1,
        'hamlet': 1,
        'hands': 2,
        'happens': 1,
        'have': 9,
        'having': 1,
        'heat': 2,
        'heightening': 1,
        'hill': 2,
        'hills': 1,
        'hilltops': 1,
        'hold': 1,
        'hope': 2,
        'injustice': 1,
        'interposition': 1,
        'into': 2,
        'jail': 1,
        'jangling': 1,
        'join': 2,
        'judged': 1,
        'justice.\\n': 1,
        'knowing': 1,
        'land': 2,
        'last': 3,
        'liberty': 1,
        'lips': 1,
        'little': 3,
        'live': 2,
        'made': 3,
        'meaning': 2,
        'mighty': 1,
        'molehill': 1,
        'mountain': 2,
        'mountains': 1,
        'mountainside': 2,
        'must': 1,
        'nation': 4,
```

```
             ...     . .,
             'nullification': 1,
             'oasis': 1,
             'only': 1,
             'oppression': 1,
             'owners': 1,
             'places': 2,
             'plain': 1,
             'pray': 1,
             'pride': 1,
             'prodigious': 1,
             'racists': 1,
             'revealed': 1,
             'right': 1,
             'ring': 11,
             'ring.\\nAnd': 1,
             'rise': 1,
             'rooted': 1,
             'rough': 1,
             'self-evident': 1,
             'shall': 4,
             'sing': 2,
             'sing.\\nLand': 1,
             'sisters': 1,
             'skin': 1,
             'slave': 1,
             'slaves': 1,
             'slopes': 1,
             'snow-capped': 1,
             'sons': 2,
             'speed': 1,
             'spiritual': 1,
             'stand': 1,
             'state': 3,
             'still': 1,
             'stone': 1,
             'straight': 1,
             'struggle': 1,
             'sweet': 1,
             'sweltering': 2,
             'symphony': 1,
             'table': 1,
             'that': 11,
             'thee': 2,
             'their': 2,
             'there': 1,
             'these': 1,
             'they': 1,
             'this': 9,
             'though': 1,
             'today': 3,
             'together': 6,
             'together.\\n': 1,
             'tomorrow': 1,
             'transform': 1,
             'transformed': 1,
             'true': 1,
             'true.\\nAnd': 1,
             'truths': 1,
             'valley': 1,
             'vicious': 1,
             'village': 1,
```

```
        'when': 5,
        'where': 2,
        'white': 3,
        'will': 17,
        'with': 7,
        'with.\\n': 1,
        'words': 2,
        'work': 1}
```

```
# lower max_font_size, change the maximum number of word and lighten the background:
wordcloud = WordCloud(max_font_size=100, max_words=500, background_color="white").generate
plt.figure()
plt.imshow(wordcloud, interpolation="bilinear")
plt.axis("off")
plt.show()
```