

DonorsChoose

DonorsChoose.org receives hundreds of thousands of project proposals each year for classroom projects in need of funding. Right now, a large number of volunteers is needed to manually screen each submission before it's approved to be posted on the DonorsChoose.org website.

Next year, DonorsChoose.org expects to receive close to 500,000 project proposals. As a result, there are three main problems they need to solve:

- How to scale current manual processes and resources to screen 500,000 projects so that they can be posted as quickly and as efficiently as possible
- How to increase the consistency of project vetting across different volunteers to improve the experience for teachers
- How to focus volunteer time on the applications that need the most assistance

The goal of the competition is to predict whether or not a DonorsChoose.org project proposal submitted by a teacher will be approved, using the text of project descriptions as well as additional metadata about the project, teacher, and school. DonorsChoose.org can then use this information to identify projects most likely to need further review before approval.

About the DonorsChoose Data Set

The `train.csv` data set provided by DonorsChoose contains the following features:

Feature		Description
<code>project_id</code>		A unique identifier for the proposed project. Example: p036502
<code>project_title</code>	<ul style="list-style-type: none">••	Title of the project. Examples: <code>Art Will Make You Happy!</code> <code>First Grade Fun</code>
<code>project_grade_category</code>	<ul style="list-style-type: none">••••	Grade level of students for which the project is targeted. One of the following enumerated values: <code>Grades PreK-2</code> <code>Grades 3-5</code> <code>Grades 6-8</code> <code>Grades 9-12</code>
<code>project_subject_categories</code>	<ul style="list-style-type: none">•••••••••	One or more (comma-separated) subject categories for the project from the following enumerated list of values: <code>Applied Learning</code> <code>Care & Hunger</code> <code>Health & Sports</code> <code>History & Civics</code> <code>Literacy & Language</code> <code>Math & Science</code> <code>Music & The Arts</code> <code>Special Needs</code> <code>Warmth</code> Examples: <ul style="list-style-type: none">• <code>Music & The Arts</code>• <code>Literacy & Language, Math & Science</code>
<code>school_state</code>		State where school is located (Two-letter U.S. postal code). Example: WY
<code>project_subject_subcategories</code>	<ul style="list-style-type: none">••	One or more (comma-separated) subject subcategories for the project. Examples: <code>Literacy</code> <code>Literature & Writing, Social Sciences</code>
<code>project_resource_summary</code>	<ul style="list-style-type: none">•	An explanation of the resources needed for the project. Example: <code>My students need hands on literacy materials to manage sensory needs!</code>
<code>project_essay_1</code>		First application essay*
<code>project_essay_2</code>		Second application essay*
<code>project_essay_3</code>		Third application essay*

Feature	Description
<code>project_essay_4</code>	Fourth application essay
<code>project_submitted_datetime</code>	Datetime when project application was submitted. Example: 2016-04-28 12:43:56.245
<code>teacher_id</code>	A unique identifier for the teacher of the proposed project. Example: bdf8baa8fedef6bfeec7ae4ff1c15c56
<code>teacher_prefix</code>	Teacher's title. One of the following enumerated values: <ul style="list-style-type: none"> nan Dr. Mr. Mrs. Ms. Teacher.
<code>teacher_number_of_previously_posted_projects</code>	Number of project applications previously submitted by the same teacher. Example: 2

* See the section **Notes on the Essay Data** for more details about these features.

Additionally, the `resources.csv` data set provides more data about the resources required for each project. Each line in this file represents a resource required by a project:

Feature	Description
<code>id</code>	A <code>project_id</code> value from the <code>train.csv</code> file. Example: p036502
<code>description</code>	Description of the resource. Example: Tenor Saxophone Reeds, Box of 25
<code>quantity</code>	Quantity of the resource required. Example: 3
<code>price</code>	Price of the resource required. Example: 9.95

Note: Many projects require multiple resources. The `id` value corresponds to a `project_id` in `train.csv`, so you use it as a key to retrieve all resources needed for a project:

The data set contains the following label (the value you will attempt to predict):

Label	Description
<code>project_is_approved</code>	A binary flag indicating whether DonorsChoose approved the project. A value of 0 indicates the project was not approved, and a value of 1 indicates the project was approved.

Notes on the Essay Data

Prior to May 17, 2016, the prompts for the essays were as follows:

- `__project_essay_1__`: "Introduce us to your classroom"
- `__project_essay_2__`: "Tell us more about your students"
- `__project_essay_3__`: "Describe how your students will use the materials you're requesting"
- `__project_essay_3__`: "Close by sharing why your project will make a difference"

Starting on May 17, 2016, the number of essays was reduced from 4 to 2, and the prompts for the first 2 essays were changed to the following:

- `__project_essay_1__`: "Describe your students: What makes your students special? Specific details about their background, your neighborhood, and your school are all helpful."
- `__project_essay_2__`: "About your project: How will these materials make a difference in your students' learning and improve their school lives?"

For all projects with `project_submitted_datetime` of 2016-05-17 and later, the values of `project_essay_3` and `project_essay_4` will be NaN.

In [0]:

```
#from google.colab import drive
#drive.mount('/content/drive')
```

In [3]:

```
%matplotlib inline
import warnings
warnings.filterwarnings("ignore")
```

```

import squites
import pandas as pd
import numpy as np
import nltk
import string
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.feature_extraction.text import TfidfTransformer
from sklearn.feature_extraction.text import TfidfVectorizer

from sklearn.feature_extraction.text import CountVectorizer
from sklearn.metrics import confusion_matrix
from sklearn import metrics
from sklearn.metrics import roc_curve, auc
from nltk.stem.porter import PorterStemmer

import re
# Tutorial about Python regular expressions: https://pymotw.com/2/re/
import string
from nltk.corpus import stopwords
from nltk.stem import PorterStemmer
from nltk.stem.wordnet import WordNetLemmatizer

from gensim.models import Word2Vec
from gensim.models import KeyedVectors
import pickle

from tqdm import tqdm
import os

!pip install chart_studio

import chart_studio.plotly as plotly
import plotly.offline as offline
import plotly.graph_objs as go
offline.init_notebook_mode()
from collections import Counter

```

```

Collecting chart_studio
  Downloading
https://files.pythonhosted.org/packages/b9/3f/d2f3f506balaaf109f549f8b01d1483cd3e324c5ebe6b206aceef
f46/chart_studio-1.0.0-py3-none-any.whl (76kB)
    |██████████████████████████████████████| 81kB 5.2MB/s
Requirement already satisfied: six in /usr/local/lib/python3.6/dist-packages (from chart_studio)
(1.12.0)
Requirement already satisfied: requests in /usr/local/lib/python3.6/dist-packages (from
chart_studio) (2.21.0)
Requirement already satisfied: retrying>=1.3.3 in /usr/local/lib/python3.6/dist-packages (from
chart_studio) (1.3.3)
Requirement already satisfied: plotly in /usr/local/lib/python3.6/dist-packages (from
chart_studio) (4.1.1)
Requirement already satisfied: urllib3<1.25,>=1.21.1 in /usr/local/lib/python3.6/dist-packages
(from requests->chart_studio) (1.24.3)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.6/dist-packages (from
requests->chart_studio) (2019.9.11)
Requirement already satisfied: chardet<3.1.0,>=3.0.2 in /usr/local/lib/python3.6/dist-packages
(from requests->chart_studio) (3.0.4)
Requirement already satisfied: idna<2.9,>=2.5 in /usr/local/lib/python3.6/dist-packages (from
requests->chart_studio) (2.8)
Installing collected packages: chart-studio
Successfully installed chart-studio-1.0.0

```

1.1 Reading Data

In [0]:

```

project_data = pd.read_csv('/content/drive/My
Drive/Mass3/Assignments_DonorsChoose_2018/train_data.csv')
resource_data = pd.read_csv('/content/drive/My
Drive/Mass3/Assignments_DonorsChoose_2018/resources.csv')

```

In [5]:

```
print("Number of data points in train data", project_data.shape)
print('-'*50)
print("The attributes of data :", project_data.columns.values)
```

Number of data points in train data (109248, 17)

```
-----
The attributes of data : ['Unnamed: 0' 'id' 'teacher_id' 'teacher_prefix' 'school_state'
'project_submitted_datetime' 'project_grade_category'
'project_subject_categories' 'project_subject_subcategories'
'project_title' 'project_essay_1' 'project_essay_2' 'project_essay_3'
'project_essay_4' 'project_resource_summary'
'teacher_number_of_previously_posted_projects' 'project_is_approved']
```

In [6]:

```
print("Number of data points in train data", resource_data.shape)
print(resource_data.columns.values)
resource_data.head(2)
```

Number of data points in train data (1541272, 4)
['id' 'description' 'quantity' 'price']

Out[6]:

	id	description	quantity	price
0	p233245	LC652 - Lakeshore Double-Space Mobile Drying Rack	1	149.00
1	p069063	Bouncy Bands for Desks (Blue support pipes)	3	14.95

1.2 preprocessing of project_subject_categories

In [0]:

```
categories = list(project_data['project_subject_categories'].values)
# remove special characters from list of strings python:
https://stackoverflow.com/a/47301924/4084039

# https://www.geeksforgeeks.org/removing-stop-words-nltk-python/
# https://stackoverflow.com/questions/23669024/how-to-strip-a-specific-word-from-a-string
# https://stackoverflow.com/questions/8270092/remove-all-whitespace-in-a-string-in-python
cat_list = []
for i in categories:
    temp = ""
    # consider we have text like this "Math & Science, Warmth, Care & Hunger"
    for j in i.split(','): # it will split it in three parts ["Math & Science", "Warmth", "Care & Hunger"]
        if 'The' in j.split(): # this will split each of the category based on space "Math & Science" => "Math", "&", "Science"
            j = j.replace('The', '') # if we have the words "The" we are going to replace it with '' (i.e removing 'The')
            j = j.replace(' ', '') # we are replacing all the ' ' (space) with '' (empty) ex: "Math & Science" => "Math&Science"
            temp += j.strip() + " " # " abc ".strip() will return "abc", remove the trailing spaces
            temp = temp.replace('&', '_') # we are replacing the & value into
    cat_list.append(temp.strip())

project_data['clean_categories'] = cat_list
project_data.drop(['project_subject_categories'], axis=1, inplace=True)

from collections import Counter
my_counter = Counter()
for word in project_data['clean_categories'].values:
    my_counter.update(word.split())

cat_dict = dict(my_counter)
sorted_cat_dict = dict(sorted(cat_dict.items(), key=lambda kv: kv[1]))
```

1.3 preprocessing of project_subject_subcategories

In [0]:

```
sub_categories = list(project_data['project_subject_subcategories'].values)
# remove special characters from list of strings python:
https://stackoverflow.com/a/47301924/4084039

# https://www.geeksforgeeks.org/removing-stop-words-nltk-python/
# https://stackoverflow.com/questions/23669024/how-to-strip-a-specific-word-from-a-string
# https://stackoverflow.com/questions/8270092/remove-all-whitespace-in-a-string-in-python

sub_cat_list = []
for i in sub_categories:
    temp = ""
    # consider we have text like this "Math & Science, Warmth, Care & Hunger"
    for j in i.split(','): # it will split it in three parts ["Math & Science", "Warmth", "Care & H
unger"]
        if 'The' in j.split(): # this will split each of the category based on space "Math & Scienc
e"=> "Math","&", "Science"
            j=j.replace('The','') # if we have the words "The" we are going to replace it with ''(i
.e removing 'The')
            j = j.replace(' ','') # we are placing all the ' '(space) with ''(empty) ex:"Math &
Science"=>"Math&Science"
            temp +=j.strip()+" #" abc ".strip() will return "abc", remove the trailing spaces
            temp = temp.replace('&','_')
            sub_cat_list.append(temp.strip())

project_data['clean_subcategories'] = sub_cat_list
project_data.drop(['project_subject_subcategories'], axis=1, inplace=True)

# count of all the words in corpus python: https://stackoverflow.com/a/22898595/4084039
my_counter = Counter()
for word in project_data['clean_subcategories'].values:
    my_counter.update(word.split())

sub_cat_dict = dict(my_counter)
sorted_sub_cat_dict = dict(sorted(sub_cat_dict.items(), key=lambda kv: kv[1]))
```

1.3 Text preprocessing

In [0]:

```
# merge two column text dataframe:
project_data["essay"] = project_data["project_essay_1"].map(str) + \
    project_data["project_essay_2"].map(str) + \
    project_data["project_essay_3"].map(str) + \
    project_data["project_essay_4"].map(str)
```

In [10]:

```
project_data.head(2)
```

Out[10]:

Unnamed: 0	id	teacher_id	teacher_prefix	school_state	project_submitted_datetime	project_grade_cate
0	160221 p253737	c90749f5d961ff158d4b4d1e7dc665fc	Mrs.	IN	2016-12-05 13:43:57	Grades P
1	140945 p258326	897464ce9ddc600bcd1151f324dd63a	Mr.	FL	2016-10-25 09:22:10	Grade

In [0]:

```
#### 1.4.2.3 Using Pretrained Models: TFIDF weighted W2V
```

In [12]:

```
# printing some random reviews
print(project_data['essay'].values[0])
print("="*50)
print(project_data['essay'].values[150])
print("="*50)
print(project_data['essay'].values[1000])
print("="*50)
print(project_data['essay'].values[20000])
print("="*50)
print(project_data['essay'].values[99999])
print("="*50)
```

My students are English learners that are working on English as their second or third languages. We are a melting pot of refugees, immigrants, and native-born Americans bringing the gift of language to our school. \r\n\r\n We have over 24 languages represented in our English Learner program with students at every level of mastery. We also have over 40 countries represented with the families within our school. Each student brings a wealth of knowledge and experiences to us that open our eyes to new cultures, beliefs, and respect.\"The limits of your language are the limits of your world.\"-Ludwig Wittgenstein Our English learner's have a strong support system at home that begs for more resources. Many times our parents are learning to read and speak English alongside of their children. Sometimes this creates barriers for parents to be able to help their child learn phonetics, letter recognition, and other reading skills.\r\n\r\nBy providing these dvd's and players, students are able to continue their mastery of the English language even if no one at home is able to assist. All families with students within the Level 1 proficiency status, will be offered to be a part of this program. These educational videos will be specially chosen by the English Learner Teacher and will be sent home regularly to watch. The videos are to help the child develop early reading skills.\r\n\r\nParents that do not have access to a dvd player will have the opportunity to check out a dvd player to use for the year. The plan is to use these videos and educational dvd's for the years to come for other EL students.\r\nnnnnnn

=====

The 51 fifth grade students that will cycle through my classroom this year all love learning, at least most of the time. At our school, 97.3% of the students receive free or reduced price lunch. Of the 560 students, 97.3% are minority students. \r\nThe school has a vibrant community that loves to get together and celebrate. Around Halloween there is a whole school parade to show off the beautiful costumes that students wear. On Cinco de Mayo we put on a big festival with crafts made by the students, dances, and games. At the end of the year the school hosts a carnival to celebrate the hard work put in during the school year, with a dunk tank being the most popular activity. My students will use these five brightly colored Hokki stools in place of regular, stationary, 4-legged chairs. As I will only have a total of ten in the classroom and not enough for each student to have an individual one, they will be used in a variety of ways. During independent reading time they will be used as special chairs students will each use on occasion. I will utilize them in place of chairs at my small group tables during math and reading times. The rest of the day they will be used by the students who need the highest amount of movement in their life in order to stay focused on school.\r\n\r\nWhenever asked what the classroom is missing, my students always say more Hokki Stools. They can't get their fill of the 5 stools we already have. When the students are sitting in a group with me on the Hokki Stools, they are always moving, but at the same time doing their work. Anytime the students get to pick where they can sit, the Hokki Stools are the first to be taken. There are always students who head over to the kidney table to get one of the stools who are disappointed as there are not enough of them. \r\n\r\nWe ask a lot of students to sit for 7 hours a day. The Hokki stools will be a compromise that allow my students to do desk work and move at the same time. These stools will help students to meet their 60 minutes a day of movement by allowing them to activate their core muscles for balance while they sit. For many of my students, these chairs will take away the barrier that exists in schools for a child who can't sit still.nnnnn

=====

How do you remember your days of school? Was it in a sterile environment with plain walls, rows of desks, and a teacher in front of the room? A typical day in our room is nothing like that. I work hard to create a warm inviting themed room for my students look forward to coming to each day.\r\n\r\nMy class is made up of 28 wonderfully unique boys and girls of mixed races in Arkansas.\r\nThey attend a Title I school, which means there is a high enough percentage of free and reduced-price lunch to qualify. Our school is an \"open classroom\" concept, which is very unique as there are no walls separating the classrooms. These 9 and 10 year-old students are very eager learners; they are like sponges, absorbing all the information and experiences and keep on wanting more. With these resources such as the comfy red throw pillows and the whimsical nautical hanging decor and the blue fish nets, I will be able to help create the mood in our classroom setting to be one of a themed nautical environment. Creating a classroom environment is very important in the success in each and every child's education. The nautical photo props will be used with each child as they step foot into our classroom for the first time on Meet the Teacher evening. I'll take pictures of each child with them, have them developed, and then hung in our classroom ready for their

first day of 4th grade. This kind gesture will set the tone before even the first day of school! The nautical thank you cards will be used throughout the year by the students as they create thank you cards to their team groups.\r\n\r\nYour generous donations will help me to help make our classroom a fun, inviting, learning environment from day one.\r\n\r\nIt costs lost of money out of my own pocket on resources to get our classroom ready. Please consider helping with this project t o make our new school year a very successful one. Thank you!nannan

My kindergarten students have varied disabilities ranging from speech and language delays, cognitive delays, gross/fine motor delays, to autism. They are eager beavers and always strive to work their hardest working past their limitations. \r\n\r\nThe materials we have are the ones I seek out for my students. I teach in a Title I school where most of the students receive free or reduced price lunch. Despite their disabilities and limitations, my students love coming to school and come eager to learn and explore. Have you ever felt like you had ants in your pants and you needed to groove and move as you were in a meeting? This is how my kids feel all the time. The want to be able to move as they learn or so they say. Wobble chairs are the answer and I love them because they develop their core, which enhances gross motor and in Turn fine motor skills. \r\n\r\nThey also want to learn through games, my kids don't want to sit and do worksheets. They want to learn to count by jumping and playing. Physical engagement is the key to our success. The number toss and color and shape mats can make that happen. My students will forget they are doing work and just have the fun a 6 year old deserves.nannan

The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires. -William A. Ward\r\n\r\nMy school has 803 students which is makeup is 97.6% African-American, making up the largest segment of the student body. A typical school in Dallas is made up of 23.2% African-American students. Most of the students are on free or reduced lunch. We aren't receiving doctors, lawyers, or engineers children from rich backgrounds or neighborhoods. As an educator I am inspiring minds of young children and we focus not only on academics but one smart, effective, efficient, and disciplined students with good character. In our classroom we can utilize the Bluetooth for swift transitions during class. I use a speaker which doesn't amplify the sound enough to receive the message. Due to the volume of my speaker my students can't hear videos or books clearly and it isn't making the lessons as meaningful. But with the bluetooth speaker my students will be able to hear and I can stop, pause and replay it at any time.\r\n\r\nThe cart will allow me to have more room for storage of things that are needed for the day and has an extra part to it I can use. The table top chart has all of the letter, words and pictures for students to learn about different letters and it is more accessible.nannan

In [0]:

```
# https://stackoverflow.com/a/47091490/4084039
import re

def decontracted(phrase):
    # specific
    phrase = re.sub(r"won't", "will not", phrase)
    phrase = re.sub(r"can't", "can not", phrase)

    # general
    phrase = re.sub(r"n't", " not", phrase)
    phrase = re.sub(r"\'re", " are", phrase)
    phrase = re.sub(r"\'s", " is", phrase)
    phrase = re.sub(r"\'d", " would", phrase)
    phrase = re.sub(r"\'ll", " will", phrase)
    phrase = re.sub(r"\'t", " not", phrase)
    phrase = re.sub(r"\'ve", " have", phrase)
    phrase = re.sub(r"\'m", " am", phrase)
    return phrase
```

In [14]:

```
sent = decontracted(project_data['essay'].values[20000])
print(sent)
print("=="*50)
```

My kindergarten students have varied disabilities ranging from speech and language delays, cognitive delays, gross/fine motor delays, to autism. They are eager beavers and always strive to work their hardest working past their limitations. \r\n\r\nThe materials we have are the ones I seek out for my students. I teach in a Title I school where most of the students receive free or reduced price lunch. Despite their disabilities and limitations, my students love coming to school and come eager to learn and explore. Have you ever felt like you had ants in your pants and you needed to groove and move as you were in a meeting? This is how my kids feel all the time. The want to be able to move as they learn or so they say. Wobble chairs are the answer and I love them because they develop their core, which enhances gross motor and in Turn fine motor skills. \r\n\r\nThey also want to learn through games, my kids do not want to sit and do worksheets. They want to learn to count by j

umping and playing. Physical engagement is the key to our success. The number toss and color and shape mats can make that happen. My students will forget they are doing work and just have the fun a 6 year old deserves.nannan

In [15]:

```
# \r \n \t remove from string python: http://texthandler.com/info/remove-line-breaks-python/
sent = sent.replace('\\\\r', ' ')
sent = sent.replace('\\\\n', ' ')
sent = sent.replace('\\\\t', ' ')
print(sent)
```

My kindergarten students have varied disabilities ranging from speech and language delays, cognitive delays, gross/fine motor delays, to autism. They are eager beavers and always strive to work their hardest working past their limitations. The materials we have are the ones I seek out for my students. I teach in a Title I school where most of the students receive free or reduced price lunch. Despite their disabilities and limitations, my students love coming to school and come eager to learn and explore. Have you ever felt like you had ants in your pants and you needed to groove and move as you were in a meeting? This is how my kids feel all the time. They want to be able to move as they learn or so they say. Wobble chairs are the answer and I love them because they develop their core, which enhances gross motor and in turn fine motor skills. They also want to learn through games, my kids do not want to sit and do worksheets. They want to learn to count by jumping and playing. Physical engagement is the key to our success. The number toss and color and shape mats can make that happen. My students will forget they are doing work and just have the fun a 6 year old deserves.nannan

In [16]:

```
#remove spacial character: https://stackoverflow.com/a/5843547/4084039
sent = re.sub('[^A-Za-z0-9]+', ' ', sent)
print(sent)
```

My kindergarten students have varied disabilities ranging from speech and language delays cognitive delays gross fine motor delays to autism They are eager beavers and always strive to work their hardest working past their limitations The materials we have are the ones I seek out for my students I teach in a Title I school where most of the students receive free or reduced price lunch Despite their disabilities and limitations my students love coming to school and come eager to learn and explore Have you ever felt like you had ants in your pants and you needed to groove and move as you were in a meeting This is how my kids feel all the time They want to be able to move as they learn or so they say Wobble chairs are the answer and I love them because they develop their core which enhances gross motor and in turn fine motor skills They also want to learn through games my kids do not want to sit and do worksheets They want to learn to count by jumping and playing Physical engagement is the key to our success The number toss and color and shape mats can make that happen My students will forget they are doing work and just have the fun a 6 year old deserves nannan

In [0]:

```
# https://gist.github.com/sebleier/554280
# we are removing the words from the stop words list: 'no', 'nor', 'not'
stopwords = ['i', 'me', 'my', 'myself', 'we', 'our', 'ours', 'ourselves', 'you', "you're", "you've", \
\
            "you'll", "you'd", 'your', 'yours', 'yourself', 'yourselves', 'he', 'him', 'his', \
'himself', \
            'she', "she's", 'her', 'hers', 'herself', 'it', "it's", 'its', 'itself', 'they', 'them', \
'their', \
            'theirs', 'themselves', 'what', 'which', 'who', 'whom', 'this', 'that', "that'll", \
'these', 'those', \
            'am', 'is', 'are', 'was', 'were', 'be', 'been', 'being', 'have', 'has', 'had', 'having', \
'do', 'does', \
            'did', 'doing', 'a', 'an', 'the', 'and', 'but', 'if', 'or', 'because', 'as', 'until', \
while, 'of', \
            'at', 'by', 'for', 'with', 'about', 'against', 'between', 'into', 'through', 'during', \
'before', 'after', \
            'above', 'below', 'to', 'from', 'up', 'down', 'in', 'out', 'on', 'off', 'over', 'under', \
, 'again', 'further', \
            'then', 'once', 'here', 'there', 'when', 'where', 'why', 'how', 'all', 'any', 'both', 'each', 'few', 'more', \
            'most', 'other', 'some', 'such', 'only', 'own', 'same', 'so', 'than', 'too', 'very', \
            's', 't', 'can', 'will', 'just', 'don', "don't", 'should', "should've", 'now', 'd', 'll', \
, 'm', 'o', 're', \
            've', 'y', 'ain', 'aren', "aren't", 'couldn', "couldn't", 'didn', "didn't", 'doesn', "doe
```



```
esn't", 'hadn',\
    "hadn't", 'hasn', "hasn't", 'haven', "haven't", 'isn', "isn't", 'ma', 'mightn',
"mightn't", 'mustn',\
    "mustn't", 'needn', "needn't", 'shan', "shan't", 'shouldn', "shouldn't", 'wasn',
"wasn't", 'weren', "weren't", \
    'won', "won't", 'wouldn', "wouldn't"]
```

In [18]:

```
# Combining all the above students
from tqdm import tqdm
preprocessed_essays = []
# tqdm is for printing the status bar
for sentence in tqdm(project_data['essay'].values):
    sent = decontracted(sentence)
    sent = sent.replace('\\r', ' ')
    sent = sent.replace('\\\"', ' ')
    sent = sent.replace('\\n', ' ')
    sent = re.sub('[^A-Za-z0-9]+', ' ', sent)
    # https://gist.github.com/sebleier/554280
    sent = ' '.join(e for e in sent.split() if e not in stopwords)
    preprocessed_essays.append(sent.lower().strip())
```

100%|██████████| 109248/109248 [00:56<00:00, 1920.93it/s]

In [19]:

```
# after preprocessing
preprocessed_essays[20000]
```

Out[19]:

'my kindergarten students varied disabilities ranging speech language delays cognitive delays gross fine motor delays autism they eager beavers always strive work hardest working past limitations the materials ones i seek students i teach title i school students receive free reduced price lunch despite disabilities limitations students love coming school come eager learn explore have ever felt like ants pants needed groove move meeting this kids feel time the want able move learn say wobble chairs answer i love develop core enhances gross motor turn fine motor skills they also want learn games kids not want sit worksheets they want learn count jumping playing physical engagement key success the number toss color shape mats make happen my students forget work fun 6 year old de serves nannan'

In [0]:

```
project_data["essays"] = preprocessed_essays

project_data.drop(['essay'], axis=1, inplace=True)
project_data.drop(['project_essay_1'], axis=1, inplace=True)
project_data.drop(['project_essay_2'], axis=1, inplace=True)
project_data.drop(['project_essay_3'], axis=1, inplace=True)
project_data.drop(['project_essay_4'], axis=1, inplace=True)
```

In [21]:

```
project_data.head(2)
```

Out[21]:

Unnamed: 0	id	teacher_id	teacher_prefix	school_state	project_submitted_datetime	project_grade_cat
0	160221 p253737	c90749f5d961ff158d4b4d1e7dc665fc	Mrs.	IN	2016-12-05 13:43:57	Grades P
1	140945 p258326	897464ce9ddc600bcd1151f324dd63a	Mr.	FL	2016-10-25 09:22:10	Grade

Unnamed:
0

id

teacher_id

teacher_prefix

school_state

project_submitted_datetime

project_grade_cate

1.4 Preprocessing of `project_title`

In [22]:

```
# Combining all the above statements
preprocessed_title = []
# tqdm is for printing the status bar
for sentence in tqdm(project_data['project_title'].values):
    sent = decontracted(sentence)
    sent = sent.replace('\\r', ' ')
    sent = sent.replace('\\\"', ' ')
    sent = sent.replace('\\n', ' ')
    sent = re.sub('[^A-Za-z0-9]+', ' ', sent)
    # https://gist.github.com/sebleier/554280
    sent = ' '.join(e for e in sent.split() if e not in stopwords)
    preprocessed_title.append(sent.lower().strip())
```

100%|██████████| 109248/109248 [00:02<00:00, 42784.25it/s]

In [23]:

```
# after preprocessing
preprocessed_title[0:4]
```

Out[23]:

```
['educational support english learners home',
 'wanted projector hungry learners',
 'soccer equipment awesome middle school students',
 'techie kindergarteners']
```

In [0]:

```
project_data["project_title"] = preprocessed_title
```

Preprocessing of 'Project_grade_category'

In [0]:

```
project_data['project_grade_category'] = project_data['project_grade_category'].replace('Grades PreK-2', 'Grades_PreK_2')
project_data['project_grade_category'] = project_data['project_grade_category'].replace('Grades 3-5', 'Grades_3_5')
project_data['project_grade_category'] = project_data['project_grade_category'].replace('Grades 6-8', 'Grades_6_8')
project_data['project_grade_category'] = project_data['project_grade_category'].replace('Grades 9-12', 'Grades_9_12')
```

1.5 Preparing data for models

In [26]:

```
project_data.columns
```

Out[26]:

```
Index(['Unnamed: 0', 'id', 'teacher_id', 'teacher_prefix', 'school_state',
       'project_submitted_datetime', 'project_grade_category', 'project_title',
       'project_resource_summary',
       'teacher_number_of_previously_posted_projects', 'project_is_approved',
       'clean_categories', 'clean_subcategories', 'essays'],
      dtype='object')
```

we are going to consider

- school_state : categorical data
- clean_categories : categorical data
- clean_subcategories : categorical data
- project_grade_category : categorical data
- teacher_prefix : categorical data
- project_title : text data
- text : text data
- project_resource_summary: text data (optinal)
- quantity : numerical (optinal)
- teacher_number_of_previously_posted_projects : numerical
- price : numerical

1.5.1 Vectorizing Categorical data

- <https://www.appliedaicourse.com/course/applied-ai-course-online/lessons/handling-categorical-and-numerical-features/>

In [27]:

```
# we use count vectorizer to convert the values into one
from sklearn.feature_extraction.text import CountVectorizer
vectorizer = CountVectorizer(vocabulary=list(sorted_cat_dict.keys()), lowercase=False, binary=True)
categories_one_hot = vectorizer.fit_transform(project_data['clean_categories'].values)
print(vectorizer.get_feature_names())
print("Shape of matrix after one hot encodig ",categories_one_hot.shape)
```

```
['Warmth', 'Care_Hunger', 'History_Civics', 'Music_Arts', 'AppliedLearning', 'SpecialNeeds',
'Health_Sports', 'Math_Science', 'Literacy_Language']
Shape of matrix after one hot encodig  (109248, 9)
```

In [28]:

```
# we use count vectorizer to convert the values into one
vectorizer = CountVectorizer(vocabulary=list(sorted_sub_cat_dict.keys()), lowercase=False, binary=True)
sub_categories_one_hot = vectorizer.fit_transform(project_data['clean_subcategories'].values)
print(vectorizer.get_feature_names())
print("Shape of matrix after one hot encodig ",sub_categories_one_hot.shape)
```

```
['Economics', 'CommunityService', 'FinancialLiteracy', 'ParentInvolvement', 'Extracurricular',
'Civics_Government', 'ForeignLanguages', 'NutritionEducation', 'Warmth', 'Care_Hunger',
'SocialSciences', 'PerformingArts', 'CharacterEducation', 'TeamSports', 'Other',
'College_CareerPrep', 'Music', 'History_Geography', 'Health_LifeScience', 'EarlyDevelopment', 'ESL',
'Gym_Fitness', 'EnvironmentalScience', 'VisualArts', 'Health_Wellness', 'AppliedSciences',
'SpecialNeeds', 'Literature_Writing', 'Mathematics', 'Literacy']
Shape of matrix after one hot encodig  (109248, 30)
```

State dictionary

In [29]:

```
from collections import Counter
my_counter1 = Counter()
for word in project_data['school_state'].values:
    my_counter1.update(word.split())

state_dict = dict(my_counter1)
sorted_state_dict = dict(sorted(state_dict.items(), key=lambda kv: kv[1]))
ind1 = np.arange(len(sorted_state_dict))
plt.figure(figsize=(20,5))
```

```

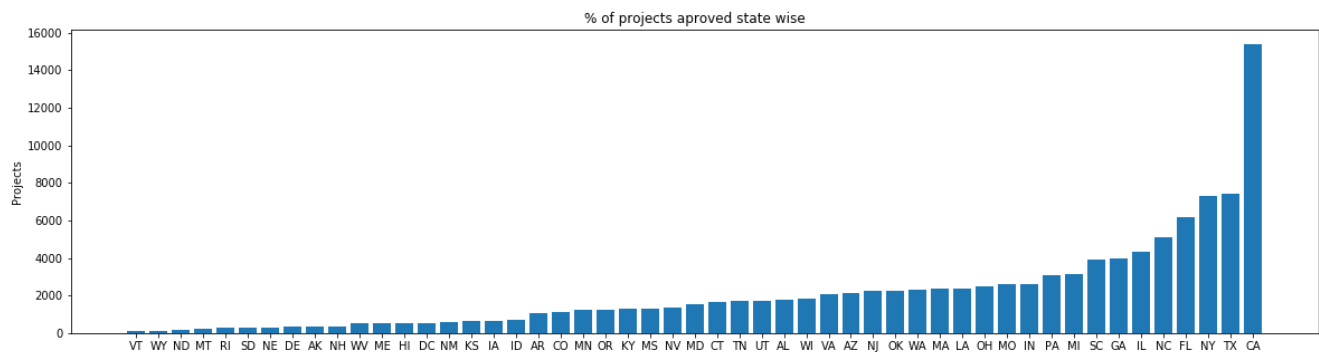
p2 = plt.bar(ind1, list(sorted_state_dict.values()))
plt.ylabel('Projects')
plt.title('% of projects aproved state wise')
plt.xticks(ind1, list(sorted_state_dict.keys()))
plt.show()

```

```

for i, j in sorted_state_dict.items():
    print("{:20} {:10}".format(i,j))

```



```

VT          :          80
WY          :          98
ND          :         143
MT          :         245
RI          :         285
SD          :         300
NE          :         309
DE          :         343
AK          :         345
NH          :         348
WV          :         503
ME          :         505
HI          :         507
DC          :         516
NM          :         557
KS          :         634
IA          :         666
ID          :         693
AR          :        1049
CO          :        1111
MN          :        1208
OR          :        1242
KY          :        1304
MS          :        1323
NV          :        1367
MD          :        1514
CT          :        1663
TN          :        1688
UT          :        1731
AL          :        1762
WI          :        1827
VA          :        2045
AZ          :        2147
NJ          :        2237
OK          :        2276
WA          :        2334
MA          :        2389
LA          :        2394
OH          :        2467
MO          :        2576
IN          :        2620
PA          :        3109
MI          :        3161
SC          :        3936
GA          :        3963
IL          :        4350
NC          :        5091
FL          :        6185
NY          :        7318
TX          :        7396
CA          :       15388

```

State

In [30]:

```
vectorizer = CountVectorizer(vocabulary=list(sorted_state_dict.keys()), lowercase=False, binary=True)
vectorizer.fit(project_data['school_state'].values)
print(vectorizer.get_feature_names())
```

```
state_one_hot = vectorizer.transform(project_data['school_state'].values)
print("Shape of matrix after one hot encodig ", state_one_hot.shape)
```

```
['VT', 'WY', 'ND', 'MT', 'RI', 'SD', 'NE', 'DE', 'AK', 'NH', 'WV', 'ME', 'HI', 'DC', 'NM', 'KS', 'IA', 'ID', 'AR', 'CO', 'MN', 'OR', 'KY', 'MS', 'NV', 'MD', 'CT', 'TN', 'UT', 'AL', 'WI', 'VA', 'AZ', 'NJ', 'OK', 'WA', 'MA', 'LA', 'OH', 'MO', 'IN', 'PA', 'MI', 'SC', 'GA', 'IL', 'NC', 'FL', 'NY', 'TX', 'CA']
```

```
Shape of matrix after one hot encodig (109248, 51)
```

Teacher_prefix Dictionary

In [0]:

```
project_data['teacher_prefix']=project_data['teacher_prefix'].fillna(method='ffill')
```

In [32]:

```
project_data['teacher_prefix'][30368:30372]
```

Out[32]:

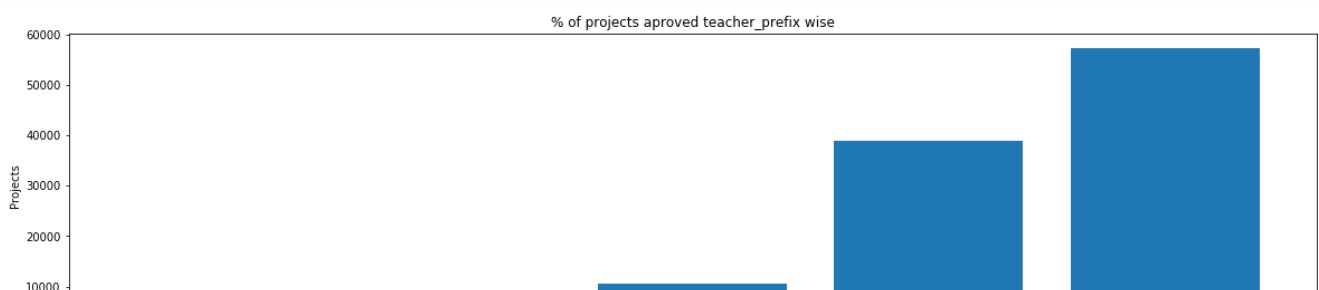
```
30368    Mrs.
30369    Mrs.
30370     Ms.
30371     Ms.
Name: teacher_prefix, dtype: object
```

In [33]:

```
from collections import Counter
my_counter2 = Counter()
for word in project_data['teacher_prefix'].values:
    my_counter2.update(word.split())

prefix_dict = dict(my_counter2)
sorted_prefix_dict = dict(sorted(prefix_dict.items(), key=lambda kv: kv[1]))
ind2 = np.arange(len(sorted_prefix_dict))
plt.figure(figsize=(20,5))
p2 = plt.bar(ind2, list(sorted_prefix_dict.values()))
plt.ylabel('Projects')
plt.title('% of projects aproved teacher_prefix wise')
plt.xticks(ind2, list(sorted_prefix_dict.keys()))
plt.show()

for i, j in sorted_prefix_dict.items():
    print("{:20} {:10}".format(i,j))
```





```
Dr.          :      13
Teacher      :     2360
Mr.          :    10648
Ms.          :    38956
Mrs.         :    57271
```

In [34]:

```
#Teacher_prefix

vectorizer = CountVectorizer(vocabulary=list(sorted_prefix_dict.keys()), lowercase=False, binary=True)
vectorizer.fit(project_data['teacher_prefix'].values)
print(vectorizer.get_feature_names())

teacher_prefix_one_hot = vectorizer.transform(project_data['teacher_prefix'].values)
print("Shape of matrix after one hot encodig ", teacher_prefix_one_hot.shape)

['Dr.', 'Teacher', 'Mr.', 'Ms.', 'Mrs.']
Shape of matrix after one hot encodig (109248, 5)
```

In [35]:

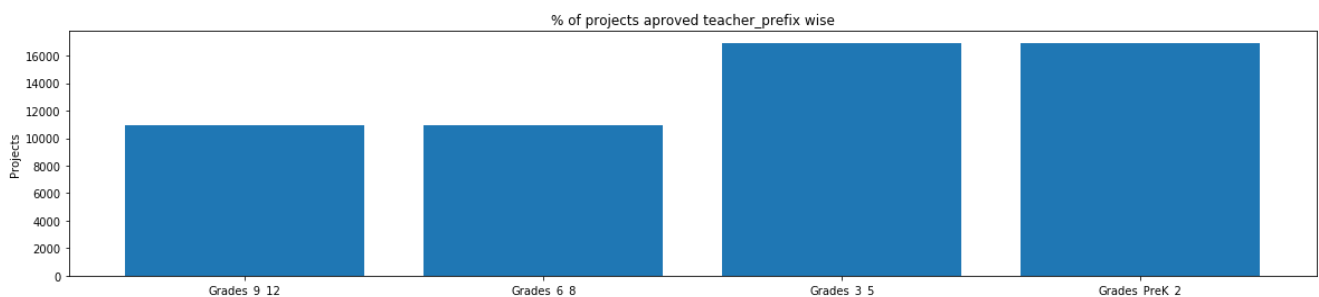
```
#project_grade_category Dictionary

#How_to_update_keys: https://www.geeksforgeeks.org/python-ways-to-change-keys-in-dictionary/

from collections import Counter
my_counter3 = Counter()
for word in project_data['project_grade_category'].values:
    my_counter3.update(word.split('_'))

grade_dict = dict(my_counter3)
sorted_grade_dict = dict(sorted(grade_dict.items(), key=lambda kv: kv[1]))
dict((sorted_grade_dict[key], value) for (key, value) in sorted_grade_dict.items())
updt_keys = ['Grades_9_12', 'Grades_6_8', 'Grades_3_5', 'Grades_PreK_2']
sorted_grade_dict = dict(zip(updt_keys, list(sorted_grade_dict.values())))
ind3 = np.arange(len(sorted_grade_dict))
plt.figure(figsize=(20,4))
p3 = plt.bar(ind3, list(sorted_grade_dict.values()))
plt.ylabel('Projects')
plt.title('% of projects aproved teacher_prefix wise')
plt.xticks(ind3, list(sorted_grade_dict.keys()))
plt.show()

for i, j in sorted_grade_dict.items():
    print("{:20} {:10}".format(i, j))
```



```
Grades_9_12   :    10963
Grades_6_8    :    10963
Grades_3_5    :    16923
Grades_PreK_2 :    16923
```

In [36]:

```
#project_grade_category
vectorizer = CountVectorizer(vocabulary=list(sorted_grade_dict.keys()), lowercase=False, binary=True)
vectorizer.fit(project_data['project_grade_category'].values)
print(vectorizer.get_feature_names())

grade_cat_one_hot = vectorizer.transform(project_data['project_grade_category'].values)
print("Shape of matrix after one hot encoding ", grade_cat_one_hot.shape)

['Grades_9_12', 'Grades_6_8', 'Grades_3_5', 'Grades_PreK_2']
Shape of matrix after one hot encoding (109248, 4)
```

1.5.2 Vectorizing Text data

1.5.2.1 Bag of words

In [37]:

```
# We are considering only the words which appeared in at least 10 documents (rows or projects).
vectorizer = CountVectorizer(min_df=10)
text_bow = vectorizer.fit_transform(preprocessed_essays)
print("Shape of matrix after one hot encoding ", text_bow.shape)
```

Shape of matrix after one hot encoding (109248, 16623)

In [38]:

```
# you can vectorize the title also
# before you vectorize the title make sure you preprocess it
preprocessed_title = []
# tqdm is for printing the status bar
for sentence in tqdm(project_data['project_title'].values):
    sent = decontracted(sentence)
    sent = sent.replace('\\r', ' ')
    sent = sent.replace('\\\"', ' ')
    sent = sent.replace('\\n', ' ')
    sent = re.sub('[^A-Za-z0-9]+', ' ', sent)
    # https://gist.github.com/sebleier/554280
    sent = ' '.join(e for e in sent.split() if e not in stopwords)
    preprocessed_title.append(sent.lower().strip())
```

100%|██████████| 109248/109248 [00:02<00:00, 48400.23it/s]

In [39]:

```
# Similarly you can vectorize for title also
vectorizer = CountVectorizer(min_df=10)
text_bow = vectorizer.fit_transform(preprocessed_title)
print("Shape of matrix after one hot encoding ", text_bow.shape)
```

Shape of matrix after one hot encoding (109248, 3222)

1.5.2.2 TFIDF vectorizer

In [40]:

```
from sklearn.feature_extraction.text import TfidfVectorizer
vectorizer = TfidfVectorizer(min_df=10)
text_tfidf = vectorizer.fit_transform(preprocessed_essays)
print("Shape of matrix after one hot encoding ", text_tfidf.shape)
```

Shape of matrix after one hot encoding (109248, 16623)

1.5.2.3 Using Pretrained Models: Avg W2V

In [41]:

```
'''
# Reading glove vectors in python: https://stackoverflow.com/a/38230349/4084039
def loadGloveModel(gloveFile):
    print ("Loading Glove Model")
    f = open(gloveFile,'r', encoding="utf8")
    model = {}
    for line in tqdm(f):
        splitLine = line.split()
        word = splitLine[0]
        embedding = np.array([float(val) for val in splitLine[1:]])
        model[word] = embedding
    print ("Done.",len(model)," words loaded!")
    return model
model = loadGloveModel('glove.42B.300d.txt')

# =====
Output:

Loading Glove Model
1917495it [06:32, 4879.69it/s]
Done. 1917495 words loaded!

# =====

words = []
for i in preprocod_texts:
    words.extend(i.split(' '))

for i in preprocod_titles:
    words.extend(i.split(' '))
print("all the words in the coupus", len(words))
words = set(words)
print("the unique words in the coupus", len(words))

inter_words = set(model.keys()).intersection(words)
print("The number of words that are present in both glove vectors and our coupus", \
      len(inter_words), "(" ,np.round(len(inter_words)/len(words)*100,3), "%")

words_courpus = {}
words_glove = set(model.keys())
for i in words:
    if i in words_glove:
        words_courpus[i] = model[i]
print("word 2 vec length", len(words_courpus))

# stronging variables into pickle files python: http://www.jessicayung.com/how-to-use-pickle-to-sa
ve-and-load-variables-in-python/

import pickle
with open('glove_vectors', 'wb') as f:
    pickle.dump(words_courpus, f)

'''
```

Out[41]:

```
'\n# Reading glove vectors in python: https://stackoverflow.com/a/38230349/4084039\ndef
loadGloveModel(gloveFile):\n    print ("Loading Glove Model")\n    f = open(gloveFile,\nencoding="utf8")\n    model = {}\n    for line in tqdm(f):\n        splitLine = line.split()\nword = splitLine[0]\n        embedding = np.array([float(val) for val in splitLine[1:]])\n    r\nodel[word] = embedding\n    print ("Done.",len(model)," words loaded!")\n    return model\nmodel =
loadGloveModel('glove.42B.300d.txt')\n\n# =====\n\nOutput:\n    \nLoading G
love Model\n1917495it [06:32, 4879.69it/s]\nDone. 1917495 words loaded!\n\n#
=====
\n\nwords = []\nfor i in preprocod_texts:\n    words.extend(i.split('\n
\n'))\n\nfor i in preprocod_titles:\n    words.extend(i.split('\n\n'))\n\nprint("all the words in the
coupus", len(words))\n\nwords = set(words)\n\nprint("the unique words in the coupus",
len(words))\n\n\ninter_words = set(model.keys()).intersection(words)\n\nprint("The number of words tha
t are present in both glove vectors and our coupus".\n        len(inter words)."
```



```

# are present in both glove vectors and our corpus ,
("np.round(len(inter_words)/len(words)*100,3),"%")\n\nwords_corpus = {}\nwords_glove =
set(model.keys())\nfor i in words:\n    if i in words_glove:\n        words_corpus[i] = model[i]\r
print("word 2 vec length", len(words_corpus))\n\n\n# stronging variables into pickle files python
: http://www.jessicayung.com/how-to-use-pickle-to-save-and-load-variables-in-python/\n\nimport pic
kle\nwith open('glove_vectors', 'wb') as f:\n    pickle.dump(words_corpus, f)\n\n\n'

```

In [0]:

```

# stronging variables into pickle files python: http://www.jessicayung.com/how-to-use-pickle-to-sa
ve-and-load-variables-in-python/
# make sure you have the glove_vectors file
with open('/content/drive/My Drive/Mass3/Assignments_DonorsChoose_2018/glove_vectors', 'rb') as f:
    model = pickle.load(f)
    glove_words = set(model.keys())

```

In [43]:

```

# average Word2Vec
# compute average word2vec for each review.
avg_w2v_vectors = []; # the avg-w2v for each sentence/review is stored in this list
for sentence in tqdm(preprocessed_essays): # for each review/sentence
    vector = np.zeros(300) # as word vectors are of zero length
    cnt_words = 0; # num of words with a valid vector in the sentence/review
    for word in sentence.split(): # for each word in a review/sentence
        if word in glove_words:
            vector += model[word]
            cnt_words += 1
    if cnt_words != 0:
        vector /= cnt_words
    avg_w2v_vectors.append(vector)

print(len(avg_w2v_vectors))
print(len(avg_w2v_vectors[0]))

```

100%|██████████| 109248/109248 [00:31<00:00, 3452.09it/s]

109248
300

1.5.2.3 Using Pretrained Models: TFIDF weighted W2V

In [0]:

```

# S = ["abc def pqr", "def def def abc", "pqr pqr def"]
tfidf_model = TfidfVectorizer()
tfidf_model.fit(preprocessed_essays)
# we are converting a dictionary with word as a key, and the idf as a value
dictionary = dict(zip(tfidf_model.get_feature_names(), list(tfidf_model.idf_)))
tfidf_words = set(tfidf_model.get_feature_names())

```

In [45]:

```

# average Word2Vec
# compute average word2vec for each review.
tfidf_w2v_vectors = []; # the avg-w2v for each sentence/review is stored in this list
for sentence in tqdm(preprocessed_essays): # for each review/sentence
    vector = np.zeros(300) # as word vectors are of zero length
    tf_idf_weight = 0; # num of words with a valid vector in the sentence/review
    for word in sentence.split(): # for each word in a review/sentence
        if (word in glove_words) and (word in tfidf_words):
            vec = model[word] # getting the vector for each word
            # here we are multiplying idf value(dictionary[word]) and the tf
            value((sentence.count(word)/len(sentence.split())))
            tf_idf = dictionary[word]*(sentence.count(word)/len(sentence.split())) # getting the tf
            idf value for each word
            vector += (vec * tf_idf) # calculating tfidf weighted w2v
            tf_idf_weight += tf_idf
    if tf_idf_weight != 0:
        vector /= tf_idf_weight

```

```

        vector /= tf_idf_weight
        tfidf_w2v_vectors.append(vector)

print(len(tfidf_w2v_vectors))
print(len(tfidf_w2v_vectors[0]))

```

100%|██████████| 109248/109248 [03:21<00:00, 543.01it/s]

109248
300

Using Pretrained Models: TFIDF weighted W2V on `project_title`

In [0]:

```

# S = ["abc def pqr", "def def def abc", "pqr pqr def"]
tfidf_model = TfidfVectorizer()
tfidf_model.fit(preprocessed_essays)
# we are converting a dictionary with word as a key, and the idf as a value
dictionary = dict(zip(tfidf_model.get_feature_names(), list(tfidf_model.idf_)))
tfidf_words = set(tfidf_model.get_feature_names())

```

In [47]:

```

# Similarly you can vectorize for title also

tfidf_w2v_vectors = []; # the avg-w2v for each sentence/review is stored in this list
for sentence in tqdm(preprocessed_title): # for each review/sentence
    vector = np.zeros(300) # as word vectors are of zero length
    tf_idf_weight = 0; # num of words with a valid vector in the sentence/review
    for word in sentence.split(): # for each word in a review/sentence
        if (word in glove_words) and (word in tfidf_words):
            vec = model[word] # getting the vector for each word
            # here we are multiplying idf value(dictionary[word]) and the tf
            value((sentence.count(word)/len(sentence.split())))
            tf_idf = dictionary[word]*(sentence.count(word)/len(sentence.split())) # getting the tf
            idf value for each word
            vector += (vec * tf_idf) # calculating tfidf weighted w2v
            tf_idf_weight += tf_idf
    if tf_idf_weight != 0:
        vector /= tf_idf_weight
        tfidf_w2v_vectors.append(vector)

print(len(tfidf_w2v_vectors))
print(len(tfidf_w2v_vectors[0]))

```

100%|██████████| 109248/109248 [00:03<00:00, 30420.04it/s]

109248
300

In [48]:

```

# Conversion of a list to sparse matrix

from scipy.sparse import coo_matrix
tfidf_w2v_matrix=np.reshape(np.asarray(tfidf_w2v_vectors), (109248,300))
sparse_tfidf_w2v_matrix=coo_matrix(tfidf_w2v_matrix).tocsr()

print("Shape of matrix after one hot encoding ",sparse_tfidf_w2v_matrix.shape)

```

Shape of matrix after one hot encoding (109248, 300)

1.5.3 Vectorizing Numerical features

In [0]:

```
price_data = resource_data.groupby('id').agg({'price':'sum', 'quantity':'sum'}).reset_index()
project_data = pd.merge(project_data, price_data, on='id', how='left')
```

In [0]:

```
# check this one: https://www.youtube.com/watch?v=0HOqOcln3Z4&t=530s
# the cost feature is already in numerical values, we are going to represent the money, as numerical values within the range 0-1
# normalization sklearn: https://scikit-learn.org/stable/modules/generated/sklearn.preprocessing.normalize.html
from sklearn.preprocessing import normalize

# price_normalized = normalize(project_data['price'].values)
# this will rise the error
# ValueError: Expected 2D array, got 1D array instead: array=[725.05 213.03 329. ... 399. 287.73 5.5 ].
# Reshape your data either using array.reshape(-1, 1) or array.reshape(1, -1)

price_normalized = normalize(project_data['price'].values.reshape(1,-1))
```

In [51]:

```
price_normalized
```

Out[51]:

```
array([[0.00098843, 0.00191166, 0.00330448, ..., 0.00153418, 0.00046704,
        0.00070265]])
```

1.5.4 Merging all the above features

- we need to merge all the numerical vectors i.e catogorical, text, numerical vectors

In [52]:

```
print(categories_one_hot.shape)
print(sub_categories_one_hot.shape)
print(text_bow.shape)
print(price_normalized.T.shape)
```

```
(109248, 9)
(109248, 30)
(109248, 3222)
(109248, 1)
```

In [53]:

```
# merge two sparse matrices: https://stackoverflow.com/a/19710648/4084039
from scipy.sparse import hstack
# with the same hstack function we are concatenating a sparse matrix and a dense matrix :)
X = hstack((categories_one_hot, sub_categories_one_hot, text_bow, price_normalized.T))
X.shape
```

Out[53]:

```
(109248, 3262)
```

In [0]:

```
# please write all the code with proper documentation, and proper titles for each subsection
# when you plot any graph make sure you use
# a. Title, that describes your plot, this will be very helpful to the reader
# b. Legends if needed
# c. X-axis label
# d. Y-axis label
```

Assignment 4: Naive Bayes

1. Apply Multinomial NaiveBayes on these feature sets

- **Set 1:** categorical, numerical features + project_title(BOW) + preprocessed_eassay (BOW)
- **Set 2:** categorical, numerical features + project_title(TFIDF)+ preprocessed_eassay (TFIDF)

2. The hyper paramter tuning(find best Alpha)

- Find the best hyper parameter which will give the maximum [AUC](#) value
- Consider a wide range of alpha values for hyperparameter tuning, start as low as 0.00001
- Find the best hyper paramter using k-fold cross validation or simple cross validation data
- Use gridsearch cv or randomsearch cv or you can also write your own for loops to do this task of hyperparameter tuning

3. Feature importance

- Find the top 10 features of positive class and top 10 features of negative class for both feature sets **Set 1** and **Set 2** using absolute values of `coef_` parameter of [MultinomialNB](#) and print their corresponding feature names

4. Representation of results

- You need to plot the performance of model both on train data and cross validation data for each hyper parameter, like shown in the figure. Here on X-axis you will have alpha values, since they have a wide range, just to represent those alpha values on the graph, apply log function on those alpha values.
- Once after you found the best hyper parameter, you need to train your model with it, and find the AUC on test data and plot the ROC curve on both train and test.
- Along with plotting ROC curve, you need to print the [confusion matrix](#) with predicted and original labels of test data points. Please visualize your confusion matrices using [seaborn heatmaps](#).

5. Conclusion

- [You need to summarize the results at the end of the notebook, summarize it in the table format. To print out a table please refer to this prettytable library link](#)

2. Naive Bayes

2.1 Splitting data into Train and cross validation(or test): Stratified Sampling

In [55]:

```
y = project_data['project_is_approved'].values
X = project_data.drop(['project_is_approved'], axis=1)
X.head(1)
```

Out [55]:

Unnamed: 0	id	teacher_id	teacher_prefix	school_state	project_submitted_datetime	project_grade_categ	
0	160221	p253737	c90749f5d961ff158d4b4d1e7dc665fc	Mrs.	IN	2016-12-05 13:43:57	Grades_Prel

In [0]:

```
# train test split
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.33, stratify=y)
X_train, X_cv, y_train, y_cv = train_test_split(X_train, y_train, test_size=0.33, stratify=y_train)
```

```
# please write all the code with proper documentation, and proper titles for each subsection
# go through documentations and blogs before you start coding
# first figure out what to do, and then think about how to do.
# reading and understanding error messages will be very much helpfull in debugging your code
# when you plot any graph make sure you use
# a. Title, that describes your plot, this will be very helpful to the reader
# b. Legends if needed
# c. X-axis label
# d. Y-axis label
```

2.2 Make Data Model Ready: encoding numerical, categorical features

Encoding categorical features: School State

In [57]:

```
vectorizer = CountVectorizer()
vectorizer.fit(X_train['school_state'].values) # fit has to happen only on train data

# we use the fitted CountVectorizer to convert the text to vector
X_train_state_oh = vectorizer.transform(X_train['school_state'].values)
X_cv_state_oh = vectorizer.transform(X_cv['school_state'].values)
X_test_state_oh = vectorizer.transform(X_test['school_state'].values)

print("After vectorizations")
print(X_train_state_oh.shape, y_train.shape)
print(X_cv_state_oh.shape, y_cv.shape)
print(X_test_state_oh.shape, y_test.shape)
print(vectorizer.get_feature_names())
print("="*100)

state_pref_features= vectorizer.get_feature_names()

print('size of important feature list:', len(state_pref_features))
print(state_pref_features)
```

```
After vectorizations
(49041, 51) (49041,)
(24155, 51) (24155,)
(36052, 51) (36052,)
['ak', 'al', 'ar', 'az', 'ca', 'co', 'ct', 'dc', 'de', 'fl', 'ga', 'hi', 'ia', 'id', 'il', 'in', 'k
s', 'ky', 'la', 'ma', 'md', 'me', 'mi', 'mn', 'mo', 'ms', 'mt', 'nc', 'nd', 'ne', 'nh', 'nj', 'nm',
'nv', 'ny', 'oh', 'ok', 'or', 'pa', 'ri', 'sc', 'sd', 'tn', 'tx', 'ut', 'va', 'vt', 'wa', 'wi', 'wv
', 'wy']
=====
```

```
size of important feature list: 51
['ak', 'al', 'ar', 'az', 'ca', 'co', 'ct', 'dc', 'de', 'fl', 'ga', 'hi', 'ia', 'id', 'il', 'in', 'k
s', 'ky', 'la', 'ma', 'md', 'me', 'mi', 'mn', 'mo', 'ms', 'mt', 'nc', 'nd', 'ne', 'nh', 'nj', 'nm',
'nv', 'ny', 'oh', 'ok', 'or', 'pa', 'ri', 'sc', 'sd', 'tn', 'tx', 'ut', 'va', 'vt', 'wa', 'wi', 'wv
', 'wy']
```

Encoding categorical features: teacher_prefix

In [58]:

```
vectorizer = CountVectorizer()
vectorizer.fit(X_train['teacher_prefix'].values) # fit has to happen only on train data

# we use the fitted CountVectorizer to convert the text to vector
X_train_teacher_oh = vectorizer.transform(X_train['teacher_prefix'].values)
X_cv_teacher_oh = vectorizer.transform(X_cv['teacher_prefix'].values)
X_test_teacher_oh = vectorizer.transform(X_test['teacher_prefix'].values)

print("After vectorizations")
print(X_train_teacher_oh.shape, y_train.shape)
print(X_cv_teacher_oh.shape, y_cv.shape)
print(X_test_teacher_oh.shape, y_test.shape)
print(vectorizer.get_feature_names())
print("="*100)
```

```

teacher_pref_features= vectorizer.get_feature_names()

print('size of important feature list:', len(teacher_pref_features))
print(teacher_pref_features)

```

After vectorizations

```

(49041, 5) (49041,)
(24155, 5) (24155,)
(36052, 5) (36052,)
['dr', 'mr', 'mrs', 'ms', 'teacher']
=====

```

```

size of important feature list: 5
['dr', 'mr', 'mrs', 'ms', 'teacher']

```

Encoding categorical features: project_grade_category

In [59]:

```

vectorizer = CountVectorizer()
vectorizer.fit(X_train['project_grade_category'].values) # fit has to happen only on train data

# we use the fitted CountVectorizer to convert the text to vector
X_train_grade_ohe = vectorizer.transform(X_train['project_grade_category'].values)
X_cv_grade_ohe = vectorizer.transform(X_cv['project_grade_category'].values)
X_test_grade_ohe = vectorizer.transform(X_test['project_grade_category'].values)

print("After vectorizations")
print(X_train_grade_ohe.shape, y_train.shape)
print(X_cv_grade_ohe.shape, y_cv.shape)
print(X_test_grade_ohe.shape, y_test.shape)
print(vectorizer.get_feature_names())
print("="*100)

grade_pref_features= vectorizer.get_feature_names()

print('size of important feature list:', len(grade_pref_features))
print(grade_pref_features)

```

After vectorizations

```

(49041, 4) (49041,)
(24155, 4) (24155,)
(36052, 4) (36052,)
['grades_3_5', 'grades_6_8', 'grades_9_12', 'grades_prek_2']
=====

```

```

size of important feature list: 4
['grades_3_5', 'grades_6_8', 'grades_9_12', 'grades_prek_2']

```

Encoding categorical features: clean_categories

In [60]:

```

vectorizer = CountVectorizer()
vectorizer.fit(X_train['clean_categories'].values) # fit has to happen only on train data

# we use the fitted CountVectorizer to convert the text to vector
X_train_clean_cat_ohe = vectorizer.transform(X_train['clean_categories'].values)
X_cv_clean_cat_ohe = vectorizer.transform(X_cv['clean_categories'].values)
X_test_clean_cat_ohe = vectorizer.transform(X_test['clean_categories'].values)

print("After vectorizations")
print(X_train_clean_cat_ohe.shape, y_train.shape)
print(X_cv_clean_cat_ohe.shape, y_cv.shape)
print(X_test_clean_cat_ohe.shape, y_test.shape)
print(vectorizer.get_feature_names())
print("="*100)

clean_pref_features= vectorizer.get_feature_names()

```

```
print('size of important feature list:', len(clean_pref_features))
print(clean_pref_features)
```

After vectorizations

```
(49041, 9) (49041,)
(24155, 9) (24155,)
(36052, 9) (36052,)
['appliedlearning', 'care_hunger', 'health_sports', 'history_civics', 'literacy_language',
'math_science', 'music_arts', 'specialneeds', 'warmth']
=====
```

size of important feature list: 9

```
['appliedlearning', 'care_hunger', 'health_sports', 'history_civics', 'literacy_language',
'math_science', 'music_arts', 'specialneeds', 'warmth']
```

Encoding categorical features: clean_subcategories

In [61]:

```
vectorizer = CountVectorizer()
vectorizer.fit(X_train['clean_subcategories'].values) # fit has to happen only on train data

# we use the fitted CountVectorizer to convert the text to vector
X_train_clean_subcat_ohe = vectorizer.transform(X_train['clean_subcategories'].values)
X_cv_clean_subcat_ohe = vectorizer.transform(X_cv['clean_subcategories'].values)
X_test_clean_subcat_ohe = vectorizer.transform(X_test['clean_subcategories'].values)

print("After vectorizations")
print(X_train_clean_subcat_ohe.shape, y_train.shape)
print(X_cv_clean_subcat_ohe.shape, y_cv.shape)
print(X_test_clean_subcat_ohe.shape, y_test.shape)
print(vectorizer.get_feature_names())
print("="*100)

clean_sub_pref_features= vectorizer.get_feature_names()

print('size of important feature list:', len(clean_sub_pref_features))
print(clean_sub_pref_features)
```

After vectorizations

```
(49041, 30) (49041,)
(24155, 30) (24155,)
(36052, 30) (36052,)
['appliedsciences', 'care_hunger', 'charactereducation', 'civics_government',
'college_careerprep', 'communityservice', 'earlydevelopment', 'economics', 'environmentalscience',
'esl', 'extracurricular', 'financialliteracy', 'foreignlanguages', 'gym_fitness',
'health_lifescience', 'health_wellness', 'history_geography', 'literacy', 'literature_writing', 'm
athematics', 'music', 'nutritioneducation', 'other', 'parentinvolvement', 'performingarts', 'socia
lsciences', 'specialneeds', 'teamsports', 'visualarts', 'warmth']
=====
```

size of important feature list: 30

```
['appliedsciences', 'care_hunger', 'charactereducation', 'civics_government',
'college_careerprep', 'communityservice', 'earlydevelopment', 'economics', 'environmentalscience',
'esl', 'extracurricular', 'financialliteracy', 'foreignlanguages', 'gym_fitness',
'health_lifescience', 'health_wellness', 'history_geography', 'literacy', 'literature_writing', 'm
athematics', 'music', 'nutritioneducation', 'other', 'parentinvolvement', 'performingarts', 'socia
lsciences', 'specialneeds', 'teamsports', 'visualarts', 'warmth']
```

Encoding numerical features: Price

In [62]:

```
from sklearn.preprocessing import Normalizer
normalizer = Normalizer()
# normalizer.fit(X_train['price'].values)
# this will rise an error Expected 2D array, got 1D array instead:
# array=[105.22 215.96 96.01 ... 368.98 80.53 709.67].
# Reshape your data either using
# array.reshape(-1, 1) if your data has a single feature
# array.reshape(1, -1) if it contains a single sample.
```

```

# array.reshape(1, -1) is used to ensure a single sample.
normalizer.fit(X_train['price'].values.reshape(1,-1))

X_train_price_norm = normalizer.transform(X_train['price'].values.reshape(1,-1))
X_cv_price_norm = normalizer.transform(X_cv['price'].values.reshape(1,-1))
X_test_price_norm = normalizer.transform(X_test['price'].values.reshape(1,-1))

print("After vectorizations")
print(X_train_price_norm.shape, y_train.shape)
print(X_cv_price_norm.shape, y_cv.shape)
print(X_test_price_norm.shape, y_test.shape)
print("=="*100)

```

```

After vectorizations
(1, 49041) (49041,)
(1, 24155) (24155,)
(1, 36052) (36052,)
=====

```

In [63]:

```

X_train_price_norm=X_train_price_norm.reshape(-1,1)
X_cv_price_norm=X_cv_price_norm.reshape(-1,1)
X_test_price_norm=X_test_price_norm.reshape(-1,1)

print("After vectorizations")
print(X_train_price_norm.shape, y_train.shape)
print(X_cv_price_norm.shape, y_cv.shape)
print(X_test_price_norm.shape, y_test.shape)
print("=="*100)

```

```

After vectorizations
(49041, 1) (49041,)
(24155, 1) (24155,)
(36052, 1) (36052,)
=====

```

Encoding numerical features: teacher_number_of_previously_posted_projects

In [64]:

```

normalizer = Normalizer()

normalizer.fit(X_train['teacher_number_of_previously_posted_projects'].values.reshape(1,-1))

X_train_prev_posted = normalizer.transform(X_train['teacher_number_of_previously_posted_projects']
                                           .values.reshape(1,-1))
X_cv_prev_posted =
normalizer.transform(X_cv['teacher_number_of_previously_posted_projects'].values.reshape(1,-1))
X_test_prev_posted = normalizer.transform(X_test['teacher_number_of_previously_posted_projects'].v
                                           alues.reshape(1,-1))

print("After vectorizations")
print(X_train_prev_posted.shape, y_train.shape)
print(X_cv_prev_posted.shape, y_cv.shape)
print(X_test_prev_posted.shape, y_test.shape)
print("=="*100)

```

```

After vectorizations
(1, 49041) (49041,)
(1, 24155) (24155,)
(1, 36052) (36052,)
=====

```

In [65]:

```

X_train_prev_posted=X_train_prev_posted.reshape(-1,1)
X_cv_prev_posted=X_cv_prev_posted.reshape(-1,1)

```



```
X_test_prev_posted=X_test_prev_posted.reshape(-1,1)

print("After vectorizations")
print(X_train_prev_posted.shape, y_train.shape)
print(X_cv_prev_posted.shape, y_cv.shape)
print(X_test_prev_posted.shape, y_test.shape)
print("="*100)
```

```
After vectorizations
(49041, 1) (49041,)
(24155, 1) (24155,)
(36052, 1) (36052,)
=====
```

2.3 Make Data Model Ready: encoding eassay, and project_title

2.3.1 Bag of Words

In [66]:

```
#ESSAY

print(X_train.shape, y_train.shape)
print(X_cv.shape, y_cv.shape)
print(X_test.shape, y_test.shape)

print("="*100)

vectorizer = CountVectorizer(min_df=10,ngram_range=(1,4), max_features=5000)
vectorizer.fit(X_train['essays'].values) # fit has to happen only on train data

# we use the fitted CountVectorizer to convert the text to vector
X_train_essay_bow = vectorizer.transform(X_train['essays'].values)
X_cv_essay_bow = vectorizer.transform(X_cv['essays'].values)
X_test_essay_bow = vectorizer.transform(X_test['essays'].values)

print("After vectorizations")
print(X_train_essay_bow.shape, y_train.shape)
print(X_cv_essay_bow.shape, y_cv.shape)
print(X_test_essay_bow.shape, y_test.shape)
print("="*100)

bow_essay_pref_features= vectorizer.get_feature_names()

print('size of important feature list:', len(bow_essay_pref_features))
print(bow_essay_pref_features)
```

```
(49041, 15) (49041,)
(24155, 15) (24155,)
(36052, 15) (36052,)
=====
```

```
After vectorizations
(49041, 5000) (49041,)
(24155, 5000) (24155,)
(36052, 5000) (36052,)
=====
```

```
size of important feature list: 5000
['000', '10', '100', '100 free', '100 percent', '100 students', '100 students receive', '100 students receive free', '11', '12', '12th', '13', '14', '15', '16', '17', '18', '19', '1st', '1st grade', '20', '200', '2016', '2017', '21', '21st', '21st century', '21st century learners', '21st century learning', '21st century skills', '22', '23', '24', '25', '25 students', '26', '28', '2nd', '2nd grade', '2nd graders', '30', '3d', '3d printer', '3rd', '3rd grade', '3rd graders', '40', '45', '4th', '4th 5th', '4th grade', '4th graders', '50', '50 students', '500', '5th', '5th grade', '5th grade students', '5th graders', '60', '60 minutes', '60 students', '600', '6th', '6th grade', '6th graders', '70', '75', '7th', '7th 8th', '7th grade', '80', '80 students', '85', '8th', '8th grade', '8th graders', '90', '90 students', '95', '98', '99', '9th', 'abilities', 'ability', 'ability learn', 'ability levels', 'able', 'able access', 'able choose', 'able control', 'able control home', 'able control home lives', 'able create', 'able explore', 'able focus', 'able get',
```

'able give', 'able learn', 'able listen', 'able make', 'able move', 'able practice', 'able print', 'able provide', 'able read', 'able see', 'able sit', 'able take', 'able use', 'able work', 'about', 'absolutely', 'absolutely love', 'abstract', 'academic', 'academic achievement', 'academic excellence', 'academic performance', 'academic skills', 'academic social', 'academic success', 'academically', 'academics', 'academy', 'accelerated', 'access', 'access books', 'access computers', 'access internet', 'access materials', 'access resources', 'access technology', 'access technology home', 'accessible', 'accommodate', 'accomplish', 'accomplishments', 'according', 'achieve', 'achieve goals', 'achievement', 'achievement gap', 'achieving', 'acquire', 'across', 'act', 'action', 'active', 'active learners', 'active learning', 'actively', 'actively engaged', 'activities', 'activities help', 'activities my', 'activities students', 'activities the', 'activities they', 'activity', 'actual', 'actually', 'add', 'added', 'adding', 'addition', 'addition classroom', 'addition subtraction', 'additional', 'additionally', 'address', 'adequate', 'adhd', 'adult', 'adults', 'advance', 'advanced', 'advantage', 'adventure', 'adventures', 'affect', 'affluent', 'afford', 'african', 'african american', 'after', 'afternoon', 'age', 'age appropriate', 'ages', 'ago', 'ahead', 'ahead early', 'ahead early life', 'aid', 'aids', 'aim', 'air', 'algebra', 'alive', 'all', 'all students', 'all students receive', 'all students receive free', 'allow', 'allow student', 'allow students', 'allow students access', 'allow students learn', 'allow students move', 'allow students work', 'allow us', 'allowed', 'allowing', 'allowing students', 'allows', 'allows students', 'almost', 'alone', 'along', 'aloud', 'alouds', 'alphabet', 'already', 'also', 'also able', 'also allow', 'also allow students', 'also give', 'also help', 'also help students', 'also learn', 'also like', 'also love', 'also need', 'also provide', 'also requesting', 'also students', 'also use', 'also used', 'also want', 'alternative', 'alternative seating', 'although', 'although students', 'always', 'always eager', 'always looking', 'always ready', 'amaze', 'amazed', 'amazing', 'amazing group', 'amazing students', 'amazing they', 'america', 'american', 'americans', 'among', 'amount', 'amount time', 'an', 'analysis', 'analyze', 'anchor', 'and', 'angeles', 'animal', 'animals', 'another', 'answer', 'answers', 'anxiety', 'anxious', 'any', 'anyone', 'anything', 'anywhere', 'ap', 'apart', 'app', 'apple', 'application', 'applications', 'apply', 'applying', 'appreciate', 'appreciated', 'appreciation', 'appreciative', 'approach', 'appropriate', 'approximately', 'apps', 'area', 'area many', 'area students', 'areas', 'around', 'around classroom', 'around my', 'around room', 'around they', 'around us', 'around world', 'array', 'arrive', 'art', 'art projects', 'art room', 'art supplies', 'articles', 'artist', 'artistic', 'artists', 'arts', 'artwork', 'as', 'as result', 'as school', 'as students', 'as teacher', 'as teacher low', 'as teacher low income', 'asian', 'ask', 'ask questions', 'asked', 'asking', 'aspect', 'aspects', 'assess', 'assessment', 'assessments', 'asset', 'assigned', 'assignment', 'assignments', 'assist', 'assist students', 'assistance', 'at', 'at end', 'at school', 'athletes', 'athletic', 'atmosphere', 'attend', 'attend school', 'attend title', 'attend title school', 'attendance', 'attended', 'attending', 'attention', 'attitude', 'attitudes', 'audio', 'auditory', 'authentic', 'author', 'authors', 'autism', 'autism spectrum', 'autistic', 'available', 'available students', 'average', 'avid', 'award', 'aware', 'awareness', 'away', 'awesome', 'back', 'background', 'background knowledge', 'backgrounds', 'backgrounds many', 'backgrounds they', 'backgrounds we', 'backpack', 'backpacks', 'bad', 'bag', 'bag chairs', 'bags', 'balance', 'balance balls', 'ball', 'ball chairs', 'balls', 'band', 'bands', 'barriers', 'base', 'baseball', 'based', 'based learning', 'based socioeconomic', 'based socioeconomic status', 'basic', 'basic needs', 'basic school', 'basic school supplies', 'basic supplies', 'basics', 'basis', 'basketball', 'basketballs', 'bean', 'bean bag', 'bean bag chairs', 'bean bags', 'beautiful', 'because', 'become', 'become better', 'become better readers', 'become independent', 'become successful', 'becomes', 'becoming', 'began', 'begin', 'beginning', 'beginning year', 'begins', 'behavior', 'behavioral', 'behaviors', 'behind', 'being', 'being able', 'believe', 'believe students', 'beneficial', 'benefit', 'benefit greatly', 'benefit students', 'benefits', 'best', 'best education', 'best learning', 'best my', 'best part', 'best students', 'best they', 'best way', 'best work', 'better', 'better readers', 'better understand', 'better understanding', 'better way', 'beyond', 'big', 'bigger', 'biggest', 'bilingual', 'binders', 'bins', 'biology', 'bit', 'black', 'blended', 'blessed', 'block', 'blocks', 'blood', 'blue', 'board', 'boards', 'bodies', 'body', 'book', 'book read', 'books', 'books allow', 'books classroom', 'books classroom library', 'books help', 'books home', 'books not', 'books read', 'books reading', 'books students', 'books the', 'books used', 'books would', 'boost', 'boring', 'born', 'borrow', 'both', 'bounce', 'bouncy', 'bouncy bands', 'bound', 'box', 'boxes', 'boys', 'boys girls', 'brain', 'brain breaks', 'brains', 'brand', 'brand new', 'break', 'breakfast', 'breakfast lunch', 'breakfast lunch many', 'breaks', 'bridge', 'bright', 'brilliant', 'bring', 'bringing', 'brings', 'broaden', 'broken', 'bronx', 'brought', 'budget', 'budget get cuts', 'build', 'build confidence', 'building', 'builds', 'built', 'bunch', 'bus', 'business', 'busy', 'but', 'buy', 'by', 'by creative', 'by creative positive', 'by creative positive way', 'by donating', 'by donating project', 'by providing', 'by using', 'calculators', 'california', 'call', 'called', 'calm', 'calming', 'calories', 'came', 'camera', 'cameras', 'campus', 'can', 'cannot', 'cannot afford', 'capabilities', 'capable', 'capacity', 'capture', 'card', 'cards', 'care', 'career', 'career ready', 'careers', 'caring', 'carolina', 'carpet', 'carry', 'cart', 'case', 'cases', 'catch', 'caucasian', 'cause', 'cd', 'celebrate', 'cell', 'center', 'center students', 'center time', 'centered', 'centers', 'central', 'century', 'century learners', 'century learning', 'century skills', 'certain', 'certainly', 'certainly control', 'certainly control experience', 'certainly control experience school', 'chair', 'chairs', 'chairs allow', 'chairs help', 'challenge', 'challenge students', 'challenged', 'challenges', 'challenges classroom', 'challenges classroom despite', 'challenges classroom despite many', 'challenges face', 'challenges face looking', 'challenges face looking keep', 'challenges students', 'challenging', 'chance', 'chances', 'change', 'change students', 'change world', 'changed', 'changes', 'changing', 'chapter', 'chapter books', 'character', 'characters', 'charge', 'charging', 'chart', 'charter', 'charter school', 'charts', 'check', 'chemistry', 'chicago', 'child', 'childhood', 'children', 'children come', 'children learn', 'children love', 'children need', 'children not', 'choice', 'choices', 'choose', 'choosing', 'chose', 'chosen', 'chrome', 'chrome books', 'chromebook',

'chromebooks', 'chromebooks allow', 'chromebooks classroom', 'chromebooks students', 'chromebooks would', 'circle', 'circuits', 'circumstances', 'citizens', 'city', 'city school', 'class', 'class full', 'class made', 'class my', 'class my students', 'class nannan', 'class not', 'class set', 'class students', 'class the', 'class they', 'class this', 'class time', 'class we', 'class would', 'classes', 'classic', 'classified', 'classmates', 'classroom', 'classroom allow', 'classroom allow students', 'classroom also', 'classroom community', 'classroom consists', 'classroom day', 'classroom despite', 'classroom despite many', 'classroom despite many challenges', 'classroom environment', 'classroom every', 'classroom every day', 'classroom filled', 'classroom focus', 'classroom focus potential', 'classroom focus potential growth', 'classroom full', 'classroom help', 'classroom in', 'classroom it', 'classroom learning', 'classroom library', 'classroom many', 'classroom my', 'classroom my students', 'classroom nannan', 'classroom need', 'classroom not', 'classroom one', 'classroom our', 'classroom place', 'classroom safe', 'classroom school', 'classroom set', 'classroom setting', 'classroom students', 'classroom students able', 'classroom supplies', 'classroom the', 'classroom these', 'classroom they', 'classroom this', 'classroom use', 'classroom want', 'classroom we', 'classroom with', 'classroom work', 'classroom would', 'classrooms', 'classwork', 'clay', 'clean', 'clear', 'clearly', 'clever', 'clipboards', 'close', 'closer', 'clothes', 'clothing', 'club', 'clubs', 'co', 'coach', 'code', 'coding', 'cognitive', 'cold', 'collaborate', 'collaborating', 'collaboration', 'collaborative', 'collaboratively', 'collect', 'collection', 'college', 'college career', 'college career ready', 'color', 'color printer', 'colored', 'colored pencils', 'colorful', 'colors', 'com', 'combination', 'come', 'come alive', 'come class', 'come classroom', 'come different', 'come different backgrounds', 'come diverse', 'come diverse backgrounds', 'come families', 'come high', 'come high poverty', 'come homes', 'come life', 'come low', 'come low income', 'come low income families', 'come low income homes', 'come low socioeconomic', 'come many', 'come many different', 'come nannan', 'come school', 'come school day', 'come school eager', 'come school eager learn', 'come school every', 'come school every day', 'come school everyday', 'come school excited', 'come school ready', 'come school ready learn', 'come single', 'come single parent', 'come together', 'come variety', 'come variety backgrounds', 'come variety different', 'come various', 'come wide', 'comes', 'comfort', 'comfortable', 'comfortable learning', 'comfortable place', 'comfortably', 'comfy', 'coming', 'coming school', 'commitment', 'committed', 'common', 'common core', 'common core standards', 'communicate', 'communication', 'communication skills', 'communities', 'community', 'community learners', 'community my', 'community our', 'community school', 'community students', 'community the', 'community they', 'community we', 'compare', 'compassion', 'compassionate', 'compete', 'competition', 'competitions', 'competitive', 'complete', 'complete assignments', 'complete work', 'completed', 'completely', 'completing', 'complex', 'component', 'components', 'comprehend', 'comprehension', 'comprehension skills', 'comprised', 'computer', 'computer lab', 'computer science', 'computers', 'computers classroom', 'concentrate', 'concentration', 'concept', 'concepts', 'concrete', 'conditions', 'conductive', 'conduct', 'confidence', 'confident', 'connect', 'connected', 'connecting', 'connection', 'connections', 'consider', 'consideration', 'considered', 'considering', 'consist', 'consistent', 'consistently', 'consists', 'constant', 'constantly', 'construct', 'construction', 'contained', 'content', 'content areas', 'continually', 'continue', 'continue grow', 'continue path', 'continue path academic', 'continue path academic excellence', 'continues', 'continuing', 'contribute', 'control', 'control experience', 'control experience school', 'control experience school day', 'control home', 'control home lives', 'control home lives however', 'conversation', 'conversations', 'cooking', 'cool', 'cooperative', 'cooperative learning', 'cooperatively', 'coordination', 'copies', 'copy', 'core', 'core muscles', 'core standards', 'core strength', 'corner', 'correct', 'cost', 'could', 'could not', 'could use', 'count', 'counting', 'countries', 'country', 'county', 'couple', 'course', 'courses', 'cover', 'covers', 'cozy', 'craft', 'crave', 'crayons', 'create', 'create classroom', 'create environment', 'create projects', 'created', 'creates', 'creating', 'creation', 'creations', 'creative', 'creative meaningful', 'creative meaningful learning', 'creative meaningful learning experiences', 'creative positive', 'creative positive way', 'creative positive way hopeful', 'creative ways', 'creatively', 'creativity', 'crime', 'critical', 'critical thinking', 'critical thinkers', 'critical thinking', 'critical thinking skills', 'critically', 'cross', 'crucial', 'cultural', 'cultural backgrounds', 'culturally', 'culturally diverse', 'culture', 'cultures', 'curiosity', 'curious', 'current', 'current events', 'currently', 'currently not', 'currently students', 'curricular', 'curriculum', 'cushions', 'cut', 'cuts', 'cutting', 'cycle', 'daily', 'daily basis', 'daily lives', 'dance', 'dancing', 'dash', 'data', 'date', 'day', 'day by', 'day classroom', 'day day', 'day eager', 'day excited', 'day full', 'day it', 'day learning', 'day long', 'day many', 'day my', 'day my students', 'day nannan', 'day not', 'day our', 'day ready', 'day ready learn', 'day school', 'day students', 'day the', 'day these', 'day they', 'day this', 'day want', 'day we', 'days', 'deal', 'dealing', 'decided', 'decisions', 'dedicated', 'dedication', 'deep', 'deepen', 'deeper', 'deeply', 'definitely', 'delays', 'demand', 'demands', 'demonstrate', 'department', 'depth', 'describe', 'deserve', 'deserve best', 'deserves', 'deserving', 'design', 'designated', 'designed', 'designing', 'designs', 'desire', 'desire learn', 'desk', 'desks', 'desktop', 'desperate', 'desperately', 'desperately need', 'despite', 'despite challenges', 'despite many', 'despite many challenges', 'despite many challenges face', 'despite many hardships', 'details', 'determination', 'determine', 'determined', 'develop', 'develop love', 'develop skills', 'developed', 'developing', 'development', 'developmental', 'developmentally', 'device', 'devices', 'diagnosed', 'difference', 'difference lives', 'difference students', 'differences', 'different', 'different backgrounds', 'different countries', 'different cultures', 'different languages', 'different learning', 'different learning styles', 'different levels', 'different needs', 'different seating', 'different types', 'different ways', 'differentiate', 'differentiated', 'differentiated instruction', 'differentiation', 'differently', 'difficult', 'difficult students', 'difficult time', 'difficulties', 'difficulty', 'digital', 'direct', 'directed', 'direction', 'directions', 'directly', 'disabilities', 'disability', 'disabled', 'disadvantage', 'disadvantaged', 'discover', 'discovered', 'discovering', 'discovery', 'discuss', 'discussing', 'discussion', 'discussions',

'disorder', 'disorders', 'display', 'displayed', 'distracted', 'distracting', 'distraction', 'distractions', 'district', 'district students', 'district students faced', 'district students faced several', 'districts', 'dive', 'diverse', 'diverse backgrounds', 'diverse community', 'diverse group', 'diverse group students', 'diverse learners', 'diverse population', 'diverse school', 'diverse students', 'diversity', 'do', 'do remember', 'doctors', 'document', 'document camera', 'documents', 'donate', 'donated', 'donating', 'donating project', 'donation', 'donation help', 'donation project', 'donations', 'donations project', 'done', 'donors', 'donors choose', 'donorschoose', 'door', 'door classroom', 'door classroom focus', 'door classroom focus potential', 'doors', 'dot', 'dr', 'dr seuss', 'drama', 'dramatic', 'dramatic play', 'draw', 'drawing', 'dream', 'dreamers', 'dreams', 'drive', 'driven', 'drum', 'drums', 'dry', 'dry erase', 'dry erase markers', 'dual', 'dual language', 'due', 'due lack', 'durable', 'during', 'dynamic', 'each', 'each child', 'each day', 'each student', 'each year', 'eager', 'eager learn', 'eager learn best', 'eager learn new', 'eager learn they', 'eager learners', 'eagerness', 'eagerness learn', 'earliest', 'earliest learners', 'early', 'early age', 'early childhood', 'early life', 'earn', 'earth', 'ease', 'easel', 'easier', 'easily', 'east', 'easy', 'easy access', 'eat', 'eating', 'economic', 'economic backgrounds', 'economic status', 'economically', 'economically disadvantaged', 'ed', 'edit', 'editing', 'educate', 'education', 'education class', 'education classroom', 'education my', 'education possible', 'education students', 'education teacher', 'educational', 'educational experience', 'educational games', 'educator', 'educators', 'effect', 'effective', 'effectively', 'effects', 'efficient', 'efficiently', 'effort', 'efforts', 'eight', 'eighth', 'either', 'ela', 'electronic', 'elementary', 'elementary school', 'elements', 'eligible', 'eligible free', 'eliminate', 'ell', 'ell students', 'else', 'embrace', 'emotional', 'emotionally', 'emotions', 'empathy', 'emphasis', 'empower', 'empower students', 'empowered', 'empowering', 'enable', 'enable students', 'encounter', 'encourage', 'encourage students', 'encouraged', 'encouragement', 'encourages', 'encouraging', 'end', 'end day', 'end school', 'end school year', 'end year', 'endless', 'ends', 'ends meet', 'energetic', 'energy', 'engage', 'engage learning', 'engage students', 'engaged', 'engaged learning', 'engagement', 'engaging', 'engaging activities', 'engaging learning', 'engaging students', 'engaging way', 'engineering', 'engineering math', 'engineers', 'english', 'english language', 'english language arts', 'english language learners', 'english learners', 'english not', 'english second', 'english second language', 'english spanish', 'enhance', 'enhance learning', 'enhance students', 'enhanced', 'enjoy', 'enjoy coming', 'enjoy learning', 'enjoy reading', 'enjoyable', 'enjoyed', 'enjoying', 'enjoyment', 'enough', 'enrich', 'enriching', 'enrichment', 'enrolled', 'ensure', 'ensure students', 'enter', 'enter classroom', 'entering', 'enthusiasm', 'enthusiastic', 'enthusiastic learners', 'entire', 'entire school', 'environment', 'environment my', 'environment nannan', 'environment students', 'environment the', 'environmental', 'environments', 'equal', 'equipment', 'equipped', 'erase', 'erase markers', 'erasers', 'escape', 'esl', 'esl students', 'esol', 'especially', 'essays', 'essential', 'essentials', 'esteem', 'etc', 'ethnic', 'ethnic backgrounds', 'ethnically', 'ethnicities', 'even', 'even earliest', 'even earliest learners', 'even though', 'event', 'events', 'eventually', 'ever', 'ever changing', 'every', 'every child', 'every day', 'every day full', 'every day my', 'every day students', 'every day they', 'every morning', 'every one', 'every opportunity', 'every single', 'every single day', 'every student', 'every year', 'everyday', 'everyone', 'everything', 'everything need', 'evidence', 'exactly', 'example', 'examples', 'excel', 'excellence', 'excellent', 'exceptional', 'excess', 'excess energy', 'excite', 'excited', 'excited come', 'excited come school', 'excited learn', 'excited learning', 'excited reading', 'excited ready', 'excited school', 'excited see', 'excited store', 'excitement', 'excitement learning', 'exciting', 'exercise', 'exercise balls', 'exercises', 'exercising', 'expand', 'expanding', 'expect', 'expectations', 'expected', 'expensive', 'experience', 'experience school', 'experience school day', 'experience students', 'experienced', 'experiences', 'experiences many', 'experiences many us', 'experiences many us see', 'experiences my', 'experiences my students', 'experiences students', 'experiencing', 'experiment', 'experiments', 'explain', 'exploration', 'explore', 'explore learn', 'explore new', 'explore world', 'exploring', 'expose', 'expose students', 'exposed', 'exposing', 'exposure', 'express', 'expression', 'extend', 'extended', 'extra', 'extra help', 'extra support', 'extremely', 'eye', 'eyes', 'fabulous', 'face', 'face challenges', 'face looking', 'face looking keep', 'face looking keep things', 'face many', 'face many challenges', 'faced', 'faced many', 'faced several', 'faced several challenges', 'faced several challenges classroom', 'faces', 'facilitate', 'facing', 'fact', 'factors', 'facts', 'fair', 'fall', 'falling', 'familiar', 'families', 'families many', 'families not', 'family', 'family members', 'fantastic', 'farm', 'farm', 'fast', 'faster', 'favorite', 'fear', 'features', 'feedback', 'feel', 'feel comfortable', 'feel like', 'feel safe', 'feel successful', 'feeling', 'feelings', 'feels', 'feet', 'felt', 'fiction', 'fidget', 'field', 'field trips', 'fields', 'fifth', 'fifth grade', 'fifth grade students', 'fifth graders', 'figure', 'fill', 'filled', 'film', 'final', 'finally', 'financial', 'financially', 'find', 'find ways', 'finding', 'findings', 'fine', 'fine motor', 'fine motor skills', 'fingertips', 'finish', 'finished', 'fire', 'first', 'first day', 'first experience', 'first generation', 'first grade', 'first grade classroom', 'first grade students', 'first graders', 'first hand', 'first language', 'first time', 'first year', 'first year teacher', 'fit', 'fitness', 'fits', 'five', 'flexibility', 'flexible', 'flexible seating', 'flexible seating classroom', 'flexible seating options', 'flood', 'floor', 'florida', 'flourish', 'flow', 'fluency', 'fluent', 'focus', 'focus learning', 'focus potential', 'focus potential growth', 'focus work', 'focused', 'focused learning', 'focuses', 'focusing', 'folders', 'follow', 'follow along', 'following', 'food', 'foods', 'foot', 'football', 'for', 'for example', 'for many', 'for many students', 'for students', 'force', 'forever', 'forget', 'form', 'format', 'forms', 'forth', 'fortunate', 'fortunate enough', 'forward', 'foster', 'foster love', 'fosters', 'found', 'foundation', 'foundational', 'four', 'fourth', 'fourth grade', 'fourth graders', 'fractions', 'free', 'free breakfast', 'free breakfast lunch', 'free breakfast lunch many', 'free lunch', 'free lunch based', 'free lunch based socioeconomic', 'free reduced', 'free reduced lunch', 'free reduced lunch many', 'free reduced lunch my', 'free reduced lunches', 'free reduced price', 'free reduced

price lunch', 'freedom', 'freely', 'frequently', 'fresh', 'friend', 'friendly', 'friends', 'from', 'from minute', 'from minute walk', 'from minute walk door', 'front', 'frustrated', 'frustration', 'fulfill', 'full', 'full energy', 'full life', 'full life ready', 'full life ready learn', 'full potential', 'fullest', 'fully', 'fun', 'fun engaging', 'fun exciting', 'fun learning', 'fun loving', 'fun my', 'fun nannan', 'fun way', 'function', 'functional', 'functioning', 'fund', 'funded', 'funding', 'funding project', 'funds', 'funny', 'furniture', 'furthermore', 'future', 'future leaders', 'future my', 'future nannan', 'future students', 'futures', 'gain', 'gains', 'game', 'games', 'games activities', 'gap', 'gaps', 'garden', 'gather', 'general', 'general education', 'generation', 'generosity', 'generous', 'generous donation', 'genres', 'geography', 'geometry', 'get', 'get chance', 'get excited', 'get hands', 'get opportunity', 'get school', 'get students', 'get wiggles', 'get work', 'gets', 'getting', 'getting ahead', 'getting ahead early', 'getting ahead early life', 'gift', 'gifted', 'gifted students', 'gifted talented', 'girls', 'give', 'give best', 'give opportunity', 'give students', 'give students chance', 'give students opportunity', 'give us', 'given', 'given opportunity', 'gives', 'gives students', 'giving', 'giving students', 'global', 'glue', 'go', 'go beyond', 'go college', 'go home', 'goal', 'goal create', 'goal help', 'goal make', 'goal provide', 'goal students', 'goals', 'goes', 'going', 'gone', 'good', 'good book', 'google', 'google classroom', 'got', 'government', 'grab', 'grade', 'grade class', 'grade classroom', 'grade level', 'grade levels', 'grade math', 'grade my', 'grade reading', 'grade students', 'grade teacher', 'graders', 'graders come', 'graders love', 'graders they', 'grades', 'graduate', 'graduation', 'grammar', 'grandparents', 'grant', 'granted', 'graphic', 'graphic novels', 'graphing', 'grasp', 'grateful', 'grateful', 'great', 'great deal', 'great group', 'great things', 'great way', 'greater', 'greatest', 'greatly', 'greatly appreciated', 'greatly benefit', 'greatness', 'green', 'gross', 'gross motor', 'ground', 'group', 'group activities', 'group children', 'group instruction', 'group kids', 'group learners', 'group students', 'group time', 'group work', 'groups', 'groups students', 'grow', 'grow learn', 'growing', 'grown', 'growth', 'growth mindset', 'guidance', 'guide', 'guided', 'guided reading', 'gym', 'habits', 'half', 'half students', 'hand', 'hands', 'hands activities', 'hands experience', 'hands experiences', 'hands learning', 'hands materials', 'hands projects', 'happen', 'happening', 'happens', 'happy', 'hard', 'hard every', 'hard every day', 'hard make', 'hard time', 'hard work', 'hard workers', 'hard working', 'harder', 'hardest', 'hardships', 'hardships students', 'hardworking', 'have', 'having', 'having access', 'head', 'headphones', 'health', 'healthier', 'healthy', 'healthy snacks', 'hear', 'heard', 'hearing', 'heart', 'hearts', 'heavy', 'held', 'help', 'help achieve', 'help become', 'help bring', 'help build', 'help children', 'help classroom', 'help create', 'help develop', 'help focus', 'help get', 'help give', 'help grow', 'help improve', 'help increase', 'help keep', 'help kids', 'help learn', 'help make', 'help meet', 'help nannan', 'help prepare', 'help provide', 'help reach', 'help stay', 'help student', 'help students', 'help students become', 'help students develop', 'help students get', 'help students learn', 'help students stay', 'help succeed', 'help successful', 'help support', 'help teach', 'help understand', 'help us', 'helped', 'helpful', 'helping', 'helping students', 'helps', 'helps students', 'high', 'high energy', 'high expectations', 'high interest', 'high level', 'high needs', 'high percentage', 'high poverty', 'high poverty area', 'high poverty school', 'high poverty school district', 'high quality', 'high school', 'high school students', 'higher', 'higher level', 'highest', 'highlight', 'highly', 'highly motivated', 'hispanic', 'historical', 'history', 'hit', 'hokki', 'hokki stools', 'hold', 'home', 'home life', 'home lives', 'home lives however', 'home lives however certainly', 'home my', 'home school', 'home students', 'home the', 'home they', 'homeless', 'homes', 'homework', 'honor', 'hope', 'hope students', 'hopeful', 'hopeful inspire', 'hopefully', 'hopes', 'hoping', 'hot', 'hour', 'hours', 'hours day', 'house', 'household', 'households', 'households receive', 'households receive free', 'houses', 'housing', 'how', 'however', 'however certainly', 'however certainly control', 'however certainly control experience', 'however many', 'however not', 'however students', 'huge', 'huge difference', 'human', 'hundred', 'hunger', 'hungry', 'idea', 'ideal', 'ideas', 'identified', 'identify', 'iep', 'if', 'if students', 'illustrations', 'images', 'imagination', 'imaginations', 'imaginative', 'imagine', 'immediate', 'immediately', 'immersion', 'immigrant', 'immigrants', 'impact', 'impact students', 'impairments', 'imperative', 'implement', 'implemented', 'implementing', 'importance', 'important', 'important part', 'important students', 'importantly', 'impossible', 'impoverished', 'improve', 'improve classroom', 'improve reading', 'improve students', 'improved', 'improvement', 'improves', 'improving', 'in', 'in addition', 'in class', 'in classroom', 'in classroom students', 'in order', 'in school', 'include', 'included', 'includes', 'including', 'inclusion', 'inclusive', 'income', 'income area', 'income families', 'income high', 'income high poverty', 'income high poverty school', 'income homes', 'income households', 'income school', 'income students', 'incorporate', 'incorporated', 'incorporating', 'increase', 'increase reading', 'increase student', 'increase students', 'increased', 'increases', 'increasing', 'increasingly', 'incredible', 'incredibly', 'independence', 'independent', 'independent reading', 'independent work', 'independently', 'individual', 'individual learning', 'individual needs', 'individualized', 'individually', 'individuals', 'indoor', 'information', 'informational', 'initiative', 'ink', 'inner', 'inner city', 'inner city school', 'innovation', 'innovative', 'input', 'inquiry', 'inquiry based', 'inquisitive', 'inside', 'inside classroom', 'inside outside', 'inspiration', 'inspire', 'inspire even', 'inspire even earliest', 'inspire students', 'inspired', 'inspires', 'inspiring', 'instant', 'instead', 'instill', 'instill love', 'instruction', 'instruction students', 'instructional', 'instrument', 'instruments', 'integrate', 'integrated', 'integrating', 'integration', 'intellectual', 'intellectual disabilities', 'intelligent', 'interact', 'interacting', 'interaction', 'interactions', 'interactive', 'interactive notebooks', 'interest', 'interested', 'interesting', 'interests', 'international', 'internet', 'intervention', 'interventions', 'introduce', 'introduced', 'introducing', 'investigate', 'investigations', 'inviting', 'involve', 'involved', 'involvement', 'involves', 'ipad', 'ipad mini', 'ipad minis', 'ipads', 'ipads classroom', 'issue', 'issues', 'it', 'it allow', 'it also', 'it amazing', 'it difficult', 'it goal', 'it hard', 'it help', 'it hope', 'it important', 'it important students', 'it job', 'it not', 'it would', 'item', 'items', 'items help', 'iob', 'iobs', 'ioin', 'iournal',

'journals', 'journey', 'joy', 'jump', 'junior', 'just', 'keep', 'keep engaged', 'keep students', 'keep students engaged', 'keep things', 'keep things simple', 'keep things simple provide', 'keeping', 'keeps', 'key', 'keyboard', 'kid', 'kid inspired', 'kiddos', 'kids', 'kids come', 'kids learn', 'kids love', 'kids need', 'kids not', 'kids they', 'kind', 'kindergarten', 'kindergarten class', 'kindergarten classroom', 'kindergarten first', 'kindergarten students', 'kindergarten teacher', 'kindergarteners', 'kindergartners', 'kindle', 'kindles', 'kindness', 'kinds', 'kinesthetic', 'kit', 'kitchen', 'kits', 'knew', 'knit', 'know', 'know students', 'knowing', 'knowledge', 'known', 'knows', 'lab', 'labs', 'lack', 'lack resources', 'lacking', 'lacks', 'language', 'language arts', 'language learners', 'language skills', 'languages', 'languages spoken', 'lap', 'laptop', 'laptops', 'large', 'larger', 'largest', 'last', 'last year', 'lasting', 'lastly', 'later', 'latest', 'latino', 'laugh', 'lay', 'lead', 'leader', 'leaders', 'leadership', 'leading', 'leads', 'learn', 'learn best', 'learn better', 'learn different', 'learn english', 'learn every', 'learn every day', 'learn excited', 'learn explore', 'learn fun', 'learn grow', 'learn love', 'learn many', 'learn much', 'learn my', 'learn my students', 'learn nannan', 'learn new', 'learn new things', 'learn not', 'learn our', 'learn play', 'learn read', 'learn skills', 'learn something', 'learn something new', 'learn students', 'learn successful', 'learn the', 'learn these', 'learn the y', 'learn this', 'learn use', 'learn want', 'learn way', 'learn we', 'learn work', 'learn world', 'learn world around', 'learned', 'learner', 'learners', 'learners continue', 'learners continue path', 'learners continue path academic', 'learners love', 'learners many', 'learners my', 'learners my students', 'learners nannan', 'learners need', 'learners our', 'learners students', 'learners the', 'learners they', 'learners we', 'learning', 'learning activities', 'learning center', 'learning centers', 'learning classroom', 'learning community', 'learning disabilities', 'learning english', 'learning english second', 'learning english second language', 'learning environment', 'learning environment students', 'learning experience', 'learning experiences', 'learning experiences my', 'learning experiences my students', 'learning fun', 'learning games', 'learning hands', 'learning in', 'learning it', 'learning love', 'learning many', 'learning materials', 'learning math', 'learning my', 'learning my students', 'learning nannan', 'learning needs', 'learning new', 'learning new things', 'learning not', 'learning opportunities', 'learning our', 'learning play', 'learning process', 'learning read', 'learning school', 'learning skills', 'learning space', 'learning students', 'learning style', 'learning styles', 'learning technology', 'learning the', 'learning these', 'learning they', 'learning this', 'learning time', 'learning tools', 'learning use', 'learning want', 'learning we', 'learns', 'least', 'leave', 'leaving', 'led', 'left', 'lego', 'legos', 'legs', 'less', 'lesson', 'lessons', 'lessons students', 'let', 'letter', 'letters', 'letters sounds', 'level', 'level my', 'level reading', 'level students', 'leveled', 'leveled books', 'levels', 'library', 'library books', 'library students', 'life', 'life experiences', 'life experiences many', 'life experiences many us', 'life long', 'life long learners', 'life may', 'life may not', 'life my', 'life nannan', 'life ready', 'life ready learn', 'life skills', 'life they', 'lifelong', 'lifelong learners', 'lifestyle', 'lifetime', 'light', 'lights', 'like', 'like move', 'like provide', 'like students', 'like use', 'likely', 'limit', 'limited', 'limited access', 'limited resources', 'limits', 'line', 'lines', 'list', 'listen', 'listen stories', 'listening', 'listening center', 'literacy', 'literacy centers', 'literacy math', 'literacy skills', 'literally', 'literary', 'literate', 'literature', 'little', 'little bit', 'little learners', 'little no', 'little ones', 'live', 'live high', 'live low', 'live poverty', 'lively', 'lives', 'lives however', 'lives however certainly', 'lives however certainly control', 'lives my', 'lives nannan', 'lives students', 'living', 'living poverty', 'local', 'located', 'located low', 'located rural', 'location', 'long', 'long learners', 'long periods', 'long way', 'longer', 'look', 'look forward', 'looking', 'looking forward', 'looking keep', 'looking keep things', 'looking keep things simple', 'looking ways', 'looks', 'los', 'los angeles', 'lose', 'lost', 'lot', 'lot students', 'lot time', 'lots', 'lots positive', 'lots positive attention', 'loud', 'love', 'love able', 'love books', 'love come', 'love coming', 'love coming school', 'love explore', 'love hands', 'love learn', 'love learning', 'love move', 'love play', 'love read', 'love reading', 'love school', 'love science', 'love see', 'love students', 'love technology', 'love use', 'love using', 'love work', 'love working', 'loved', 'loves', 'loving', 'low', 'low income', 'low income area', 'low income families', 'low income high', 'low income high poverty', 'low income homes', 'low income households', 'low income school', 'low income students', 'low socio', 'low socio economic', 'low socioeconomic', 'lower', 'lucky', 'lucky enough', 'lunch', 'lunch based', 'lunch based socioeconomic', 'lunch based socioeconomic status', 'lunch breakfast', 'lunch many', 'lunch many students', 'lunch my', 'lunch my students', 'lunch our', 'lunch our school', 'lunch program', 'lunch school', 'lunch students', 'lunch the', 'lunch they', 'lunch we', 'lunches', 'machine', 'machines', 'made', 'magazine', 'magazines', 'magic', 'magnet', 'magnet school', 'magnetic', 'main', 'mainly', 'maintain', 'maintaining', 'major', 'majority', 'majority students', 'majority students come', 'make', 'make classroom', 'make connections', 'make difference', 'make difference students', 'make happen', 'make huge', 'make huge difference', 'make learning', 'make learning fun', 'make possible', 'make school', 'make students', 'make sure', 'make sure students', 'make world', 'maker', 'makerspace', 'makes', 'making', 'manage', 'management', 'manipulate', 'manipulative', 'manipulatives', 'manner', 'many', 'many books', 'many challenges', 'many challenges face', 'many challenges face looking', 'many children', 'many come', 'many different', 'many different backgrounds', 'many english', 'many families', 'many hardships', 'many kids', 'many not', 'many obstacles', 'many opportunities', 'many parents', 'many raised', 'many raised single', 'many raised single parent', 'many resources', 'many students', 'many students come', 'many students come low', 'many students live', 'many students not', 'many students not access', 'many students receive', 'many students school', 'many students struggle', 'many things', 'many times', 'many us', 'many us see', 'many ways', 'many years', 'markers', 'master', 'mastery', 'match', 'material', 'materials', 'materials allow', 'materials allow students', 'materials classroom', 'materials help', 'materials help students', 'materials make', 'materials need', 'materials needed', 'materials requested', 'materials requesting', 'materials students', 'materials used', 'materials would', 'math', 'math centers', 'math class', 'math concepts', 'math

materials used', 'materials used', 'math', 'math concepts', 'math class', 'math concepts', 'math facts', 'math games', 'math literacy', 'math manipulatives', 'math problems', 'math reading', 'math science', 'math science social', 'math skills', 'math students', 'mathematical', 'mathematicians', 'mathematics', 'mats', 'matter', 'maximize', 'may', 'may not', 'may not able', 'may not able control', 'may not provide', 'may prevent', 'may prevent getting', 'may prevent getting ahead', 'maybe', 'meal', 'meals', 'mean', 'meaning', 'meaningful', 'meaningful learning', 'meaningful learning experiences', 'means', 'means students', 'measure', 'media', 'media center', 'medical', 'meet', 'meet needs', 'meet needs students', 'meet students', 'meeting', 'meetings', 'meets', 'member', 'members', 'memorable', 'memories', 'memory', 'men', 'mental', 'mentor', 'met', 'method', 'methods', 'mexico', 'middle', 'middle class', 'middle school', 'middle school students', 'might', 'might not', 'military', 'mind', 'minds', 'mindset', 'mine', 'mini', 'minimal', 'minis', 'minority', 'minute', 'minute walk', 'minute walk door', 'minute walk door classroom', 'minutes', 'minutes day', 'miss', 'missing', 'mission', 'mistakes', 'mix', 'mixed', 'mobile', 'model', 'modeling', 'models', 'moderate', 'modern', 'moment', 'moments', 'money', 'monitor', 'month', 'months', 'more', 'morning', 'most', 'most students', 'most students come', 'most students not', 'mostly', 'motion', 'motivate', 'motivate students', 'motivated', 'motivated learn', 'motivating', 'motivation', 'motor', 'motor skills', 'motto', 'mouse', 'move', 'move around', 'moved', 'movement', 'movements', 'movie', 'movies', 'moving', 'moving around', 'mrs', 'much', 'much fun', 'much needed', 'much possible', 'multi', 'multicultural', 'multiple', 'multiplication', 'multitude', 'muscles', 'music', 'music class', 'musical', 'musicians', 'must', 'my', 'my class', 'my classroom', 'my first', 'my first grade', 'my first graders', 'my goal', 'my hope', 'my kids', 'my kindergarten', 'my kindergarten students', 'my project', 'my scholars', 'my school', 'my school located', 'my school title', 'my school title school', 'my second', 'my student', 'my students', 'my students able', 'my students active', 'my students also', 'my students always', 'my students amazing', 'my students attend', 'my students bright', 'my students come', 'my students come diverse', 'my students come low', 'my students come school', 'my students come variety', 'my students creative', 'my students curious', 'my students deserve', 'my students diverse', 'my students eager', 'my students eager learn', 'my students energetic', 'my students enjoy', 'my students enthusiastic', 'my students excited', 'my students face', 'my students hard', 'my students learn', 'my students learning', 'my students live', 'my students love', 'my students love learn', 'my students love read', 'my students need', 'my students not', 'my students range', 'my students special', 'my students use', 'my students walk', 'my students walk classroom', 'my students want', 'my students wonderful', 'my students work', 'my students work hard', 'my students would', 'my third', 'name', 'names', 'nannan', 'nation', 'national', 'native', 'natural', 'naturally', 'nature', 'navigate', 'near', 'nearly', 'necessary', 'necessary materials', 'necessities', 'necessity', 'need', 'need able', 'need access', 'need additional', 'need books', 'need classroom', 'need extra', 'need hands', 'need help', 'need know', 'need learn', 'need little', 'need many', 'need materials', 'need move', 'need movement', 'need new', 'need order', 'need succeed', 'need successful', 'need supplies', 'need support', 'need technology', 'need tools', 'needed', 'needing', 'needs', 'needs met', 'needs my', 'needs my students', 'needs students', 'needs the', 'needs they', 'negative', 'neighborhood', 'neighborhood school', 'neighborhoods', 'never', 'new', 'new books', 'new classroom', 'new concepts', 'new exciting', 'new experiences', 'new ideas', 'new information', 'new language', 'new learning', 'new materials', 'new school', 'new school year', 'new skills', 'new students', 'new technology', 'new things', 'new things they', 'new way', 'new ways', 'new york', 'new york city', 'news', 'next', 'next generation', 'next level', 'next year', 'nice', 'night', 'nine', 'no', 'no longer', 'no matter', 'no one', 'noise', 'non', 'non fiction', 'nonfiction', 'normal', 'normally', 'north', 'north carolina', 'not', 'not able', 'not able control', 'not able control home', 'not access', 'not access technology', 'not afford', 'not allow', 'not always', 'not books', 'not come', 'not enough', 'not even', 'not get', 'not help', 'not know', 'not learn', 'not let', 'not lot', 'not many', 'not much', 'not opportunity', 'not provide', 'not read', 'not resources', 'not speak', 'not stop', 'not students', 'not wait', 'not wait see', 'not want', 'not work', 'not yet', 'note', 'notebook', 'notebooks', 'notes', 'nothing', 'noticed', 'novel', 'novels', 'now', 'number', 'number sense', 'number students', 'numbers', 'numerous', 'nurturing', 'nutrition', 'objects', 'observe', 'obstacle', 'obstacles', 'obtain', 'odds', 'of', 'offer', 'offer students', 'offered', 'offering', 'offers', 'office', 'often', 'often not', 'often times', 'old', 'old students', 'older', 'olds', 'on', 'once', 'one', 'one another', 'one day', 'one favorite', 'one one', 'one school', 'one student', 'one students', 'one thing', 'one thing common', 'one way', 'ones', 'online', 'onto', 'open', 'opened', 'opening', 'opens', 'opportunities', 'opportunities learn', 'opportunities students', 'opportunity', 'opportunity explore', 'opportunity learn', 'opportunity move', 'opportunity students', 'opportunity use', 'opportunity work', 'option', 'options', 'options students', 'oral', 'orchestra', 'order', 'order help', 'order students', 'order successful', 'org', 'organization', 'organizational', 'organize', 'organized', 'original', 'osmo', 'other', 'others', 'otherwise', 'our', 'our class', 'our classroom', 'our community', 'our district', 'our goal', 'our school', 'our school located', 'our school serves', 'our school title', 'our school title school', 'our student', 'our students', 'our students come', 'our students need', 'outdated', 'outdoor', 'outdoors', 'outlet', 'outside', 'outside box', 'outside classroom', 'outside school', 'over', 'overall', 'overcome', 'ownership', 'ownership learning', 'pace', 'pad', 'pads', 'page', 'pages', 'paint', 'painting', 'pair', 'paper', 'paper pencil', 'papers', 'parent', 'parent homes', 'parent households', 'parent households receive', 'parent households receive free', 'parents', 'parents not', 'parents students', 'parents work', 'part', 'part day', 'participate', 'participating', 'participation', 'particular', 'particularly', 'partner', 'partners', 'parts', 'pass', 'passion', 'passion learning', 'passionate', 'past', 'path', 'path academic', 'path academic excellence', 'patterns', 'pay', 'pay attention', 'pe', 'peer', 'peers', 'pen', 'pencil', 'pencil sharpener', 'pencils', 'pens', 'people', 'per', 'percent', 'percent students', 'percent students receive', 'percent students receive free', 'percentage', 'percentage students', 'percussion', 'perfect', 'perform', 'performance', 'performances', 'performing', 'period', 'periods', 'periods time', 'perseverance', 'persevere', 'person', 'personal', 'personalities', 'personalized', 'personally', 'perspective', 'perspectives', 'philadelphia', 'phones', 'phonics', 'photography', 'photo'

personally', 'perspective', 'perspectives', 'philadelphia', 'phones', 'phonics', 'photography', 'photos', 'physical', 'physical activity', 'physical education', 'physically', 'physics', 'piano', 'pick', 'picture', 'pictures', 'piece', 'pieces', 'pillows', 'place', 'place learn', 'place students', 'placed', 'places', 'plan', 'plan use', 'planning', 'plans', 'plant', 'plants', 'plastic', 'play', 'play games', 'played', 'player', 'players', 'playground', 'playing', 'playing field', 'plays', 'please', 'please consider', 'please help', 'please help students', 'please help us', 'pleasure', 'plus', 'pocket', 'pockets', 'poetry', 'point', 'points', 'poor', 'popular', 'population', 'population students', 'portable', 'portfolios', 'portion', 'position', 'positive', 'positive attention', 'positive attitude', 'positive learning', 'positive way', 'positive way hope full', 'positive way hopeful inspire', 'positively', 'possibilities', 'possibilities endless', 'possible', 'possible students', 'possibly', 'post', 'posters', 'posture', 'potential', 'potential growth', 'poverty', 'poverty area', 'poverty level', 'poverty line', 'poverty school', 'poverty school district', 'poverty school district students', 'poverty stricken', 'power', 'powerful', 'practice', 'practice math', 'practice reading', 'practice skills', 'practices', 'practicing', 'pre', 'pre kindergarten', 'precious', 'prefer', 'prek', 'prep', 'prepare', 'prepare future', 'prepare students', 'prepared', 'preparing', 'preschool', 'preschoolers', 'present', 'presentation', 'presentations', 'presented', 'pretty', 'prevent', 'prevent getting', 'prevent getting ahead', 'prevent getting ahead early', 'previous', 'previously', 'price', 'price lunch', 'pride', 'primarily', 'primary', 'print', 'printed', 'printer', 'printing', 'prior', 'priority', 'privilege', 'pro', 'problem', 'problem solve', 'problem solvers', 'problem solving', 'problem solving skills', 'problems', 'process', 'processes', 'processing', 'produce', 'product', 'production', 'productive', 'products', 'professional', 'proficiency', 'proficient', 'program', 'program students', 'programming', 'programs', 'progress', 'project', 'project allow', 'project all low students', 'project based', 'project based learning', 'project funded', 'project give', 'project help', 'project help students', 'project improve', 'project make', 'project make difference', 'project nannan', 'project not', 'project provide', 'project students', 'project would', 'projector', 'projects', 'projects students', 'promote', 'promotes', 'promoting', 'proper', 'properly', 'protect', 'proud', 'prove', 'proven', 'provide', 'provide best', 'provide life', 'provide many', 'provide opportunities', 'provide opportunity', 'provide safe', 'provide students', 'provide students creative', 'provide students creative meaningful', 'provide students opportunity', 'provided', 'provides', 'provides students', 'providing', 'providing students', 'public', 'public school', 'publish', 'pull', 'purchase', 'purchased', 'purchasing', 'purpose', 'purposes', 'pursue', 'push', 'put', 'putting', 'puzzles', 'qualify', 'qualify free', 'qualify free reduced', 'qualify free reduced lunch', 'qualify free reduced price', 'quality', 'quality education', 'question', 'questions', 'quick', 'quickly', 'quiet', 'quite', 'quote', 'race', 'raise', 'raised', 'raised single', 'raised single parent', 'raised single parent households', 'range', 'ranging', 'rarely', 'rate', 'rates', 'rather', 'reach', 'reach full', 'reach full potential', 'reach goals', 'reach students', 'reaching', 'read', 'read aloud', 'read alouds', 'read book', 'read books', 'read independently', 'read love', 'read the', 'read they', 'read write', 'reader', 'readers', 'readers nannan', 'readers writers', 'readily', 'readily available', 'readiness', 'reading', 'reading book', 'reading books', 'reading comprehension', 'reading fluency', 'reading grade', 'reading grade level', 'reading groups', 'reading level', 'reading levels', 'reading material', 'reading materials', 'reading math', 'reading my', 'reading nannan', 'reading program', 'reading skills', 'reading students', 'reading the', 'reading they', 'reading time', 'reading writing', 'reading writing math', 'reading writing skills', 'ready', 'ready learn', 'ready learn excited', 'ready learn they', 'real', 'real life', 'real world', 'reality', 'realize', 'realized', 'really', 'really enjoy', 'reason', 'reasons', 'receive', 'receive free', 'receive free breakfast', 'receive free breakfast lunch', 'receive free lunch', 'receive free lunch based', 'receive free reduced', 'receive free reduced lunch', 'receive free reduced price', 'received', 'receives', 'receives free', 'receiving', 'receiving free', 'receiving free reduced', 'receiving free reduced lunch', 'recent', 'recently', 'recess', 'recognition', 'recognize', 'record', 'recording', 'reduce', 'reduced', 'reduced lunch', 'reduced lunch many', 'reduced lunch my', 'reduced lunches', 'reduced price', 'reduced price lunch', 'referee', 'reflect', 'regardless', 'regular', 'regular education', 'regularly', 'reinforce', 'relate', 'related', 'relationships', 'relax', 'release', 'relevant', 'reliable', 'reluctant', 'rely', 'remain', 'remember', 'replace', 'report', 'reports', 'represent', 'represented', 'request', 'requested', 'requesting', 'require', 'required', 'requires', 'research', 'research projects', 'research show', 'research shows', 'researching', 'resilient', 'resource', 'resources', 'resources available', 'resources help', 'resources home', 'resources need', 'resources students', 'respect', 'respectful', 'respond', 'response', 'responsibility', 'responsible', 'rest', 'result', 'results', 'retain', 'return', 'review', 'reward', 'rewarding', 'rhythm', 'rich', 'right', 'right tools', 'rigor', 'rigorous', 'rise', 'risk', 'risks', 'robot', 'robotics', 'robots', 'rock', 'role', 'roll', 'room', 'room students', 'ropes', 'rotate', 'rotation', 'rotations', 'rough', 'rounded', 'routine', 'routines', 'rug', 'rules', 'run', 'running', 'rural', 'rural area', 'rural community', 'rural school', 'sadly', 'safe', 'safe comfortable', 'safe environment', 'safe learning', 'safe learning environment', 'safe place', 'safely', 'safety', 'said', 'san', 'sand', 'save', 'savvy', 'saw', 'say', 'saying', 'schedule', 'scholars', 'scholastic', 'scholastic news', 'school', 'school 100', 'school 100 students', 'school also', 'school classroom', 'school come', 'school community', 'school day', 'school day by', 'school district', 'school district students', 'school district students faced', 'school diverse', 'school eager', 'school eager learn', 'school environment', 'school every', 'school every day', 'school everyday', 'school excited', 'school experience', 'school first', 'school high', 'school high poverty', 'school home', 'school it', 'school large', 'school learn', 'school learning', 'school library', 'school limited', 'school located', 'school love', 'school low', 'school low income', 'school majority', 'school many', 'school many students', 'school means', 'school my', 'school my students', 'school nannan', 'school not', 'school one', 'school our', 'school our school', 'school place', 'school population', 'school provides', 'school ready', 'school ready learn', 'school receive', 'school receive free', 'school rural', 'school safe', 'school school', 'school serves', 'school serves students', 'school setting', 'school small', 'school students', 'school supplies', 'school system', 'school teach', 'school the'

small', 'school students', 'school supplies', 'school system', 'school teacher', 'school life', 'school these', 'school they', 'school this', 'school title', 'school title school', 'school want', 'school we', 'school wide', 'school without', 'school work', 'school year', 'schools', 'science', 'science class', 'science concepts', 'science math', 'science social', 'science social studies', 'science standards', 'science technology', 'science technology engineering', 'science technology engineering math', 'scientific', 'scientists', 'scissors', 'scores', 'screen', 'search', 'searching', 'season', 'seat', 'seated', 'seating', 'seating choices', 'seating classroom', 'seating option', 'seating options', 'seating students', 'seats', 'second', 'second grade', 'second grade students', 'second graders', 'second language', 'second language learners', 'second year', 'section', 'secure', 'see', 'see students', 'see typical', 'seeing', 'seek', 'seeking', 'seem', 'seems', 'seen', 'select', 'selected', 'selection', 'self', 'self confidence', 'self contained', 'self esteem', 'send', 'sense', 'sense community', 'senses', 'sensory', 'sensory needs', 'sentences', 'series', 'serious', 'serve', 'serve students', 'serves', 'serves students', 'service', 'services', 'serving', 'sessions', 'set', 'sets', 'setting', 'settings', 'seuss', 'seven', 'seventh', 'several', 'several challenges', 'several challenges classroom', 'several challenges classroom despite', 'several students', 'severe', 'shape', 'shapes', 'share', 'shared', 'sharing', 'sharpener', 'sheets', 'shelves', 'shine', 'shoes', 'short', 'show', 'show students', 'showcase', 'showing', 'shown', 'shows', 'siblings', 'side', 'sight', 'sight word', 'sight words', 'sign', 'significant', 'significantly', 'similar', 'simple', 'simple provide', 'simple provide students', 'simple provide students creative', 'simply', 'simultaneously', 'since', 'since students', 'sing', 'singing', 'single', 'single day', 'single parent', 'single parent homes', 'single parent households', 'single parent households receive', 'sit', 'sit still', 'site', 'sites', 'sitting', 'sitting still', 'situation', 'situations', 'six', 'sixth', 'sixth grade', 'size', 'sizes', 'skill', 'skills', 'skills also', 'skills help', 'skills learning', 'skills my', 'skills my students', 'skills nannan', 'skills necessary', 'skills need', 'skills needed', 'skills students', 'skills the', 'skills these', 'skills they', 'skills this', 'skills we', 'skills well', 'small', 'small community', 'small group', 'small group instruction', 'small groups', 'small rural', 'small school', 'small town', 'smaller', 'smart', 'smart board', 'smile', 'smile face', 'smiles', 'smiles faces', 'smiling', 'snack', 'snacks', 'so', 'soak', 'soar', 'soccer', 'social', 'social emotional', 'social skills', 'social studies', 'socially', 'society', 'socio', 'socio economic', 'socio economic backgrounds', 'socioeconomic', 'socioeconomic backgrounds', 'socioeconomic status', 'soft', 'software', 'solar', 'solid', 'solution', 'solutions', 'solve', 'solve problems', 'solvers', 'solving', 'solving skills', 'some', 'some students', 'someone', 'something', 'something new', 'sometimes', 'song', 'songs', 'soon', 'sort', 'sound', 'sounds', 'source', 'sources', 'south', 'southern', 'space', 'space students', 'spaces', 'spanish', 'spark', 'speak', 'speak english', 'speaker', 'speakers', 'speaking', 'special', 'special education', 'special education students', 'special education teacher', 'special needs', 'special needs students', 'specific', 'specific learning', 'specifically', 'spectrum', 'speech', 'speech language', 'speed', 'spelling', 'spend', 'spend time', 'spending', 'spent', 'spirit', 'spoken', 'sponges', 'sport', 'sports', 'spot', 'spread', 'spring', 'stability', 'stability balls', 'staff', 'stage', 'stamina', 'stand', 'standard', 'standardized', 'standards', 'standing', 'standing desks', 'stands', 'stars', 'start', 'start day', 'start school', 'started', 'starting', 'starts', 'state', 'states', 'station', 'stations', 'status', 'stay', 'stay active', 'stay engaged', 'stay focused', 'staying', 'steam', 'stem', 'stem activities', 'step', 'steps', 'sticks', 'still', 'stimulate', 'stock', 'stool', 'stools', 'stools allow', 'stop', 'storage', 'store', 'store day', 'stories', 'story', 'strategies', 'strength', 'strengthen', 'strengths', 'stress', 'stretch', 'stricken', 'strive', 'strive best', 'strive make', 'strive provide', 'strives', 'striving', 'strong', 'stronger', 'structure', 'structured', 'structures', 'struggle', 'struggle reading', 'struggles', 'struggling', 'struggling readers', 'struggling students', 'student', 'student able', 'student athletes', 'student body', 'student centered', 'student class', 'student engagement', 'student learning', 'student needs', 'student population', 'student success', 'student work', 'students', 'students ability', 'students able', 'students able access', 'students able learn', 'students able use', 'students able work', 'students access', 'students access technology', 'students achieve', 'students active', 'students actively', 'students already', 'students also', 'students also able', 'students always', 'students amazing', 'students asked', 'students attend', 'students attend school', 'students attend title', 'students autism', 'students become', 'students begin', 'students benefit', 'students best', 'students better', 'students bright', 'students bring', 'students build', 'students cannot', 'students chance', 'students choice', 'students choose', 'students class', 'students classroom', 'students come', 'students come different', 'students come diverse', 'students come diverse backgrounds', 'students come home', 'students come low', 'students come low income', 'students come many', 'students come school', 'students come variety', 'students come variety backgrounds', 'students come various', 'students comfortable', 'students coming', 'students complete', 'students constantly', 'students continue', 'students could', 'students create', 'students creative', 'students creative meaningful', 'students creative meaningful learning', 'students curious', 'students currently', 'students daily', 'students deserve', 'students develop', 'students different', 'students disabilities', 'students diverse', 'students diverse group', 'students eager', 'students eager learn', 'students economically', 'students encouraged', 'students energetic', 'students engage', 'students engaged', 'students english', 'students english language', 'students english language learners', 'students enjoy', 'students enter', 'students enter classroom', 'students enthusiastic', 'students even', 'students every', 'students excited', 'students expected', 'students experience', 'students explore', 'students exposed', 'students extremely', 'students face', 'students face many', 'students faced', 'students faced several', 'students faced several challenges', 'students families', 'students feel', 'students find', 'students first', 'students focus', 'students free', 'students free reduced', 'students free reduced lunch', 'students full', 'students fun', 'students future', 'students gain', 'students get', 'students given', 'students go', 'students grade', 'students grades', 'students great', 'students group', 'students grow', 'students hands', 'students hard', 'students hard working', 'students help', 'students high', 'students highly', 'students improve', 'students in', 'students increase', 'students inquisitive', 'students

students improve', 'students in', 'students increase', 'students inquisitive', 'students interested', 'students it', 'students keep', 'students kindergarten', 'students know', 'students lack', 'students learn', 'students learn best', 'students learning', 'students learning english', 'students like', 'students limited', 'students listen', 'students live', 'students live poverty', 'students lives', 'students living', 'students look', 'students love', 'students love learn', 'students love learning', 'students love read', 'students love reading', 'students low', 'students low income', 'students make', 'students many', 'students many students', 'students materials', 'students may', 'students meet', 'students motivated', 'students move', 'students much', 'students must', 'students my', 'students my students', 'students nannan', 'students need', 'students needs', 'students never', 'students new', 'students no', 'students not', 'students not able', 'students not access', 'students often', 'students one', 'students opportunities', 'students opportunity', 'students opportunity learn', 'students our', 'students our school', 'students parents', 'students part', 'students participate', 'students play', 'students practice', 'students qualify', 'students qualify free', 'students qualify free reduced', 'students range', 'students reach', 'students read', 'students reading', 'students ready', 'students really', 'students receive', 'students receive free', 'students receive free breakfast', 'students receive free lunch', 'students receive free reduced', 'students receiving', 'students receiving free', 'students receiving free reduced', 'students require', 'students research', 'students room', 'students school', 'students school come', 'students school receive', 'students school receive free', 'students see', 'students share', 'students show', 'students sit', 'students small', 'students speak', 'students special', 'students special needs', 'students spend', 'students start', 'students stay', 'students still', 'students strive', 'students struggle', 'students struggling', 'students students', 'students succeed', 'students success', 'students successful', 'students take', 'students teach', 'students teachers', 'students technology', 'students the', 'students these', 'students they', 'students think', 'students this', 'students thrive', 'students time', 'students tools', 'students truly', 'students understand', 'students unique', 'students use', 'students using', 'students utilize', 'students variety', 'students various', 'students varying', 'students walk', 'students walk classroom', 'students walk classroom every', 'students want', 'students want learn', 'students we', 'students well', 'students wide', 'students wonderful', 'students work', 'students work hard', 'students work together', 'students working', 'students world', 'students would', 'students would able', 'students would benefit', 'students would love', 'students write', 'students year', 'students years', 'studies', 'study', 'studying', 'sturdy', 'style', 'styles', 'subject', 'subject areas', 'subjects', 'subscription', 'subtraction', 'suburban', 'succeed', 'success', 'success my', 'success nannan', 'success students', 'successes', 'successful', 'successful classroom', 'successful my', 'successful school', 'successfully', 'summer', 'super', 'supplement', 'supplies', 'supplies help', 'supplies need', 'supplies needed', 'supplies students', 'supply', 'support', 'support learning', 'support students', 'supported', 'supporting', 'supportive', 'supports', 'sure', 'sure students', 'surface', 'surrounded', 'surrounding', 'sweet', 'system', 'systems', 'table', 'tables', 'tablet', 'tablets', 'tackle', 'tactile', 'take', 'take care', 'take granted', 'take home', 'take ownership', 'take ownership learning', 'take place', 'take pride', 'take turns', 'take n', 'takes', 'taking', 'talent', 'talented', 'talents', 'talk', 'talking', 'tape', 'target', 'task', 'tasks', 'taught', 'teach', 'teach low', 'teach students', 'teach title', 'teach title school', 'teacher', 'teacher low', 'teacher low income', 'teacher low income high', 'teacher students', 'teacher want', 'teachers', 'teachers students', 'teaches', 'teaching', 'teaching students', 'team', 'teams', 'teamwork', 'tech', 'techniques', 'technological', 'technologically', 'technology', 'technology classroom', 'technology daily', 'technology engineering', 'technology engineering math', 'technology help', 'technology home', 'technology my', 'technology my students', 'technology nannan', 'technology not', 'technology skills', 'technology students', 'technology the', 'technology they', 'technology we', 'technology would', 'tell', 'telling', 'ten', 'tend', 'term', 'terms', 'test', 'test scores', 'testing', 'tests', 'texas', 'text', 'textbook', 'textbooks', 'texts', 'thank', 'thank advance', 'thank considering', 'thank much', 'thank nannan', 'thanks', 'that', 'the', 'the addition', 'the best', 'the books', 'the children', 'the chromebooks', 'the classroom', 'the donations', 'the donations project', 'the first', 'the goal', 'the ipad', 'the ipads', 'the items', 'the kids', 'the majority', 'the majority students', 'the materials', 'the possibilities', 'the school', 'the student', 'the students', 'the students able', 'the students class', 'the students classroom', 'the students come', 'the students love', 'the students school', 'the students teach', 'the students use', 'the supplies', 'the use', 'the wobble', 'theater', 'their', 'theme', 'themes', 'then', 'therapy', 'there', 'there many', 'there no', 'therefore', 'these', 'these activities', 'these books', 'these chairs', 'these children', 'these chromebooks', 'these items', 'these kids', 'these materials', 'these materials allow', 'these materials help', 'these resources', 'these stools', 'these students', 'these students come', 'these supplies', 'these things', 'they', 'they able', 'they also', 'they also able', 'they always', 'they attend', 'they come', 'they come school', 'they curious', 'they deserve', 'they eager', 'they eager learn', 'they enjoy', 'they excited', 'they get', 'they great', 'they hard', 'they know', 'they learn', 'they learning', 'they like', 'they like move', 'they live', 'they love', 'they love learn', 'they love learning', 'they make', 'they need', 'they not', 'they often', 'they take', 'they truly', 'they use', 'they want', 'they work', 'they work hard', 'they would', 'thing', 'thing common', 'things', 'things may', 'things simple', 'things simple provide', 'things simple provide students', 'things they', 'think', 'think critically', 'thinkers', 'thinking', 'thinking skills', 'third', 'third grade', 'third grade students', 'third graders', 'thirst', 'thirst knowledge', 'this', 'this allow', 'this allows', 'this also', 'this first', 'this first year', 'this help', 'this makes', 'this means', 'this not', 'this project', 'this project allow', 'this project help', 'this school', 'this would', 'this year', 'though', 'though students', 'thought', 'thoughtful', 'thoughts', 'three', 'thrilled', 'thrive', 'through', 'throughout', 'throughout day', 'throughout school', 'throughout school day', 'throughout school year', 'throughout year', 'thus', 'tight', 'tiles', 'time', 'time day', 'time kids', 'time learning', 'time my', 'time my students', 'time nannan', 'time school', 'time sitting', 'time students', 'time the', 'time they', 'time this', 'time we', 'times', 'times students', 'times', 'title', 'title and', 'title one school', 'title school', 'title school

times students', 'titled', 'titled', 'title one', 'title one school', 'title school', 'title school students', 'titles', 'to', 'today', 'today world', 'together', 'told', 'tomorrow', 'took', 'tool', 'tools', 'tools help', 'tools need', 'top', 'topic', 'topics', 'total', 'touch', 'tough', 'toward', 'towards', 'town', 'toys', 'track', 'traditional', 'traditional classroom', 'training', 'transfer', 'transform', 'transition', 'trauma', 'travel', 'treat', 'tremendous', 'tremendously', 'tried', 'trip', 'trips', 'trouble', 'true', 'truly', 'truly believe', 'try', 'try best', 'try make', 'try new', 'try new things', 'trying', 'turn', 'turns', 'tv', 'twenty', 'twice', 'two', 'two years', 'type', 'types', 'typical', 'typical day', 'typically', 'typing', 'ultimate', 'ultimately', 'unable', 'uncomfortable', 'understand', 'understanding', 'unfortunately', 'unfortunately not', 'unique', 'unit', 'united', 'united states', 'units', 'university', 'upcoming', 'updated', 'upon', 'upper', 'urban', 'urban area', 'urban school', 'us', 'us get', 'us see', 'use', 'use books', 'use chromebooks', 'use classroom', 'use computer', 'use computers', 'use daily', 'use ipad', 'use ipads', 'use materials', 'use new', 'use tablets', 'use technology', 'used', 'used daily', 'used help', 'used students', 'useful', 'uses', 'using', 'using ipads', 'using technology', 'usually', 'utilize', 'utilized', 'utilizing', 'valuable', 'value', 'valued', 'values', 'varied', 'variety', 'variety backgrounds', 'variety books', 'variety different', 'variety learning', 'variety ways', 'various', 'various backgrounds', 'vary', 'varying', 'vast', 'vegetables', 'verbal', 'via', 'vibrant', 'video', 'videos', 'view', 'violence', 'virtual', 'vision', 'visit', 'visual', 'visual learners', 'visually', 'visuals', 'vital', 'vocabulary', 'voice', 'voices', 'volleyball', 'wait', 'wait see', 'waiting', 'walk', 'walk classroom', 'walk classroom every', 'walk classroom every day', 'walk door', 'walk door classroom', 'walk door classroom focus', 'walking', 'walks', 'walks life', 'wall', 'walls', 'want', 'want able', 'want best', 'want create', 'want give', 'want give students', 'want help', 'want know', 'want learn', 'want make', 'want make sure', 'want provide', 'want provide students', 'want read', 'want school', 'want students', 'want students able', 'want use', 'wanted', 'wanting', 'wants', 'warm', 'washington', 'waste', 'watch', 'watching', 'water', 'way', 'way get', 'way help', 'way hopeful', 'way hopeful inspire', 'way learn', 'way my', 'way nannan', 'way students', 'ways', 'ways help', 'ways learn', 'we', 'we able', 'we also', 'we also need', 'we believe', 'we currently', 'we diverse', 'we high', 'we know', 'we learn', 'we live', 'we located', 'we love', 'we many', 'we need', 'we not', 'we school', 'we small', 'we spend', 'we strive', 'we students', 'we title', 'we title school', 'we use', 'we want', 'we work', 'we work hard', 'we working', 'we would', 'we would like', 'wear', 'weather', 'web', 'website', 'websites', 'week', 'weekend', 'weekends', 'weekly', 'weeks', 'weight', 'welcome', 'welcoming', 'well', 'well nannan', 'well rounded', 'well students', 'wellness', 'went', 'west', 'what', 'whatever', 'when', 'when students', 'whenever', 'whether', 'while', 'while students', 'white', 'white board', 'white boards', 'whiteboard', 'whiteboards', 'who', 'whole', 'whole class', 'whole group', 'whole new', 'whose', 'why', 'wide', 'wide range', 'wide variety', 'wigggle', 'wiggles', 'wiggly', 'willing', 'willing learn', 'willingness', 'win', 'winter', 'wireless', 'wish', 'with', 'with help', 'with materials', 'with new', 'within', 'within classroom', 'within school', 'without', 'wobble', 'wobble chairs', 'wobble stools', 'wonder', 'wonderful', 'wonderful group', 'wonderful students', 'word', 'words', 'work', 'work best', 'work collaboratively', 'work groups', 'work hard', 'work hard every', 'work independently', 'work my', 'work nannan', 'work school', 'work small', 'work small groups', 'work students', 'work the', 'work they', 'work time', 'work title', 'work title school', 'work together', 'work well', 'worked', 'workers', 'working', 'working hard', 'working small', 'working students', 'working together', 'works', 'works best', 'worksheets', 'workshop', 'world', 'world around', 'world live', 'world my', 'world my students', 'world nannan', 'world problems', 'world students', 'world technology', 'world they', 'worlds', 'worn', 'worry', 'worth', 'would', 'would able', 'would allow', 'would allow students', 'would also', 'would benefit', 'would give', 'would give students', 'would great', 'would greatly', 'would help', 'would help students', 'would like', 'would like provide', 'would like students', 'would love', 'would love able', 'would make', 'would not', 'would provide', 'would really', 'would use', 'would used', 'write', 'writer', 'writers', 'writing', 'writing math', 'writing skills', 'written', 'year', 'year many', 'year my', 'year my students', 'year nannan', 'year old', 'year old students', 'year olds', 'year school', 'year students', 'year teacher', 'year teaching', 'year the', 'year they', 'year this', 'year want', 'year we', 'year year', 'years', 'years ago', 'years come', 'years come nannan', 'years old', 'yes', 'yet', 'yoga', 'yoga balls', 'york', 'york city', 'you', 'young', 'young age', 'young children', 'young learners', 'young minds', 'young people', 'young students', 'younger', 'your', 'your donation', 'your donations', 'your generous', 'your generous donation', 'youth']

In [67]:

```
#PROJECT_TITLE

print(X_train.shape, y_train.shape)
print(X_cv.shape, y_cv.shape)
print(X_test.shape, y_test.shape)

print("="*100)

vectorizer = CountVectorizer(min_df=10, ngram_range=(1,4), max_features=5000)
vectorizer.fit(X_train['project_title'].values) # fit has to happen only on train data

# we use the fitted CountVectorizer to convert the text to vector
X_train_title_bow = vectorizer.transform(X_train['project_title'].values)
X_cv_title_bow = vectorizer.transform(X_cv['project_title'].values)
X_test_title_bow = vectorizer.transform(X_test['project_title'].values)
```

```

print("After vectorizations")
print(X_train_title_bow.shape, y_train.shape)
print(X_cv_title_bow.shape, y_cv.shape)
print(X_test_title_bow.shape, y_test.shape)
print("=="*100)

bow_title_pref_features= vectorizer.get_feature_names()

print('size of important feature list:', len(bow_title_pref_features))
print(bow_title_pref_features)

```

```

(49041, 15) (49041,)
(24155, 15) (24155,)
(36052, 15) (36052,)

```

=====

After vectorizations

```

(49041, 4113) (49041,)
(24155, 4113) (24155,)
(36052, 4113) (36052,)

```

=====

size of important feature list: 4113

```

['04', '05', '10', '100', '101', '12', '123', '16', '17', '1st', '1st grade', '1st graders',
'2016', '2016 2017', '2017', '21st', '21st century', '21st century classroom', '21st century
learners', '21st century learners need', '21st century learning', '21st century skills', '21st
century students', '21st century technology', '2nd', '2nd grade', '2nd graders', '3d', '3d
printer', '3d printing', '3doodler', '3rd', '3rd grade', '3rd graders', '4th', '4th grade', '4th g
raders', '5th', '5th grade', '5th graders', '60', '6th', '6th grade', '6th graders', '7th', '7th g
rade', '8th', '8th grade', 'abc', 'abilities', 'aboard', 'about', 'about books', 'about it', 'abou
t our', 'about reading', 'about science', 'about that', 'about the', 'above', 'academic',
'academic success', 'academics', 'academy', 'access', 'access technology', 'accessibility',
'accessible', 'accessing', 'accessories', 'achieve', 'achievement', 'achieving', 'across', 'act',
'action', 'active', 'active bodies', 'active bodies active', 'active bodies active minds', 'active
brains', 'active healthy', 'active kids', 'active learners', 'active learning', 'active minds',
'active play', 'active seating', 'active seating active', 'active students', 'actively', 'actively
engaged', 'activities', 'activity', 'adaptive', 'add', 'adding', 'adults', 'advanced',
'adventure', 'adventures', 'after', 'after school', 'again', 'age', 'ahead', 'ahead with', 'aid',
'aids', 'air', 'alexa', 'algebra', 'alive', 'alive with', 'all', 'all aboard', 'all about', 'all a
bout it', 'all about that', 'all around', 'all day', 'all day long', 'all ears', 'all hands', 'all
learners', 'all students', 'all we', 'allow', 'along', 'aloud', 'alouds', 'alphabet',
'alternative', 'alternative seating', 'always', 'am', 'amazing', 'amazing students', 'amazon',
'america', 'american', 'an', 'an apple', 'an apple day', 'an apple day keeps', 'an apple today', '
an ear', 'an easel', 'an ipad', 'an organized', 'analysis', 'anchor', 'anchor charts', 'ancient',
'and', 'and learn', 'animal', 'animals', 'animation', 'another', 'ants', 'any', 'anything',
'anywhere', 'ap', 'app', 'apple', 'apple day', 'apple day keeps', 'apple today', 'apples',
'approach', 'appropriate', 'apps', 'archery', 'architects', 'arduino', 'are', 'are leaders', 'are
learning', 'are not', 'are on', 'are ready', 'area', 'around', 'around us', 'around world', 'art',
'art class', 'art room', 'art science', 'art smart', 'art supplies', 'art technology', 'artist', '
artistic', 'artists', 'artists need', 'arts', 'as', 'aspiring', 'assistance', 'assistive', 'at', '
at home', 'at our', 'at risk', 'at time', 'athletes', 'atpe', 'atpe member', 'attack',
'attention', 'audio', 'audio books', 'authentic', 'author', 'author study', 'authors', 'autism', '
autism classroom', 'autistic', 'avid', 'award', 'award winning', 'awareness', 'away', 'away from',
'awesome', 'baby', 'baby wobble', 'back', 'back basics', 'back school', 'back school supplies', 'b
ackpack', 'backpacks', 'bad', 'bag', 'bags', 'balance', 'balance balls', 'balanced', 'balancing',
'ball', 'ball chairs', 'balls', 'band', 'bands', 'bare', 'bare necessities', 'barriers',
'baseball', 'based', 'based learning', 'basic', 'basic needs', 'basic school', 'basic school suppl
ies', 'basic supplies', 'basic supplies needed', 'basics', 'basketball', 'basketball team', 'baske
tballs', 'bass', 'battle', 'battle books', 'bay', 'be', 'be fit', 'be fun', 'be healthy', 'be hear
d', 'bean', 'bean bag', 'beat', 'beats', 'beautiful', 'beauty', 'because', 'become', 'become
better', 'becoming', 'becoming better', 'bee', 'bee bots', 'bees', 'before', 'begin', 'beginning',
'begins', 'behavior', 'behind', 'being', 'believe', 'believing', 'best', 'better', 'better
future', 'better learning', 'better readers', 'better than', 'between', 'beyond', 'beyond
classroom', 'big', 'big books', 'big ideas', 'big learning', 'bigger', 'bilingual', 'bilingual
books', 'bin', 'binders', 'bins', 'biographies', 'biology', 'birds', 'bit', 'black', 'blast', 'bla
st off', 'blended', 'blended learning', 'block', 'blocks', 'blue', 'blues', 'board', 'board games',
'boards', 'bodies', 'bodies active', 'bodies active minds', 'bodies healthy', 'bodies minds', 'b
ody', 'body mind', 'bonanza', 'boogie', 'boogie boards', 'book', 'book bags', 'book bins', 'book b
oxes', 'book club', 'book clubs', 'book day', 'book nook', 'book time', 'booking', 'books', 'books
all', 'books are', 'books books', 'books books books', 'books books more', 'books books more
books', 'books build', 'books classroom', 'books for', 'books help', 'books inspire', 'books libra
ry', 'books little', 'books more', 'books more books', 'books my', 'books need', 'books needed', '
books our', 'books please', 'books read', 'books supplies', 'books that', 'books to', 'books we',
'bookshelf', 'bookworms', 'boom', 'boost', 'boosting', 'boredom', 'boring', 'bot', 'bots',
'bottoms', 'bounce', 'bounce learn', 'bouncing', 'bouncing our', 'bouncing our way', 'bouncy', 'bo
uncy hands', 'bound', 'box', 'boxes', 'boys', 'brain', 'brain breaks', 'brain food', 'brain power'

```

, 'brainpop', 'brains', 'brand', 'brand new', 'break', 'breaking', 'breaking out', 'breakout', 'breakout edu', 'breaks', 'brick', 'bridge', 'bridges', 'bridging', 'bridging gap', 'bright', 'brighten', 'brighter', 'brighter future', 'brilliant', 'bring', 'bring technology', 'bringing', 'bringing learning', 'bringing science', 'bringing technology', 'brings', 'bronx', 'buddies', 'budding', 'buddy', 'bug', 'build', 'build future', 'build it', 'build it they', 'build it they will', 'build our', 'builders', 'building', 'building better', 'building blocks', 'building brain', 'building brain power', 'building classroom', 'building classroom library', 'building community', 'building future', 'building literacy', 'building love', 'building our', 'building reading', 'building strong', 'builds', 'bump', 'bunch', 'bundle', 'business', 'busy', 'busy bees', 'busy bodies', 'but', 'butterflies', 'butterfly', 'by', 'ca', 'ca not', 'ca not hear', 'cafe', 'calculate', 'calculating', 'calculator', 'calculators', 'call', 'calling', 'calling all', 'calm', 'calm read', 'calming', 'camera', 'camera action', 'cameras', 'can', 'can be', 'can be fun', 'can code', 'can do', 'can do it', 'can go', 'can hear', 'can help', 'can learn', 'can make', 'can read', 'can read write', 'can see', 'can sit', 'can take', 'can we', 'can you', 'can you hear', 'can you hear me', 'can you see', 'captivating', 'capture', 'capturing', 'cardboard', 'care', 'career', 'careers', 'caring', 'carpet', 'carpet ride', 'carpet time', 'carry', 'cart', 'case', 'cases', 'catch', 'catching', 'cause', 'caution', 'cd', 'celebrate', 'celebrating', 'celebration', 'cells', 'center', 'center supplies', 'center time', 'centered', 'centered classroom', 'centered learning', 'centers', 'century', 'century classroom', 'century learners', 'century learners need', 'century learning', 'century skills', 'century students', 'century technology', 'ceramics', 'chair', 'chair pockets', 'chairs', 'challenge', 'challenges', 'challenging', 'champions', 'chance', 'change', 'change world', 'changes', 'changing', 'chaos', 'chapter', 'chapter books', 'character', 'characters', 'charge', 'charged', 'charged up', 'charging', 'chart', 'charts', 'check', 'cheese', 'chemistry', 'chess', 'chevron', 'chicken', 'child', 'childhood', 'children', 'choice', 'choice seating', 'choices', 'choose', 'choose your', 'chrome', 'chrome book', 'chrome books', 'chromebook', 'chromebook classroom', 'chromebooks', 'chromebooks 21st', 'chromebooks 21st century', 'chromebooks all', 'chromebooks classroom', 'chromebooks create', 'chromebooks creative', 'chromebooks for', 'chromebooks learning', 'chromebooks needed', 'chromebooks our', 'chromebooks part', 'chromebooks special', 'chromebooks special education', 'chromebooks to', 'circle', 'circle time', 'circles', 'circuits', 'citizens', 'citizenship', 'city', 'civil', 'class', 'class library', 'class needs', 'class set', 'classes', 'classic', 'classroom', 'classroom carpet', 'classroom chromebooks', 'classroom community', 'classroom environment', 'classroom essentials', 'classroom learning', 'classroom library', 'classroom materials', 'classroom needs', 'classroom part', 'classroom printer', 'classroom project', 'classroom rug', 'classroom seating', 'classroom supplies', 'classroom technology', 'classroom walls', 'classroom with', 'classrooms', 'clay', 'clean', 'cleaning', 'clear', 'clearly', 'clearly now', 'click', 'close', 'closer', 'closet', 'closing', 'clothes', 'club', 'clubs', 'coats', 'code', 'coders', 'coding', 'coding our', 'coding robots', 'coding with', 'coffee', 'coffee shop', 'cold', 'collaborate', 'collaborate listen', 'collaborating', 'collaboration', 'collaborative', 'collaborative classroom', 'collaborative learning', 'collection', 'college', 'college bound', 'college signing', 'college signing day', 'color', 'color our', 'color our world', 'color printer', 'colored', 'colorful', 'colorful classroom', 'coloring', 'colors', 'come', 'come alive', 'come life', 'come true', 'comes', 'comes alive', 'comes life', 'comfort', 'comfortable', 'comfortable learning', 'comfortable place', 'comfortable reading', 'comfortable seating', 'comfortably', 'comfy', 'comfy classroom', 'comfy cozy', 'comfy cozy classroom', 'comfy cozy reading', 'comfy reading', 'comic', 'comic books', 'comics', 'coming', 'common', 'common core', 'communicate', 'communicating', 'communication', 'community', 'community learners', 'competition', 'complete', 'composition', 'comprehension', 'computer', 'computer programming', 'computer science', 'computers', 'concentrate', 'concentration', 'concepts', 'confidence', 'confident', 'connect', 'connected', 'connecting', 'connection', 'connections', 'conquering', 'constructing', 'construction', 'content', 'continued', 'continuing', 'control', 'cook', 'cooking', 'cool', 'cool kids', 'cooperation', 'cooperative', 'cooperative learning', 'copies', 'copy', 'core', 'corner', 'costumes', 'could', 'counseling', 'count', 'counting', 'country', 'counts', 'cozy', 'cozy classroom', 'cozy reading', 'cozy reading corner', 'cozy up', 'craft', 'crafting', 'crafts', 'crafty', 'craving', 'crayons', 'craze', 'crazy', 'crazy chromebooks', 'create', 'created', 'creates', 'creating', 'creating 21st', 'creating 21st century', 'creating classroom', 'creating comfortable', 'creating flexible', 'creation', 'creations', 'creative', 'creative kids', 'creative learning', 'creative minds', 'creative thinking', 'creatively', 'creativity', 'creativity critical', 'creativity critical thinking', 'creators', 'cricut', 'crime', 'critical', 'critical thinkers', 'critical thinking', 'critical thinking through', 'cross', 'cube', 'cubes', 'culinary', 'cultivating', 'cultural', 'culturally', 'culture', 'cultures', 'curiosity', 'curious', 'current', 'current events', 'curriculum', 'cushions', 'cut', 'cutting', 'cycle', 'cycles', 'daily', 'dance', 'dancing', 'dash', 'dash dot', 'data', 'day', 'day keeps', 'day long', 'days', 'de', 'deaf', 'deck', 'deep', 'deeper', 'dell', 'demand', 'deserve', 'deserving', 'design', 'designers', 'designing', 'desire', 'desk', 'desks', 'desperately', 'desperately needed', 'details', 'develop', 'developing', 'development', 'devices', 'dictionaries', 'did', 'difference', 'different', 'differentiate', 'differentiated', 'differentiated instruction', 'differentiated learning', 'differentiated seating', 'differentiation', 'dig', 'digging', 'digital', 'digital age', 'digital learning', 'digital literacy', 'digital portfolios', 'digital storytelling', 'digital world', 'disabilities', 'discover', 'discovering', 'discovery', 'display', 'dissecting', 'dissection', 'distraction', 'distractions', 'ditch', 'dive', 'diverse', 'diverse books', 'diverse learners', 'diversity', 'diving', 'dna', 'do', 'do it', 'do not', 'do not fall', 'do not fall down', 'do we', 'do you', 'do you hear', 'do you hear what', 'document', 'document camera', 'does', 'does not', 'doing', 'done', 'doodle', 'door', 'doors', 'dot', 'dots', 'double', 'down', 'dr', 'drama', 'dramatic', 'dramatic play', 'draw', 'drawing', 'dream', 'dreaming', 'dreams', 'dress', 'drive', 'driven', 'drives', 'drone', 'drones', 'drop', 'drum', 'drumming', 'drums', 'dry', 'dry erase', 'dry erase boards', 'dual', 'dual language', 'during', 'dynamic', 'dyslexia', 'each', 'eager', 'eager learners', 'eager

[illegible]

activities', 'hands learning', 'hands math', 'hands on', 'hands on learning', 'hands on math', 'hands on science', 'hands science', 'handwriting', 'happen', 'happiness', 'happy', 'happy healthy', 'happy students', 'hard', 'hard work', 'harry', 'harry potter', 'has', 'hatching', 'have', 'have fun', 'have seat', 'having', 'having ball', 'having fun', 'head', 'headphones', 'headphones for', 'headphones help', 'headphones learning', 'headphones needed', 'heads', 'health', 'health fitness', 'health wellness', 'healthier', 'healthy', 'healthy active', 'healthy bodies', 'healthy choices', 'healthy eating', 'healthy food', 'healthy habits', 'healthy happy', 'healthy kids', 'healthy life style', 'healthy living', 'healthy mind', 'healthy minds', 'healthy snacks', 'healthy students', 'hear', 'hear it', 'hear me', 'hear me now', 'hear us', 'hear what', 'hear what hear', 'hear ye', 'hear ye hear', 'hear ye hear ye', 'hear you', 'heard', 'hearing', 'heart', 'hearts', 'heat', 'heights', 'hello', 'help', 'help bring', 'help build', 'help create', 'help get', 'help improve', 'help keep', 'help kids', 'help make', 'help me', 'help mrs', 'help my', 'help my students', 'help our', 'help our class', 'help our students', 'help special', 'help special needs', 'help students', 'help students learn', 'help them', 'help us', 'help us become', 'help us bring', 'help us build', 'help us create', 'help us focus', 'help us get', 'help us grow', 'help us hear', 'help us keep', 'help us learn', 'help us make', 'help us read', 'help us stay', 'help we', 'help we need', 'help young', 'helping', 'helping students', 'helps', 'helps us', 'helps us learn', 'here', 'here we', 'here we come', 'hero', 'heroes', 'hey', 'hi', 'high', 'high interest', 'high interest books', 'high school', 'high school students', 'high tech', 'higher', 'highly', 'historical', 'history', 'history life', 'hit', 'hocus', 'hocus pocus', 'hokki', 'hokki pokey', 'hokki stools', 'hold', 'holocaust', 'home', 'home away', 'home school', 'homework', 'hooked', 'hoops', 'hooray', 'hop', 'hope', 'horizons', 'hot', 'hot dots', 'hour', 'house', 'how', 'how do', 'how does', 'hp', 'hs', 'huge', 'human', 'hunger', 'hungry', 'hydrated', 'hygiene', 'ican', 'ican ipad', 'idea', 'ideas', 'if', 'if they', 'if we', 'if you', 'if you give', 'ignite', 'igniting', 'ii', 'iii', 'ilearn', 'ilearn ipad', 'ilearn ipads', 'illiteracy', 'imagination', 'imaginings', 'imagine', 'immersion', 'impact', 'importance', 'important', 'improve', 'improve our', 'improved', 'improves', 'improving', 'in', 'in color', 'in first', 'in first grade', 'in kindergarten', 'in my', 'in need', 'in need of', 'in our', 'in the', 'in the classroom', 'incentives', 'inclusive', 'income', 'income students', 'increase', 'increase student', 'increased', 'increasing', 'incredible', 'independence', 'independent', 'independent learning', 'independent readers', 'independent reading', 'individual', 'individualized', 'individualized learning', 'indoor', 'indoor recess', 'infinity', 'infinity beyond', 'information', 'informational', 'informed', 'ing', 'ink', 'inner', 'inner city', 'innovate', 'innovating', 'innovation', 'innovative', 'innovators', 'input', 'inquiring', 'inquiring minds', 'inquiry', 'inquiry based', 'inquisitive', 'inside', 'inspiration', 'inspire', 'inspired', 'inspires', 'inspiring', 'inspiring young', 'instruction', 'instructional', 'instrument', 'instruments', 'integrated', 'integrating', 'integrating art', 'integrating technology', 'integration', 'interact', 'interactive', 'interactive learning', 'interactive math', 'interactive notebooks', 'interactive science', 'interactive technology', 'interest', 'interest books', 'interesting', 'intervention', 'interventions', 'into', 'into classroom', 'into future', 'into learning', 'into our', 'into reading', 'into the', 'inventors', 'investigations', 'inviting', 'ipad', 'ipad learning', 'ipad mini', 'ipad minis', 'ipad pro', 'ipads', 'ipads classroom', 'ipads for', 'ipads learning', 'ipads make', 'ipads needed', 'ipod', 'ipods', 'iread', 'is', 'is fun', 'is key', 'is not', 'is on', 'is our', 'is the', 'it', 'it all', 'it all about', 'it learn', 'it move', 'it move it', 'it out', 'it share', 'it share it', 'it takes', 'it they', 'it they will', 'it time', 'it up', 'it we', 'items', 'its', 'jiggle', 'job', 'journalism', 'journals', 'journey', 'joy', 'jr', 'jump', 'jumping', 'junior', 'just', 'just for', 'just little', 'just right', 'just right books', 'justice', 'keep', 'keep calm', 'keep calm read', 'keep it', 'keep kids', 'keep moving', 'keep our', 'keep students', 'keep us', 'keep us moving', 'keeping', 'keeping our', 'keeping up', 'keeping up with', 'keeps', 'keeps illiteracy', 'keeps us', 'key', 'key success', 'keyboard', 'keyboards', 'keys', 'kick', 'kicking', 'kid', 'kid inspired', 'kiddos', 'kidney', 'kidney table', 'kids', 'kids are', 'kids can', 'kids learn', 'kids love', 'kids need', 'kids want', 'kind', 'kinder', 'kinder kids', 'kindergarten', 'kindergarten class', 'kindergarten classroom', 'kindergarten kids', 'kindergarten students', 'kindergarteners', 'kindergarteners need', 'kindergartners', 'kinders', 'kinders need', 'kindle', 'kindle fire', 'kindle fires', 'kindles', 'kindness', 'kinesthetic', 'kit', 'kitchen', 'kits', 'know', 'knowledge', 'kore', 'la', 'lab', 'laboratory', 'labs', 'lacrosse', 'lady', 'laminare', 'laminator', 'land', 'language', 'language arts', 'language development', 'language learners', 'language learning', 'language skills', 'languages', 'lap', 'laptop', 'laptops', 'large', 'last', 'lead', 'leader', 'leaders', 'leaders tomorrow', 'leading', 'leads', 'league', 'leap', 'leaping', 'learn', 'learn about', 'learn best', 'learn better', 'learn english', 'learn grow', 'learn it', 'learn love', 'learn play', 'learn read', 'learn through', 'learn through play', 'learn to', 'learn together', 'learn with', 'learner', 'learners', 'learners need', 'learners through', 'learning', 'learning 21st', 'learning 21st century', 'learning about', 'learning all', 'learning beyond', 'learning can', 'learning carpet', 'learning center', 'learning centers', 'learning chromebooks', 'learning classroom', 'learning code', 'learning english', 'learning environment', 'learning flexible', 'learning from', 'learning fun', 'learning in', 'learning ipads', 'learning is', 'learning is fun', 'learning kindergarten', 'learning life', 'learning literacy', 'learning love', 'learning love reading', 'learning materials', 'learning math', 'learning motion', 'learning move', 'learning movement', 'learning moving', 'learning on', 'learning opportunities', 'learning our', 'learning part', 'learning play', 'learning read', 'learning science', 'learning space', 'learning spaces', 'learning stem', 'learning styles', 'learning technology', 'learning through', 'learning through movement', 'learning through play', 'learning through technology', 'learning time', 'learning to', 'learning together', 'learning tools', 'learning using', 'learning while', 'learning with', 'learning with chromebooks', 'learning with technology', 'learns', 'leaving', 'led', 'leer', 'left', 'lego', 'lego wall', 'legos', 'lens', 'less', 'lesson', 'lessons', 'let', 'let be', 'let build', 'let find', 'let find out', 'let get', 'let get creative', 'let get flexible', 'let get moving', 'let get organized', 'let get physical', 'let go', 'let hear', 'let learn', 'let make', 'let make learning', 'let me', 'let move', 'let play', 'let read', 'let take', 'let talk', 'let them'

'let me learn', 'let me move', 'let me play', 'let me read', 'let me talk', 'let me think', 'let there', 'let there be', 'let us', 'let write', 'lets', 'lets get', 'letter', 'letters', 'level', 'leveled', 'leveled books', 'leveled library', 'leveled readers', 'leveling', 'levels', 'library', 'library books', 'library makerspace', 'library needs', 'libros', 'life', 'life cycle', 'life cycles', 'life essentials', 'life long', 'life long readers', 'life science', 'life skills', 'life through', 'life with', 'lifelong', 'lifelong learners', 'lifelong readers', 'lifestyle', 'lifestyles', 'lifetime', 'light', 'light up', 'light up our', 'lighting', 'lights', 'lights camera', 'lights camera action', 'like', 'like home', 'like move', 'like move it', 'like move it move', 'like move move', 'like to', 'like to move', 'like to move it', 'list', 'listen', 'listen learn', 'listen read', 'listen up', 'listeners', 'listening', 'listening center', 'listening centers', 'listening learn', 'listening learning', 'listening reading', 'listening station', 'lit', 'literacy', 'literacy center', 'literacy centers', 'literacy learning', 'literacy math', 'literacy skills', 'literacy through', 'literacy with', 'literary', 'literate', 'literature', 'literature circles', 'little', 'little bit', 'little hands', 'little learners', 'little learners need', 'little minds', 'little ones', 'little readers', 'little things', 'littlebits', 'live', 'lives', 'living', 'living color', 'long', 'long readers', 'long way', 'look', 'looking', 'lost', 'lots', 'loud', 'louisiana', 'loungue', 'love', 'love books', 'love learn', 'love learning', 'love literacy', 'love literature', 'love read', 'love reading', 'love technology', 'love to', 'lovers', 'loves', 'loving', 'low', 'low income', 'low income students', 'lunch', 'mac', 'macbook', 'machine', 'machines', 'mad', 'made', 'made easy', 'made fun', 'madness', 'magazine', 'magazines', 'magic', 'magic carpet', 'magic carpet ride', 'magical', 'magnetic', 'magnets', 'magnificent', 'mail', 'make', 'make big', 'make difference', 'make great', 'make it', 'make learning', 'make learning fun', 'make math', 'make music', 'make our', 'make our classroom', 'make reading', 'make reading fun', 'make us', 'makeover', 'maker', 'maker space', 'makers', 'makerspace', 'makes', 'makes learning', 'makes learning fun', 'makes perfect', 'makes us', 'makey', 'makey makey', 'making', 'making learning', 'making learning fun', 'making math', 'making math fun', 'making music', 'making our', 'making reading', 'making reading fun', 'management', 'mania', 'maniacs', 'manipulating', 'manipulative', 'manipulatives', 'many', 'map', 'maps', 'march', 'marching', 'mark', 'markers', 'market', 'marvelous', 'marvelous math', 'master', 'mastering', 'mastering math', 'masterpiece', 'masterpieces', 'masters', 'mastery', 'mat', 'material', 'materials', 'materials for', 'materials needed', 'math', 'math art', 'math center', 'math centers', 'math class', 'math classroom', 'math facts', 'math fun', 'math games', 'math learning', 'math literacy', 'math mania', 'math manipulatives', 'math materials', 'math meaningful', 'math reading', 'math science', 'math skills', 'math stations', 'math students', 'math success', 'math technology', 'math through', 'math tools', 'math with', 'mathematical', 'mathematicians', 'mathematicians need', 'mathematics', 'mats', 'matter', 'matters', 'maximize', 'maximize learning', 'maximizing', 'maximum', 'may', 'me', 'me learn', 'mean now', 'mean', 'meaning', 'meaningful', 'means', 'measuring', 'media', 'media center', 'media literacy', 'meet', 'meeting', 'meeting needs', 'meets', 'member', 'memories', 'memory', 'mental', 'mentor', 'mentor text', 'mentor texts', 'mice', 'microphones', 'microscope', 'microscopes', 'microscopic', 'middle', 'middle school', 'middle school students', 'middle schoolers', 'mighty', 'mind', 'mind body', 'mindful', 'mindfulness', 'minds', 'minds bodies', 'minds need', 'minds through', 'minds with', 'mindset', 'mini', 'mini ipads', 'minis', 'minutes', 'miss', 'missing', 'mission', 'mobile', 'mock', 'model', 'modeling', 'models', 'modern', 'moments', 'money', 'more', 'more books', 'more fun', 'more learning', 'more technology', 'more than', 'more you', 'more you know', 'more you read', 'more you read more', 'morning', 'most', 'motion', 'motivate', 'motivated', 'motivating', 'motivation', 'motor', 'motor skills', 'mouse', 'move', 'move it', 'move it move', 'move it move it', 'move learn', 'move move', 'move while', 'movement', 'movement classroom', 'movement learning', 'movers', 'movers shakers', 'movie', 'movies', 'movin', 'movin groovin', 'moving', 'moving bodies', 'moving forward', 'moving grooving', 'moving learn', 'moving learning', 'moving minds', 'moving while', 'mr', 'mrs', 'ms', 'much', 'much more', 'much needed', 'multi', 'multisensory', 'multicultural', 'multimedia', 'multiple', 'multiplication', 'muscles', 'music', 'music class', 'music classroom', 'music room', 'music stands', 'musical', 'musicians', 'must', 'mustangs', 'my', 'my class', 'my classroom', 'my first', 'my first graders', 'my kids', 'my kinders', 'my little', 'my own', 'my scholars', 'my students', 'my students need', 'my way', 'my world', 'myself', 'mystery', 'namaste', 'name', 'national', 'native', 'natural', 'nature', 'necessities', 'need', 'need art', 'need art supplies', 'need basic', 'need books', 'need chromebook', 'need chromebooks', 'need classroom', 'need diverse', 'need flexible', 'need flexible seating', 'need headphones', 'need help', 'need home', 'need ink', 'need ipad', 'need ipads', 'need listening', 'need listening center', 'need materials', 'need math', 'need more', 'need move', 'need move it', 'need move it move', 'need new', 'need of', 'need printer', 'need read', 'need rug', 'need some', 'need stem', 'need supplies', 'need technology', 'need to', 'need wiggle', 'need your', 'need your help', 'needed', 'needed for', 'needing', 'needs', 'needs new', 'needs students', 'needs students need', 'needs supplies', 'needs technology', 'never', 'new', 'new book', 'new books', 'new classroom', 'new heights', 'new rug', 'new school', 'new school year', 'new supplies', 'new teacher', 'new technology', 'new way', 'new world', 'new year', 'new year new', 'news', 'next', 'next', 'next generation', 'next generation science', 'next level', 'nice', 'night', 'no', 'no more', 'noise', 'non', 'non fiction', 'non fiction books', 'nonfiction', 'nonfiction books', 'nook', 'north', 'not', 'not be', 'not fall', 'not fall down', 'not have', 'not hear', 'not just', 'not sit', 'not sit still', 'not so', 'not stop', 'not wait', 'note', 'notebook', 'notebooks', 'notes', 'nothing', 'novel', 'novel studies', 'novel study', 'novels', 'now', 'number', 'number sense', 'numbers', 'nutrition', 'nutritious', 'ocean', 'odds', 'of', 'of the', 'off', 'off right', 'oh', 'oh my', 'oh places', 'oh places we', 'oh places you', 'oh the', 'oh the places', 'oils', 'ol', 'old', 'old school', 'on', 'on fire', 'on learning', 'on math', 'on our', 'on science', 'on target', 'on the', 'on the move', 'once', 'once upon', 'once upon time', 'one', 'one book', 'one book time', 'one one', 'one student', 'ones', 'online', 'online learning', 'only', 'open', 'opening', 'opens', 'operation', 'opportunities', 'opportunity', 'optimal', 'optimal learning', 'options', 'or', 'orchestra', 'order', 'ordinary', 'orff', 'organization', 'organization is', 'organization key', 'organizational', 'organize', 'organize even', 'organized', 'organized classroom', 'organizing'

organizational', 'organize', 'organize our', 'organized', 'organized classroom', 'organizing', 'organizing our', 'osmo', 'osmos', 'other', 'others', 'our', 'our bodies', 'our books', 'our brain s', 'our class', 'our classroom', 'our classroom library', 'our community', 'our day', 'our fingertips', 'our future', 'our garden', 'our hands', 'our health', 'our ipads', 'our kids', 'our knowledge', 'our learning', 'our library', 'our literacy', 'our math', 'our minds', 'our music', 'our new', 'our own', 'our reading', 'our room', 'our school', 'our science', 'our students', 'our success', 'our target', 'our technology', 'our way', 'our way into', 'our way success', 'our way t hrough', 'our way to', 'our wiggles', 'our wiggles out', 'our work', 'our world', 'our writing', 'ourselves', 'out', 'out of', 'out our', 'out with', 'outdoor', 'outdoor learning', 'outdoors', 'ou tside', 'outside box', 'outside classroom', 'outstanding', 'over', 'owl', 'owl pellet', 'own', 'oz obot', 'ozobots', 'pad', 'pads', 'page', 'paint', 'painting', 'pants', 'paper', 'paper pencils', 'paper please', 'paperless', 'papers', 'paradise', 'parent', 'parents', 'park', 'part', 'part ii', 'part iii', 'part two', 'participation', 'party', 'passion', 'past', 'path', 'pathway', 'pe', 'peace', 'pedal', 'pedaling', 'pellet', 'pen', 'pencil', 'pencil sharpener', 'pencils', 'pens', 'p eople', 'percussion', 'perfect', 'performance', 'performing', 'personal', 'personal space', 'personalized', 'personalized learning', 'pet', 'phase', 'phones', 'phonics', 'photography', 'physical', 'physical activity', 'physical education', 'physical fitness', 'physically', 'physics', 'pi', 'piano', 'picasso', 'pick', 'picture', 'picture books', 'picture this', 'picture worth', 'picture worth thousand', 'picture worth thousand words', 'pictures', 'pieces', 'pirates', 'place', 'place everyone', 'place everything', 'place for', 'place learn', 'place read', 'place si t', 'place to', 'places', 'places we', 'places we will', 'places you', 'places you go', 'plan', 'p lanet', 'plant', 'planting', 'plants', 'play', 'play ball', 'play learn', 'players', 'playground', 'playground equipment', 'playing', 'playing field', 'playing with', 'please', 'please help', 'plea se help my', 'please help us', 'pocket', 'pockets', 'pocus', 'poetry', 'pokey', 'pop', 'portable', 'portfolios', 'positive', 'positive behavior', 'possibilities', 'possible', 'post', 'potential', 'potter', 'power', 'power', 'power choice', 'powerful', 'practice', 'practice makes', 'practice makes perfec t', 'pre', 'prek', 'prep', 'prepare', 'prepared', 'preparing', 'preschool', 'preschoolers', 'present', 'presentation', 'presentations', 'press', 'pretty', 'pride', 'primary', 'print', 'print it', 'printer', 'printer ink', 'printers', 'printing', 'printmaking', 'privacy', 'prize', 'prize w inning', 'prize winning toon', 'prize winning toon graphics', 'prizes', 'pro', 'problem', 'problem solvers', 'problem solving', 'problems', 'process', 'producing', 'production', 'productive', 'professional', 'proficiency', 'program', 'programmers', 'programming', 'progress', 'project', 'pr oject based', 'project based learning', 'projecting', 'projector', 'projects', 'promote', 'promotes', 'promoting', 'pros', 'protect', 'protect our', 'protecting', 'protecting our', 'protection', 'proud', 'provide', 'providing', 'pt', 'public', 'publish', 'publishing', 'pull', 'pump', 'pump up', 'puppet', 'puppets', 'purpose', 'purposeful', 'put', 'putting', 'puzzles', 'quality', 'quest', 'quiet', 'quill', 'quill you', 'race', 'rack', 'rain', 'rainbow', 'rainy', 'ra ising', 'raspberry', 'raspberry pi', 'ravenous', 'ravenous readers', 're', 'reach', 'reaching', 'r ead', 'read about', 'read all', 'read all about', 'read all about it', 'read along', 'read aloud', 'read alouds', 'read book', 'read books', 'read it', 'read learn', 'read me', 'read more', 'read read', 'read read read', 'read succeed', 'read the', 'read we', 'read write', 'reader', 'reader tomorrow', 'reader tomorrow leader', 'readers', 'readers are', 'readers are leaders', 'readers bec ome', 'readers leaders', 'readers need', 'readers need books', 'readers one', 'readers through', ' readers with', 'readers writers', 'readiness', 'reading', 'reading books', 'reading center', 'read ing centers', 'reading comprehension', 'reading corner', 'reading fun', 'reading fundamental', 're ading is', 'reading learn', 'reading learning', 'reading materials', 'reading math', 'reading nook ', 'reading our', 'reading resources', 'reading rocks', 'reading rug', 'reading skills', 'reading success', 'reading table', 'reading technology', 'reading through', 'reading with', 'reading writi ng', 'reads', 'ready', 'ready learn', 'ready read', 'ready set', 'ready set read', 'ready to', 're al', 'real life', 'real world', 'reality', 'really', 'rebuilding', 'recess', 'recess fun', 'record', 'recorders', 'recording', 'recycle', 'recycling', 'red', 'redesign', 'reduce', 'reeds', 'relax', 'relaxing', 'relevant', 'relief', 'reluctant', 'reluctant readers', 'remember', 'repeat', 'replace', 'request', 'rescue', 'research', 'researchers', 'researching', 'resistable', 'resource', 'resource room', 'resources', 'responsibility', 'rest', 'results', 'reuse', 'review', 'revolution', 'reward', 'rewarding', 'rewards', 'rhythm', 'rich', 'ride', 'riding', 'right', 'right books', 'right foot', 'rise', 'rising', 'risk', 'road', 'robot', 'robotic', 'robotics', 'ro botics team', 'robots', 'robots coding', 'rock', 'rocket', 'rockin', 'rocking', 'rocks', 'roll', ' rolling', 'room', 'round', 'rug', 'rugs', 'rule', 'run', 'running', 'rural', 'sacks', 'safe', 'saf ely', 'safety', 'safety first', 'same', 'sand', 'save', 'save our', 'saving', 'savvy', 'savvy students', 'savvy', 'say', 'say cheese', 'says', 'scholars', 'scholars need', 'scholastic', 'scholastic magazines', 'scholastic news', 'school', 'school basics', 'school garden', 'school hom e', 'school library', 'school store', 'school students', 'school supplies', 'school year', 'schoolers', 'schools', 'science', 'science books', 'science class', 'science classroom', 'science fair', 'science fun', 'science lab', 'science learning', 'science materials', 'science math', 'sci ence social', 'science social studies', 'science supplies', 'science technology', 'science technol ogy engineering', 'science technology engineering math', 'science through', 'science with', 'scien tific', 'scientist', 'scientists', 'scientists need', 'scissors', 'scope', 'score', 'scream', 'scr een', 'searching', 'seat', 'seat sacks', 'seating', 'seating 21st', 'seating 21st century', 'seating active', 'seating active learners', 'seating all', 'seating choices', 'seating classroom', 'seating first', 'seating first grade', 'seating flexible', 'seating flexible learners', 'seating flexible learning', 'seating flexible minds', 'seating focused', 'seating for', 'seating kindergarten', 'seating learning', 'seating needed', 'seating options', 'seating paradisi se', 'seating special', 'seating student', 'seating student centered', 'seating student centered c lassroom', 'seating students', 'seating success', 'seating to', 'seating wiggly', 'seats', 'second ', 'second grade', 'second graders', 'second graders need', 'secret', 'secure', 'see', 'see it', ' see what', 'see you', 'seed', 'seeds', 'seeing', 'seeing believing', 'seek', 'seeking', 'self', 's end', 'seniors', 'sensational', 'sense', 'senses', 'sensory', 'sensory items', 'sensory learning',

'sensory needs', 'sensory play', 'sensory room', 'sensory tools', 'series', 'set', 'set read', 'sets', 'setting', 'severe', 'sew', 'shake', 'shakers', 'shakespeare', 'shape', 'shapes', 'share', 'share it', 'sharing', 'sharp', 'sharp pencils', 'sharpen', 'sharpener', 'sharpening', 'shelf', 'shelves', 'shine', 'shining', 'shirts', 'shoes', 'shoot', 'shop', 'short', 'should', 'should be', 'show', 'show me', 'show what', 'show you', 'showing', 'sight', 'sight word', 'sight words', 'signing', 'signing day', 'simple', 'simple machines', 'sims', 'sing', 'singing', 'sit', 'sit down', 'sit stand', 'sit still', 'sitting', 'sitting still', 'sixth', 'size', 'skill', 'skills', 'skills through', 'skills with', 'sky', 'small', 'small group', 'small group instruction', 'small groups', 'smart', 'smart board', 'smart students', 'smarter', 'smile', 'snack', 'snacks', 'snap', 'snug', 'so', 'so much', 'so we', 'so we can', 'soar', 'soaring', 'soccer', 'soccer team', 'social', 'social emotional', 'social emotional learning', 'social justice', 'social skills', 'social studies', 'soft', 'softball', 'soil', 'solar', 'solutions', 'solve', 'solvers', 'solving', 'some', 'some fun', 'some more', 'something', 'soon', 'soul', 'sound', 'sounds', 'south', 'space', 'spaces', 'spanish', 'spark', 'sparking', 'speak', 'speakers', 'speaking', 'special', 'special ed', 'special education', 'special education class', 'special education classroom', 'special education students', 'special education students need', 'special learners', 'special needs', 'special needs students', 'special students', 'spectacular', 'sped', 'speech', 'speech language', 'speed', 'spell', 'spelling', 'sphero', 'spike', 'spin', 'spirit', 'sport', 'sports', 'sports equipment', 'spot', 'spots', 'spring', 'stability', 'stability balls', 'stage', 'stamina', 'stand', 'stand up', 'stand up learning', 'standards', 'standing', 'standing desks', 'standing up', 'stands', 'star', 'starbucks', 'stars', 'start', 'start our', 'started', 'starter', 'starting', 'starts', 'starts with', 'state', 'station', 'stations', 'stay', 'stay active', 'stay fit', 'stay focused', 'stay healthy', 'stay organized', 'staying', 'staying active', 'staying healthy', 'steam', 'steam ahead', 'steam ahead with', 'steam learning', 'steaming', 'stellar', 'stem', 'stem activities', 'stem ahead', 'stem classroom', 'stem kits', 'stem learning', 'stem literacy', 'stem materials', 'stem projects', 'stem science', 'stem steam', 'stem students', 'stem tastic', 'stems', 'step', 'stepping', 'steps', 'stick', 'sticks', 'still', 'stimulate', 'stimulating', 'stock', 'stool', 'stools', 'stools active', 'stop', 'stop collaborate', 'stop collaborate listen', 'stop motion', 'storage', 'store', 'stories', 'story', 'story time', 'storytelling', 'storyworks', 'strength', 'strengthen', 'strengthening', 'strengthening our', 'stress', 'stretch', 'strike', 'strings', 'strong', 'strong readers', 'stronger', 'struggling', 'struggling readers', 'strumming', 'student', 'student achievement', 'student centered', 'student centered classroom', 'student centered learning', 'student choice', 'student engagement', 'student learning', 'student led', 'student success', 'student work', 'students', 'students are', 'students autism', 'students become', 'students can', 'students disabilities', 'students focus', 'students get', 'students in', 'students learn', 'students learning', 'students love', 'students need', 'students need supplies', 'students need technology', 'students part', 'students read', 'students reading', 'students special', 'students special needs', 'students stay', 'students succeed', 'students technology', 'students through', 'students through art', 'students want', 'students with', 'students with autism', 'students with special', 'students with special needs', 'studies', 'studio', 'study', 'studying', 'stuff', 'sturdy', 'style', 'styles', 'subscription', 'succeed', 'succeeding', 'success', 'success with', 'successful', 'successful students', 'summer', 'summer reading', 'sun', 'super', 'super readers', 'super science', 'super scientists', 'super students', 'super supplies', 'superstars', 'supplies', 'supplies for', 'supplies help', 'supplies needed', 'supplies new', 'supplies students', 'supplies success', 'supplies super', 'supplies supplies', 'supplies supplies supplies', 'supplies to', 'supply', 'supplying', 'support', 'support our', 'supporting', 'supports', 'surface', 'surfing', 'sustainable', 'sweet', 'swing', 'system', 'systems', 'table', 'tables', 'tablet', 'tablets', 'tablets for', 'tablets learning', 'take', 'take home', 'take seat', 'take stand', 'take us', 'take you', 'takes', 'taking', 'tale', 'tales', 'talk', 'talking', 'tall', 'tank', 'tapping', 'target', 'target healthy', 'targeting', 'targets', 'task', 'tastic', 'teach', 'teach me', 'teacher', 'teacher needs', 'teachers', 'teaches', 'teaching', 'teaching technology', 'teaching with', 'teaching with technology', 'team', 'team building', 'team needs', 'teamwork', 'tech', 'tech savvy', 'tech tools', 'techie', 'techies', 'technical', 'techno', 'technological', 'technologically', 'technology', 'technology 21st', 'technology 21st century', 'technology all', 'technology art', 'technology center', 'technology classroom', 'technology engineering', 'technology engineering math', 'technology enhance', 'technology for', 'technology future', 'technology help', 'technology integration', 'technology into', 'technology is', 'technology kindergarten', 'technology learning', 'technology math', 'technology needed', 'technology our', 'technology part', 'technology please', 'technology reading', 'technology rocks', 'technology science', 'technology special', 'technology support', 'technology the', 'technology to', 'technology today', 'technology tools', 'techy', 'teens', 'tell', 'telling', 'ten', 'tennis', 'terrific', 'terrific technology', 'test', 'testing', 'text', 'textbooks', 'texts', 'than', 'that', 'the', 'the 21st', 'the 21st century', 'the art', 'the best', 'the classroom', 'the future', 'the great', 'the key', 'the learning', 'the little', 'the magic', 'the making', 'the more', 'the more you', 'the more you read', 'the move', 'the new', 'the next', 'the perfect', 'the places', 'the power', 'the power choice', 'the rescue', 'the right', 'the science', 'the way', 'the world', 'the write', 'the year', 'theater', 'theatre', 'their', 'their fingertips', 'their hands', 'their own', 'their way', 'their world', 'them', 'themselves', 'therapy', 'there', 'there be', 'there no', 'these', 'they', 'they can', 'they do', 'they do not', 'they will', 'they work', 'thing', 'things', 'think', 'thinkers', 'thinking', 'thinking outside', 'thinking skills', 'thinking through', 'third', 'third grade', 'third graders', 'third graders need', 'thirst', 'this', 'this is', 'those', 'thoughts', 'thousand', 'thousand words', 'three', 'thrive', 'thriving', 'through', 'through art', 'through arts', 'through books', 'through flexible', 'through flexible seating', 'through kindergarten', 'through listening', 'through literacy', 'through literature', 'through movement', 'through music', 'through play', 'through reading', 'through stem', 'through technology', 'through the', 'throw', 'tidy', 'tigers', 'tiles', 'time', 'time for', 'time for kids', 'time get', 'time kids', 'time to', 'times', 'tiny', 'tips', 'title', 'tk', 'to', 'to be', 'to go', 'to help', 'to infinity', 'to infinity beyond', 'to

learn', 'to life', 'to make', 'to move', 'to move it', 'to move it move', 'to our', 'to read', 'to succeed', 'to success', 'to the', 'to the rescue', 'today', 'today keeps', 'today reader', 'today reader tomorrow', 'today reader tomorrow leader', 'together', 'tomorrow', 'tomorrow leader', 'tomorrow leaders', 'toner', 'too', 'tool', 'tools', 'tools success', 'tools to', 'toon', 'toon books', 'toon graphics', 'top', 'totally', 'tots', 'touch', 'touching', 'toward', 'towards', 'towards success', 'town', 'toys', 'track', 'tracking', 'traditional', 'train', 'training', 'transform', 'transforming', 'transition', 'travel', 'traveling', 'treasure', 'tree', 'trip', 'trips', 'true', 'try', 'trying', 'tubs', 'tune', 'turn', 'turning', 'tv', 'twenty', 'twenty first', 'twenty first century', 'twist', 'two', 'type', 'typing', 'uke', 'ukulele', 'ukuleles', 'under', 'understand', 'understanding', 'uniforms', 'unique', 'unit', 'unite', 'unlocking', 'up', 'up close', 'up for', 'up learn', 'up learning', 'up our', 'up reading', 'up some', 'up success', 'up to', 'up up', 'up with', 'up with good', 'up with good book', 'update', 'upgrade', 'upon', 'upon time', 'urban', 'us', 'us be', 'us become', 'us bring', 'us build', 'us build our', 'us create', 'us focus', 'us get', 'us grow', 'us hear', 'us keep', 'us learn', 'us make', 'us move', 'us moving', 'us organize', 'us out', 'us read', 'us some', 'us start', 'us stay', 'us to', 'us up', 'us wiggle', 'us with', 'use', 'use technology', 'using', 'using chromebooks', 'using ipads', 'using our', 'using technology', 'utilizing', 'value', 'variety', 'very', 'very own', 'via', 'vibrant', 'video', 'videos', 'view', 'virtual', 'virtual reality', 'virtually', 'visual', 'visual arts', 'visual learners', 'visualize', 'visuals', 'vocabulary', 'voice', 'voices', 'volleyball', 'volume', 'voracious', 'vs', 'wait', 'walk', 'walking', 'wall', 'walls', 'want', 'want learn', 'want move', 'want read', 'want to', 'wanted', 'wants', 'war', 'warm', 'warmth', 'wars', 'was', 'watch', 'watch me', 'watch us', 'water', 'way', 'way into', 'way learn', 'way learning', 'way success', 'way through', 'way to', 'way to success', 'ways', 'we', 'we all', 'we are', 'we are ready', 'we can', 'we can do', 'we can learn', 'we can read', 'we come', 'we do', 'we do not', 'we go', 'we go to', 'we have', 'we learn', 'we like', 'we like move', 'we like move it', 'we like move move', 'we like to', 'we like to move', 'we love', 'we love read', 'we love to', 'we move', 'we need', 'we need books', 'we need ink', 'we need more', 'we need move', 'we need move it', 'we need new', 'we need supplies', 'we need technology', 'we need to', 'we read', 'we want', 'we want to', 'we will', 'we will go', 'we work', 'we would', 'we would love', 'weather', 'web', 'weekly', 'weight', 'welcome', 'welcoming', 'well', 'wellness', 'what', 'what hear', 'what we', 'what we need', 'what you', 'what you know', 'what your', 'when', 'when we', 'when you', 'where', 'while', 'while learning', 'while reading', 'while they', 'while they work', 'while we', 'while we learn', 'while we work', 'while you', 'while you learn', 'while you work', 'white', 'white board', 'white boards', 'whiteboard', 'whiteboards', 'who', 'whole', 'whole new', 'whole new world', 'why', 'wide', 'wiggle', 'wiggle learn', 'wiggle room', 'wiggle while', 'wiggle while they', 'wiggle while they work', 'wiggle while we', 'wiggle while we learn', 'wiggle while we work', 'wiggle while you', 'wiggle while you learn', 'wiggle while you work', 'wiggle wiggle', 'wiggle wiggle wiggle', 'wiggle wobble', 'wiggle wobble learn', 'wiggle work', 'wiggle worms', 'wiggles', 'wiggles out', 'wiggling', 'wiggling our', 'wiggling our way', 'wiggling while', 'wiggling wobbling', 'wiggly', 'wiggly bodies', 'wiggly learners', 'wiggly students', 'wii', 'wild', 'wild about', 'will', 'will be', 'will go', 'will help', 'will help us', 'will learn', 'will you', 'win', 'window', 'winning', 'winning toon', 'winning toon graphics', 'winter', 'wipe', 'wireless', 'wish', 'with', 'with an', 'with art', 'with autism', 'with books', 'with chrome', 'with chromebooks', 'with classroom', 'with disabilities', 'with flexible', 'with flexible seating', 'with good', 'with good book', 'with headphones', 'with hokki', 'with hokki stools', 'with ipad', 'with ipads', 'with it', 'with learning', 'with legos', 'with me', 'with new', 'with one', 'with osmo', 'with our', 'with purpose', 'with reading', 'with special', 'with special needs', 'with stem', 'with supplies', 'with tablets', 'with technology', 'with the', 'with us', 'within', 'without', 'wizards', 'wo', 'wo not', 'wobble', 'wobble baby', 'wobble baby wobble', 'wobble but', 'wobble chairs', 'wobble learn', 'wobble stools', 'wobble while', 'wobble while we', 'wobble while we work', 'wobble while you', 'wobble while you work', 'wobble wiggle', 'wobble wobble', 'wobble work', 'wobbles', 'wobbling', 'wobbling our', 'wobbling our way', 'wobbly', 'wonder', 'wonderful', 'wonderful world', 'wonders', 'word', 'word work', 'words', 'work', 'work part', 'work space', 'work together', 'workers', 'working', 'working together', 'works', 'workshop', 'world', 'world around', 'world around us', 'world our', 'world technology', 'world through', 'world with', 'worlds', 'worms', 'worth', 'worth thousand', 'worth thousand words', 'would', 'would love', 'wow', 'write', 'write on', 'write share', 'write stuff', 'writer', 'writers', 'writers need', 'writing', 'writing center', 'writing fun', 'writing supplies', 'written', 'xylophone', 'ye', 'ye hear', 'ye hear ye', 'year', 'year new', 'year off', 'year right', 'year teacher', 'yearbook', 'years', 'yes', 'yes please', 'yes we', 'yet', 'yoga', 'yoga mats', 'yogis', 'you', 'you are', 'you can', 'you give', 'you go', 'you got', 'you have', 'you hear', 'you hear me', 'you hear me now', 'you hear what', 'you hear what hear', 'you help', 'you help us', 'you know', 'you learn', 'you read', 'you read more', 'you see', 'you will', 'you work', 'young', 'young artists', 'young authors', 'young learners', 'young minds', 'young readers', 'young scientists', 'your', 'your brain', 'your feet', 'your help', 'your imagination', 'your mind', 'your own', 'your seat', 'your way', 'your wiggles', 'yourself', 'youth', 'zone']

2.3.2 TFIDF

In [0]:

```
#ESSAY
```

In [69]:

adoption', 'adorable', 'adore', 'ads', 'adult', 'adulthood', 'adults', 'advance', 'advanced', 'advancement', 'advancements', 'advances', 'advancing', 'advantage', 'advantaged', 'advantageous', 'advantages', 'adventure', 'adventurers', 'adventures', 'adventurous', 'adverse', 'adversities', 'adversity', 'advertise', 'advertisements', 'advertising', 'advice', 'advisor', 'advisory', 'advocacy', 'advocate', 'advocates', 'advocating', 'aerial', 'aerobic', 'aerobics', 'aerospace', 'aesthetic', 'aesthetically', 'aesthetics', 'affect', 'affected', 'affecting', 'affection', 'affectionate', 'affective', 'affects', 'affiliated', 'affirm', 'affirmation', 'affirmations', 'affirming', 'affluent', 'afford', 'affordable', 'afforded', 'affording', 'affords', 'afghanistan', 'afloat', 'aforementioned', 'afraid', 'africa', 'african', 'after', 'afternoon', 'afternoons', 'afterschool', 'afterthought', 'afterward', 'afterwards', 'ag', 'again', 'against', 'age', 'aged', 'agencies', 'agency', 'agenda', 'agendas', 'agent', 'agents', 'ages', 'aggression', 'aggressive', 'agility', 'aging', 'ago', 'agree', 'agreed', 'agreement', 'agricultural', 'agriculture', 'ah', 'aha', 'ahead', 'aid', 'aide', 'aided', 'aides', 'aiding', 'aids', 'aig', 'ailments', 'aim', 'aimed', 'aiming', 'aims', 'air', 'airplane', 'airplanes', 'airplay', 'airport', 'ais', 'aka', 'al', 'alabama', 'alarm', 'alas', 'alaska', 'alaskan', 'albany', 'albert', 'alcohol', 'alert', 'alertness', 'alexa', 'alexander', 'algebra', 'algebraic', 'algorithms', 'alice', 'align', 'aligned', 'aligning', 'alignment', 'aligns', 'alike', 'alive', 'all', 'allergies', 'alleviate', 'alleviates', 'alleviating', 'alliance', 'alligator', 'allocated', 'allotted', 'allow', 'allowance', 'allowed', 'allowing', 'allows', 'ally', 'alma', 'almost', 'aloha', 'alone', 'along', 'alongs', 'alongside', 'alot', 'aloud', 'alouds', 'alpha', 'alphabet', 'alphabetic', 'already', 'also', 'alter', 'altered', 'altering', 'alternate', 'alternative', 'alternatives', 'although', 'alto', 'altogether', 'aluminum', 'alumni', 'always', 'am', 'amaze', 'amazed', 'amazement', 'amazes', 'amazing', 'amazingly', 'amazon', 'ambassadors', 'ambiance', 'ambient', 'ambition', 'ambitions', 'ambitious', 'amelia', 'amenities', 'america', 'american', 'americans', 'amharic', 'amidst', 'among', 'amongst', 'amount', 'amounts', 'amp', 'ample', 'amplification', 'amplified', 'amplifier', 'amplify', 'amusement', 'amusing', 'amy', 'an', 'analog', 'analysis', 'analytical', 'analyze', 'analyzed', 'analyzing', 'anatomical', 'anatomy', 'ancestors', 'ancestry', 'anchor', 'anchorage', 'anchors', 'ancient', 'and', 'anderson', 'android', 'andy', 'angeles', 'angelou', 'angels', 'anger', 'angle', 'angles', 'anglo', 'angry', 'animal', 'animals', 'animate', 'animated', 'animation', 'animations', 'anime', 'ankle', 'anne', 'annie', 'anniversary', 'annotate', 'annotated', 'annotating', 'annotation', 'announce', 'announced', 'announcement', 'announcements', 'annual', 'annually', 'anonymous', 'another', 'answer', 'answered', 'answering', 'answers', 'ant', 'anti', 'anticipate', 'anticipated', 'anticipating', 'anticipation', 'antiquated', 'antonio', 'antonyms', 'ants', 'antsy', 'anxieties', 'anxiety', 'anxious', 'anxiously', 'any', 'anybody', 'anymore', 'anyone', 'anything', 'anytime', 'anyway', 'anywhere', 'ap', 'apart', 'apartment', 'apartments', 'apathetic', 'app', 'appalachia', 'appalachian', 'apparatus', 'apparent', 'appeal', 'appealing', 'appeals', 'appear', 'appearance', 'appears', 'appetite', 'applaud', 'apple', 'apples', 'applesauce', 'appliances', 'applicable', 'applicants', 'application', 'applications', 'applied', 'applies', 'apply', 'applying', 'appreciate', 'appreciated', 'appreciates', 'appreciating', 'appreciation', 'appreciations', 'appreciative', 'apprehensive', 'approach', 'approachable', 'approached', 'approaches', 'approaching', 'appropriate', 'appropriately', 'approval', 'approve', 'approved', 'approx', 'approximately', 'apps', 'april', 'aprons', 'aps', 'apt', 'aptitude', 'aptitudes', 'aquaponics', 'aquarium', 'aquariums', 'aquatic', 'ar', 'arabic', 'arch', 'archery', 'architect', 'architects', 'architectural', 'architecture', 'arctic', 'arduino', 'arduinosaurs', 'are', 'area', 'areas', 'arena', 'arguably', 'argue', 'arguing', 'argument', 'argumentative', 'arguments', 'arise', 'arises', 'aristotle', 'arithmetic', 'arizona', 'arkansas', 'arledge', 'arm', 'armed', 'arms', 'army', 'aromatherapy', 'around', 'arrange', 'arranged', 'arrangement', 'arrangements', 'arranging', 'array', 'arrays', 'arrival', 'arrivals', 'arrive', 'arrived', 'arrives', 'arriving', 'arrows', 'arsenal', 'art', 'article', 'articles', 'articulate', 'articulation', 'artifact', 'artifacts', 'artificial', 'artist', 'artistic', 'artistically', 'artistry', 'artists', 'arts', 'artsy', 'artwork', 'artworks', 'as', 'asd', 'ashamed', 'asia', 'asian', 'asians', 'aside', 'ask', 'asked', 'asking', 'asks', 'asl', 'asleep', 'aspect', 'aspects', 'asperger', 'aspirations', 'aspire', 'aspiring', 'assemble', 'assembled', 'assemblies', 'assembling', 'assembly', 'asses', 'assess', 'assessed', 'assessing', 'assessment', 'assessments', 'asset', 'assets', 'assign', 'assigned', 'assigning', 'assignment', 'assignments', 'assimilate', 'assist', 'assistance', 'assistant', 'assistants', 'assisted', 'assisting', 'assistive', 'assists', 'associate', 'associated', 'associates', 'associating', 'association', 'associations', 'assorted', 'assortment', 'assume', 'assuming', 'assure', 'assured', 'assuring', 'asthma', 'astonished', 'astonishing', 'astound', 'astounded', 'astounding', 'astronaut', 'astronauts', 'astronomy', 'asus', 'at', 'ate', 'athlete', 'athletes', 'athletic', 'athletically', 'athletics', 'atlanta', 'atlantic', 'atmosphere', 'atomic', 'atoms', 'atpe', 'attach', 'attached', 'attaches', 'attaching', 'attachment', 'attachments', 'attack', 'attain', 'attainable', 'attained', 'attaining', 'attempt', 'attempted', 'attempting', 'attempts', 'attend', 'attendance', 'attended', 'attending', 'attends', 'attention', 'attentive', 'attentively', 'attentiveness', 'attest', 'attire', 'attitude', 'attitudes', 'attract', 'attracted', 'attracting', 'attraction', 'attractive', 'attracts', 'attribute', 'attributes', 'atypical', 'auction', 'audible', 'audience', 'audiences', 'audio', 'audiobook', 'audiobooks', 'audition', 'auditorium', 'auditory', 'auggie', 'augment', 'augmentative', 'augmented', 'august', 'aunt', 'aunts', 'aural', 'austin', 'australia', 'authentic', 'authentically', 'authenticity', 'author', 'authority', 'authors', 'autism', 'autistic', 'auto', 'automatic', 'automatically', 'automaticity', 'automation', 'automotive', 'autonomous', 'autonomy', 'auxiliary', 'availability', 'available', 'avenue', 'avenues', 'average', 'averages', 'avid', 'avoid', 'avoided', 'avoiding', 'await', 'awaiting', 'awaits', 'awake', 'awaken', 'awakening', 'award', 'awarded', 'awards', 'aware', 'awareness', 'away', 'awe', 'awesome', 'awesomeness', 'awful', 'awhile', 'awkward', 'az', 'babies', 'baby', 'babyish', 'babysitting', 'baccalaureate', 'back', 'backbone', 'backdrop', 'backdrops', 'backed', 'background', 'backgrounds', 'backless', 'backpack', 'backpacks', 'backpatter', 'backs', 'backup', 'backward', 'backwards', 'backyard', 'bacteria', 'ba

d', 'badges', 'badly', 'badminton', 'bag', 'baggage', 'baggies', 'bags', 'bake', 'baked', 'baking', 'balance', 'balanced', 'balances', 'balancing', 'ball', 'ballet', 'balloon', 'balloons', 'balls', 'balm', 'baltimore', 'banana', 'bananas', 'band', 'bands', 'bang', 'bangladesh', 'bank', 'bankers', 'banking', 'banks', 'banner', 'bar', 'bare', 'barely', 'baritone', 'barn', 'barred', 'barrels', 'barrier', 'barriers', 'bars', 'basal', 'base', 'baseball', 'baseballs', 'based', 'baseline', 'basement', 'baseplates', 'bases', 'basic', 'basically', 'basics', 'basis', 'basket', 'basketball', 'basketballs', 'baskets', 'bass', 'bat', 'batch', 'bath', 'bathroom', 'baton', 'bats', 'batteries', 'battery', 'batting', 'battle', 'battles', 'battling', 'bay', 'be', 'beach', 'beaches', 'beacon', 'bead', 'beading', 'beads', 'beakers', 'beam', 'beaming', 'beams', 'bean', 'beanbag', 'beanbags', 'beans', 'bear', 'bearing', 'bears', 'beat', 'beating', 'beats', 'beautiful', 'beautifully', 'beautify', 'beauty', 'beavers', 'became', 'because', 'become', 'becomes', 'becoming', 'bed', 'bedford', 'bedroom', 'beds', 'bedtime', 'bee', 'beef', 'bees', 'beethoven', 'before', 'beg', 'began', 'begged', 'begging', 'begin', 'beginner', 'beginners', 'beginning', 'beginnings', 'begins', 'begun', 'behalf', 'behave', 'behaved', 'behavior', 'behavioral', 'behaviorally', 'behaviors', 'behind', 'behold', 'being', 'beings', 'belief', 'beliefs', 'believe', 'believed', 'believer', 'believers', 'believes', 'believing', 'belkin', 'bell', 'bellies', 'bells', 'belly', 'belong', 'belonging', 'belongings', 'belongs', 'belorussia', 'beloved', 'below', 'belt', 'belts', 'ben', 'bench', 'benches', 'benchmark', 'benchmarks', 'bend', 'bending', 'beneath', 'beneficial', 'benefit', 'benefited', 'benefiting', 'benefits', 'bengali', 'benjamin', 'bent', 'berkeley', 'bernardino', 'beside', 'besides', 'best', 'bestow', 'bet', 'beta', 'better', 'bettering', 'betterment', 'between', 'beyond', 'bfg', 'bi', 'bias', 'biased', 'bicultural', 'bicycle', 'bicycles', 'big', 'bigger', 'biggest', 'bike', 'bikes', 'biking', 'bilateral', 'bilingual', 'bilingualism', 'bilinguals', 'biliteracy', 'biliterate', 'bill', 'billion', 'bills', 'billy', 'bin', 'bind', 'binder', 'binders', 'binding', 'binds', 'bingo', 'binoculars', 'bins', 'bio', 'biodiversity', 'biographies', 'biography', 'biological', 'biologist', 'biologists', 'biology', 'biomedical', 'biomes', 'biotechnology', 'bird', 'birds', 'birmingham', 'birth', 'birthday', 'birthdays', 'bit', 'bits', 'black', 'blacktop', 'blades', 'blame', 'blank', 'blanket', 'blankets', 'blast', 'bleak', 'blend', 'blended', 'blender', 'blending', 'blends', 'bless', 'blessed', 'blessing', 'blessings', 'blind', 'blindness', 'blink', 'block', 'blocking', 'blockly', 'blocks', 'blog', 'blogging', 'blogs', 'blood', 'bloom', 'blooming', 'blossom', 'blossomed', 'blossoming', 'blow', 'blowing', 'blown', 'bloxels', 'blue', 'blueprint', 'blueprints', 'blues', 'bluetooth', 'blurry', 'bmi', 'board', 'boarding', 'boards', 'boast', 'boasts', 'boat', 'boats', 'bob', 'bodies', 'bodily', 'body', 'boggled', 'boggle', 'boisterous', 'bold', 'bolster', 'bolts', 'bombarded', 'bond', 'bonded', 'bonding', 'bonds', 'bone', 'bones', 'bonus', 'boogie', 'book', 'bookcase', 'bookcases', 'booklet', 'booklets', 'bookmark', 'bookmarks', 'books', 'bookshelf', 'bookshelves', 'bookstore', 'bookstores', 'bookworms', 'boom', 'boombox', 'booming', 'boomwhackers', 'boost', 'boosted', 'booster', 'boosting', 'boosts', 'boot', 'booth', 'boots', 'border', 'borders', 'bored', 'boredom', 'boring', 'born', 'borough', 'boroughs', 'borrow', 'borrowed', 'borrowing', 'bose', 'bosnia', 'boston', 'bot', 'botany', 'both', 'bother', 'bothered', 'bothering', 'bots', 'bottle', 'bottled', 'bottles', 'bottom', 'bottoms', 'bought', 'bounce', 'bounced', 'bouncing', 'bouncy', 'bound', 'boundaries', 'boundary', 'boundless', 'bounds', 'bouts', 'bow', 'bowl', 'bowling', 'bowls', 'bows', 'box', 'boxes', 'boy', 'boys', 'bracelet', 'bracelets', 'bracket', 'brag', 'brain', 'brainpop', 'brains', 'brainstorm', 'brainstormed', 'brainstorming', 'branch', 'branches', 'branching', 'brand', 'brass', 'brave', 'bravely', 'bravery', 'brazil', 'bread', 'breadth', 'break', 'breakdown', 'breakfast', 'breakfasts', 'breaking', 'breakout', 'breakoutedu', 'breakouts', 'breaks', 'breath', 'breathe', 'breathing', 'breathhtaking', 'breed', 'breeds', 'breeze', 'brick', 'bricks', 'bridge', 'bridgeport', 'bridges', 'bridging', 'brief', 'briefly', 'bright', 'brighten', 'brightens', 'brighter', 'brightest', 'brightly', 'brightness', 'brilliance', 'brilliant', 'brilliantly', 'brim', 'brimming', 'bring', 'bringing', 'brings', 'british', 'broad', 'broadcast', 'broadcasting', 'broadcasts', 'broaden', 'broadening', 'broader', 'broadway', 'brochure', 'brochures', 'broke', 'broken', 'bronx', 'brooklyn', 'broom', 'brother', 'brothers', 'brought', 'brown', 'browse', 'browsing', 'brush', 'brushed', 'brushes', 'brushing', 'bubble', 'bubbles', 'bubbling', 'bubbly', 'buck', 'bucket', 'buckets', 'bucks', 'bud', 'buddies', 'budding', 'buddy', 'budget', 'budgetary', 'budgeting', 'budgets', 'buds', 'buffalo', 'bug', 'bugs', 'build', 'builder', 'builders', 'building', 'buildings', 'builds', 'built', 'bulb', 'bulbs', 'bulk', 'bulky', 'bulldog', 'bulldogs', 'bulletin', 'bullied', 'bullies', 'bully', 'bullying', 'bump', 'bumped', 'bumping', 'bumps', 'bumpy', 'bunch', 'bundle', 'bundles', 'bungee', 'bunny', 'buoyancy', 'burden', 'burdened', 'burdens', 'bureau', 'burgeoning', 'buried', 'burlington', 'burma', 'burmese', 'burn', 'burned', 'burner', 'burning', 'burns', 'burst', 'bursting', 'bursts', 'bus', 'bused', 'buses', 'business', 'businesses', 'busing', 'bussed', 'busses', 'busting', 'bustle', 'bustling', 'busy', 'but', 'butcher', 'butler', 'butter', 'butterflies', 'butterfly', 'button', 'buttoning', 'buttons', 'buy', 'buying', 'buzz', 'buzzer', 'buzzers', 'buzzes', 'buzzing', 'by', 'bye', 'byod', 'ca', 'cabinet', 'cabinets', 'cable', 'cables', 'cad', 'caddies', 'caddy', 'cafe', 'cafeteria', 'cage', 'cajon', 'cake', 'cakes', 'calculate', 'calculating', 'calculation', 'calculations', 'calculator', 'calculators', 'calculus', 'calendar', 'caliber', 'california', 'calkins', 'call', 'called', 'calling', 'calls', 'calm', 'calmed', 'calmer', 'calming', 'calmly', 'calmness', 'calms', 'calorie', 'calories', 'cam', 'camaraderie', 'cambodia', 'cambodian', 'cambridge', 'camcorder', 'camden', 'came', 'cameo', 'camera', 'cameras', 'camp', 'campaign', 'campers', 'camping', 'camps', 'campus', 'campuses', 'can', 'canada', 'cancel', 'canceling', 'cancelled', 'cancelling', 'cancer', 'candidate', 'candidates', 'candy', 'canned', 'cannot', 'canon', 'cans', 'cant', 'cantonese', 'canvas', 'canvases', 'canyon', 'cap', 'capabilities', 'capability', 'capable', 'capacities', 'capacity', 'cape', 'capital', 'capitalization', 'capitalize', 'capitals', 'capitol', 'caps', 'capstone', 'captain', 'captions', 'captivate', 'captivated', 'captivates', 'captivating', 'capture', 'captured', 'captures', 'capturing', 'car', 'carbon', 'card', 'cardboard', 'cardio', 'cardiovascular', 'cards', 'cardstock', 'care', 'cared', 'career', 'careers', 'carefree', 'careful', 'carefully', 'caregiver', 'caregivers', 'cares', 'caretakers', 'caribbean', 'caring', 'carl', 'carle',

'carnegie', 'carnival', 'carol', 'carolina', 'carpet', 'carpeted', 'carpets', 'carrels',
'carried', 'carriers', 'carries', 'carrots', 'carry', 'carrying', 'cars', 'cart', 'cartons',
'cartoon', 'cartoons', 'cartridge', 'cartridges', 'carts', 'carve', 'carver', 'carving', 'case', 'caseload', 'cases', 'cash', 'cassette', 'cast', 'casting', 'castle', 'castles', 'casual', 'cat', 'catalog', 'catalyst', 'catapult', 'catapults', 'catch', 'catcher', 'catches', 'catching',
'catchy', 'categorical', 'categories', 'categorize', 'categorized', 'category', 'cater',
'catered', 'catering', 'caterpillar', 'caterpillars', 'caters', 'cats', 'caucasian', 'caucasians',
'caught', 'cause', 'caused', 'causes', 'causing', 'cave', 'ccss', 'cd', 'cde', 'cease', 'ceases',
'ceiling', 'celebrate', 'celebrated', 'celebrates', 'celebrating', 'celebration', 'celebrations',
'cell', 'cello', 'cellphones', 'cells', 'cellular', 'cement', 'census', 'cent', 'center',
'centered', 'centering', 'centerpiece', 'centers', 'central', 'centralized', 'centrally', 'cents',
'centuries', 'century', 'ceo', 'ceos', 'ceramic', 'ceramics', 'cereal', 'cerebral', 'ceremony', 'certain', 'certainly', 'certificate', 'certificates', 'certification', 'certified', 'cesar',
'chain', 'chains', 'chair', 'chairs', 'chalk', 'chalkboard', 'chalkboards', 'challenge',
'challenged', 'challenges', 'challenging', 'chamber', 'champion', 'champions', 'championship',
'championships', 'chance', 'chances', 'change', 'changed', 'changer', 'changers', 'changes',
'changing', 'channel', 'channeled', 'channeling', 'channels', 'chant', 'chanting', 'chants',
'chaos', 'chaotic', 'chapter', 'chapters', 'character', 'characteristic', 'characteristics',
'characterization', 'characterized', 'characters', 'charcoal', 'charge', 'charged', 'charger',
'chargers', 'charges', 'charging', 'charismatic', 'charitable', 'charities', 'charity', 'charles',
'charleston', 'charlie', 'charlotte', 'charm', 'charming', 'chart', 'charter', 'charting',
'charts', 'chase', 'chasing', 'chat', 'chatter', 'chatting', 'chatty', 'chavez', 'cheap',
'cheaper', 'cheapest', 'check', 'checked', 'checkers', 'checking', 'checklist', 'checkout', 'checks', 'cheer', 'cheered', 'cheerful', 'cheering', 'cheerleader', 'cheerleaders', 'cheerleading', 'cheers', 'cheese', 'chef', 'chefs', 'chemical', 'chemicals', 'chemistry', 'cherish', 'cherished', 'cherry', 'chess', 'chest', 'chevron', 'chew', 'chewing', 'chicago', 'chick', 'chicken', 'chickens', 'chicks', 'child', 'childcare', 'childhood', 'children', 'childrens', 'childs', 'chill', 'chime', 'chimes', 'china', 'chinateown', 'chinese', 'chip', 'chipped', 'chips', 'chocolate', 'choice', 'choices', 'choir', 'choirs', 'chomebooks', 'choose', 'chooses', 'choosing', 'choral', 'chord', 'chords', 'chore', 'choreography', 'chores', 'chorus', 'chose', 'chosen', 'christian', 'christmas', 'christopher', 'chrombooks', 'chrome', 'chromebook', 'chromebooks', 'chromecast', 'chronic', 'chronically', 'chronicle', 'chrysalis', 'chunk', 'chunks', 'church', 'churches', 'cincinnati', 'cinderella', 'circle', 'circles', 'circuit', 'circuitry', 'circuits', 'circular', 'circulate', 'circulating', 'circulation', 'circulatory', 'circumstance', 'circumstances', 'circus', 'cite', 'cities', 'citing', 'citizen', 'citizens', 'citizenship', 'city', 'civic', 'civics', 'civil', 'civilization', 'civilizations', 'claim', 'claims', 'clamoring', 'clap', 'clapping', 'clarify', 'clarinet', 'clarinets', 'clarity', 'clark', 'class', 'classdojo', 'classes', 'classic', 'classical', 'classics', 'classification', 'classifications', 'classified', 'classify', 'classifying', 'classmate', 'classmates', 'classroom', 'classrooms', 'classwork', 'clay', 'clean', 'cleaned', 'cleaner', 'cleaners', 'cleaning', 'cleanliness', 'cleanup', 'clear', 'clearer', 'clearly', 'cleats', 'cleveland', 'clever', 'click', 'clicker', 'clickers', 'clicking', 'clicks', 'clifford', 'climate', 'climb', 'climbing', 'clinic', 'clinical', 'clinics', 'clinton', 'clip', 'clipboard', 'clipboards', 'clips', 'clock', 'clocks', 'clorox', 'close', 'closed', 'closely', 'closer', 'closest', 'closet', 'closets', 'closing', 'cloth', 'clothes', 'clothing', 'cloths', 'cloud', 'clouds', 'club', 'clubs', 'clue', 'clues', 'clumsy', 'clunky', 'cluster', 'clustered', 'clusters', 'clutter', 'cluttered', 'cnn', 'co', 'coach', 'coached', 'coaches', 'coaching', 'coal', 'coast', 'coastal', 'coaster', 'coasters', 'coat', 'coats', 'cochlear', 'code', 'coded', 'coders', 'codes', 'coding', 'coexist', 'coffee', 'cognition', 'cognitive', 'cognitively', 'cohesive', 'cohort', 'coil', 'coin', 'coincide', 'coins', 'cold', 'colder', 'colds', 'collaborate', 'collaborated', 'collaborating', 'collaboration', 'collaborations', 'collaborative', 'collaboratively', 'collaborators', 'collage', 'collages', 'collapse', 'collar', 'colleague', 'colleagues', 'collect', 'collected', 'collecting', 'collection', 'collections', 'collective', 'collectively', 'college', 'colleges', 'collegiate', 'collins', 'colombia', 'colonial', 'colonies', 'colony', 'color', 'colorado', 'colored', 'colorful', 'coloring', 'colors', 'columbia', 'columbus', 'column', 'columns', 'com', 'combat', 'combination', 'combinations', 'combine', 'combined', 'combines', 'combing', 'combining', 'combo', 'combs', 'come', 'comedians', 'comers', 'comes', 'comfort', 'comfortable', 'comfortably', 'comforted', 'comforting', 'comforts', 'comfy', 'comic', 'comics', 'coming', 'command', 'commands', 'comment', 'commented', 'commenting', 'comments', 'commercial', 'commercials', 'commit', 'commitment', 'commitments', 'committed', 'committee', 'commodity', 'common', 'commonalities', 'commonality', 'commonly', 'commonplace', 'commons', 'communal', 'communicate', 'communicated', 'communicates', 'communicating', 'communication', 'communications', 'communicative', 'communicators', 'communities', 'community', 'commute', 'commuting', 'compact', 'companies', 'companion', 'companions', 'company', 'comparable', 'compare', 'compared', 'compares', 'comparing', 'comparison', 'comparisons', 'compartment', 'compartments', 'compass', 'compasses', 'compassion', 'compassionate', 'compatible', 'compelled', 'compelling', 'compensate', 'compete', 'competed', 'competence', 'competencies', 'competency', 'competent', 'competing', 'competition', 'competitions', 'competitive', 'competitively', 'competitiveness', 'competitors', 'compile', 'compiled', 'compiling', 'complain', 'complained', 'complaining', 'complaint', 'complaints', 'complement', 'complete', 'completed', 'completely', 'completes', 'completing', 'completion', 'complex', 'complexes', 'complexities', 'complexity', 'compliance', 'complicated', 'complications', 'compliment', 'compliments', 'comply', 'component', 'components', 'compose', 'composed', 'composer', 'composers', 'composing', 'composition', 'compositions', 'compost', 'composting', 'compound', 'compounded', 'compounds', 'comprehend', 'comprehending', 'comprehensible', 'comprehension', 'comprehensive', 'compression', 'comprise', 'comprised', 'comprises', 'compromise', 'compromised', 'compton', 'computation', 'computational', 'computations', 'compute', 'computer', 'computerized', 'computers', 'computing', 'concentrate', 'concentrated', 'concentrating', 'concentration', 'concentrations', 'concept', 'concepts',

'conceptual', 'conceptualize', 'conceptually', 'concern', 'concerned', 'concerning', 'concerns', 'concert', 'concerts', 'concise', 'conclude', 'concluded', 'concluding', 'conclusion', 'conclusions', 'concrete', 'concretely', 'condition', 'conditioned', 'conditioner', 'conditioning', 'conditions', 'conductive', 'conduct', 'conducted', 'conducting', 'conductive', 'conductor', 'cone', 'cones', 'confer', 'conference', 'conferences', 'conferencing', 'conferring', 'confidant', 'confidence', 'confident', 'confidential', 'confidently', 'configuration', 'configurations', 'confine', 'confined', 'confines', 'confining', 'confirm', 'confirms', 'conflict', 'conflicts', 'conform', 'confront', 'confronted', 'confucius', 'confused', 'confusing', 'confusion', 'congo', 'congressional', 'conjunction', 'connect', 'connected', 'connectedness', 'connecticut', 'connecting', 'connection', 'connections', 'connectivity', 'connectors', 'connects', 'conquer', 'conquering', 'cons', 'conscience', 'conscientious', 'conscious', 'consciousness', 'consecutive', 'consequence', 'consequences', 'consequently', 'conservation', 'conserve', 'consider', 'considerable', 'considerably', 'considerate', 'consideration', 'considerations', 'considered', 'considering', 'considers', 'consist', 'consisted', 'consistency', 'consistent', 'consistently', 'consisting', 'consists', 'console', 'consoles', 'consolidated', 'consonant', 'consonants', 'constant', 'constantly', 'constellations', 'constitution', 'constrained', 'constraints', 'construct', 'constructed', 'constructing', 'construction', 'constructions', 'constructive', 'constructively', 'consultant', 'consumable', 'consumables', 'consume', 'consumed', 'consumer', 'consumers', 'consuming', 'consumption', 'contact', 'contagious', 'contain', 'contained', 'container', 'containers', 'containing', 'contains', 'contaminated', 'contemporary', 'contend', 'content', 'contents', 'contest', 'contests', 'context', 'contexts', 'continent', 'continents', 'continual', 'continually', 'continuation', 'continue', 'continued', 'continues', 'continuing', 'continuity', 'continuous', 'continuously', 'continuum', 'contract', 'contraptions', 'contrary', 'contrast', 'contrasting', 'contribute', 'contributed', 'contributes', 'contributing', 'contribution', 'contributions', 'contributor', 'contributors', 'control', 'controlled', 'controller', 'controllers', 'controlling', 'controls', 'controversial', 'convenience', 'convenient', 'conveniently', 'convention', 'conventional', 'conventions', 'conversation', 'conversational', 'conversations', 'converse', 'conversing', 'conversion', 'convert', 'converted', 'converting', 'convex', 'convey', 'convince', 'convinced', 'convincing', 'cook', 'cookbook', 'cookbooks', 'cooked', 'cookie', 'cookies', 'cooking', 'cooks', 'cool', 'cooler', 'coolest', 'cooling', 'cooperate', 'cooperating', 'cooperation', 'cooperative', 'cooperatively', 'coordinate', 'coordinated', 'coordination', 'coordinator', 'cope', 'copied', 'copier', 'copies', 'coping', 'copper', 'copy', 'copying', 'coral', 'cord', 'cordless', 'cords', 'core', 'cores', 'cork', 'corn', 'cornell', 'corner', 'corners', 'cornerstone', 'cornerstones', 'corporate', 'corporation', 'corporations', 'correct', 'corrected', 'correcting', 'correction', 'corrections', 'correctly', 'corrects', 'correlate', 'correlated', 'correlates', 'correlation', 'correspond', 'correspondence', 'corresponding', 'corresponds', 'corridor', 'cosmic', 'cost', 'costly', 'costs', 'costume', 'costumes', 'cotton', 'couch', 'couches', 'could', 'council', 'counseling', 'counselor', 'counselors', 'count', 'counted', 'counter', 'counterparts', 'counters', 'counties', 'counting', 'countless', 'countries', 'country', 'countryside', 'counts', 'county', 'couple', 'coupled', 'coupons', 'courage', 'courageous', 'course', 'courses', 'coursework', 'court', 'courteous', 'courts', 'courtyard', 'cousin', 'cousins', 'cover', 'covered', 'covering', 'covers', 'coveted', 'covey', 'cow', 'coworkers', 'cows', 'cozy', 'cpr', 'cps', 'crab', 'crabs', 'crack', 'cracked', 'crackers', 'cracking', 'cracks', 'craft', 'crafted', 'crafting', 'crafts', 'craftsmanship', 'crafty', 'cram', 'crammed', 'cramped', 'crash', 'crashing', 'crate', 'crates', 'crave', 'craves', 'craving', 'crawl', 'crawling', 'crayola', 'crayon', 'crayons', 'craze', 'crazy', 'cream', 'create', 'created', 'creates', 'creating', 'creation', 'creations', 'creative', 'creatively', 'creativity', 'creativity', 'creator', 'creators', 'creature', 'creatures', 'credible', 'credit', 'credits', 'creed', 'creek', 'creole', 'crew', 'cricut', 'crime', 'crimes', 'criminal', 'cringe', 'crisis', 'crisp', 'criss', 'criteria', 'critical', 'critically', 'criticism', 'critique', 'critiques', 'critiquing', 'crop', 'crops', 'cross', 'crossed', 'crosses', 'crossing', 'crossover', 'crossroads', 'crowd', 'crowded', 'crowding', 'crowds', 'crown', 'crucial', 'cruel', 'crunch', 'cry', 'crying', 'crystal', 'cs', 'csi', 'ct', 'cuba', 'cuban', 'cubbies', 'cubby', 'cube', 'cubelets', 'cubes', 'cuddle', 'cue', 'cues', 'culinary', 'culminate', 'culminating', 'culmination', 'cultivate', 'cultivated', 'cultivates', 'cultivating', 'cultural', 'culturally', 'culture', 'cultured', 'cultures', 'cumberland', 'cumbersome', 'cumulative', 'cup', 'cupboard', 'cupboards', 'cups', 'curb', 'cure', 'curiosities', 'curiosity', 'curious', 'curiousity', 'curl', 'curled', 'curling', 'current', 'currently', 'currents', 'curricula', 'curricular', 'curriculum', 'curriculums', 'cursive', 'curtains', 'curve', 'curved', 'cushion', 'cushioned', 'cushions', 'cusp', 'custodians', 'custody', 'custom', 'customer', 'customers', 'customizable', 'customize', 'customized', 'customs', 'cut', 'cutbacks', 'cute', 'cuts', 'cutter', 'cutters', 'cutting', 'cvc', 'cyber', 'cycle', 'cycles', 'cycling', 'cylinders', 'cymbal', 'cymbals', 'da', 'dad', 'dade', 'dads', 'dahl', 'daily', 'dairy', 'dakota', 'dale', 'dallas', 'damage', 'damaged', 'damages', 'damaging', 'dampen', 'dance', 'dancer', 'dancers', 'dances', 'dancing', 'danger', 'dangerous', 'dangerously', 'dangers', 'dare', 'daring', 'dark', 'darkness', 'darling', 'dash', 'data', 'database', 'databases', 'date', 'dated', 'dates', 'daughter', 'daughters', 'daunting', 'david', 'davis', 'dawn', 'day', 'daycare', 'days', 'dazzling', 'dc', 'de', 'dead', 'deadlines', 'deaf', 'deal', 'dealing', 'deals', 'dealt', 'dear', 'dearly', 'death', 'debate', 'debaters', 'debates', 'debating', 'debt', 'debunk', 'decade', 'decades', 'december', 'decent', 'decide', 'decided', 'decides', 'deciding', 'decimal', 'decimals', 'decipher', 'decision', 'decisions', 'deck', 'declaration', 'decline', 'declining', 'decodable', 'decode', 'decoding', 'decompose', 'decomposing', 'decomposition', 'decompress', 'deconstruct', 'decor', 'decorate', 'decorated', 'decorating', 'decorations', 'decorative', 'decrease', 'decreased', 'decreases', 'decreasing', 'dedicate', 'dedicated', 'dedicating', 'dedication', 'deductive', 'deem', 'deemed', 'deep', 'deepen', 'deepening', 'deepens', 'deeper', 'deepest', 'deeply', 'deer', 'defeat', 'defeated', 'defend', 'defense', 'defensive', 'defiant', 'deficiencies', 'deficiency', 'deficient', 'deficit',

'deficits', 'define', 'defined', 'defines', 'defining', 'definite', 'definitely', 'definition', 'definitions', 'deflated', 'defy', 'defying', 'degree', 'degrees', 'delaware', 'delay', 'delayed', 'delays', 'delicate', 'delicious', 'delight', 'delighted', 'delightful', 'deliver', 'delivered', 'delivering', 'delivers', 'delivery', 'dell', 'delta', 'delve', 'delving', 'delzer', 'demand', 'demanded', 'demanding', 'demands', 'demeanor', 'demo', 'democracy', 'democratic', 'demographic', 'demographically', 'demographics', 'demonstrate', 'demonstrated', 'demonstrates', 'demonstrating', 'demonstration', 'demonstrations', 'dendrites', 'denham', 'denied', 'denominator', 'dense', 'densely', 'density', 'dental', 'dentist', 'denver', 'deny', 'deodorant', 'department', 'departmentalized', 'departments', 'depend', 'dependable', 'dependent', 'dependents', 'depending', 'depends', 'depict', 'depicted', 'depicting', 'depleted', 'deployed', 'deployment', 'deployments', 'depressed', 'depression', 'deprived', 'dept', 'depth', 'depths', 'derive', 'derived', 'descendants', 'descent', 'describe', 'described', 'describes', 'describing', 'description', 'descriptions', 'descriptive', 'desert', 'deserts', 'deserve', 'deserved', 'deserves', 'deserving', 'design', 'designate', 'designated', 'designation', 'designed', 'designer', 'designers', 'designing', 'designs', 'desirable', 'desire', 'desired', 'desires', 'desiring', 'desk', 'desks', 'desktop', 'desktops', 'desmos', 'despair', 'desperate', 'desperately', 'despite', 'destination', 'destinations', 'destined', 'destiny', 'destroyed', 'destroying', 'detail', 'detailed', 'detailing', 'details', 'detect', 'detectives', 'deter', 'detergent', 'deteriorating', 'determination', 'determine', 'determined', 'determines', 'determining', 'deterrent', 'detrimental', 'detroit', 'devastated', 'devastating', 'devastation', 'develop', 'developed', 'developers', 'developing', 'development', 'developmental', 'developmentally', 'developments', 'develops', 'device', 'devices', 'devise', 'devises', 'devote', 'devoted', 'devotion', 'devour', 'devoured', 'dewey', 'dexterity', 'dfw', 'diabetes', 'diagnosed', 'diagnoses', 'diagnosis', 'diagnostic', 'diagram', 'diagrams', 'dialects', 'dialogue', 'diamond', 'diamonds', 'diane', 'diaries', 'diary', 'dicamillo', 'dice', 'dictate', 'dictated', 'dictation', 'dictionaries', 'dictionary', 'did', 'die', 'died', 'diego', 'dies', 'diet', 'diets', 'differ', 'difference', 'differences', 'different', 'differential', 'differentiate', 'differentiated', 'differentiates', 'differentiating', 'differentiation', 'differently', 'differing', 'differs', 'difficult', 'difficulties', 'difficulty', 'diffuser', 'diffusers', 'diffusing', 'dig', 'digest', 'digestive', 'digging', 'digit', 'digital', 'digitally', 'dignity', 'digraphs', 'dilapidated', 'dilemma', 'dilemmas', 'diligence', 'diligent', 'diligently', 'dim', 'dimension', 'dimensional', 'dimensions', 'diminish', 'diminished', 'diminishes', 'diminishing', 'dining', 'dinner', 'dinosaur', 'dinosaurs', 'diorama', 'dioramas', 'dioxide', 'dip', 'diploma', 'diplomas', 'dire', 'direct', 'directed', 'directing', 'direction', 'directional', 'directions', 'directly', 'director', 'directors', 'dirt', 'dirty', 'disabilities', 'disability', 'disabled', 'disadvantage', 'disadvantaged', 'disadvantages', 'disagree', 'disagreements', 'disappear', 'disappeared', 'disappearing', 'disappoint', 'disappointed', 'disappointing', 'disappointment', 'disaster', 'disasters', 'disc', 'discarded', 'disciplinary', 'discipline', 'disciplined', 'disciplines', 'discomfort', 'disconnect', 'disconnected', 'discount', 'discourage', 'discouraged', 'discourages', 'discouraging', 'discourse', 'discover', 'discovered', 'discoveries', 'discovering', 'discovers', 'discovery', 'discreetly', 'discrepancy', 'discrete', 'discretely', 'discrimination', 'discs', 'discuss', 'discussed', 'discusses', 'discussing', 'discussion', 'discussions', 'disease', 'diseases', 'disenfranchised', 'disengaged', 'disguised', 'dish', 'disheartened', 'disheartening', 'dishes', 'disinfect', 'disinfectant', 'disinfecting', 'disk', 'disks', 'dislike', 'dislikes', 'dismissal', 'dismissed', 'disney', 'disorder', 'disorders', 'disorganization', 'disorganized', 'disparities', 'disparity', 'dispenser', 'displaced', 'display', 'displayed', 'displaying', 'displays', 'disposable', 'disposal', 'disrepair', 'disrupt', 'disrupted', 'disrupting', 'disruption', 'disruptions', 'disruptive', 'disrupts', 'dissect', 'dissected', 'dissecting', 'dissection', 'dissections', 'disservice', 'dissolved', 'distance', 'distances', 'distant', 'distinct', 'distinction', 'distinctive', 'distinguish', 'distinguished', 'distinguishing', 'distract', 'distracted', 'distracting', 'distraction', 'distractions', 'distracts', 'distress', 'distribute', 'distributed', 'distributing', 'distribution', 'district', 'districts', 'disturb', 'disturbance', 'disturbances', 'disturbed', 'disturbing', 'ditch', 'dive', 'divergent', 'diverse', 'diversified', 'diversify', 'diversities', 'diversity', 'divide', 'divided', 'divider', 'dividers', 'dividing', 'diving', 'division', 'divorce', 'divorced', 'dixie', 'dixon', 'diy', 'dna', 'do', 'doc', 'dock', 'docking', 'docs', 'doctor', 'doctors', 'document', 'documentaries', 'documentary', 'documentation', 'documented', 'documenting', 'documents', 'dodge', 'dodgeball', 'doe', 'doers', 'does', 'dog', 'dogs', 'doh', 'doing', 'dojo', 'doll', 'dollar', 'dollars', 'dollhouse', 'dolls', 'domain', 'domains', 'domestic', 'dominant', 'dominate', 'dominated', 'dominican', 'dominoes', 'don', 'donaldson', 'donate', 'donated', 'donating', 'donation', 'donations', 'done', 'donor', 'donors', 'donorschoose', 'dont', 'doodle', 'doodler', 'doodling', 'door', 'doors', 'doorway', 'dorchester', 'dork', 'dose', 'doses', 'dot', 'dots', 'double', 'doubled', 'doubles', 'doubling', 'doubly', 'doubt', 'doubts', 'dough', 'douglass', 'dove', 'down', 'downfall', 'download', 'downloadable', 'downloaded', 'downloading', 'downs', 'downside', 'downtime', 'downtown', 'downward', 'dozen', 'dozens', 'dr', 'drab', 'draft', 'drafting', 'drafts', 'drag', 'dragging', 'dragon', 'dragons', 'drama', 'dramas', 'dramatic', 'dramatically', 'dramatize', 'dramatic', 'dramatically', 'draw', 'drawbacks', 'drawer', 'drawers', 'drawing', 'drawings', 'drawn', 'draws', 'dread', 'dreaded', 'dreading', 'dream', 'dreambox', 'dreamed', 'dreamer', 'dreamers', 'dreaming', 'dreams', 'dress', 'dressed', 'dressing', 'drew', 'dribble', 'dribbling', 'dried', 'drill', 'drills', 'drink', 'drinking', 'drinks', 'drive', 'driven', 'driver', 'drivers', 'drives', 'driving', 'drone', 'drones', 'drop', 'dropped', 'droppers', 'dropping', 'drops', 'drought', 'drown', 'drug', 'drugs', 'drum', 'drumline', 'drumming', 'drums', 'drumsticks', 'dry', 'dryer', 'drying', 'dslr', 'dual', 'duck', 'ducks', 'duct', 'due', 'dull', 'dumb', 'dumbbells', 'duolingo', 'duplicate', 'durability', 'durable', 'duration', 'durham', 'during', 'dust', 'dusty', 'duties', 'duty', 'dvd', 'dvds', 'dwindling', 'dye', 'dying', 'dynamath', 'dynamic', 'dynamics', 'dysfunction', 'dysfunctional', 'dyslexia', 'dyslexic', 'dystopian', 'each', 'eachother', 'eager', 'eagerly', 'eagerness', 'eagle', 'eagles', 'ear',

'earbuds', 'earlier', 'earliest', 'early', 'earn', 'earned', 'earnest', 'earning', 'earnings', 'earphones', 'ears', 'earth', 'earthquake', 'earthquakes', 'ease', 'easel', 'easels', 'easier', 'easiest', 'easily', 'east', 'eastern', 'easy', 'eat', 'eaten', 'eaters', 'eating', 'eats', 'ebd', 'ebooks', 'ec', 'echo', 'eclectic', 'eco', 'ecological', 'ecology', 'economic', 'economical', 'economically', 'economics', 'economy', 'ecosystem', 'ecosystems', 'ecstatic', 'ect', 'ecuador', 'ed', 'edge', 'edges', 'edible', 'edison', 'edit', 'edited', 'editing', 'edition', 'editions', 'editor', 'editors', 'edmodo', 'edpuzzle', 'edu', 'educate', 'educated', 'educates', 'educating', 'education', 'educational', 'educationally', 'educations', 'educator', 'educators', 'educations', 'education', 'edutopia', 'edward', 'effect', 'effected', 'effective', 'effectively', 'effectiveness', 'effects', 'efficacy', 'efficiency', 'efficient', 'efficiently', 'effort', 'effortless', 'effortlessly', 'efforts', 'egg', 'eggs', 'egypt', 'eight', 'eighteen', 'eighth', 'eighty', 'einstein', 'eip', 'either', 'el', 'ela', 'elaborate', 'elapsed', 'elar', 'elastic', 'elated', 'elbow', 'elbows', 'eld', 'elderly', 'elders', 'elected', 'election', 'elections', 'elective', 'electives', 'electric', 'electrical', 'electricity', 'electronic', 'electronically', 'electronics', 'electrophoresis', 'element', 'elementary', 'elements', 'elephant', 'elevate', 'elevated', 'elevation', 'eleven', 'eleventh', 'elicit', 'eligibility', 'eligible', 'eliminate', 'eliminated', 'eliminates', 'eliminating', 'elite', 'elizabeth', 'ell', 'ellen', 'elliptical', 'ells', 'elmo', 'else', 'elsewhere', 'email', 'emails', 'embark', 'embarked', 'embarking', 'embarrassed', 'embarrassing', 'embarrassment', 'embed', 'embedded', 'embedding', 'embellish', 'ember', 'embodies', 'embody', 'embrace', 'embraced', 'embraces', 'embracing', 'embroidery', 'emerge', 'emerged', 'emergencies', 'emergency', 'emergent', 'emerging', 'emerson', 'emotion', 'emotional', 'emotionally', 'emotions', 'empathetic', 'empathize', 'empathy', 'emphasis', 'emphasize', 'emphasized', 'emphasizes', 'emphasizing', 'empire', 'employ', 'employability', 'employed', 'employee', 'employees', 'employers', 'employing', 'employment', 'employs', 'empower', 'empowered', 'empowering', 'empowerment', 'empowers', 'empty', 'emulate', 'en', 'enable', 'enabled', 'enables', 'enabling', 'enclosed', 'encompass', 'encompasses', 'encompassing', 'encounter', 'encountered', 'encountering', 'encounters', 'encourage', 'encouraged', 'encouragement', 'encourages', 'encouraging', 'encyclopedia', 'encyclopedias', 'end', 'endangered', 'endearing', 'endeavor', 'endeavors', 'ended', 'ending', 'endings', 'endless', 'endlessly', 'ends', 'endurance', 'endure', 'endured', 'enduring', 'energetic', 'energies', 'energize', 'energized', 'energizing', 'energy', 'enforce', 'engage', 'engaged', 'engagement', 'engagements', 'engages', 'engaging', 'engine', 'engineer', 'engineering', 'engineers', 'engines', 'england', 'english', 'engrossed', 'engulfed', 'enhance', 'enhanced', 'enhancement', 'enhancements', 'enhances', 'enhancing', 'enjoy', 'enjoyable', 'enjoyed', 'enjoying', 'enjoyment', 'enjoys', 'enl', 'enlarge', 'enlarged', 'enlighten', 'enlightening', 'enlist', 'enliven', 'enormous', 'enormously', 'enough', 'enrich', 'enriched', 'enriches', 'enriching', 'enrichment', 'enroll', 'enrolled', 'enrolling', 'enrollment', 'enrolls', 'ensemble', 'ensembles', 'ensure', 'ensures', 'ensuring', 'entail', 'entails', 'enter', 'entered', 'entering', 'enterprise', 'enters', 'entertain', 'entertained', 'entertaining', 'entertainment', 'enthralled', 'enthused', 'enthusiasm', 'enthusiastic', 'enthusiastically', 'enthusiasts', 'entice', 'enticing', 'entire', 'entirely', 'entirety', 'entitled', 'entrance', 'entrepreneur', 'entrepreneurial', 'entrepreneurs', 'entrepreneurship', 'entries', 'entrust', 'entrusted', 'entry', 'envelope', 'envelopes', 'enviornment', 'enviroment', 'environment', 'environmental', 'environmentally', 'environments', 'envision', 'epic', 'epidemic', 'epilepsy', 'episodes', 'epson', 'equal', 'equality', 'equalize', 'equalizer', 'equally', 'equals', 'equate', 'equates', 'equation', 'equations', 'equip', 'equipment', 'equipments', 'equipped', 'equipping', 'equips', 'equitable', 'equity', 'equivalency', 'equivalent', 'era', 'erasable', 'erase', 'erased', 'eraser', 'erasers', 'erasing', 'ergonomic', 'ergonomically', 'eric', 'erie', 'erosion', 'errands', 'error', 'errors', 'escalate', 'escape', 'escaping', 'ese', 'esl', 'esol', 'especially', 'esperanza', 'essay', 'essays', 'essence', 'essential', 'essentially', 'essentials', 'establish', 'established', 'establishing', 'estate', 'esteem', 'estimate', 'estimated', 'estimating', 'estimation', 'estrada', 'et', 'etc', 'eternally', 'ethic', 'ethical', 'ethics', 'ethiopia', 'ethnic', 'ethnically', 'ethnicities', 'ethnicity', 'etiquette', 'europe', 'european', 'ev3', 'evaluate', 'evaluated', 'evaluating', 'evaluation', 'evans', 'even', 'evening', 'evenings', 'evenly', 'event', 'events', 'eventually', 'ever', 'everlasting', 'every', 'everybody', 'everyday', 'everyone', 'everything', 'everywhere', 'evidence', 'evidenced', 'evident', 'evolution', 'evolve', 'evolved', 'evolves', 'evolving', 'ewriters', 'ex', 'exact', 'exactly', 'exam', 'examination', 'examine', 'examined', 'examining', 'example', 'examples', 'exams', 'exceed', 'exceeded', 'exceeding', 'exceedingly', 'exceeds', 'excel', 'excell', 'excelled', 'excellence', 'excellent', 'excelling', 'excels', 'except', 'exception', 'exceptional', 'exceptionalities', 'exceptionally', 'exceptions', 'exercise', 'excerpts', 'excess', 'excessive', 'exchange', 'exchanges', 'exchanging', 'excitable', 'excite', 'excited', 'excitedly', 'excitement', 'excites', 'exciting', 'exclaimed', 'excluded', 'exclusively', 'excuse', 'excuses', 'execute', 'executed', 'executing', 'execution', 'executive', 'exemplar', 'exemplars', 'exemplary', 'exemplifies', 'exemplify', 'exercise', 'exercisers', 'exercises', 'exercising', 'exert', 'exhaust', 'exhausted', 'exhausting', 'exhibit', 'exhibited', 'exhibiting', 'exhibition', 'exhibitions', 'exhibits', 'exhilarating', 'exist', 'existed', 'existence', 'existent', 'existing', 'exists', 'exit', 'exited', 'exiting', 'expand', 'expanded', 'expanding', 'expands', 'expansion', 'expansive', 'expect', 'expectation', 'expectations', 'expected', 'expecting', 'expects', 'expedite', 'expedition', 'expeditionary', 'expeditions', 'expel', 'expend', 'expending', 'expense', 'expenses', 'expensive', 'experience', 'experienced', 'experiences', 'experiencing', 'experiential', 'experiment', 'experimental', 'experimentation', 'experimented', 'experimenting', 'experiments', 'expert', 'expertise', 'experts', 'explain', 'explained', 'explaining', 'explains', 'explanation', 'explanations', 'explicit', 'explicitly', 'explode', 'exploded', 'explodes', 'exploding', 'exploration', 'explorations', 'exploratory', 'explore', 'explored', 'explorer', 'explorers', 'explores', 'exploring', 'explosion', 'explosive', 'expo', 'exponential', 'exponentially', 'expose', 'exposed', 'exposes', 'exposing', 'expository', 'exposure', 'exposures', 'express', 'expressed', 'expresses', 'expressing', 'expression',

'expressions', 'expressive', 'extend', 'extended', 'extending', 'extends', 'extension', 'extensions', 'extensive', 'extensively', 'extent', 'external', 'extra', 'extracurricular', 'extraordinarily', 'extraordinary', 'extras', 'extreme', 'extremely', 'extrinsic', 'exuberance', 'exuberant', 'exude', 'eye', 'eyed', 'eyes', 'fables', 'fabric', 'fabrics', 'fabulous', 'face', 'facebook', 'faced', 'faces', 'facet', 'faceted', 'facets', 'facial', 'facilitate', 'facilitated', 'facilitates', 'facilitating', 'facilitation', 'facilitator', 'facilitators', 'facilities', 'facility', 'facing', 'fact', 'factor', 'factories', 'factors', 'factory', 'facts', 'factual', 'faculty', 'fade', 'faded', 'fail', 'failed', 'failing', 'fails', 'failure', 'failures', 'fair', 'fairly', 'fairness', 'fairs', 'fairy', 'faith', 'fake', 'fall', 'fallen', 'falling', 'falls', 'false', 'familial', 'familiar', 'familiarity', 'familiarize', 'families', 'family', 'famous', 'fan', 'fancy', 'fans', 'fantastic', 'fantasy', 'far', 'fare', 'farm', 'farmer', 'farmers', 'farming', 'farmland', 'farms', 'farsi', 'farther', 'fascinated', 'fascinating', 'fascination', 'fashion', 'fashioned', 'fast', 'faster', 'fastest', 'fat', 'fate', 'father', 'fathers', 'fathom', 'fatigue', 'fault', 'faulty', 'favor', 'favorite', 'favorites', 'fayetteville', 'fear', 'fearful', 'fearless', 'fears', 'feasible', 'feat', 'feathers', 'feats', 'feature', 'featured', 'features', 'featuring', 'february', 'fed', 'federal', 'federally', 'fee', 'feed', 'feedback', 'feeder', 'feeders', 'feeding', 'feeds', 'feel', 'feeling', 'feelings', 'feels', 'fees', 'feet', 'feisty', 'fell', 'fellow', 'felt', 'female', 'females', 'feminine', 'fence', 'fences', 'fend', 'ferguson', 'fertile', 'fertilizer', 'festival', 'festivals', 'fetal', 'few', 'fewer', 'ffa', 'fi', 'fiber', 'fibers', 'fiction', 'fictional', 'fidget', 'fidgeting', 'fidgets', 'fidgety', 'field', 'fields', 'fierce', 'fifteen', 'fifth', 'fifty', 'fight', 'fighters', 'fighting', 'fights', 'figit', 'figurative', 'figuratively', 'figure', 'figured', 'figures', 'figurines', 'figuring', 'filament', 'file', 'files', 'filing', 'filipino', 'fill', 'filled', 'filler', 'fillers', 'filling', 'fills', 'film', 'filmed', 'filming', 'films', 'filter', 'filtered', 'filtering', 'filters', 'filtration', 'final', 'finalize', 'finally', 'finance', 'finances', 'financial', 'financially', 'find', 'finding', 'findings', 'finds', 'fine', 'finest', 'finger', 'fingerprints', 'fingers', 'fingertips', 'finish', 'finished', 'finisher', 'finishers', 'finishes', 'finishing', 'fire', 'fired', 'firefighters', 'fires', 'firing', 'firm', 'firmly', 'first', 'firsthand', 'firsties', 'firsts', 'fish', 'fishing', 'fist', 'fit', 'fitbit', 'fitbits', 'fitness', 'fits', 'fitting', 'five', 'fives', 'fix', 'fixed', 'fixing', 'fl', 'flag', 'flags', 'flair', 'flame', 'flannel', 'flare', 'flash', 'flashcards', 'flashes', 'flashlight', 'flashlights', 'flat', 'flatbush', 'flavor', 'flaws', 'fleming', 'flex', 'flexibility', 'flexible', 'flexibly', 'flies', 'flight', 'flimsy', 'lint', 'flip', 'flipped', 'flipping', 'fll', 'float', 'floating', 'flocabulary', 'flock', 'flood', 'flooded', 'flooding', 'floods', 'floor', 'floored', 'flooring', 'floors', 'florencia', 'florescent', 'florida', 'floss', 'flourish', 'flourishes', 'flourishing', 'flow', 'flower', 'flowers', 'flowing', 'flows', 'flu', 'fluency', 'fluent', 'fluently', 'fluffy', 'fluid', 'fluidity', 'fluorescent', 'flute', 'fly', 'flyers', 'flying', 'foam', 'focal', 'focus', 'focused', 'focuses', 'focusing', 'foil', 'fold', 'foldable', 'foldables', 'folded', 'folder', 'folders', 'folding', 'folk', 'folktales', 'follow', 'followed', 'following', 'follows', 'fond', 'fondest', 'fondly', 'font', 'fonts', 'food', 'foods', 'fool', 'foot', 'footage', 'football', 'footballs', 'foothills', 'footing', 'footprint', 'footprints', 'footrest', 'footsteps', 'for', 'force', 'forced', 'forces', 'forcing', 'ford', 'forefront', 'foreign', 'foremost', 'forensic', 'forensics', 'foresee', 'forest', 'forests', 'forever', 'forge', 'forget', 'forgetting', 'forging', 'forgot', 'forgotten', 'fork', 'form', 'formal', 'formally', 'format', 'formation', 'formations', 'formative', 'formats', 'formatting', 'formed', 'former', 'formerly', 'forming', 'forms', 'formula', 'formulas', 'formulate', 'formulating', 'fort', 'forth', 'fortitude', 'fortunate', 'fortunately', 'fortune', 'forty', 'forum', 'forward', 'fossil', 'fossils', 'foster', 'fostered', 'fostering', 'fosters', 'fought', 'found', 'foundation', 'foundational', 'foundations', 'founded', 'founding', 'fountain', 'fountains', 'fountas', 'four', 'fourteen', 'fourth', 'fourths', 'fox', 'fraction', 'fractions', 'fragile', 'frame', 'framed', 'frames', 'framework', 'frameworks', 'france', 'francisco', 'frank', 'frankenstein', 'franklin', 'frankly', 'fraying', 'fred', 'frederick', 'free', 'freedom', 'freedoms', 'freeing', 'freely', 'frees', 'freeze', 'freezes', 'freezing', 'french', 'frequency', 'frequent', 'frequently', 'fresh', 'freshly', 'freshman', 'freshmen', 'fresno', 'friction', 'friday', 'fridays', 'fridge', 'friend', 'friendly', 'friends', 'friendship', 'friendships', 'frightening', 'frisbee', 'frisbees', 'fro', 'frog', 'frogs', 'from', 'front', 'frontrow', 'fronts', 'frost', 'frozen', 'fruit', 'fruition', 'fruits', 'fruitvale', 'frustrate', 'frustrated', 'frustrating', 'frustration', 'frustrations', 'fsa', 'ft', 'fuel', 'fueled', 'fueling', 'fuels', 'fulfill', 'fulfilled', 'fulfilling', 'fulfillment', 'fulfills', 'full', 'fuller', 'fullest', 'fully', 'fun', 'function', 'functional', 'functionality', 'functionally', 'functioning', 'functions', 'fund', 'fundamental', 'fundamentals', 'funded', 'funding', 'fundraise', 'fundraiser', 'fundraisers', 'fundraising', 'funds', 'funniest', 'funny', 'furnish', 'furnished', 'furnishings', 'furniture', 'further', 'furthering', 'furthermore', 'fuse', 'futon', 'future', 'futures', 'fuzzy', 'ga', 'gadget', 'gadgets', 'gafe', 'gaiam', 'gain', 'gained', 'gaining', 'gains', 'galaxy', 'galleries', 'gallery', 'gallon', 'game', 'gamers', 'games', 'gaming', 'gamut', 'gandhi', 'gang', 'gangs', 'gap', 'gaps', 'garage', 'garbage', 'garden', 'gardening', 'gardens', 'gardner', 'garmin', 'garner', 'garrison', 'gary', 'gas', 'gases', 'gate', 'gates', 'gateway', 'gather', 'gathered', 'gathering', 'gatsby', 'gauge', 'gave', 'gaze', 'gear', 'geared', 'gearing', 'gears', 'geeks', 'gel', 'gem', 'gems', 'gen', 'gender', 'generals', 'general', 'generalize', 'generally', 'generate', 'generated', 'generates', 'generating', 'generation', 'generational', 'generations', 'generator', 'generosity', 'generous', 'generously', 'genetic', 'genetics', 'genius', 'geniuses', 'genre', 'genres', 'gentle', 'gentlemen', 'gently', 'genuine', 'genuinely', 'geoboards', 'geocaching', 'geographic', 'geographical', 'geographically', 'geography', 'geologists', 'geology', 'geometric', 'geometrical', 'geometry', 'george', 'georgia', 'geostix', 'germ', 'german', 'germany', 'germs', 'gesture', 'gestures', 'get', 'gets', 'getters', 'getting', 'ghana', 'giant', 'gift', 'gifted', 'gifting', 'gifts', 'giggle', 'giggles', 'giggling', 'gingerbread', 'girl', 'girls', 'give', 'given', 'giver', 'gives', 'giving', 'gizmos', 'glad', 'gladly', 'glance', 'glare', 'glass', 'glasses', 'glaze', 'glazes', 'gliders', 'glimpse',

'glimpses', 'glitter', 'global', 'globalized', 'globally', 'globe', 'globes', 'glockenspiels', 'gl
oomiest', 'glorious', 'glory', 'glove', 'gloves', 'glow', 'glue', 'glued', 'gluing', 'gmail', 'go'
, 'goal', 'goalie', 'goals', 'goats', 'god', 'gods', 'goes', 'goggle', 'goggles', 'gogh', 'going',
'gold', 'goldberg', 'golden', 'goldfish', 'goldilocks', 'golf', 'gone', 'gonoodle', 'good',
'goodbye', 'goodies', 'goodness', 'goods', 'goodwill', 'goofy', 'google', 'googly', 'goosebumps',
'gopro', 'got', 'gotten', 'government', 'gpa', 'gps', 'grab', 'grabbing', 'grabs', 'grace', 'graci
ous', 'graciously', 'grade', 'graded', 'grader', 'graders', 'grades', 'grading', 'gradually',
'graduate', 'graduated', 'graduates', 'graduating', 'graduation', 'graffiti', 'graham', 'grain', '
grains', 'grammar', 'grammatical', 'grand', 'grandchildren', 'grande', 'grandin', 'grandma',
'grandmother', 'grandparent', 'grandparents', 'granola', 'grant', 'granted', 'granting', 'grants',
'graph', 'graphic', 'graphical', 'graphics', 'graphing', 'graphs', 'grapple', 'grasp', 'grasped',
'grasping', 'grass', 'grateful', 'gratefully', 'gratification', 'gratifying', 'gratitude',
'gravitate', 'gravity', 'gray', 'grease', 'great', 'greater', 'greatest', 'greatly', 'greatness',
'greece', 'greek', 'green', 'greene', 'greenhouse', 'greenville', 'greet', 'greeted', 'greeting',
'greetings', 'grew', 'grey', 'grid', 'grief', 'grind', 'grip', 'grips', 'grit', 'gritty', 'groan',
'groans', 'groceries', 'grocery', 'grooming', 'groove', 'grooving', 'gross', 'ground',
'groundbreaking', 'grounded', 'grounds', 'groundwork', 'group', 'grouped', 'grouping',
'groupings', 'groups', 'grove', 'grow', 'growing', 'growling', 'grown', 'grows', 'growth', 'gruff'
, 'grumbling', 'gt', 'guarantee', 'guaranteed', 'guarantees', 'guard', 'guardian', 'guardians',
'guards', 'guatemala', 'guess', 'guessing', 'guest', 'guests', 'guidance', 'guide', 'guided', 'gui
delines', 'guides', 'guiding', 'guinea', 'guitar', 'guitars', 'gulf', 'gum', 'gun', 'guns',
'gunshots', 'gusto', 'gutted', 'guy', 'guyana', 'guys', 'gym', 'gymnasium', 'gymnastics', 'gyms',
'ha', 'habit', 'habitat', 'habitats', 'habits', 'haiku', 'hail', 'hailing', 'hair', 'haiti', 'hait
ian', 'half', 'halfway', 'hall', 'halloween', 'halls', 'hallway', 'hallways', 'ham', 'hamilton', '
hampered', 'hampshire', 'hand', 'handball', 'handed', 'handful', 'handheld', 'handicap',
'handicapped', 'handicaps', 'handing', 'handle', 'handled', 'handles', 'handling', 'handmade',
'handout', 'handouts', 'hands', 'handshake', 'handwork', 'handwriting', 'handy', 'hang',
'hanging', 'hangouts', 'happen', 'happened', 'happening', 'happenings', 'happens', 'happier',
'happiest', 'happily', 'happiness', 'happy', 'harbor', 'hard', 'hardcover', 'harder', 'hardest', '
hardly', 'hardship', 'hardships', 'hardware', 'hardworking', 'harlem', 'harm', 'harmful',
'harmonies', 'harmony', 'harness', 'harnessed', 'harnessing', 'harriet', 'harrisburg', 'harry',
'harsh', 'hartford', 'harvard', 'harvest', 'harvested', 'harvesting', 'hassle', 'hat', 'hatch', 'h
atched', 'hatching', 'hate', 'hated', 'hates', 'hats', 'have', 'haven', 'haves', 'having', 'hawai
'i', 'hawaiian', 'hayward', 'hazard', 'hazardous', 'hazards', 'hazards', 'hd', 'hdmi', 'he', 'head',
'headache', 'headaches', 'headed', 'heading', 'headlines', 'headphone', 'headphones', 'heads',
'headset', 'headsets', 'headstart', 'heal', 'healing', 'health', 'healthful', 'healthier',
'healthy', 'hear', 'heard', 'hearing', 'hears', 'heart', 'heartache', 'heartbeat',
'heartbreaking', 'hearted', 'heartedly', 'heartfelt', 'hearts', 'heartwarming', 'heat', 'heated',
'heating', 'heaven', 'heavier', 'heavily', 'heavy', 'hectic', 'heidi', 'height', 'heighten', 'heig
htened', 'heights', 'heir', 'held', 'helen', 'hello', 'helmet', 'helmets', 'help', 'helped',
'helper', 'helpers', 'helpful', 'helping', 'helps', 'hence', 'henderson', 'henry', 'hep', 'her', '
herb', 'herbs', 'here', 'heritage', 'heritages', 'hermit', 'hero', 'heroes', 'hesitant',
'hesitate', 'hesitation', 'heterogeneous', 'hey', 'hi', 'hidden', 'hide', 'hiding', 'hierarchy', '
high', 'higher', 'highest', 'highlight', 'highlighted', 'highlighter', 'highlighters',
'highlighting', 'highlights', 'highly', 'highway', 'hike', 'hiking', 'hilarious', 'hill', 'hills',
'hinder', 'hindered', 'hindering', 'hinders', 'hindi', 'hindrance', 'hindu', 'hints', 'hip', 'hips',
'hire', 'hired', 'his', 'hispanic', 'hispanics', 'historians', 'historical', 'historical',
'historically', 'histories', 'history', 'hit', 'hits', 'hitting', 'hmong', 'hobbies', 'hobby', 'ho
ckey', 'hodgepodge', 'hogwarts', 'hokki', 'hola', 'hold', 'holder', 'holders', 'holding', 'holds',
'hole', 'holes', 'holiday', 'holidays', 'holistic', 'hollywood', 'holocaust', 'home', 'homeland',
'homeless', 'homelessness', 'homemade', 'homeroom', 'homerooms', 'homes', 'homestead', 'hometown',
'homework', 'homey', 'homogeneous', 'honduras', 'hone', 'honed', 'honest', 'honestly', 'honesty',
'honey', 'honing', 'honor', 'honorable', 'honored', 'honoring', 'honors', 'hood', 'hook',
'hooked', 'hooki', 'hooking', 'hooks', 'hoop', 'hoops', 'hoot', 'hop', 'hope', 'hoped', 'hopeful',
'hopefully', 'hopeless', 'hopelessness', 'hopes', 'hoping', 'hopping', 'hopscotch', 'horizon', 'ho
rizons', 'hormones', 'horn', 'horrible', 'horrific', 'horror', 'horrors', 'horse', 'horses', 'hors
eshoe', 'horticulture', 'hose', 'hospital', 'hospitality', 'hospitals', 'host', 'hosted',
'hosting', 'hosts', 'hot', 'hotel', 'hotels', 'hottest', 'hour', 'hourly', 'hours', 'house', 'hous
ed', 'household', 'households', 'housekeeping', 'houses', 'housing', 'houston', 'how', 'howard', '
however', 'hp', 'hs', 'html', 'http', 'https', 'hub', 'huddle', 'hug', 'huge', 'hugely',
'hugging', 'hugo', 'hugs', 'hula', 'hum', 'human', 'humanities', 'humanity', 'humans', 'humble', '
humbled', 'humbling', 'humbly', 'humidity', 'humility', 'humor', 'humorous', 'hunched', 'hundred',
'hundreds', 'hung', 'hunger', 'hungry', 'hunt', 'hunter', 'hunters', 'hunting', 'hunts', 'hurdle',
'hurdles', 'hurricane', 'hurry', 'hurt', 'hurting', 'hurts', 'husband', 'hustle', 'hybrid',
'hydrated', 'hydration', 'hydroponic', 'hydroponics', 'hygiene', 'hyper', 'hyperactive',
'hyperactivity', 'hypotheses', 'hypothesis', 'hypothesize', 'ib', 'ibooks', 'ice', 'icing',
'iconic', 'icons', 'ict', 'id', 'idaho', 'idea', 'ideal', 'ideally', 'ideals', 'ideas',
'identical', 'identification', 'identified', 'identifies', 'identify', 'identifying',
'identities', 'identity', 'idle', 'ie', 'iep', 'ieps', 'if', 'ignacio', 'ignite', 'ignited',
'ignites', 'igniting', 'ignore', 'ignored', 'ii', 'iii', 'il', 'ill', 'illinois', 'illiteracy', 'i
lliterate', 'illness', 'illnesses', 'ills', 'illuminate', 'illustrate', 'illustrated',
'illustrates', 'illustrating', 'illustration', 'illustrations', 'illustrator', 'illustrators',
'imac', 'image', 'imagery', 'images', 'imaginable', 'imaginary', 'imagination', 'imaginations', 'i
maginative', 'imagine', 'imagined', 'imagining', 'imbedded', 'imitate', 'imitating', 'i
mmature', 'immeasurable', 'immediate', 'immediately', 'immense', 'immensely', 'immerse',
'immersed', 'immersing', 'immersion', 'immersive', 'immigrant', 'immigrants', 'immigrated',
'immigration', 'immune', 'imovie', 'imovies', 'impact', 'impacted', 'impactful', 'impacting',

'impacts', 'impaired', 'impairment', 'impairments', 'impart', 'impede', 'impedes', 'imperative', 'implants', 'implement', 'implementation', 'implemented', 'implementing', 'implements', 'implications', 'import', 'importance', 'important', 'importantly', 'impossible', 'impoverish', 'impoverished', 'impress', 'impressed', 'impression', 'impressionable', 'impressions', 'impressive', 'imprint', 'impromptu', 'improve', 'improved', 'improvement', 'improvements', 'improves', 'improving', 'improvisation', 'improvise', 'improvising', 'impulse', 'impulses', 'impulsive', 'in', 'inability', 'inaccessible', 'inaccurate', 'inactivity', 'inadequate', 'inadvertently', 'inappropriate', 'inattention', 'inattentive', 'inaugural', 'incapable', 'incarcerated', 'incarceration', 'incentive', 'incentives', 'inch', 'inches', 'incidence', 'incident', 'incidents', 'inclement', 'inclined', 'include', 'included', 'includes', 'including', 'inclusion', 'inclusive', 'income', 'incomes', 'incoming', 'incomparable', 'incomplete', 'inconsistent', 'incorporate', 'incorporated', 'incorporates', 'incorporating', 'incorporation', 'incorrect', 'incorrectly', 'increase', 'increased', 'increases', 'increasing', 'increasingly', 'incredible', 'incredibly', 'incubator', 'indeed', 'independence', 'independent', 'independently', 'indescribable', 'index', 'india', 'indian', 'indiana', 'indianapolis', 'indicate', 'indicated', 'indicates', 'indicating', 'indicator', 'indicators', 'indigenous', 'indirect', 'indispensable', 'individual', 'individuality', 'individualization', 'individualize', 'individualized', 'individualizing', 'individually', 'individuals', 'indoor', 'indoors', 'indulge', 'industrial', 'industries', 'industrious', 'industry', 'ineffective', 'inequalities', 'inequality', 'inequities', 'inequity', 'inevitable', 'inevitably', 'inexpensive', 'inexperienced', 'infancy', 'infant', 'infectious', 'infer', 'inference', 'inferences', 'inferencing', 'inferior', 'inferring', 'infested', 'infinite', 'infinity', 'inflatable', 'inflated', 'inflection', 'influence', 'influenced', 'influences', 'influencing', 'influential', 'influx', 'info', 'inform', 'informal', 'information', 'informational', 'informative', 'informed', 'informing', 'infrastructure', 'infuse', 'infused', 'infusing', 'infusion', 'ingenuity', 'ingredient', 'ingredients', 'inhabit', 'inhabitants', 'inherent', 'inherently', 'inherit', 'inherited', 'inhibit', 'inhibits', 'initial', 'initially', 'initiate', 'initiated', 'initiative', 'initiatives', 'injured', 'injuries', 'injury', 'injustice', 'injustices', 'ink', 'inks', 'innate', 'inner', 'innocence', 'innocent', 'innovate', 'innovated', 'innovating', 'innovation', 'innovations', 'innovative', 'innovators', 'innumerable', 'input', 'inputs', 'inquire', 'inquirers', 'inquiries', 'inquiring', 'inquiry', 'inquisitive', 'inquisitiveness', 'ins', 'insatiable', 'insect', 'insects', 'insecure', 'insecurity', 'insert', 'inside', 'insides', 'insight', 'insightful', 'insights', 'insignificant', 'insist', 'insists', 'inspiration', 'inspirational', 'inspirations', 'inspire', 'inspired', 'inspires', 'inspiring', 'instability', 'instagram', 'install', 'installation', 'installed', 'instance', 'instances', 'instant', 'instantaneous', 'instantaneously', 'instantly', 'instax', 'instead', 'instill', 'instilled', 'instilling', 'instills', 'instinct', 'institute', 'institution', 'institutions', 'instruct', 'instructed', 'instructing', 'instruction', 'instructional', 'instructions', 'instructor', 'instructors', 'instrument', 'instrumental', 'instrumentalists', 'instrumentation', 'instruments', 'insufficient', 'insurance', 'insure', 'insurmountable', 'intact', 'intake', 'integers', 'integral', 'integrate', 'integrated', 'integrates', 'integrating', 'integration', 'integrity', 'intellect', 'intellectual', 'intellectually', 'intelligence', 'intelligences', 'intelligent', 'intend', 'intended', 'intense', 'intensely', 'intensity', 'intensive', 'intensively', 'intent', 'intention', 'intentional', 'intentionally', 'intentions', 'intently', 'inter', 'interact', 'interacted', 'interacting', 'interaction', 'interactions', 'interactive', 'interactively', 'interactivity', 'interacts', 'intercity', 'interconnected', 'interdependent', 'interdisciplinary', 'interest', 'interested', 'interesting', 'interests', 'interface', 'interfere', 'interferes', 'interior', 'intermediate', 'internal', 'internalize', 'international', 'internationally', 'internet', 'internship', 'internships', 'interpersonal', 'interpret', 'interpretation', 'interpretations', 'interpreting', 'interpretive', 'interrupt', 'interrupted', 'interrupting', 'interruption', 'interruptions', 'interrupts', 'intersection', 'intertwined', 'intervals', 'intervene', 'intervention', 'interventionist', 'interventions', 'interview', 'interviewing', 'interviews', 'intimate', 'intimidated', 'intimidating', 'into', 'intonation', 'intramural', 'intricate', 'intrigue', 'intrigued', 'intrigues', 'intriguing', 'intrinsic', 'intrinsically', 'intro', 'introduce', 'introduced', 'introduces', 'introducing', 'introduction', 'introductory', 'intuitive', 'intuitively', 'inundated', 'invaluable', 'invasive', 'invent', 'invented', 'inventing', 'invention', 'inventions', 'inventive', 'inventor', 'inventors', 'inventory', 'invest', 'invested', 'investigate', 'investigated', 'investigating', 'investigation', 'investigations', 'investigative', 'investigators', 'investing', 'investment', 'invigorate', 'invigorating', 'invisible', 'invitation', 'invitations', 'invite', 'invited', 'invites', 'inviting', 'involve', 'involved', 'involvement', 'involves', 'involving', 'ios', 'iowa', 'ipad', 'ipads', 'ipevo', 'iphone', 'iphones', 'ipod', 'ipods', 'iq', 'iran', 'iraq', 'iready', 'iron', 'irregular', 'irrelevant', 'irreplaceable', 'irrigation', 'is', 'isaac', 'isd', 'island', 'islander', 'islanders', 'islands', 'isolate', 'isolated', 'isolating', 'isolation', 'israel', 'issue', 'issued', 'issues', 'istation', 'it', 'italian', 'italy', 'itching', 'item', 'items', 'itinerant', 'its', 'itunes', 'iv', 'ivan', 'ivy', 'ixl', 'jack', 'jacket', 'jackets', 'jacks', 'jackson', 'jacksonville', 'jacqueline', 'jail', 'jam', 'jamaica', 'james', 'jan', 'jane', 'jansen', 'january', 'japan', 'japanese', 'jar', 'jars', 'java', 'jazz', 'jean', 'jefferson', 'jelly', 'jellyfish', 'jenga', 'jennifer', 'jenny', 'jensen', 'jeopardy', 'jersey', 'jerseys', 'jet', 'jewelry', 'jiggle', 'jitters', 'job', 'jobs', 'joe', 'john', 'johnny', 'johnson', 'join', 'joined', 'joining', 'joins', 'joint', 'joints', 'joke', 'jokes', 'jones', 'jordan', 'jose', 'joseph', 'jot', 'journal', 'journaling', 'journalism', 'journalist', 'journalists', 'journals', 'journey', 'journeys', 'joy', 'joyful', 'joyfully', 'joyous', 'joys', 'jr', 'judge', 'judged', 'judgement', 'judges', 'judgment', 'judy', 'juggle', 'juggling', 'juice', 'juices', 'juliet', 'july', 'jumbo', 'jump', 'jumped', 'jumping', 'jumps', 'jumpstart', 'june', 'jungle', 'junie', 'junior', 'juniors', 'junk', 'just', 'justice', 'justify', 'juvenile', 'jv', 'k4', 'kagan', 'kahoot', 'kalamazoo', 'kale', 'kansas', 'karaoke', 'karate', 'karen', 'karenni', 'kate', 'katie', 'katrina', 'kayla', 'k

een', 'keep', 'keeper', 'keeping', 'keeps', 'keepsake', 'keepsakes', 'keller', 'kelly', 'ken', 'kenedy', 'kentucky', 'kenya', 'kept', 'kettle', 'keurig', 'keva', 'kevin', 'key', 'keyboard', 'keyboarding', 'keyboards', 'keynote', 'keys', 'khan', 'kick', 'kickball', 'kickballs', 'kicked', 'kicking', 'kid', 'kidblog', 'kiddo', 'kiddos', 'kidney', 'kids', 'kill', 'killed', 'killing', 'kiln', 'kind', 'kinder', 'kindergarten', 'kindergartener', 'kindergarteners', 'kindergartens', 'kindergartner', 'kindergartners', 'kinders', 'kindest', 'kindhearted', 'kindle', 'kindles', 'kindly', 'kindness', 'kinds', 'kinect', 'kinesthetic', 'kinesthetically', 'kinetic', 'king', 'kings', 'kipp', 'kit', 'kitchen', 'kitchens', 'kits', 'kleenex', 'knack', 'knee', 'kneel', 'kneeling', 'knees', 'knew', 'knex', 'knight', 'knights', 'knit', 'knitting', 'knives', 'knock', 'knocked', 'knocking', 'know', 'knowing', 'knowledge', 'knowledgeable', 'known', 'knows', 'kore', 'korea', 'korean', 'kwame', 'la', 'lab', 'label', 'labeled', 'labeling', 'labels', 'labor', 'laboratory', 'labs', 'laces', 'lacing', 'lack', 'lacked', 'lacking', 'lacks', 'lacrosse', 'ladder', 'ladders', 'ladies', 'lady', 'ladybug', 'ladybugs', 'lafayette', 'lag', 'lagging', 'laid', 'lake', 'lakes', 'lakeshore', 'lakota', 'laminate', 'laminated', 'laminating', 'lamination', 'laminator', 'lamp', 'lamps', 'land', 'landfill', 'landfills', 'landforms', 'landing', 'landmarks', 'lands', 'landscape', 'landscapes', 'lane', 'language', 'languages', 'lanyards', 'lap', 'lapboards', 'laps', 'laptop', 'laptops', 'large', 'largely', 'larger', 'largest', 'las', 'laser', 'last', 'lasted', 'lasting', 'lastly', 'lasts', 'latch', 'latchkey', 'late', 'lately', 'later', 'latest', 'latin', 'latino', 'latinos', 'latter', 'laugh', 'laughed', 'laughing', 'laughs', 'laughter', 'launch', 'launched', 'launchers', 'launching', 'laundry', 'lavender', 'law', 'lawrence', 'laws', 'lawyers', 'lay', 'layer', 'layers', 'laying', 'layout', 'lays', 'lazy', 'lcd', 'ld', 'lead', 'leader', 'leaders', 'leadership', 'leading', 'leads', 'leaf', 'league', 'leagues', 'leak', 'lean', 'leaners', 'leaning', 'leap', 'leapfrog', 'leaping', 'leaps', 'learn', 'learned', 'learner', 'learners', 'learning', 'learnings', 'learns', 'least', 'leather', 'leave', 'leaves', 'leaving', 'lecture', 'lectured', 'lectures', 'lecturing', 'led', 'lee', 'left', 'leftover', 'leftovers', 'leg', 'legacy', 'legal', 'legends', 'legged', 'legible', 'legibly', 'legitimate', 'lego', 'legos', 'legs', 'leisure', 'lemon', 'lemonade', 'lend', 'lending', 'lends', 'length', 'lengths', 'lengthy', 'lenovo', 'lens', 'lenses', 'leonardo', 'less', 'lessen', 'lessening', 'lesson', 'lessons', 'let', 'lethargic', 'lets', 'letter', 'lettering', 'letters', 'letting', 'lettuce', 'level', 'leveled', 'leveling', 'levels', 'leverage', 'levers', 'lewis', 'lexia', 'lexile', 'lgbtq', 'liberty', 'librarian', 'librarians', 'libraries', 'library', 'lice', 'license', 'licensed', 'licenses', 'lids', 'lie', 'lies', 'lieu', 'life', 'lifecycle', 'lifelong', 'lifeskills', 'lifestyle', 'lifestyles', 'lifetime', 'lifetimes', 'lift', 'lifted', 'lifting', 'lifts', 'light', 'lightbulb', 'lighthouse', 'lighting', 'lightly', 'lightning', 'lights', 'lightweight', 'like', 'liked', 'likelihood', 'likely', 'likes', 'likewise', 'liking', 'limit', 'limitation', 'limitations', 'limited', 'limiting', 'limitless', 'limits', 'lincoln', 'line', 'linear', 'lined', 'lines', 'lingual', 'linguistic', 'linguistically', 'lining', 'link', 'linked', 'linking', 'links', 'linoleum', 'lion', 'lip', 'lips', 'liquid', 'liquids', 'list', 'listed', 'listen', 'listened', 'listener', 'listeners', 'listening', 'listens', 'listing', 'lists', 'lit', 'lite', 'literacies', 'literacy', 'literal', 'literally', 'literary', 'literate', 'literature', 'litter', 'little', 'littlebits', 'littles', 'littlest', 'live', 'lived', 'lively', 'liven', 'lives', 'livestock', 'living', 'load', 'loaded', 'loads', 'loan', 'loaned', 'loathe', 'local', 'locally', 'locate', 'located', 'locating', 'location', 'locations', 'lock', 'locked', 'locker', 'lockers', 'locking', 'locks', 'loft', 'lofty', 'log', 'logan', 'logged', 'logging', 'logic', 'logical', 'logically', 'login', 'logistics', 'logo', 'logos', 'logs', 'lois', 'lonely', 'long', 'longer', 'longest', 'longevity', 'longing', 'look', 'looked', 'looking', 'lookout', 'looks', 'looming', 'loop', 'looped', 'looping', 'loops', 'loose', 'loosing', 'lord', 'los', 'lose', 'loses', 'losing', 'loss', 'losses', 'lost', 'lot', 'lotion', 'lots', 'lottery', 'loud', 'louder', 'loudly', 'louis', 'louisiana', 'louisville', 'lounge', 'lounging', 'lovable', 'love', 'loveable', 'loved', 'lovely', 'lover', 'lovers', 'loves', 'loving', 'lovingly', 'low', 'lower', 'lowercase', 'lowered', 'lowering', 'lowers', 'lowest', 'loyal', 'loyalty', 'luck', 'luckiest', 'luckily', 'lucky', 'lucy', 'lunch', 'lunches', 'lunchroom', 'lunchtime', 'lungs', 'lure', 'luther', 'luxuries', 'luxury', 'lying', 'lyrics', 'lysol', 'ma', 'mac', 'macbook', 'macbooks', 'mache', 'machine', 'machines', 'mad', 'made', 'madison', 'madness', 'magazine', 'magazines', 'magformers', 'magic', 'magical', 'magically', 'magna', 'magnatiles', 'magnet', 'magnetic', 'magnetism', 'magnets', 'magnificent', 'magnified', 'magnifiers', 'magnify', 'magnifying', 'magnitude', 'mahar', 'mail', 'mailbox', 'mailboxes', 'main', 'maine', 'mainly', 'mainstream', 'mainstreamed', 'mainstreaming', 'maintain', 'maintained', 'maintaining', 'maintains', 'maintenance', 'major', 'majority', 'majors', 'make', 'makeblock', 'makeover', 'maker', 'makerbot', 'makers', 'makerspace', 'makerspaces', 'makes', 'makeshift', 'makeup', 'makey', 'makeys', 'making', 'malala', 'malcolm', 'male', 'males', 'mall', 'mallet', 'mallets', 'man', 'manage', 'manageable', 'managed', 'management', 'manager', 'managers', 'managing', 'mandarin', 'mandate', 'mandated', 'mandates', 'mandatory', 'mandela', 'maneuver', 'maneuvering', 'manga', 'manhattan', 'manifest', 'manipulate', 'manipulated', 'manipulates', 'manipulating', 'manipulation', 'manipulative', 'manipulatives', 'mankind', 'manner', 'mannered', 'manners', 'manor', 'mantra', 'manual', 'manufacturing', 'many', 'map', 'mapping', 'maps', 'marathon', 'marble', 'marbles', 'march', 'marching', 'margaret', 'marginalized', 'margins', 'maria', 'marine', 'marion', 'mark', 'marked', 'marker', 'markers', 'market', 'marketable', 'marketing', 'marketplace', 'markets', 'marking', 'marks', 'mars', 'marshall', 'marshallese', 'martian', 'martin', 'marvel', 'marvelous', 'mary', 'maryland', 'mascot', 'mask', 'masking', 'masks', 'mason', 'mass', 'massachusetts', 'massive', 'master', 'mastered', 'mastering', 'masterpiece', 'masterpieces', 'masters', 'mastery', 'mat', 'match', 'matched', 'matches', 'matching', 'mater', 'material', 'materials', 'mates', 'math', 'mathematic', 'mathematical', 'mathematically', 'mathematician', 'mathematicians', 'mathematics', 'matilda', 'matisse', 'mats', 'matt', 'matter', 'matters', 'matthew', 'mature', 'maturing', 'maturity', 'maus', 'max', 'maximize', 'maximized', 'maximizes', 'maximizing', 'maximum', 'may', 'maya', 'maybe', 'mayo', 'mayor', 'maze', 'mazes', 'md', 'me', 'mead', 'meager', 'meal', 'meals', 'mean', 'meaning', 'meaningful', 'meaningfully', 'meanings', 'means', 'meant', 'meantime', 'meanwhile', 'm

measurable', 'measure', 'measured', 'measurement', 'measurements', 'measures', 'measuring', 'meat', 'mechanical', 'mechanics', 'mechanism', 'mechanisms', 'med', 'medal', 'medals', 'media', 'median', 'medias', 'mediation', 'medical', 'medically', 'medication', 'medicine', 'medieval', 'meditate', 'meditating', 'meditation', 'medium', 'mediums', 'meehan', 'meet', 'meeting', 'meetings', 'meets', 'meiosis', 'melodic', 'melodies', 'melody', 'melt', 'meltdowns', 'melting', 'member', 'members', 'membership', 'memoir', 'memoirs', 'memorable', 'memorial', 'memories', 'memorization', 'memorize', 'memorized', 'memorizing', 'memory', 'memphis', 'men', 'mental', 'mentality', 'mentally', 'mention', 'mentioned', 'mentor', 'mentoring', 'mentors', 'menu', 'menus', 'mercy', 'mere', 'merely', 'merge', 'merged', 'merit', 'mesa', 'mesh', 'mesmerized', 'mess', 'message', 'messages', 'messes', 'messy', 'met', 'metabolism', 'metacognition', 'metal', 'metallophones', 'metals', 'metamorphosis', 'metaphor', 'meter', 'method', 'methodology', 'methods', 'metric', 'metro', 'metroplex', 'metropolitan', 'mexican', 'mexico', 'mi', 'miami', 'mic', 'mice', 'michael', 'michelle', 'michigan', 'micro', 'microbiology', 'microcosm', 'microorganisms', 'microphone', 'microphones', 'microscope', 'microscopes', 'microscopic', 'microsoft', 'microwave', 'mics', 'mid', 'middle', 'midi', 'midst', 'midwest', 'midwestern', 'might', 'mighty', 'migrant', 'migrate', 'migration', 'mild', 'mile', 'mileage', 'miles', 'milestone', 'milestones', 'military', 'milk', 'mill', 'miller', 'million', 'millions', 'mills', 'milwaukee', 'mimic', 'mimics', 'min', 'mind', 'minded', 'mindedness', 'mindful', 'mindfulness', 'minds', 'mindset', 'mindsets', 'mindstorm', 'mindstorms', 'mine', 'minecraft', 'mineral', 'minerals', 'mini', 'miniature', 'minimal', 'minimally', 'minimize', 'minimized', 'minimizing', 'minimum', 'mining', 'minis', 'minneapolis', 'minnesota', 'minor', 'minorities', 'minority', 'minute', 'minutes', 'miracle', 'miracles', 'miraculous', 'mirror', 'mirrored', 'mirroring', 'mirrors', 'misbehavior', 'mischievous', 'misconception', 'misconceptions', 'miserable', 'mismatched', 'misplace', 'misplaced', 'miss', 'missed', 'missing', 'mission', 'missions', 'mississippi', 'missouri', 'mistake', 'mistakes', 'misunderstood', 'mit', 'mitosis', 'mittens', 'mix', 'mixed', 'mixer', 'mixes', 'mixing', 'mixture', 'mixtures', 'mn', 'mo', 'mobile', 'mobility', 'moby', 'mobymax', 'mock', 'mockingbird', 'modal', 'modalities', 'modality', 'mode', 'model', 'modeled', 'modeling', 'models', 'moderate', 'moderately', 'modern', 'modernize', 'modes', 'modest', 'modification', 'modifications', 'modified', 'modify', 'modifying', 'module', 'modules', 'mold', 'molded', 'molding', 'molds', 'molecular', 'molecules', 'mom', 'moment', 'moments', 'momentum', 'moms', 'monarch', 'monday', 'mondays', 'monetary', 'money', 'monies', 'monitor', 'monitored', 'monitoring', 'monitors', 'monkey', 'monkeys', 'mono', 'monolingual', 'monopoly', 'monotonous', 'monotony', 'monster', 'monsters', 'montana', 'montessori', 'month', 'monthly', 'months', 'monumental', 'monuments', 'mood', 'moods', 'moon', 'moons', 'moral', 'morale', 'morals', 'more', 'moreover', 'morning', 'mornings', 'mosaic', 'mosaics', 'most', 'mostly', 'motels', 'mother', 'mothers', 'motion', 'motions', 'motivate', 'motivated', 'motivates', 'motivating', 'motivation', 'motivational', 'motivations', 'motivator', 'motivators', 'motive', 'motor', 'motors', 'motto', 'mount', 'mountain', 'mountains', 'mounted', 'mounting', 'mouse', 'mouth', 'mouthpiece', 'mouthpieces', 'mouths', 'movable', 'move', 'moveable', 'moved', 'movement', 'movements', 'movers', 'moves', 'movie', 'movies', 'movin', 'moving', 'mp3', 'mr', 'mrs', 'ms', 'mt', 'much', 'mud', 'mudge', 'mulch', 'multi', 'multiage', 'multicultural', 'multiculturalism', 'multifaceted', 'multilingual', 'multimedia', 'multiple', 'multiples', 'multiplication', 'multiply', 'multiplying', 'multipurpose', 'multiracial', 'multisensory', 'multistep', 'multitasking', 'multitude', 'mundane', 'mural', 'murals', 'murder', 'muscle', 'muscles', 'muscular', 'museum', 'museums', 'music', 'musical', 'musicality', 'musically', 'musicals', 'musician', 'musicians', 'musicianship', 'muslim', 'must', 'mute', 'mutual', 'my', 'myanmar', 'myon', 'myplate', 'myriad', 'myself', 'mysteries', 'mysterious', 'mystery', 'myth', 'mythology', 'myths', 'nails', 'naked', 'name', 'named', 'namely', 'names', 'naming', 'nancy', 'nannan', 'nap', 'napkins', 'narration', 'narrative', 'narratives', 'narrator', 'narrators', 'narrow', 'narrowing', 'nasa', 'nashville', 'nate', 'nation', 'national', 'nationalities', 'nationality', 'nationally', 'nations', 'nationwide', 'native', 'natives', 'natural', 'naturally', 'nature', 'natured', 'navajo', 'naval', 'navigate', 'navigating', 'navigation', 'navy', 'nc', 'ne', 'near', 'nearby', 'nearest', 'nearing', 'nearly', 'nearpod', 'neat', 'neatly', 'nebraska', 'necessarily', 'necessary', 'necessitates', 'necessities', 'necessity', 'neck', 'necklace', 'necklaces', 'need', 'needed', 'neediest', 'needing', 'needles', 'needless', 'needs', 'negot', 'negative', 'negatively', 'negatives', 'negativity', 'neglect', 'neglected', 'negotiable', 'negotiate', 'negotiating', 'neighbor', 'neighborhood', 'neighborhoods', 'neighboring', 'neighbors', 'neil', 'neither', 'nelson', 'neon', 'nepal', 'nepali', 'nerd', 'nerve', 'nerves', 'nervous', 'nervousness', 'nest', 'nestled', 'net', 'netbooks', 'nets', 'network', 'networking', 'networks', 'neural', 'neuro', 'neurological', 'neutral', 'nevada', 'never', 'nevertheless', 'new', 'newark', 'newbery', 'newcomer', 'newcomers', 'newer', 'newest', 'newfound', 'newly', 'news', 'newscast', 'newscasts', 'newsela', 'newsletter', 'newsletters', 'newspaper', 'newspapers', 'newton', 'nex', 'next', 'nfl', 'ngss', 'nh', 'nicaragua', 'nice', 'nicely', 'nicer', 'nicest', 'niche', 'nigeria', 'night', 'nightly', 'nightmare', 'nights', 'nine', 'nineteen', 'ninety', 'ninja', 'nintendo', 'ninth', 'nit', 'nitrogen', 'nj', 'nm', 'no', 'noble', 'nobody', 'noise', 'noises', 'noisy', 'nominated', 'non', 'none', 'nonetheless', 'nonexistent', 'nonfiction', 'nonprofit', 'nontraditional', 'nonverbal', 'noodle', 'noodles', 'nook', 'nooks', 'nor', 'norm', 'normal', 'normalcy', 'normally', 'norms', 'north', 'northeast', 'northeastern', 'northern', 'northwest', 'nose', 'noses', 'not', 'notable', 'notate', 'notation', 'notch', 'note', 'notebook', 'notebooks', 'noted', 'notepads', 'notes', 'nothing', 'notice', 'noticeable', 'noticed', 'notices', 'noticing', 'noting', 'notion', 'notorious', 'notoriously', 'nots', 'nouns', 'nourish', 'nourished', 'nourishing', 'nourishment', 'novel', 'novels', 'novelty', 'november', 'novice', 'now', 'nowadays', 'nowhere', 'nuances', 'nuclear', 'nudge', 'number', 'numbered', 'numbers', 'numeracy', 'numerals', 'numerical', 'numerous', 'nurse', 'nursery', 'nurses', 'nursing', 'nurture', 'nurtured', 'nurtures', 'nurturing', 'nutrient', 'nutrients', 'nutrition', 'nutritional', 'nutritious', 'nuts', 'nv', 'nwea', 'ny', 'nyc', 'nye', 'nys', 'oahu', 'oak', 'oakland', 'oasis', 'oatmeal', 'obama', 'obese', 'obesity', 'object', 'objective', 'objectives', 'objects', 'obligation', 'obligations', 'observant', 'observation'.

observance, observances, observe, observation, observations, observant, observation,
'observational', 'observations', 'observe', 'observed', 'observers', 'observing', 'obsessed',
'obsolete', 'obstacle', 'obstacles', 'obtain', 'obtainable', 'obtained', 'obtaining', 'obviously', 'obviously',
'obviously', 'occasion', 'occasional', 'occasionally', 'occasions', 'occupation', 'occupational',
'occupations', 'occupied', 'occupy', 'occur', 'occurred', 'occurrence', 'occurrences',
'occurring', 'occurs', 'ocean', 'oceans', 'october', 'odd', 'odds', 'odor', 'odyssey', 'of',
'offensive', 'offer', 'offered', 'offering', 'offerings', 'offers', 'office', 'officer',
'officers', 'offices', 'official', 'officially', 'officials', 'offs', 'offset', 'often',
'oftentimes', 'oh', 'ohana', 'ohio', 'oil', 'oils', 'ok', 'okay', 'oklahoma', 'old', 'older', 'old
est', 'olds', 'ole', 'ollie', 'olympiad', 'olympians', 'olympic', 'olympics', 'omaha', 'on', 'once',
'one', 'ones', 'oneself', 'ongoing', 'online', 'only', 'onto', 'onward', 'open', 'opened',
'opener', 'opening', 'openly', 'opens', 'opera', 'operate', 'operated', 'operates', 'operating', 'operation',
'operational', 'operations', 'opinion', 'opinionated', 'opinions', 'opponents',
'opportunities', 'opportunities', 'opportunity', 'opposed', 'opposite', 'oppositional',
'oppression', 'opt', 'opted', 'optimal', 'optimism', 'optimistic', 'optimize', 'optimum',
'option', 'optional', 'options', 'or', 'oral', 'orally', 'orange', 'orchard', 'orchards',
'orchestra', 'orchestral', 'order', 'ordered', 'ordering', 'orderly', 'orders', 'ordinarily',
'ordinary', 'oregon', 'orff', 'org', 'organ', 'organic', 'organically', 'organism', 'organisms', 'organization',
'organizational', 'organizations', 'organize', 'organized', 'organizer', 'organizers',
'organizes', 'organizing', 'organs', 'orientated', 'orientation', 'oriented', 'origami',
'origin', 'original', 'originality', 'originally', 'originate', 'origins', 'orlando', 'orleans',
'orthopedic', 'orwell', 'oscar', 'osmo', 'osmos', 'ot', 'other', 'others', 'otherwise', 'otterbox',
'ottomans', 'ounce', 'our', 'ours', 'out', 'outbursts', 'outcome', 'outcomes', 'outdated',
'outdoor', 'outdoors', 'outer', 'outfit', 'outgoing', 'outgrowing', 'outgrown', 'outings',
'outlet', 'outlets', 'outline', 'outlined', 'outlines', 'outlook', 'outlooks', 'outnumber',
'output', 'outreach', 'outs', 'outside', 'outsider', 'outsiders', 'outskirts', 'outspoken',
'outstanding', 'outweigh', 'oven', 'over', 'overabundance', 'overall', 'overarching', 'overcome',
'overcomers', 'overcoming', 'overcrowded', 'overcrowding', 'overflow', 'overflowing', 'overhaul',
'overhead', 'overjoyed', 'overload', 'overloaded', 'overlook', 'overlooked', 'overly', 'overnight',
'overrated', 'overrun', 'overs', 'overseas', 'oversized', 'overstimulated', 'overtime',
'overview', 'overweight', 'overwhelmed', 'overwhelming', 'overwhelmingly', 'owe', 'owl', 'owls',
'own', 'owned', 'owner', 'owners', 'ownership', 'owning', 'owns', 'oxygen', 'oyster', 'ozobot',
'ozobots', 'pa', 'pablo', 'pace', 'paced', 'paces', 'pacific', 'pacing', 'pack', 'package',
'packaged', 'packages', 'packed', 'packet', 'packets', 'packing', 'packs', 'pad', 'padding',
'padding', 'paddles', 'padlet', 'pads', 'page', 'pages', 'paid', 'pail', 'pain', 'painful',
'pains', 'paint', 'paintbrush', 'paintbrushes', 'painted', 'painters', 'painting', 'paintings',
'paints', 'pair', 'paired', 'pairing', 'pairs', 'pajamas', 'pakistan', 'pal', 'palacio', 'palettes',
'palm', 'palmetto', 'palo', 'palpable', 'pals', 'palsy', 'pamphlets', 'pan', 'pancake', 'panel',
'panels', 'panhandle', 'pans', 'panther', 'panthers', 'pantry', 'pants', 'paper', 'paperback',
'paperless', 'papers', 'paperwork', 'par', 'para', 'parachute', 'parachutes', 'parade', 'parades',
'paradigm', 'paradise', 'paragraph', 'paragraphs', 'parallel', 'parameters', 'paramount',
'paraprofessional', 'paraprofessionals', 'parcc', 'parent', 'parental', 'parenting', 'parents',
'parish', 'park', 'parking', 'parks', 'part', 'partake', 'partial', 'partially', 'participant',
'participants', 'participate', 'participated', 'participates', 'participating', 'participation',
'participatory', 'particular', 'particularly', 'parties', 'partitions', 'partly', 'partner',
'partnered', 'partnering', 'partners', 'partnership', 'partnerships', 'parts', 'party', 'pass',
'passage', 'passages', 'passed', 'passes', 'passing', 'passion', 'passionate', 'passionately',
'passions', 'passive', 'passively', 'passport', 'past', 'paste', 'pastel', 'pastels', 'pasting',
'pasts', 'patch', 'paterson', 'path', 'pathologist', 'pathologists', 'paths', 'pathway',
'pathways', 'patience', 'patient', 'patiently', 'patients', 'patricia', 'patrick', 'patrol',
'patrons', 'pattern', 'patterning', 'patterns', 'patterson', 'paul', 'pause', 'pave', 'paved',
'paving', 'paws', 'pay', 'paycheck', 'paychecks', 'paying', 'pays', 'pbis', 'pbl', 'pbs', 'pc',
'pcs', 'pe', 'peace', 'peaceful', 'peacefully', 'peak', 'peaks', 'peanut', 'pearl', 'pearson',
'pebblego', 'pecs', 'pedagogy', 'pedal', 'pedaling', 'pedals', 'peddlers', 'pedometer', 'pedometers',
'peek', 'peel', 'peeling', 'peer', 'peers', 'peg', 'pegs', 'pellet', 'pellets', 'pen', 'pencil',
'pencils', 'pendulum', 'penguins', 'peninsula', 'penmanship', 'pennsylvania', 'penny', 'pens',
'pent', 'people', 'peoples', 'pep', 'peppermint', 'per', 'perceive', 'perceived', 'percent',
'percentage', 'percentages', 'percentile', 'percents', 'perception', 'perceptions', 'perceptive',
'perceptual', 'percussion', 'percussionist', 'percussionists', 'percy', 'perfect', 'perfecting',
'perfection', 'perfectly', 'perform', 'performance', 'performances', 'performed', 'performer',
'performers', 'performing', 'performs', 'perhaps', 'perimeter', 'period', 'periodic', 'periodically',
'periodicals', 'periods', 'perishable', 'perks', 'permanent', 'permanently', 'permission',
'permit', 'permits', 'permitted', 'permitting', 'perseverance', 'persevere', 'persevered',
'persevering', 'persist', 'persistence', 'persistent', 'person', 'personal', 'personalities',
'personality', 'personalization', 'personalize', 'personalized', 'personalizes', 'personalizing',
'personally', 'personnel', 'persons', 'perspective', 'perspectives', 'persuade', 'persuasive',
'pertain', 'pertaining', 'pertains', 'pertinent', 'peru', 'peruse', 'pervasive', 'pet', 'pete',
'peter', 'pets', 'ph', 'phase', 'phases', 'phenomena', 'phenomenal', 'phenomenon', 'philadelphia',
'philippines', 'philosophies', 'philosophy', 'phoenix', 'phone', 'phonemes', 'phonemic', 'phones',
'phonetic', 'phonic', 'phonics', 'phonological', 'photo', 'photograph', 'photographer',
'photographers', 'photographic', 'photographing', 'photographs', 'photography', 'photos',
'photoshop', 'photosynthesis', 'phrase', 'phrases', 'physical', 'physically', 'physics', 'physiological',
'physiology', 'pi', 'piano', 'pianos', 'picasso', 'pick', 'picked', 'picking', 'picks', 'picnic',
'pictorial', 'picture', 'pictured', 'pictures', 'pie', 'piece', 'pieces', 'piedmont', 'pierson',
'pig', 'pigeon', 'piggie', 'piggy', 'pigs', 'pile', 'piles', 'pillar', 'pillars', 'pillow', 'pillows',
'pilot', 'piloted', 'piloting', 'pin', 'pinch', 'pine', 'ping', 'pink', 'pinnell', 'pinnies',
'pinpoint', 'pins', 'pioneer', 'pioneers', 'pipe', 'pipes', 'pique', 'nigmed', 'nirate', 'nirates',
'nit', 'nitch', 'nitched', 'nitches', 'nitching', 'nittsburgh'.

plaque, 'placed', 'placement', 'placements', 'places', 'placing', 'plague', 'plagued', 'plain', 'plan', 'plane', 'planes', 'planet', 'planets', 'planks', 'planned', 'planner', 'planners', 'planning', 'plans', 'plant', 'planted', 'planter', 'planters', 'planting', 'plants', 'plaster', 'plastic', 'plate', 'plates', 'platform', 'platforms', 'play', 'playback', 'playdoh', 'playdough', 'played', 'player', 'players', 'playful', 'playground', 'playgrounds', 'playing', 'plays', 'playstix', 'playtime', 'pleading', 'pleasant', 'pleasantly', 'please', 'pleased', 'pleasing', 'pleasurable', 'pleasure', 'pledge', 'plentiful', 'plenty', 'plethora', 'plickers', 'plot', 'plots', 'pltw', 'plug', 'plugged', 'plugs', 'plunge', 'plus', 'plush', 'pm', 'pocket', 'pockets', 'pod', 'podcast', 'podcasts', 'podium', 'pods', 'poem', 'poems', 'poetic', 'poetry', 'poets', 'pogo', 'point', 'pointed', 'pointer', 'pointers', 'pointing', 'points', 'poised', 'poke', 'pokemon', 'polar', 'polaroid', 'pole', 'poles', 'police', 'policies', 'policy', 'polish', 'polished', 'polite', 'political', 'politicians', 'politics', 'poll', 'pollution', 'polo', 'poly', 'polynesian', 'pom', 'poms', 'pond', 'ponder', 'pong', 'pool', 'poor', 'poorer', 'poorest', 'poorly', 'pop', 'popcorn', 'popped', 'popping', 'pops', 'popsicle', 'popular', 'popularity', 'populated', 'population', 'populations', 'port', 'portability', 'portable', 'portables', 'portfolio', 'portfolios', 'portion', 'portions', 'portland', 'portrait', 'portraits', 'portray', 'portrayed', 'ports', 'portuguese', 'pose', 'posed', 'poses', 'position', 'positioned', 'positioning', 'positions', 'positive', 'positively', 'positives', 'positivity', 'posses', 'possess', 'possesses', 'possessing', 'possession', 'possessions', 'possibilities', 'possibility', 'possible', 'possibly', 'post', 'posted', 'poster', 'posters', 'posting', 'posts', 'postsecondary', 'postural', 'posture', 'postures', 'pot', 'potato', 'potential', 'potentially', 'potentials', 'pots', 'potter', 'pottery', 'potting', 'pouch', 'pouches', 'pound', 'pounds', 'pour', 'pouring', 'poverty', 'power', 'powered', 'powerful', 'powerpoint', 'powerpoints', 'powers', 'ppcd', 'practical', 'practically', 'practice', 'practiced', 'practices', 'practicing', 'pragmatic', 'prairie', 'praise', 'praised', 'pray', 'praying', 'pre', 'precious', 'precise', 'precisely', 'precision', 'precocious', 'preconceived', 'predict', 'predictable', 'predicting', 'prediction', 'predictions', 'predictor', 'predominant', 'predominantly', 'predominately', 'prefer', 'preference', 'preferences', 'preferred', 'prefixes', 'preform', 'preforming', 'pregnancy', 'prejudice', 'prek', 'prekindergarten', 'premier', 'premise', 'premium', 'preoccupied', 'prep', 'preparation', 'preparatory', 'prepare', 'prepared', 'preparedness', 'prepares', 'preparing', 'prepping', 'prerequisite', 'preschool', 'preschooler', 'preschoolers', 'preschools', 'prescribed', 'presence', 'present', 'presentable', 'presentation', 'presentations', 'presented', 'presenter', 'presenters', 'presenting', 'presently', 'presents', 'preservation', 'preserve', 'preserved', 'preserver', 'preserving', 'president', 'presidential', 'presidents', 'press', 'pressed', 'pressing', 'pressure', 'pressured', 'pressures', 'prestigious', 'preteen', 'preteens', 'pretend', 'pretending', 'pretty', 'pretzels', 'prevalent', 'prevent', 'preventable', 'prevented', 'preventing', 'prevention', 'prevents', 'preview', 'previous', 'previously', 'prey', 'prezi', 'price', 'priced', 'priceless', 'prices', 'pricey', 'pride', 'prides', 'primarily', 'primary', 'prime', 'primed', 'primer', 'prince', 'princess', 'princesses', 'principal', 'principals', 'principle', 'principled', 'principles', 'print', 'printable', 'printed', 'printer', 'printers', 'printing', 'printmaking', 'printouts', 'prints', 'prior', 'priorities', 'prioritize', 'prioritized', 'prioritizing', 'priority', 'prism', 'prisms', 'prison', 'pristine', 'privacy', 'private', 'privately', 'privilege', 'privileged', 'privileges', 'privy', 'prize', 'prized', 'prizes', 'pro', 'proactive', 'proactively', 'probability', 'probably', 'probe', 'probes', 'problem', 'problematic', 'problems', 'procedural', 'procedure', 'procedures', 'proceed', 'proceeds', 'process', 'processed', 'processes', 'processing', 'processor', 'proclaimed', 'procure', 'prodigy', 'produce', 'produced', 'producer', 'producers', 'produces', 'producing', 'product', 'production', 'productions', 'productive', 'productively', 'productivity', 'products', 'profession', 'professional', 'professionalism', 'professionally', 'professionals', 'professions', 'professor', 'professors', 'proficiency', 'proficient', 'proficiently', 'profile', 'profiles', 'profit', 'profits', 'profound', 'profoundly', 'program', 'programing', 'programmable', 'programme', 'programmed', 'programmers', 'programming', 'programs', 'progress', 'progressed', 'progresses', 'progressing', 'progression', 'progressive', 'progressively', 'prohibit', 'prohibitive', 'prohibits', 'project', 'projected', 'projecting', 'projection', 'projector', 'projectors', 'projects', 'prolonged', 'promethean', 'prominent', 'prominently', 'promise', 'promised', 'promises', 'promising', 'promote', 'promoted', 'promotes', 'promoting', 'promotion', 'prompt', 'prompted', 'prompting', 'prompts', 'prone', 'pronounce', 'pronounced', 'pronunciation', 'proof', 'prop', 'propaganda', 'propel', 'proper', 'properly', 'properties', 'property', 'proportion', 'proportions', 'proposal', 'proposals', 'propose', 'proposed', 'propped', 'proprioceptive', 'props', 'pros', 'prose', 'prospect', 'prospective', 'prospects', 'prosper', 'prosperity', 'prosperous', 'prosthetic', 'protagonist', 'protagonists', 'protect', 'protected', 'protecting', 'protection', 'protective', 'protector', 'protectors', 'protects', 'protein', 'prototype', 'prototypes', 'prototyping', 'protractors', 'proud', 'prouder', 'proudly', 'prove', 'proved', 'proven', 'proverb', 'proves', 'provide', 'provided', 'providence', 'provider', 'providers', 'provides', 'providing', 'proving', 'provisions', 'provoking', 'prowess', 'proximity', 'ps', 'psa', 'psychological', 'psychologist', 'psychology', 'pt', 'pta', 'pto', 'ptsd', 'puberty', 'public', 'publication', 'publications', 'publicly', 'publish', 'published', 'publisher', 'publishers', 'publishing', 'puerto', 'pull', 'pulled', 'pulleys', 'pulling', 'pullout', 'pulls', 'pulse', 'pump', 'pumped', 'pumping', 'pumpkin', 'pumpkins', 'pumps', 'punch', 'punchers', 'punctuation', 'punished', 'punishment', 'punjabi', 'pupil', 'pupils', 'puppet', 'puppets', 'purchase', 'purchased', 'purchases', 'purchasing', 'pure', 'purely', 'purifier', 'purple', 'purpose', 'purposeful', 'purposefully', 'purposes', 'pursue', 'pursuing', 'pursuit', 'pursuits', 'push', 'pushed', 'pushes', 'pushing', 'put', 'puts', 'putting', 'putty', 'puzzle', 'puzzles', 'pvc', 'pyp', 'pyramid', 'pyramids', 'python', 'qr', 'quadratic', 'quaint', 'qualified', 'qualifies', 'qualify', 'qualifying', 'qualities', 'quality', 'quantitative', 'quantities', 'quantity', 'quarter', 'quarterly', 'quarters', 'queen', 'queens', 'quench', 'quenched', 'quest', 'question', 'questioners', 'questioning', 'questions', 'quests', 'quicker', 'quickest', 'quicksly', 'quiet'

[illegible]

d', 'rise', 'risen', 'risers', 'rises', 'rising', 'risk', 'risks', 'rita', 'rival', 'river', 'rivers', 'riverside', 'riveting', 'road', 'roadblock', 'roadblocks', 'roads', 'roald', 'roam', 'rob', 'robert', 'robinson', 'robot', 'robotic', 'robotics', 'robots', 'robust', 'rochester', 'rock', 'rocker', 'rockers', 'rocket', 'rockets', 'rocking', 'rocks', 'rockstars', 'rocky', 'rods', 'rogers', 'role', 'roles', 'roll', 'rolled', 'roller', 'rollers', 'rolling', 'rolls', 'roman', 'rome', 'romeo', 'ron', 'roof', 'room', 'rooms', 'roosevelt', 'root', 'rooted', 'rooting', 'roots', 'rope', 'ropes', 'roping', 'rosa', 'rose', 'rosetta', 'roster', 'rotate', 'rotated', 'rotates', 'rotating', 'rotation', 'rotational', 'rotations', 'rote', 'rouge', 'rough', 'roughest', 'roughly', 'round', 'rounded', 'rounding', 'rounds', 'route', 'routes', 'routine', 'routinely', 'routines', 'row', 'rowdy', 'rowing', 'rows', 'rs', 'rsp', 'rti', 'rubber', 'rube', 'rubik', 'rubric', 'rubrics', 'ruby', 'rug', 'rugs', 'ruin', 'ruined', 'ruining', 'rule', 'ruled', 'ruler', 'rulers', 'rules', 'rumbling', 'run', 'runner', 'runners', 'running', 'runny', 'runs', 'runtz', 'rural', 'rush', 'rushing', 'russia', 'russian', 'sack', 'sacks', 'sacramento', 'sacrifice', 'sacrificed', 'sacrifices', 'sad', 'saddened', 'saddens', 'sadly', 'sadness', 'safe', 'safely', 'safer', 'safest', 'safety', 'sage', 'said', 'sail', 'sails', 'saint', 'sake', 'salad', 'salary', 'sale', 'salem', 'sales', 'salinas', 'salsa', 'salt', 'salvador', 'sam', 'same', 'samoa', 'samoan', 'sample', 'samples', 'sampling', 'samsung', 'san', 'sanctuary', 'sand', 'sandbox', 'sandy', 'sanitary', 'sanitation', 'sanitize', 'sanitized', 'sanitizer', 'sanitizing', 'santa', 'sat', 'satellite', 'satisfaction', 'satisfied', 'satisfies', 'satisfy', 'satisfying', 'saturday', 'saturdays', 'sauce', 'saucer', 'savannah', 'save', 'saved', 'saver', 'saves', 'saving', 'savings', 'savvy', 'savy', 'saw', 'saws', 'saxophone', 'saxophones', 'say', 'saying', 'says', 'sbac', 'sc', 'scaffold', 'scaffolding', 'scaffolds', 'scale', 'scaled', 'scales', 'scan', 'scanner', 'scanning', 'scarce', 'scarcity', 'scare', 'scared', 'scarves', 'scary', 'scattered', 'scavenger', 'scenario', 'scenarios', 'scene', 'scenery', 'scenes', 'scenic', 'scented', 'scents', 'schedule', 'scheduled', 'schedules', 'scheduling', 'schema', 'scheme', 'scholar', 'scholarly', 'scholars', 'scholarship', 'scholarships', 'scholastic', 'scholastics', 'school', 'schooled', 'schooler', 'schoolers', 'schooling', 'schoolmates', 'schools', 'schoolwide', 'schoolwork', 'science', 'sciences', 'scientific', 'scientifically', 'scientist', 'scientists', 'scissors', 'scoop', 'scoops', 'scooter', 'scooters', 'scope', 'score', 'scored', 'scores', 'scoring', 'scotch', 'scott', 'scouts', 'scrabble', 'scramble', 'scrambling', 'scrap', 'scrapbook', 'scraping', 'scraps', 'scratch', 'scratched', 'scratches', 'scratching', 'scream', 'screaming', 'screen', 'screened', 'screening', 'screens', 'screw', 'screws', 'scrimmages', 'script', 'scripts', 'scroll', 'sculpt', 'sculpting', 'sculpture', 'sculptures', 'sd', 'sdc', 'se', 'sea', 'seal', 'seamless', 'seamlessly', 'seams', 'search', 'searched', 'searches', 'searching', 'season', 'seasonal', 'seasons', 'seat', 'seated', 'seating', 'seats', 'seattle', 'second', 'secondary', 'secondly', 'seconds', 'secret', 'secretly', 'secrets', 'section', 'sections', 'sector', 'secure', 'secured', 'securely', 'securing', 'security', 'sedentary', 'see', 'seed', 'seedlings', 'seeds', 'seeing', 'seek', 'seekers', 'seeking', 'seeks', 'seem', 'seemed', 'seemingly', 'seems', 'seen', 'sees', 'seesaw', 'segment', 'segmenting', 'segments', 'segregated', 'sei', 'seize', 'seizures', 'sel', 'seldom', 'select', 'selected', 'selecting', 'selection', 'selections', 'selective', 'self', 'selfies', 'selfless', 'sell', 'selling', 'selves', 'semester', 'semi', 'seminar', 'seminars', 'send', 'sending', 'sends', 'senegal', 'senior', 'seniors', 'sensation', 'sensational', 'sensations', 'sense', 'senses', 'sensitive', 'sensitivities', 'sensitivity', 'sensor', 'sensors', 'sensory', 'sent', 'sentence', 'sentences', 'separate', 'separated', 'separately', 'separating', 'separation', 'september', 'sequel', 'sequence', 'sequences', 'sequencing', 'sequential', 'serafini', 'serene', 'series', 'serious', 'seriously', 'serve', 'served', 'server', 'serves', 'service', 'serviced', 'services', 'servicing', 'serving', 'ses', 'session', 'sessions', 'set', 'setbacks', 'sets', 'setss', 'setters', 'setting', 'settings', 'settle', 'settled', 'settlers', 'settling', 'setup', 'seuss', 'seven', 'seventeen', 'seventh', 'seventy', 'several', 'severe', 'severely', 'severity', 'sew', 'sewing', 'sewn', 'sexual', 'shade', 'shades', 'shading', 'shadow', 'shadows', 'shake', 'shakers', 'shakespeare', 'shakespearian', 'shaking', 'shall', 'shame', 'shampoo', 'shape', 'shaped', 'shapes', 'shaping', 'share', 'shared', 'shares', 'sharing', 'sharks', 'sharp', 'sharpen', 'sharpened', 'sharpeners', 'sharpeners', 'sharpening', 'sharpie', 'sharpies', 'shaving', 'she', 'shed', 'sheer', 'sheet', 'sheets', 'shelf', 'shell', 'shells', 'shelter', 'sheltered', 'shelters', 'shelves', 'shelving', 'shield', 'shields', 'shift', 'shifted', 'shifting', 'shifts', 'shin', 'shine', 'shines', 'shining', 'shiny', 'ship', 'ships', 'shirt', 'shirts', 'shock', 'shocked', 'shocking', 'shoe', 'shoes', 'shoot', 'shooting', 'shootings', 'shop', 'shopping', 'shops', 'shore', 'short', 'shortage', 'shortages', 'shortcomings', 'shorten', 'shorter', 'shortfalls', 'shortly', 'shorts', 'shot', 'shots', 'should', 'shoulder', 'shoulders', 'shout', 'shouted', 'show', 'showcase', 'showcased', 'showcases', 'showcasing', 'showed', 'shower', 'showing', 'shown', 'shows', 'shredded', 'shredder', 'shrink', 'shrinking', 'shuffle', 'shuffles', 'shut', 'shutting', 'shy', 'shyest', 'sibling', 'siblings', 'sick', 'side', 'sided', 'sides', 'sidewalk', 'sierra', 'sight', 'sights', 'sign', 'signal', 'signature', 'signed', 'significance', 'significant', 'significantly', 'signing', 'signs', 'silence', 'silent', 'silently', 'silhouette', 'silicon', 'silk', 'silliness', 'silly', 'silver', 'similar', 'similarities', 'similarity', 'similarly', 'simple', 'simpler', 'simplest', 'simplicity', 'simplified', 'simplify', 'simply', 'simulate', 'simulated', 'simulation', 'simulations', 'simultaneously', 'since', 'sincere', 'sincerely', 'sing', 'singers', 'singing', 'single', 'singled', 'sings', 'sink', 'sinking', 'sioux', 'sir', 'sister', 'sisters', 'sit', 'site', 'sites', 'siting', 'sits', 'sitting', 'situated', 'situation', 'situations', 'six', 'sixteen', 'sixth', 'sixty', 'sizable', 'size', 'sized', 'sizes', 'skeletal', 'skeleton', 'sketch', 'sketchbook', 'sketchbooks', 'sketches', 'sketching', 'skill', 'skilled', 'skills', 'skin', 'skip', 'skipping', 'skirts', 'skulls', 'sky', 'skype', 'skyrocket', 'kyscrapers', 'slam', 'slashed', 'slate', 'slates', 'slavery', 'sleep', 'sleeping', 'sleepy', 'sleeve', 'sleeves', 'slide', 'slides', 'slideshow', 'slideshows', 'sliding', 'slight', 'slightest', 'lightly', 'slim', 'slime', 'slip', 'slippery', 'slipping', 'slips', 'slogan', 'slope', 'slot', 'slots', 'slouching', 'slow', 'slowed', 'slower', 'slowing', 'slowly', 'slows', 'slp', 'slump', 'small', 'smaller', 'smallest', 'smooth', 'smoothed', 'smoothed', 'smoothed', 'smoothed', 'smoothed'

'smaller', 'smallest', 'smart', 'smartboard', 'smartboards', 'smarter', 'smartest',
'smarties', 'smartphone', 'smartphones', 'smarts', 'smarty', 'smell', 'smelling', 'smells',
'smelly', 'smile', 'smiles', 'smiling', 'smith', 'smocks', 'smoking', 'smooth', 'smoother', 'smoot
hie', 'smoothies', 'smoothly', 'snack', 'snacking', 'snacks', 'snake', 'snakes', 'snap',
'snapping', 'snapshot', 'snare', 'sneak', 'sneakers', 'snow', 'snowy', 'snuggle', 'so', 'soak', 's
oaking', 'soap', 'soar', 'soaring', 'soars', 'soccer', 'sociable', 'social', 'socialization', 'soc
ialize', 'socializing', 'socially', 'societal', 'societies', 'society', 'socio', 'socioeconomic',
'socioeconomically', 'socioeconomics', 'sock', 'socks', 'socrates', 'socratic', 'socrative', 'soda
, 'sofa', 'sofas', 'soft', 'softball', 'softballs', 'soften', 'softer', 'software', 'soil', 'soil
s', 'sol', 'solace', 'solar', 'sold', 'soldiers', 'sole', 'solely', 'solid', 'solidify',
'solidifying', 'solids', 'solitary', 'solo', 'solution', 'solutions', 'solve', 'solved', 'solver',
'solvers', 'solving', 'somali', 'somalia', 'some', 'somebody', 'someday', 'somehow', 'someone',
'someplace', 'something', 'sometime', 'sometimes', 'somewhat', 'somewhere', 'son', 'song',
'songs', 'sons', 'soon', 'sooner', 'soothe', 'soothing', 'sophisticated', 'sophomore',
'sophomores', 'soprano', 'sorcerer', 'sore', 'sorely', 'soreness', 'sorry', 'sort', 'sorted', 'sor
ter', 'sorting', 'sorts', 'sought', 'soul', 'souls', 'sound', 'sounded', 'sounding', 'sounds', 'so
up', 'source', 'sources', 'south', 'southeast', 'southeastern', 'southern', 'southside',
'southwest', 'southwestern', 'soviet', 'space', 'spaces', 'spacial', 'spacing', 'spacious',
'spaghetti', 'spain', 'span', 'spanish', 'spanning', 'spans', 'spare', 'spark', 'sparked', 'sparki
ng', 'sparkle', 'sparks', 'sparse', 'spatial', 'speak', 'speaker', 'speakers', 'speaking',
'speaks', 'special', 'specialist', 'specialists', 'specialize', 'specialized', 'specializes',
'specializing', 'specially', 'specials', 'specialties', 'specialty', 'species', 'specific',
'specifically', 'specifics', 'specified', 'specimen', 'specimens', 'spectacular', 'spectator', 'sp
ectrum', 'sped', 'speech', 'speeches', 'speed', 'speeds', 'spell', 'spelled', 'spelling', 'spend',
'spending', 'spends', 'spent', 'sphere', 'spheres', 'sphero', 'spheros', 'spice', 'spider',
'spill', 'spilled', 'spilling', 'spills', 'spin', 'spine', 'spines', 'spinners', 'spinning', 'spir
al', 'spirals', 'spirit', 'spirited', 'spirits', 'spite', 'splash', 'split', 'splitter',
'splitters', 'splitting', 'spokane', 'spoke', 'spoken', 'sponge', 'sponges', 'sponsor',
'sponsored', 'sponsoring', 'sponsors', 'spontaneous', 'spontaneously', 'spoon', 'spoons',
'sporadic', 'sport', 'sporting', 'sports', 'sportsmanship', 'spot', 'spotlight', 'spots',
'sprawl', 'sprawled', 'spray', 'spread', 'spreading', 'spreads', 'spreadsheet', 'spreadsheets', 's
pring', 'springboard', 'springfield', 'springs', 'sprk', 'sprout', 'spruce', 'spunk', 'spunky', 's
pur', 'spy', 'squad', 'square', 'squares', 'squash', 'squat', 'squatting', 'squeeze', 'squeezing',
'squirm', 'squirming', 'squirmy', 'squished', 'squishy', 'sr', 'ssr', 'st', 'staar', 'stability',
'stabilize', 'stable', 'stack', 'stackable', 'stacked', 'stacking', 'stacks', 'stadium', 'staff',
'staffed', 'staffing', 'stage', 'stages', 'taggering', 'stagnant', 'stained', 'stains', 'stairs',
'stake', 'stakeholders', 'stakes', 'stamina', 'stamp', 'stampers', 'stamping', 'stamps', 'stance',
'stand', 'standard', 'standardize', 'standardized', 'standards', 'standing', 'standpoint',
'stands', 'stanford', 'stanley', 'staple', 'stapler', 'staplers', 'staples', 'star', 'starbucks',
'stare', 'starfall', 'staring', 'stars', 'start', 'started', 'starter', 'starters', 'starting', 's
tarts', 'starving', 'stash', 'state', 'stated', 'statement', 'statements', 'staten', 'states', 'st
atewide', 'static', 'stating', 'station', 'stationary', 'stationed', 'stations', 'statistic',
'statistical', 'statistically', 'statistics', 'stats', 'statues', 'status', 'statutes', 'stay', 's
tayed', 'staying', 'stays', 'steadily', 'steady', 'steal', 'steam', 'steel', 'steep', 'steeped', '
steer', 'stellar', 'stem', 'stemming', 'stems', 'stencils', 'step', 'stephen', 'stepped',
'stepping', 'steps', 'stereo', 'stereotypes', 'stereotypical', 'sterile', 'steve', 'steven', 'stew
ards', 'stewardship', 'stick', 'sticker', 'stickers', 'sticking', 'sticks', 'sticky', 'stiff', 'st
ifle', 'stifled', 'stigma', 'still', 'stilts', 'stimulate', 'stimulated', 'stimulates',
'stimulating', 'stimulation', 'stimuli', 'stimulus', 'stir', 'stix', 'stmath', 'stock', 'stocked',
'stocking', 'stole', 'stolen', 'stomach', 'stomachs', 'stone', 'stones', 'stood', 'stool', 'stools
, 'stop', 'stopped', 'stopping', 'stops', 'stopwatches', 'storage', 'store', 'stored', 'stores',
'stories', 'storing', 'storm', 'story', 'storyboard', 'storyboards', 'storybook', 'storybooks', 's
toryline', 'storylines', 'storyteller', 'storytellers', 'storytelling', 'storyworks', 'stove',
'straight', 'strain', 'straining', 'strand', 'strands', 'strange', 'stranger', 'strangers',
'strap', 'strapped', 'straps', 'strategic', 'strategically', 'strategies', 'strategize',
'strategy', 'straw', 'strawberries', 'strawberry', 'straws', 'streak', 'stream', 'streaming',
'streamline', 'streamlined', 'streams', 'street', 'streets', 'strength', 'strengthen',
'strengthened', 'strengthening', 'strengthens', 'strengths', 'strenuous', 'stress', 'stressed', 's
tresses', 'stressful', 'stressors', 'stretch', 'stretched', 'stretches', 'stretching', 'stretchy',
'stricken', 'strict', 'strictly', 'stride', 'strides', 'strife', 'strike', 'strikes', 'striking',
'string', 'stringed', 'strings', 'strip', 'strips', 'strive', 'strived', 'strives', 'striving', 's
troke', 'strokes', 'strong', 'stronger', 'strongest', 'strongly', 'struck', 'structural',
'structure', 'structured', 'structures', 'struggle', 'struggled', 'struggles', 'struggling',
'stuck', 'student', 'students', 'studied', 'studies', 'studio', 'studious', 'studnets', 'study', '
studying', 'stuff', 'stuffed', 'stuffing', 'stuffy', 'stumbled', 'stumbling', 'stunning',
'stupid', 'sturdier', 'sturdy', 'stutter', 'stuttering', 'style', 'styles', 'stylus', 'styrofoam',
'sub', 'subgroups', 'subject', 'subjected', 'subjects', 'submit', 'submitted', 'submitting',
'subscribe', 'subscription', 'subscriptions', 'subsequent', 'subsequently', 'subsided',
'subsistence', 'substance', 'substances', 'substantial', 'substantially', 'substitute',
'substitutes', 'subtle', 'subtract', 'subtracting', 'subtraction', 'suburb', 'suburban',
'suburbs', 'subway', 'succeed', 'succeeded', 'succeeding', 'succeeds', 'success', 'successes',
'successful', 'successfully', 'such', 'sucked', 'sudan', 'sudden', 'suddenly', 'suess', 'suffer',
'suffered', 'suffering', 'suffers', 'suffice', 'sufficiency', 'sufficient', 'sufficiently',
'suffixes', 'sugar', 'sugary', 'suggest', 'suggested', 'suggestion', 'suggestions', 'suggests', 's
uicide', 'suit', 'suitable', 'suite', 'suited', 'suits', 'sum', 'sumdog', 'summaries',
'summarize', 'summarizing', 'summary', 'summative', 'summer', 'summers', 'summit', 'sums', 'sun',
'sunlight', 'sunny', 'unset', 'sunshine', 'super', 'superb', 'superhero', 'superheroes',
'superintendent', 'superior', 'superiority', 'superiorities', 'superiorities', 'superiorities', 'superiorities',

'superintendent', 'superior', 'superstar', 'superstars', 'supervised', 'supervision', 'supper', 'supplement', 'supplemental', 'supplementary', 'supplemented', 'supplementing', 'supplements', 'supplied', 'supplies', 'supply', 'supplying', 'support', 'supported', 'supporters', 'supporting', 'supportive', 'supports', 'suppose', 'supposed', 'supreme', 'sure', 'surely', 'surf', 'surface', 'surfaces', 'surfing', 'surge', 'surgeons', 'surpass', 'surpassed', 'surpassing', 'surplus', 'surprise', 'surprised', 'surprises', 'surprising', 'surprisingly', 'surround', 'surrounded', 'surrounding', 'surroundings', 'surrounds', 'survey', 'surveyed', 'surveying', 'surveys', 'survival', 'survive', 'survived', 'surviving', 'survivor', 'survivors', 'suspended', 'suspense', 'sustain', 'sustainability', 'sustainable', 'sustained', 'sustaining', 'swahili', 'swap', 'sway', 'swaying', 'sweat', 'sweatshirts', 'sweaty', 'sweep', 'sweeping', 'sweet', 'sweetest', 'sweeties', 'swept', 'swim', 'swimming', 'swing', 'swinging', 'swings', 'swipe', 'switch', 'switched', 'switches', 'switching', 'swivel', 'swivel', 'syllable', 'syllables', 'symbol', 'symbolic', 'symbolism', 'symbols', 'symmetry', 'symphony', 'symptoms', 'sync', 'syndrome', 'synergize', 'synergizing', 'synonyms', 'syntax', 'synthesis', 'synthesize', 'synthesizing', 'syria', 'system', 'systematic', 'systematically', 'systems', 'ta', 'tab', 'table', 'tables', 'tablet', 'tabletop', 'tablets', 'tabs', 'tackle', 'tackled', 'tackling', 'tactics', 'tactile', 'tag', 'tagalog', 'tags', 'tailed', 'tailor', 'tailored', 'tailoring', 'take', 'taken', 'takers', 'takes', 'taking', 'tale', 'talent', 'talented', 'talents', 'tales', 'talk', 'talkative', 'talked', 'talkers', 'talking', 'talks', 'tall', 'taller', 'tallest', 'tally', 'tambourines', 'tampa', 'tan', 'tangible', 'tangle', 'tangled', 'tangles', 'tangram', 'tangrams', 'tank', 'tanks', 'tanzania', 'tap', 'tape', 'taped', 'tapes', 'tapestry', 'taping', 'tapped', 'tapping', 'taps', 'target', 'targeted', 'targeting', 'targets', 'task', 'tasked', 'tasking', 'tasks', 'taste', 'tastes', 'tasting', 'tasty', 'tattered', 'taught', 'tax', 'taxes', 'taxing', 'tea', 'teach', 'teachable', 'teacher', 'teachers', 'teaches', 'teaching', 'teachings', 'team', 'teammate', 'teammates', 'teams', 'teamwork', 'tear', 'tearing', 'tears', 'tech', 'technical', 'technically', 'technicians', 'technique', 'techniques', 'technological', 'technologically', 'technologies', 'technologists', 'technology', 'tectonics', 'ted', 'tedious', 'tee', 'teen', 'teenage', 'teenager', 'teenagers', 'teens', 'teepee', 'tees', 'teeter', 'teeth', 'teks', 'telescope', 'television', 'televisions', 'tell', 'tellers', 'telling', 'tells', 'tempera', 'temperature', 'temperatures', 'templates', 'temple', 'tempo', 'temporarily', 'temporary', 'ten', 'tenacious', 'tenacity', 'tend', 'tendencies', 'tendency', 'tender', 'tending', 'tends', 'tenmarks', 'tennessee', 'tennis', 'tenor', 'tens', 'tension', 'tensions', 'tent', 'tenth', 'term', 'terminology', 'terms', 'terrain', 'terrarium', 'terrible', 'terribly', 'terrific', 'terrified', 'territory', 'test', 'testament', 'tested', 'testing', 'tests', 'texas', 'text', 'textbook', 'textbooks', 'textile', 'textiles', 'texting', 'texts', 'textual', 'texture', 'textured', 'textures', 'th', 'thailand', 'thank', 'thankful', 'thankfully', 'thanking', 'thanks', 'thanksgiving', 'that', 'thats', 'the', 'theater', 'theaters', 'theatre', 'theatrical', 'their', 'them', 'thematic', 'theme', 'themed', 'themes', 'then', 'theodore', 'theoretical', 'theories', 'theory', 'therapeutic', 'therapies', 'therapist', 'therapists', 'theraputty', 'therapy', 'there', 'thereby', 'therefor', 'therefore', 'thermal', 'thermometer', 'thermometers', 'thesaurus', 'thesauruses', 'these', 'theses', 'thespians', 'they', 'thick', 'thief', 'thier', 'thin', 'thing', 'things', 'think', 'thinker', 'thinkers', 'thinking', 'thinks', 'third', 'thirds', 'thirst', 'thirsting', 'thirsty', 'thirteen', 'thirty', 'this', 'thomas', 'thorough', 'thoroughly', 'those', 'though', 'thought', 'thoughtful', 'thoughtfully', 'thoughtfulness', 'thoughts', 'thousand', 'thousands', 'thread', 'threads', 'threat', 'threatened', 'threatening', 'threats', 'three', 'threshold', 'threw', 'thrift', 'thrill', 'thrilled', 'thrilling', 'thrive', 'thrived', 'thrives', 'thriving', 'through', 'throughout', 'throw', 'throwing', 'thrown', 'throws', 'thru', 'thrust', 'thumb', 'thunder', 'thursday', 'thursdays', 'thus', 'ti', 'tic', 'ticket', 'tickets', 'tide', 'tidy', 'tie', 'tied', 'tier', 'tiered', 'ties', 'tiger', 'tigers', 'tiggly', 'tight', 'tightly', 'tile', 'tiled', 'tiles', 'till', 'tilt', 'tim', 'time', 'timed', 'timeless', 'timeline', 'timelines', 'timely', 'timer', 'timers', 'times', 'timid', 'timing', 'tinker', 'tinkercad', 'tinkering', 'tiny', 'tip', 'tipped', 'tipping', 'tips', 'tire', 'tired', 'tirelessly', 'tires', 'tissue', 'tissues', 'title', 'titled', 'titles', 'tittle', 'tk', 'tlc', 'tmy', 'tn', 'to', 'today', 'today', 'toddlers', 'toddlers', 'toe', 'toes', 'together', 'togetherness', 'toilet', 'toiletries', 'token', 'told', 'tolerance', 'tolerant', 'tolerate', 'toll', 'tom', 'tomato', 'tomatoes', 'tomorrow', 'tomorrows', 'ton', 'tone', 'toner', 'tones', 'tongue', 'tonight', 'tons', 'too', 'took', 'tool', 'toolbox', 'toolkit', 'tools', 'toon', 'tooth', 'toothbrush', 'toothbrushes', 'toothpaste', 'top', 'topic', 'topics', 'toppers', 'tops', 'torn', 'tornado', 'tornadoes', 'torso', 'toss', 'tossed', 'tossing', 'total', 'totaling', 'totally', 'tote', 'totes', 'touch', 'touched', 'touches', 'touching', 'touchscreen', 'tough', 'tougher', 'toughest', 'tour', 'tourism', 'tourist', 'tournament', 'tournaments', 'tours', 'toward', 'towards', 'towel', 'towels', 'tower', 'towers', 'town', 'towns', 'township', 'townships', 'toxic', 'toy', 'toys', 'trace', 'tracing', 'track', 'tracked', 'tracker', 'trackers', 'tracking', 'tracks', 'trade', 'trades', 'trading', 'tradition', 'traditionally', 'traditions', 'traffic', 'tragedies', 'tragedy', 'tragic', 'trail', 'trailer', 'trailers', 'trails', 'train', 'trained', 'trainer', 'trainers', 'training', 'trainings', 'trains', 'trait', 'traits', 'trajectory', 'trampoline', 'trampolines', 'transcend', 'transcends', 'transfer', 'transferable', 'transferred', 'transferring', 'transfers', 'transform', 'transformation', 'transformational', 'transformations', 'transformative', 'transformed', 'transforming', 'transforms', 'transiency', 'transient', 'transit', 'transition', 'transitional', 'transitioned', 'transitioning', 'transitions', 'translate', 'translated', 'translates', 'translating', 'translation', 'translations', 'translator', 'translators', 'translucent', 'transnationals', 'transparent', 'transplant', 'transport', 'transportation', 'transported', 'transporting', 'trapezoid', 'trapped', 'trash', 'trauma', 'traumas', 'traumatic', 'travel', 'traveled', 'travelers', 'traveling', 'travels', 'tray', 'trays', 'treasure', 'treasured', 'treasures', 'treat', 'treated', 'treating', 'treatment', 'treats', 'tree', 'trees', 'tremendous', 'tremendously', 'trend', 'trending', 'trends', 'trenton', 'tri', 'trial', 'trials', 'triangle', 'triangles', 'tribal', 'tribe', 'tribes', 'tribulations', 'trick', 'tricks', 'tricky', 'tricycle', 'tricycles', 'tried', 'tries', 'trigger', 'triggers', 'trikes', 'trimester', 'trip', 'triple', 'tri

pod', 'tripods', 'tripping', 'trips', 'triumph', 'triumphs', 'trivia', 'trombone', 'troopers', 'trouble', 'troubled', 'troubles', 'troubleshoot', 'troubleshooting', 'troublesome', 'troubling', 'truck', 'trucks', 'true', 'truer', 'truly', 'trumpet', 'trumpets', 'trunk', 'trust', 'trusted', 'trusting', 'trustworthiness', 'trustworthy', 'truth', 'try', 'trying', 'tub', 'tuba', 'tubano', 'tube', 'tubes', 'tubman', 'tubs', 'tuck', 'tucked', 'tucson', 'tuesday', 'tuesdays', 'tuition', 'tulsa', 'tumble', 'tumbling', 'tummies', 'tummy', 'tumultuous', 'tune', 'tuned', 'tuner', 'tuners', 'tunes', 'tuning', 'tunnel', 'tunnels', 'turkey', 'turmoil', 'turn', 'turnaround', 'turned', 'turner', 'turning', 'turnover', 'turns', 'turtle', 'turtles', 'tutor', 'tutorial', 'tutorials', 'tutoring', 'tutors', 'tv', 'twain', 'tween', 'tweezers', 'twelfth', 'twelve', 'twenty', 'twice', 'twist', 'twister', 'twisting', 'twists', 'twitter', 'two', 'tx', 'tying', 'type', 'typed', 'types', 'typical', 'typically', 'typing', 'ugly', 'uil', 'ukraine', 'ukulele', 'ukuleles', 'ultimate', 'ultimately', 'umbrella', 'umbrellas', 'un', 'unable', 'unacceptable', 'unanimously', 'unattainable', 'unavailable', 'unavoidable', 'unaware', 'unbalanced', 'unbearable', 'unbelievable', 'unbelievably', 'uncertain', 'uncertainty', 'uncles', 'uncomfortable', 'uncommon', 'unconditional', 'unconditionally', 'uncontrollable', 'unconventional', 'uncover', 'undeniable', 'under', 'underdeveloped', 'underestimate', 'underestimated', 'underfunded', 'undergo', 'undergoing', 'undergone', 'underline', 'underlying', 'underneath', 'underperforming', 'underprivileged', 'underrepresented', 'underserved', 'understand', 'understandable', 'understandably', 'understanding', 'understandings', 'understands', 'understatement', 'understood', 'undertake', 'undertaking', 'underwater', 'underwear', 'undeserved', 'undiagnosed', 'undoubtedly', 'unemployed', 'unemployment', 'uneven', 'unexpected', 'unfair', 'unfamiliar', 'unfinished', 'unfocused', 'unfold', 'unfolds', 'unforgettable', 'unfortunate', 'unfortunately', 'unhappy', 'unhealthy', 'unheard', 'unified', 'unifix', 'uniform', 'uniforms', 'unify', 'unimaginable', 'uninterested', 'uninteresting', 'uninterrupted', 'uninviting', 'union', 'unique', 'uniquely', 'uniqueness', 'unit', 'unite', 'united', 'unites', 'units', 'unity', 'universal', 'universally', 'universe', 'universities', 'university', 'unknowingly', 'unknown', 'unleash', 'unless', 'unlike', 'unlikely', 'unlimited', 'unlock', 'unlocking', 'unlocks', 'unmatched', 'unmotivated', 'unnatural', 'unnecessary', 'unnoticed', 'unorganized', 'unpack', 'unpacking', 'unparalleled', 'unprecedented', 'unpredictable', 'unprepared', 'unquenchable', 'unrealistic', 'unreliable', 'unsafe', 'unseen', 'unstable', 'unstopable', 'unstructured', 'unsuccessful', 'unsure', 'untangle', 'untapped', 'unthinkable', 'until', 'unusable', 'unused', 'unusual', 'unwanted', 'unwavering', 'unwind', 'up', 'upbeat', 'upbringing', 'upbringings', 'upcoming', 'update', 'updated', 'updates', 'updating', 'upfront', 'upgrade', 'upgraded', 'upgrades', 'upgrading', 'upheaval', 'uphill', 'uphold', 'upkeep', 'uplift', 'uplifting', 'upload', 'uploaded', 'uploading', 'upon', 'upper', 'uppercase', 'upright', 'ups', 'upset', 'upside', 'upstate', 'upward', 'upwards', 'urban', 'urdu', 'urge', 'urgency', 'urgent', 'us', 'usa', 'usable', 'usage', 'usb', 'use', 'useable', 'used', 'useful', 'useless', 'user', 'users', 'uses', 'using', 'usual', 'usually', 'utah', 'utensil', 'utensils', 'utilities', 'utility', 'utilization', 'utilize', 'utilized', 'utilizes', 'utilizing', 'utmost', 'utopia', 'uv', 'uzbekistan', 'va', 'vacation', 'vacations', 'vacuum', 'valentine', 'valid', 'validate', 'validated', 'valley', 'valuable', 'value', 'valued', 'values', 'valuing', 'van', 'vantage', 'variable', 'variables', 'variation', 'variations', 'varied', 'varies', 'varieties', 'variety', 'various', 'varsity', 'vary', 'varying', 'vast', 'vastly', 'vegas', 'vegetable', 'vegetables', 'veggie', 'veggies', 'vehicle', 'vehicles', 'velcro', 'velocity', 'vendor', 'venezuela', 'venture', 'ventured', 'ventures', 'venturing', 'venue', 'venues', 'verb', 'verbal', 'verbalize', 'verbally', 'verbs', 'verde', 'verge', 'verify', 'vermont', 'vernier', 'versa', 'versatile', 'versatility', 'verse', 'versed', 'verses', 'version', 'versions', 'versus', 'vertical', 'very', 'vessel', 'vessels', 'vest', 'vested', 'vestibular', 'vests', 'vet', 'veteran', 'veterans', 'veterinarian', 'veterinarians', 'vets', 'vex', 'vga', 'via', 'viable', 'vibe', 'vibrancy', 'vibrant', 'vibrating', 'vibration', 'vice', 'victim', 'victims', 'victor', 'victories', 'victory', 'video', 'videography', 'videos', 'vietnam', 'vietnamese', 'view', 'viewed', 'viewer', 'viewers', 'viewing', 'viewpoints', 'views', 'vigor', 'vigorous', 'village', 'villages', 'vinci', 'vinyl', 'viola', 'violence', 'violent', 'violin', 'violinists', 'violins', 'vip', 'virginia', 'virtual', 'virtually', 'virtues', 'viruses', 'visibility', 'visible', 'visibly', 'vision', 'visions', 'visit', 'visited', 'visiting', 'visitor', 'visitors', 'visits', 'vista', 'visual', 'visualization', 'visualize', 'visualizing', 'visually', 'visuals', 'vital', 'vitality', 'vivacious', 'vivid', 'vividly', 'vocab', 'vocabularies', 'vocabulary', 'vocal', 'vocational', 'voice', 'voiced', 'voices', 'void', 'volcano', 'volcanoes', 'volleyball', 'volleyballs', 'volume', 'volumes', 'voluntarily', 'voluntary', 'volunteer', 'volunteered', 'volunteering', 'volunteerism', 'volunteers', 'voracious', 'vote', 'voted', 'voting', 'vowel', 'vowels', 'vr', 'vs', 'vulnerable', 'wa', 'wacky', 'wage', 'wages', 'wagon', 'wait', 'waiting', 'wake', 'waking', 'waldo', 'walk', 'walked', 'walker', 'walkers', 'walking', 'walks', 'wall', 'wallets', 'walls', 'walmart', 'walt', 'wand', 'wander', 'wandering', 'wands', 'want', 'wanted', 'wanting', 'wants', 'war', 'ward', 'wards', 'ware', 'warlock', 'warm', 'warmer', 'warmest', 'warming', 'warms', 'warmth', 'warning', 'warped', 'warranty', 'warrior', 'warriors', 'wars', 'was', 'wash', 'washable', 'washed', 'washer', 'washing', 'washington', 'waste', 'wasted', 'wastes', 'wasting', 'watch', 'watched', 'watches', 'watching', 'water', 'watercolor', 'watercolors', 'watering', 'waterproof', 'waters', 'waterways', 'watson', 'watts', 'wave', 'waves', 'wax', 'way', 'wayne', 'ways', 'wayside', 'we', 'weak', 'weaker', 'weakness', 'weaknesses', 'wealth', 'wealthier', 'wealthy', 'weapon', 'wear', 'wearable', 'wearing', 'wears', 'weather', 'weathering', 'weave', 'weaving', 'web', 'webcam', 'webpage', 'webpages', 'webquests', 'webs', 'website', 'websites', 'wedges', 'wednesday', 'wednesdays', 'wedo', 'wee', 'weed', 'weeds', 'week', 'weekday', 'weekend', 'weekends', 'weekly', 'weeks', 'weigh', 'weighing', 'weight', 'weighted', 'weights', 'weird', 'welcome', 'welcomed', 'welcomes', 'welcoming', 'welding', 'welfare', 'well', 'wellbeing', 'wellness', 'wells', 'went', 'were', 'west', 'western', 'westside', 'westward', 'wet', 'whale', 'what', 'whatever', 'whats', 'wheel', 'wheelchair', 'wheelchairs', 'wheels', 'when', 'whenever', 'where', 'whereas', 'wherein', 'wherever', 'whether', 'which', 'whichever', 'while', 'whilst', 'whimsical', 'whisper', 'whistles',

'white', 'whiteboard', 'whiteboards', 'whites', 'who', 'whoever', 'whole', 'wholeheartedly', 'wholesome', 'whose', 'why', 'whys', 'wi', 'wide', 'widely', 'widen', 'wider', 'widespread', 'wifi', 'wiggle', 'wiggles', 'wiggling', 'wiggly', 'wii', 'wiki', 'wikki', 'wil', 'wild', 'wildest', 'wildfire', 'wildlife', 'wildly', 'will', 'willed', 'willems', 'william', 'williams', 'willing', 'willingly', 'willingness', 'wilson', 'wimpy', 'win', 'wind', 'windmill', 'windmills', 'window', 'windows', 'wing', 'wings', 'winn', 'winner', 'winners', 'winning', 'wins', 'winter', 'winters', 'wipe', 'wiped', 'wipes', 'wiping', 'wire', 'wired', 'wireless', 'wirelessly', 'wires', 'wiring', 'wisconsin', 'wisdom', 'wise', 'wisely', 'wish', 'wished', 'wishes', 'wishing', 'wishlist', 'wit', 'with', 'within', 'without', 'withstand', 'witness', 'witnessed', 'witnessing', 'witted', 'witty', 'wizards', 'wo', 'wobble', 'wobbles', 'wobbling', 'wobbly', 'woes', 'wold', 'wolf', 'woman', 'women', 'wonder', 'wondered', 'wonderers', 'wonderful', 'wonderfully', 'wondering', 'wonderings', 'wonderland', 'wonderment', 'wonders', 'wondrous', 'wont', 'wood', 'wooden', 'woods', 'woodwind', 'word', 'words', 'wore', 'work', 'workable', 'workbook', 'workbooks', 'worked', 'worker', 'workers', 'workforce', 'working', 'workings', 'workload', 'workout', 'workouts', 'workplace', 'workplaces', 'works', 'worksheet', 'worksheets', 'workshop', 'workshops', 'workspace', 'workspaces', 'workstation', 'workstations', 'world', 'worldly', 'worlds', 'worldview', 'worldwide', 'worm', 'worms', 'worn', 'worried', 'worries', 'worry', 'worrying', 'worse', 'worst', 'worth', 'worthwhile', 'worthy', 'would', 'woven', 'wow', 'wracking', 'wrap', 'wraparound', 'wrapped', 'wrapping', 'wrestle', 'wrestling', 'wrinkle', 'wrist', 'wristbands', 'write', 'writer', 'writers', 'writes', 'writing', 'writings', 'written', 'wrong', 'wrote', 'wv', 'wvii', 'www', 'wyoming', 'xbox', 'xtra', 'xtramath', 'xylophone', 'xylophones', 'ya', 'yard', 'yards', 'yarn', 'yay', 'yeah', 'year', 'yearbook', 'yearbooks', 'yearly', 'yearn', 'yearning', 'years', 'yeats', 'yell', 'yelling', 'yellow', 'yemen', 'yes', 'yes terday', 'yet', 'yield', 'yields', 'yikes', 'yo', 'yoga', 'yogurt', 'york', 'you', 'younannan', 'young', 'younger', 'youngest', 'youngsters', 'your', 'yousafzai', 'youth', 'youths', 'youtube', 'yummy', 'zeal', 'zeal', 'zeal', 'zen', 'zenergy', 'zero', 'zest', 'zip', 'ziploc', 'zipper', 'zippers', 'zipping', 'zone', 'zoned', 'zones', 'zoo', 'zoom', 'zooming', 'zoos', 'zumba']

In [0]:

```
#PROJECT_TITLE
```

In [71]:

```
vectorizer = TfidfVectorizer(min_df=10)

vectorizer.fit(X_train['project_title'])
title_tfidf_train=vectorizer.transform(X_train['project_title'])

print("Shape of matrix after one hot encoding ",title_tfidf_train.shape)
print("=="*100)

title_tfidf_cv=vectorizer.transform(X_cv['project_title'])

print("Shape of matrix after one hot encoding ",title_tfidf_cv.shape)
print("=="*100)

title_tfidf_test=vectorizer.transform(X_test['project_title'])

print("Shape of matrix after one hot encoding ",title_tfidf_test.shape)

tfidf_title_pref_features= vectorizer.get_feature_names()

print('size of important feature list:', len(tfidf_title_pref_features))
print(tfidf_title_pref_features)
```

Shape of matrix after one hot encoding (49041, 2077)

Shape of matrix after one hot encoding (24155, 2077)

Shape of matrix after one hot encoding (36052, 2077)

size of important feature list: 2077

['04', '05', '10', '100', '101', '12', '123', '16', '17', '1st', '2016', '2017', '21st', '2nd', '3d', '3doodler', '3rd', '4th', '5th', '60', '6th', '7th', '8th', 'abc', 'abilities', 'aboard', 'about', 'above', 'academic', 'academics', 'academy', 'access', 'accessibility', 'accessible', 'accessing', 'accessories', 'achieve', 'achievement', 'achieving', 'across', 'act', 'action', 'active', 'actively', 'activities', 'activity', 'adaptive', 'add', 'adding', 'adults', 'advanced', 'adventure', 'adventures', 'after', 'again', 'age', 'ahead', 'aid', 'aids', 'air', 'alexa', 'algebra', 'alive', 'all', 'allow', 'along', 'aloud', 'alouds', 'alphabet', 'alternative', 'always', 'am']

, alive, all, allow, along, aloud, alouds, alphabet, alternative, always, am, 'amazing', 'amazon', 'america', 'american', 'an', 'analysis', 'anchor', 'ancient', 'and', 'animal', 'animals', 'animation', 'another', 'ants', 'any', 'anything', 'anywhere', 'ap', 'app', 'apple', 'apples', 'approach', 'appropriate', 'apps', 'archery', 'architects', 'arduino', 'are', 'a real', 'around', 'art', 'artist', 'artistic', 'artists', 'arts', 'as', 'aspiring', 'assistance', 'assistive', 'at', 'athletes', 'atpe', 'attack', 'attention', 'audio', 'authentic', 'author', 'authors', 'autism', 'autistic', 'avid', 'award', 'awareness', 'away', 'awesome', 'baby', 'back', 'backpack', 'backpacks', 'bad', 'bag', 'bags', 'balance', 'balanced', 'balancing', 'ball', 'balls', 'band', 'bands', 'bare', 'barriers', 'baseball', 'based', 'basic', 'basics', 'basketball', 'basketballs', 'bass', 'battle', 'bay', 'be', 'bean', 'beat', 'beats', 'beautiful', 'beauty', 'because', 'become', 'becoming', 'bee', 'bees', 'before', 'begin', 'beginning', 'begins', 'behavior', 'behind', 'being', 'believe', 'believing', 'best', 'better', 'between', 'beyond', 'big', 'bigger', 'bilingual', 'bin', 'binders', 'bins', 'biographies', 'biology', 'birds', 'bit', 'black', 'blast', 'blended', 'block', 'blocks', 'blue', 'blues', 'board', 'boards', 'bodies', 'body', 'bonanza', 'boogie', 'book', 'booking', 'books', 'bookshelf', 'bookworms', 'boom', 'boost', 'boosting', 'boredom', 'boring', 'bot', 'bots', 'bottoms', 'bounce', 'bouncing', 'bouncy', 'bound', 'box', 'boxes', 'boys', 'brain', 'brainpop', 'brains', 'brand', 'break', 'breaking', 'breakout', 'breaks', 'brick', 'bridge', 'bridges', 'bridging', 'bright', 'brighten', 'brighter', 'brilliant', 'bring', 'bringing', 'brings', 'bronx', 'buddies', 'budding', 'buddy', 'bug', 'build', 'builders', 'building', 'builds', 'bump', 'bunch', 'bundle', 'business', 'busy', 'but', 'butterflies', 'butterfly', 'by', 'ca', 'cafe', 'calculate', 'calculating', 'calculator', 'calculators', 'call', 'calling', 'calm', 'calming', 'camera', 'cameras', 'can', 'captivating', 'capture', 'capturing', 'cardboard', 'care', 'career', 'careers', 'caring', 'carpet', 'carry', 'cart', 'case', 'cases', 'catch', 'catching', 'cause', 'caution', 'cd', 'celebrate', 'celebrating', 'celebration', 'cells', 'center', 'centered', 'centers', 'century', 'ceramics', 'chair', 'chairs', 'challenge', 'challenges', 'challenging', 'champions', 'chance', 'change', 'changes', 'changing', 'chaos', 'chapter', 'character', 'characters', 'charge', 'charged', 'charging', 'chart', 'charts', 'check', 'cheese', 'chemistry', 'chess', 'chevron', 'chicken', 'child', 'childhood', 'children', 'choice', 'choices', 'choose', 'chrome', 'chromebook', 'chromebooks', 'circle', 'circles', 'circuits', 'citizens', 'citizenship', 'city', 'civil', 'class', 'classes', 'classic', 'classroom', 'classrooms', 'clay', 'clean', 'cleaning', 'clear', 'clearly', 'click', 'close', 'closer', 'closet', 'closing', 'clothes', 'club', 'clubs', 'coats', 'code', 'coders', 'coding', 'coffee', 'cold', 'collaborate', 'collaborating', 'collaboration', 'collaborative', 'collection', 'college', 'color', 'colored', 'colorful', 'coloring', 'colors', 'come', 'comes', 'comfort', 'comfortable', 'comfortably', 'comfy', 'comic', 'comics', 'coming', 'common', 'communicate', 'communicating', 'communication', 'community', 'competition', 'complete', 'composition', 'comprehension', 'computer', 'computers', 'concentrate', 'concentration', 'concepts', 'confidence', 'confident', 'connect', 'connected', 'connecting', 'connection', 'connections', 'conquering', 'constructing', 'construction', 'content', 'continued', 'continuing', 'control', 'cook', 'cooking', 'cool', 'cooperation', 'cooperative', 'copies', 'copy', 'core', 'corner', 'costumes', 'could', 'counseling', 'count', 'counting', 'country', 'counts', 'cozy', 'craft', 'crafting', 'crafts', 'crafty', 'craving', 'crayons', 'craze', 'crazy', 'create', 'created', 'creates', 'creating', 'creation', 'creations', 'creative', 'creatively', 'creativity', 'creators', 'cricut', 'crime', 'critical', 'cross', 'cube', 'cubes', 'culinary', 'cultivating', 'cultural', 'culturally', 'culture', 'cultures', 'curiosity', 'curious', 'current', 'curriculum', 'cushions', 'cut', 'cutting', 'cycle', 'cycles', 'daily', 'dance', 'dancing', 'dash', 'data', 'day', 'days', 'de', 'deaf', 'deck', 'deep', 'deeper', 'dell', 'demand', 'deserve', 'deserving', 'design', 'designers', 'designing', 'desire', 'desk', 'desks', 'desperately', 'details', 'develop', 'developing', 'development', 'devices', 'dictionaries', 'did', 'difference', 'different', 'differentiate', 'differentiated', 'differentiation', 'dig', 'digging', 'digital', 'disabilities', 'discover', 'discovering', 'discovery', 'display', 'dissecting', 'dissection', 'distraction', 'distractions', 'ditch', 'dive', 'diverse', 'diversity', 'diving', 'dna', 'do', 'document', 'does', 'doing', 'done', 'doodle', 'door', 'doors', 'dot', 'dots', 'double', 'down', 'dr', 'drama', 'dramatic', 'draw', 'drawing', 'dream', 'dreaming', 'dreams', 'dress', 'drive', 'driven', 'drives', 'drone', 'drones', 'drop', 'drum', 'drumming', 'drums', 'dry', 'dual', 'during', 'dynamic', 'dyslexia', 'each', 'eager', 'eagles', 'ear', 'earbuds', 'early', 'ears', 'earth', 'ease', 'easel', 'easier', 'east', 'easy', 'eat', 'eating', 'echo', 'economics', 'ed', 'edge', 'edition', 'edu', 'educating', 'education', 'educational', 'effective', 'efficient', 'egg', 'el', 'ela', 'electricity', 'electronic', 'electronics', 'elementary', 'ell', 'ells', 'elmo', 'em', 'emotional', 'emotions', 'empathy', 'empower', 'empowering', 'empowerment', 'empty', 'en', 'encourage', 'encouraging', 'end', 'endless', 'ends', 'energetic', 'energized', 'energy', 'engage', 'engaged', 'engagement', 'engaging', 'engineer', 'engineering', 'engineers', 'english', 'enhance', 'enhanced', 'enhancement', 'enhances', 'enhancing', 'enjoy', 'enough', 'enrich', 'enriching', 'enrichment', 'enthusiastic', 'environment', 'environmental', 'equal', 'equals', 'equations', 'equipment', 'erase', 'escape', 'esl', 'esol', 'essential', 'essentials', 'even', 'events', 'ever', 'every', 'everybody', 'everyday', 'everyone', 'everything', 'everywhere', 'evidence', 'excell', 'excellence', 'excellent', 'exceptional', 'excite', 'excited', 'excitement', 'exciting', 'exercise', 'exercising', 'expand', 'expanding', 'experience', 'experiences', 'experiencing', 'experiments', 'experts', 'exploration', 'explore', 'explorers', 'exploring', 'express', 'expressing', 'expression', 'extending', 'extra', 'extraordinary', 'extravaganza', 'eye', 'eyes', 'fabulous', 'fact', 'facts', 'fair', 'fairy', 'fake', 'fall', 'falling', 'families', 'family', 'fantastic', 'far', 'farm', 'fast', 'favorite', 'fear', 'feed', 'feeding', 'feel', 'feeling', 'feet', 'few', 'fiction', 'fidget', 'fidgeting', 'fidgets', 'fidgety', 'field', 'fifth', 'fight', 'fill', 'filling', 'film', 'final', 'financial', 'find', 'finding', 'fine', 'finger', 'fingers', 'fingertips', 'fire', 'fired', 'fires', 'first', 'firsties', 'fish', 'fit', 'fitbits', 'fitness', 'five', 'flash', 'flex', 'flexibility', 'flexible', 'flip', 'flipped', 'flood', 'flooded', 'flooding', 'floor', 'fluency', 'fluent', 'fly', 'focus', 'focused', 'focusing', 'folders', 'follow', 'food', 'foot', 'football', 'for', 'force', 'forever', 'forward'

focusing, folders, follows, follow, food, foot, football, foil, force, forever, forward,
foster, fostering, found, foundation, foundations, four, fourth, fraction,
fractions, free, freedom, french, frenzy, fresh, friday, friendly, friends, frog,
frogs, from, fuel, fueling, full, fun, functional, fund, fundamental, furniture,
future, futures, gain, gaining, galore, game, games, gaming, gap, gaps, garden,
gardening, gateway, gather, gathering, gear, generation, genius, geniuses,
geography, geometry, german, germs, get, gets, getting, giant, gift, gifted,
girl, girls, give, giving, glass, global, glue, go, goal, goals, goes, going, gold,
golden, golf, gone, gonna, good, goodbye, google, got, gotta, government, grab,
grade, grader, graders, grades, grammar, graphic, graphics, graphing, great,
greater, greatness, green, groove, grooving, group, groups, grow, growing,
grows, growth, guided, guitar, guitars, gym, habits, had, hand, hands, handwriting,
happen, happiness, happy, hard, harry, has, hatching, have, having, head, headphones,
heads, health, healthier, healthy, hear, heard, hearing, heart, hearts, heat, heights,
hello, help, helping, helps, here, hero, heroes, hey, hi, high, higher, highly, historical,
history, hit, hocus, hokki, hold, holocaust, home, homework, hooked, hoops, hooray,
hop, hope, horizons, hot, hour, house, how, hp, hs, huge, human, hunger, hungry,
hydrated, hygiene, ican, idea, ideas, if, ignite, igniting, ii, iii, ilearn, illiteracy,
imagination, imaginations, imagine, immersion, impact, importance, important,
improve, improved, improves, improving, in, incentives, inclusive, income, increase,
increased, increasing, incredible, independence, independent, individual, individualized,
indoor, infinity, information, informational, informed, ing, ink, inner, innovate,
innovating, innovation, innovative, innovators, input, inquiring, inquiry, inquisitive,
inside, inspiration, inspire, inspired, inspires, inspiring, instruction, instructional,
instrument, instruments, integrated, integrating, integration, interact, interactive,
interest, interesting, intervention, interventions, into, inventors, investigations,
inviting, ipad, ipads, ipod, ipods, iread, is, it, items, its, jiggle, job, journalism, journals,
journey, joy, jr, jump, jumping, junior, just, justice, keep, keeping, keeps, key,
keyboard, keyboards, keys, kick, kicking, kid, kiddos, kidney, kids, kind, kinder,
kindergarten, kindergarteners, kindergartners, kinders, kindle, kindles, kindness,
kinesthetic, kit, kitchen, kits, know, knowledge, kore, la, lab, laboratory, labs,
lacrosse, lady, laminate, laminator, land, language, languages, lap, laptop, laptops,
large, last, lead, leader, leaders, leading, leads, league, leap, leaping, learn,
learner, learners, learning, learns, leaving, led, leer, left, lego, legos, lens, less,
lesson, lessons, let, lets, letter, letters, level, leveled, leveling, levels, library,
libros, life, lifelong, lifestyle, lifestyles, lifetime, light, lighting, lights, like, list,
listen, listeners, listening, lit, literacy, literary, literate, literature, little,
littlebits, live, lives, living, long, look, looking, lost, lots, loud, louisiana,
lounge, love, lovers, loves, loving, low, lunch, mac, macbook, machine, machines,
mad, made, madness, magazine, magazines, magic, magical, magnetic, magnets, magnificent,
mail, make, makeover, maker, makers, makerspace, makes, makey, making, management,
mania, maniacs, manipulating, manipulative, manipulatives, many, map, maps, march,
marching, mark, markers, market, marvelous, master, mastering, masterpiece, masterpiece,
masters, mastery, mat, material, materials, math, mathematical, mathematicians,
mathematics, mats, matter, matters, maximize, maximizing, maximum, may, me, mean,
meaning, meaningful, means, measuring, media, meet, meeting, meets, member, memories,
memory, mental, mentor, mice, microphones, microscope, microscopes, microscopic,
middle, mighty, mind, mindful, mindfulness, minds, mindset, mini, minis, minutes, miss,
missing, mission, mobile, mock, model, modeling, models, modern, moments, money,
more, morning, most, motion, motivate, motivated, motivating, motivation, motor,
mouse, move, movement, movers, movie, movies, movin, moving, mr, mrs, ms, much,
multi, multicultural, multimedia, multiple, multiplication, muscles, music, musical,
musicians, must, mustangs, my, myself, mystery, namaste, name, national, native,
natural, nature, necessities, need, needed, needing, needs, never, new, news, nex,
next, nice, night, no, noise, non, nonfiction, nook, north, not, note, notebook,
notebooks, notes, nothing, novel, novels, now, number, numbers, nutrition, nutritious,
ocean, odds, of, off, oh, oils, ol, old, on, once, one, ones, online, only, open,
opening, opens, operation, opportunities, opportunity, optimal, options, or, orchestra,
order, ordinary, orff, organization, organizational, organize, organized, organizing,
osmo, osmos, other, others, our, ourselves, out, outdoor, outdoors, outside, outstanding,
over, owl, own, ozobot, ozobots, pad, pads, page, paint, painting, pants, paper,
paperless, papers, paradise, parent, parents, park, part, participation, party,
passion, past, path, pathway, pe, peace, pedal, pedaling, pellet, pen, pencil, pencils,
pens, people, percussion, perfect, performance, performing, personal, personalized,
pet, phase, phones, phonics, photography, physical, physically, physics, pi, piano,
picasso, pick, picture, pictures, pieces, pirates, place, places, plan, planet, plant,
planting, plants, play, players, playground, playing, please, pocket, pockets, pocus,
poetry, pokey, pop, portable, portfolios, positive, possibilities, possible, post,
potential, potter, power, powerful, practice, pre, prek, prep, prepare, prepared,
preparing, preschool, preschoolers, present, presentation, presentations, press, pretty,
pride, primary, print, printer, printers, printing, printmaking, privacy, prize,

prize', 'prizes', 'pro', 'problem', 'problems', 'process', 'producing', 'production', 'productive', 'professional', 'proficiency', 'program', 'programmers', 'programming', 'progress', 'project', 'projecting', 'projector', 'projects', 'promote', 'promotes', 'promoting', 'pros', 'protect', 'protecting', 'protection', 'proud', 'provide', 'providing', 'pt', 'public', 'publish', 'publishing', 'pull', 'pump', 'puppet', 'puppets', 'purpose', 'purposeful', 'put', 'putting', 'puzzles', 'quality', 'quest', 'quiet', 'quill', 'race', 'rack', 'rain', 'rainbow', 'rainy', 'raising', 'raspberry', 'ravenous', 're', 'reach', 'reaching', 'read', 'reader', 'readers', 'readiness', 'reading', 'reads', 'ready', 'real', 'reality', 'really', 'rebuilding', 'recess', 'record', 'recorders', 'recording', 'recycle', 'recycling', 'red', 'redesign', 'reduce', 'reeds', 'relax', 'relaxing', 'relevant', 'relief', 'reluctant', 'remember', 'repeat', 'replace', 'request', 'rescue', 'research', 'researchers', 'researching', 'resistable', 'resource', 'resources', 'responsibility', 'rest', 'results', 'reuse', 'review', 'revolution', 'reward', 'rewarding', 'rewards', 'rhythm', 'rich', 'ride', 'riding', 'right', 'rise', 'rising', 'risk', 'road', 'robot', 'robotic', 'robotics', 'robots', 'rock', 'rocket', 'rockin', 'rocking', 'rocks', 'roll', 'rolling', 'room', 'round', 'rug', 'rugs', 'rule', 'run', 'running', 'rural', 'sacks', 'safe', 'safely', 'safety', 'same', 'sand', 'save', 'saving', 'savvy', 'savy', 'say', 'says', 'scholars', 'scholastic', 'school', 'schoolers', 'schools', 'science', 'scientific', 'scientist', 'scientists', 'scissors', 'scope', 'score', 'scream', 'screen', 'searching', 'seat', 'seating', 'seats', 'second', 'secret', 'secure', 'see', 'seed', 'seeds', 'seeing', 'seek', 'seeking', 'self', 'send', 'seniors', 'sensational', 'sense', 'senses', 'sensory', 'series', 'set', 'sets', 'setting', 'severe', 'sew', 'shake', 'shakers', 'shakespeare', 'shape', 'shapes', 'share', 'sharing', 'sharp', 'sharpen', 'sharpener', 'sharpening', 'shelf', 'shelves', 'shine', 'shining', 'shirts', 'shoes', 'shoot', 'shop', 'short', 'should', 'show', 'showing', 'sight', 'signing', 'simple', 'sims', 'sing', 'singing', 'sit', 'sitting', 'sixth', 'size', 'skill', 'skills', 'sky', 'small', 'smart', 'smarter', 'smile', 'snack', 'snacks', 'snap', 'snug', 'so', 'soar', 'soaring', 'soccer', 'social', 'soft', 'softball', 'soil', 'solar', 'solutions', 'solve', 'solvers', 'solving', 'some', 'something', 'soon', 'soul', 'sound', 'sounds', 'south', 'space', 'spaces', 'spanish', 'spark', 'sparking', 'speak', 'speakers', 'speaking', 'special', 'spectacular', 'sped', 'speech', 'speed', 'spell', 'spelling', 'sphero', 'spike', 'spin', 'spirit', 'sport', 'sports', 'spot', 'spots', 'spring', 'stability', 'stage', 'stamina', 'stand', 'standards', 'standing', 'stands', 'star', 'starbucks', 'stars', 'start', 'started', 'starter', 'starting', 'starts', 'state', 'station', 'stations', 'stay', 'staying', 'steam', 'steaming', 'stellar', 'stem', 'stems', 'step', 'stepping', 'steps', 'stick', 'sticks', 'still', 'stimulate', 'stimulating', 'stock', 'stool', 'stools', 'stop', 'storage', 'store', 'stories', 'story', 'storytelling', 'storyworks', 'strength', 'strengthen', 'strengthening', 'stress', 'stretch', 'strike', 'strings', 'strong', 'stronger', 'struggling', 'strumming', 'student', 'students', 'studies', 'studio', 'study', 'studying', 'stuff', 'sturdy', 'style', 'styles', 'subscription', 'succeed', 'succeeding', 'success', 'successful', 'summer', 'sun', 'super', 'superstars', 'supplies', 'supply', 'supplying', 'support', 'supporting', 'supports', 'surface', 'surfing', 'sustainable', 'sweet', 'swing', 'system', 'systems', 'table', 'tables', 'tablet', 'tablets', 'take', 'takes', 'taking', 'tale', 'tales', 'talk', 'talking', 'tall', 'tank', 'tapping', 'target', 'targeting', 'targets', 'task', 'tastic', 'teach', 'teacher', 'teachers', 'teaches', 'teaching', 'team', 'teamwork', 'tech', 'techie', 'techies', 'technical', 'techno', 'technological', 'technologically', 'technology', 'techy', 'teens', 'tell', 'telling', 'ten', 'tennis', 'terrific', 'test', 'testing', 'text', 'textbooks', 'texts', 'than', 'that', 'the', 'theater', 'theatre', 'their', 'them', 'themselves', 'therapy', 'there', 'these', 'they', 'thing', 'things', 'think', 'thinkers', 'thinking', 'third', 'thirst', 'this', 'those', 'thoughts', 'thousand', 'three', 'thrive', 'thriving', 'through', 'throw', 'tidy', 'tigers', 'tiles', 'time', 'times', 'tiny', 'tips', 'title', 'tk', 'to', 'today', 'together', 'tomorrow', 'toner', 'too', 'tool', 'tools', 'toon', 'top', 'totally', 'tots', 'touch', 'touching', 'toward', 'towards', 'town', 'toys', 'track', 'tracking', 'traditional', 'train', 'training', 'transform', 'transforming', 'transition', 'travel', 'traveling', 'treasure', 'tree', 'trip', 'trips', 'true', 'try', 'trying', 'tubs', 'tune', 'turn', 'turning', 'tv', 'twenty', 'twist', 'two', 'type', 'typing', 'uke', 'ukulele', 'ukuleles', 'under', 'understand', 'understanding', 'uniforms', 'unique', 'unit', 'unit e', 'unlocking', 'up', 'update', 'upgrade', 'upon', 'urban', 'us', 'use', 'using', 'utilizing', 'value', 'variety', 'very', 'via', 'vibrant', 'video', 'videos', 'view', 'virtual', 'virtually', 'visual', 'visualize', 'visuals', 'vocabulary', 'voice', 'voices', 'volleyball', 'volume', 'voracious', 'vs', 'wait', 'walk', 'walking', 'wall', 'walls', 'want', 'wanted', 'wants', 'war', 'warm', 'warmth', 'wars', 'was', 'watch', 'water', 'way', 'ways', 'we', 'weather', 'web', 'weekly', 'weight', 'welcome', 'welcoming', 'well', 'wellness', 'what', 'when', 'where', 'while', 'white', 'whiteboard', 'whiteboards', 'who', 'whole', 'why', 'wide', 'wiggle', 'wiggles', 'wiggling', 'wiggly', 'wii', 'wild', 'will', 'win', 'window', 'winning', 'winter', 'wipe', 'wireless', 'wish', 'with', 'within', 'without', 'wizards', 'wo', 'wobble', 'wobbles', 'wobbling', 'wobbly', 'wonder', 'wonderful', 'wonders', 'word', 'words', 'work', 'workers', 'working', 'works', 'workshop', 'world', 'worlds', 'worms', 'worth', 'would', 'wow', 'write', 'writer', 'writers', 'writing', 'written', 'xylophone', 'ye', 'year', 'yearbook', 'years', 'yes', 'yet', 'yoga', 'yogis', 'you', 'young', 'your', 'yourself', 'youth', 'zone']

2.4 Appling NB() on different kind of featurization as mentioned in the instructions

Apply Naive Bayes on different kind of featurization as mentioned in the instructions
For Every model that you work on make sure you do the step 2 and step 3 of instructions

Concatinating the features

Set 1:

In [0]:

```
#Concatination all features of set1

bow_essay_pref_features.extend(bow_title_pref_features)
bow_essay_pref_features.extend(clean_pref_features)
bow_essay_pref_features.extend(clean_sub_pref_features)
bow_essay_pref_features.extend(state_pref_features)
bow_essay_pref_features.extend(teacher_pref_features)
bow_essay_pref_features.extend(grade_pref_features)
```

In [0]:

```
#converting list to array
arr_set1=np.array(bow_essay_pref_features)
```

In [74]:

```
# merge two sparse matrices: https://stackoverflow.com/a/19710648/4084039
from scipy.sparse import hstack
X_tr1 = hstack((X_train_essay_bow,
X_train_title_bow,X_train_clean_cat_ohe,X_train_clean_subcat_ohe, X_train_state_ohe,
X_train_teacher_ohe, X_train_grade_ohe, X_train_price_norm,X_train_prev_posted)).tocsr()
X_cv1 = hstack((X_cv_essay_bow, X_cv_title_bow,X_cv_clean_cat_ohe,X_cv_clean_subcat_ohe, X_cv_state_ohe,
X_cv_teacher_ohe, X_cv_grade_ohe, X_cv_price_norm,X_cv_prev_posted)).tocsr()
X_tel = hstack((X_test_essay_bow, X_test_title_bow,X_test_clean_cat_ohe,X_test_clean_subcat_ohe,
X_test_state_ohe, X_test_teacher_ohe, X_test_grade_ohe,
X_test_price_norm,X_test_prev_posted)).tocsr()

print("Final Data matrix")
print(X_tr1.shape, y_train.shape)
print(X_cv1.shape, y_cv.shape)
print(X_tel.shape, y_test.shape)
print("=="*100)
```

```
Final Data matrix
(49041, 9214) (49041,)
(24155, 9214) (24155,)
(36052, 9214) (36052,)
```



Set 2:

In [0]:

```
#Concatination all features of set2

tfidf_essay_pref_features.extend(tfidf_title_pref_features)
tfidf_essay_pref_features.extend(clean_pref_features)
tfidf_essay_pref_features.extend(clean_sub_pref_features)
tfidf_essay_pref_features.extend(state_pref_features)
tfidf_essay_pref_features.extend(teacher_pref_features)
tfidf_essay_pref_features.extend(grade_pref_features)
```

In [0]:

```
#converting list to array
arr_set2=np.array(tfidf_essay_pref_features)
```

In [77]:

```
# merge two sparse matrices: https://stackoverflow.com/a/19710648/4084039
```

```

from scipy.sparse import hstack
X_tr2 = hstack((essay_tfidf_train,
title_tfidf_train,X_train_clean_cat_oh,X_train_clean_subcat_oh, X_train_state_oh,
X_train_teacher_oh, X_train_grade_oh, X_train_price_norm,X_train_prev_posted)).tocsr()
X_cv2 = hstack((essay_tfidf_cv, title_tfidf_cv,X_cv_clean_cat_oh,X_cv_clean_subcat_oh, X_cv_state
_oh, X_cv_teacher_oh, X_cv_grade_oh, X_cv_price_norm,X_cv_prev_posted)).tocsr()
X_te2 = hstack((essay_tfidf_test, title_tfidf_test,X_test_clean_cat_oh,X_test_clean_subcat_oh,
X_test_state_oh, X_test_teacher_oh, X_test_grade_oh,
X_test_price_norm,X_test_prev_posted)).tocsr()

print("Final Data matrix")
print(X_tr2.shape, y_train.shape)
print(X_cv2.shape, y_cv.shape)
print(X_te2.shape, y_test.shape)
print("="*100)

```

```

Final Data matrix
(49041, 14352) (49041,)
(24155, 14352) (24155,)
(36052, 14352) (36052,)
=====

```

2.4.1 Applying Naive Bayes on BOW, SET 1

In [78]:

```

# https://scikit-learn.org/stable/modules/generated/sklearn.model_selection.GridSearchCV.html
from sklearn.model_selection import GridSearchCV
from scipy.stats import randint as sp_randint
from sklearn.model_selection import RandomizedSearchCV
from sklearn.naive_bayes import MultinomialNB
from sklearn.metrics import roc_auc_score

train_auc=[]
cv_auc=[]
alpha= [10**x for x in range(-4,5)]
for i in tqdm(alpha):

    multiN_NB= MultinomialNB(alpha=i, fit_prior=True, class_prior=[0.5,0.5])
    multiN_NB.fit(X_tr1, y_train)

    y_train_pred= multiN_NB.predict_log_proba(X_tr1)[:,:1]
    y_cv_pred= multiN_NB.predict_log_proba(X_cv1)[:,:1]
    train_auc.append(roc_auc_score(y_train,y_train_pred))
    cv_auc.append(roc_auc_score(y_cv,y_cv_pred))

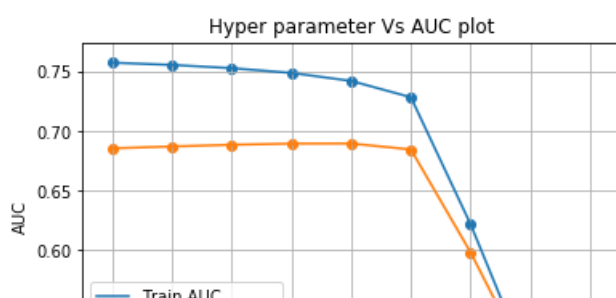
plt.semilogx(alpha, train_auc, label= 'Train AUC')
plt.semilogx(alpha, cv_auc, label= 'CV AUC')

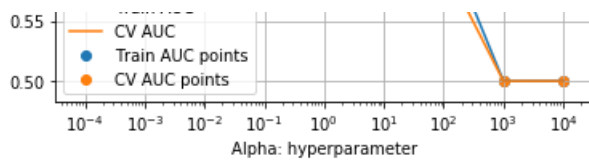
plt.scatter(alpha, train_auc, label='Train AUC points')
plt.scatter(alpha, cv_auc, label='CV AUC points')

plt.xlabel("Alpha: hyperparameter")
plt.ylabel("AUC")
plt.title("Hyper parameter Vs AUC plot")
plt.legend()
plt.grid()
plt.show()

```

100%|██████████| 9/9 [00:01<00:00, 7.82it/s]





Testing the performance of the model on test data, plotting ROC Curves

In [0]:

#Based on the CV AUC plot obtained above, we look for the datapoint from where graph drastically drops down and as per list of hyper params that would be our alpha value.

```
best_alpha = 10
```

In [80]:

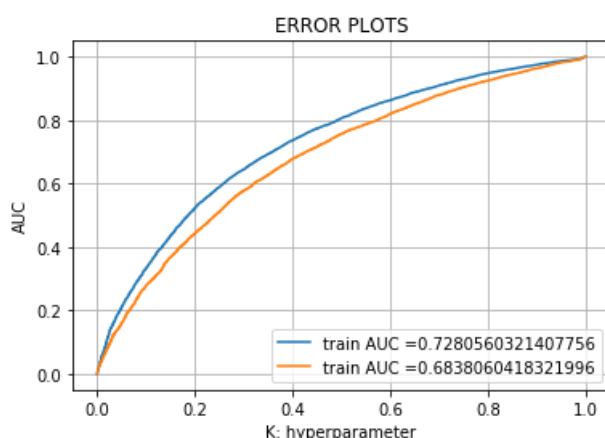
```
# https://scikit-learn.org/stable/modules/generated/sklearn.metrics.roc_curve.html#sklearn.metrics.roc_curve
from sklearn.metrics import roc_curve, auc

nb = MultinomialNB(alpha=best_alpha)
nb.fit(X_tr1, y_train)
# roc_auc_score(y_true, y_score) the 2nd parameter should be probability estimates of the positive class
# not the predicted outputs

y_train_pred = nb.predict_proba(X_tr1)[:,-1]
y_test_pred = nb.predict_proba(X_te1)[:,-1]

train_fpr, train_tpr, tr_thresholds = roc_curve(y_train, y_train_pred)
test_fpr, test_tpr, te_thresholds = roc_curve(y_test, y_test_pred)

plt.plot(train_fpr, train_tpr, label="train AUC =" + str(auc(train_fpr, train_tpr)))
plt.plot(test_fpr, test_tpr, label="test AUC =" + str(auc(test_fpr, test_tpr)))
plt.legend()
plt.xlabel("K: hyperparameter")
plt.ylabel("AUC")
plt.title("ERROR PLOTS")
plt.grid()
plt.show()
```



In [81]:

```
#Accuracy of class predictions
from sklearn import metrics
metrics.accuracy_score(y_test, y_test_pred.round())
```

Out[81]:

```
0.7633973149894596
```

In [88]:

```
#Confusion matrix
print("Train Confusion matrix")
from sklearn.metrics import confusion_matrix
conf_mat=confusion_matrix(y_train,y_train_pred.round())
print(conf_mat)

#For heatmap

import seaborn as sns
conf_mat=confusion_matrix(y_train,y_train_pred.round())
conf_mat_normalized=conf_mat.astype('float')/conf_mat.sum(axis=1)[:,np.newaxis]
sns.heatmap(conf_mat_normalized,annot=True, fmt='.1f')
plt.ylabel('True label')
plt.xlabel('Predicted label')
plt.title("Confusion matrix using Seaborn heatmap")
plt.grid()
plt.show()

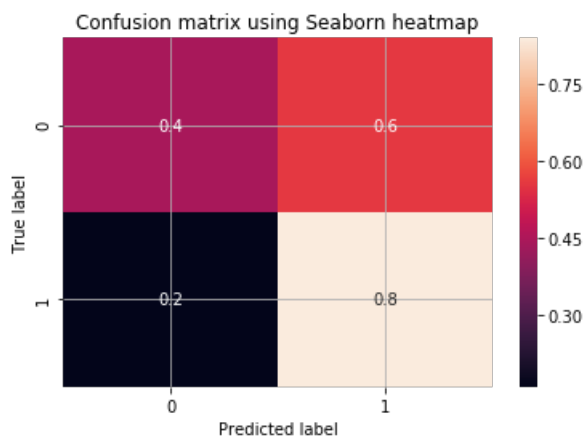
print('='*100)

print("Test Confusion matrix")
from sklearn.metrics import confusion_matrix
conf_mat=confusion_matrix(y_test,y_test_pred.round())
print(conf_mat)

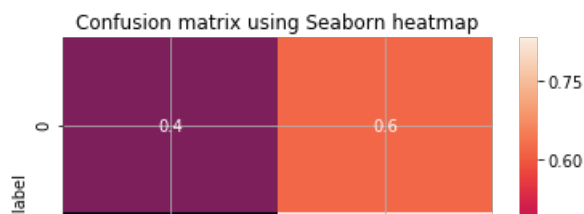
#For heatmap

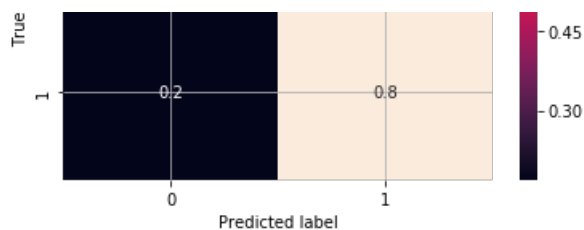
import seaborn as sns
conf_mat=confusion_matrix(y_test,y_test_pred.round())
conf_mat_normalized=conf_mat.astype('float')/conf_mat.sum(axis=1)[:,np.newaxis]
sns.heatmap(conf_mat_normalized,annot=True, fmt= '.1f')
plt.ylabel('True label')
plt.xlabel('Predicted label')
plt.title("Confusion matrix using Seaborn heatmap")
plt.grid()
plt.show()
```

Train Confusion matrix
[[3288 4138]
 [6613 35002]]



Test Confusion matrix
[[2075 3384]
 [5146 25447]]





2.4.1.1 Top 10 important features of positive class from SET 1

In [89]:

```
pos_class_prob_sorted1=nb.feature_log_prob_[1,:].argsort()
print(pos_class_prob_sorted1[-10:])
```

```
[2243 2794 2934 4469 4409 680 2299 2775 3593 4005]
```

In [0]:

```
arr= pos_class_prob_sorted1[-10:]
```

In [91]:

```
print(np.take(arr_set1,arr,axis=None,out=None,mode='raise'))
```

```
['learn' 'my students' 'not' 'they' 'the' 'classroom' 'learning' 'my'
'school' 'students']
```

2.4.1.2 Top 10 important features of negative class from SET 1

In [92]:

```
neg_class_prob_sorted1=nb.feature_log_prob_[0,:].argsort()
print(neg_class_prob_sorted1[-10:])
```

```
[4409 1860 4469 2243 2934 680 2775 2299 3593 4005]
```

In [0]:

```
arr1= neg_class_prob_sorted1[-10:]
```

In [94]:

```
print(np.take(arr_set1,arr1,axis=None,out=None,mode='raise'))
```

```
['the' 'help' 'they' 'learn' 'not' 'classroom' 'my' 'learning' 'school'
'students']
```

2.4.2 Applying Naive Bayes on TFIDF, SET 2

In [95]:

```
train_auc=[]
cv_auc=[]
alpha= [10**x for x in range(-4,5)]
for i in tqdm(alpha):
    multiN_NB=MultinomialNB(alpha=i, fit_prior=True, class_prior=[0.5,0.5])
    multiN_NB.fit(X_tr2, y_train)

    y_train_pred= multiN_NB.predict_log_proba(X_tr2)[:,-1]
    y_cv_pred= multiN_NB.predict_log_proba(X_cv2)[:,-1]
```

```

train_auc.append(roc_auc_score(y_train,y_train_pred))
cv_auc.append(roc_auc_score(y_cv,y_cv_pred))

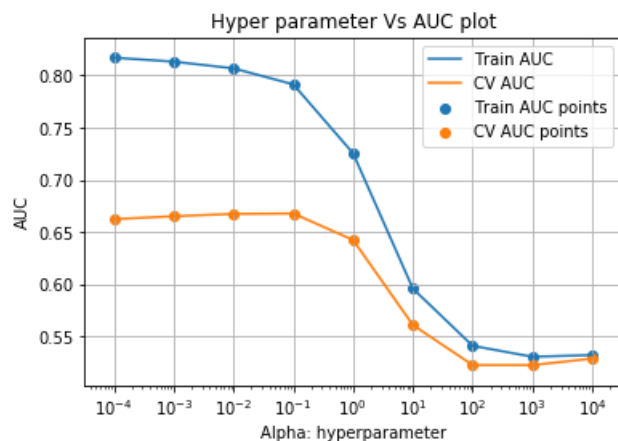
plt.semilogx(alpha, train_auc, label= 'Train AUC')
plt.semilogx(alpha, cv_auc, label= 'CV AUC')

plt.scatter(alpha, train_auc, label='Train AUC points')
plt.scatter(alpha, cv_auc, label='CV AUC points')

plt.xlabel("Alpha: hyperparameter")
plt.ylabel("AUC")
plt.title("Hyper parameter Vs AUC plot")
plt.legend()
plt.grid()
plt.show()

```

100%|██████████| 9/9 [00:01<00:00, 8.50it/s]



Testing the performance of the model on test data, plotting ROC Curves

In [0]:

```

#here we are choosing the best_alpha based on forloop results
best_alpha = 0.1

```

In [97]:

```

# https://scikit-learn.org/stable/modules/generated/sklearn.metrics.roc_curve.html#sklearn.metrics.roc_curve
from sklearn.metrics import roc_curve, auc

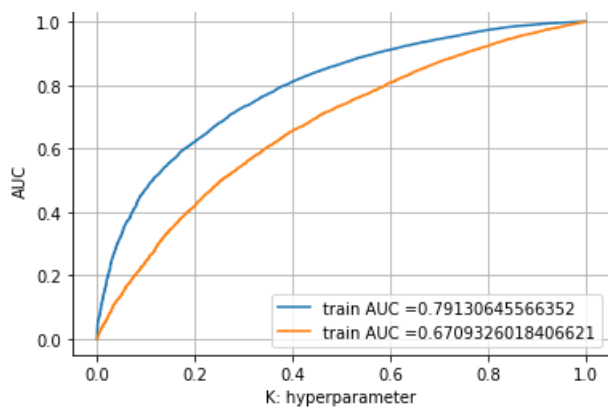
nb1 = MultinomialNB(alpha=best_alpha)
nb1.fit(X_tr2, y_train)
# roc_auc_score(y_true, y_score) the 2nd parameter should be probability estimates of the positive class
# not the predicted outputs

y_train_pred = nb1.predict_proba(X_tr2)[:,-1]
y_test_pred = nb1.predict_proba(X_te2)[:,-1]

train_fpr, train_tpr, tr_thresholds = roc_curve(y_train, y_train_pred)
test_fpr, test_tpr, te_thresholds = roc_curve(y_test, y_test_pred)

plt.plot(train_fpr, train_tpr, label="train AUC =" + str(auc(train_fpr, train_tpr)))
plt.plot(test_fpr, test_tpr, label="test AUC =" + str(auc(test_fpr, test_tpr)))
plt.legend()
plt.xlabel("K: hyperparameter")
plt.ylabel("AUC")
plt.title("ERROR PLOTS")
plt.grid()
plt.show()

```

In [98]:

```
#Accuracy of class predictions
from sklearn import metrics
metrics.accuracy_score(y_test,y_test_pred.round())
```

Out[98]:

0.8430045489847997

In [107]:

```
#Confusion matrix
print("Train Confusion matrix")
from sklearn.metrics import confusion_matrix
conf_mat=confusion_matrix(y_train,y_train_pred.round())
print(conf_mat)

#For heatmap

import seaborn as sns
conf_mat=confusion_matrix(y_train,y_train_pred.round())
conf_mat_normalized=conf_mat.astype('float')/conf_mat.sum(axis=1)[:,np.newaxis]
sns.heatmap(conf_mat_normalized,annot=True, fmt='.1f')
plt.ylabel('True label')
plt.xlabel('Predicted label')
plt.title("Confusion matrix using Seaborn heatmap")
plt.grid()
plt.show()

print('='*100)

print("Test Confusion matrix")
from sklearn.metrics import confusion_matrix
conf_mat=confusion_matrix(y_test,y_test_pred.round())
print(conf_mat)

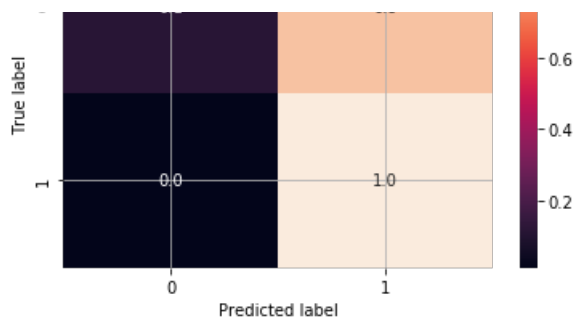
#For heatmap

import seaborn as sns
conf_mat=confusion_matrix(y_test,y_test_pred.round())
conf_mat_normalized=conf_mat.astype('float')/conf_mat.sum(axis=1)[:,np.newaxis]
sns.heatmap(conf_mat_normalized,annot=True, fmt='.1f')
plt.ylabel('True label')
plt.xlabel('Predicted label')
plt.title("Confusion matrix using Seaborn heatmap")
plt.grid()
plt.show()
```

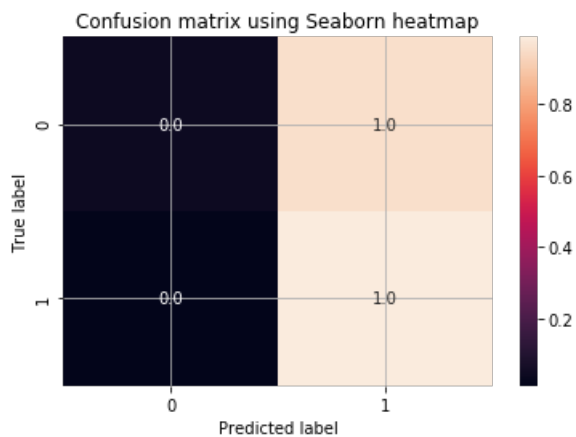
Train Confusion matrix

```
[[ 859  6567]
 [  444 41171]]
```





```
Test Confusion matrix
[[ 253 5206]
 [ 454 30139]]
```



2.4.1.1 Top 10 important features of positive class from SET 2

In [100]:

```
pos_class_prob_sorted2=nb1.feature_log_prob_[1,:].argsort()
print(pos_class_prob_sorted2[-10:])
```

```
[14347 14278 14279 14277 14346 14344 14256 14349 14255 14343]
```

In [0]:

```
arr=pos_class_prob_sorted2[-10:]
```

In [102]:

```
print(np.take(arr_set2,arr,axis=None,out=None,mode='raise'))
```

```
['grades_6_8' 'literature_writing' 'mathematics' 'literacy' 'grades_3_5'
 'ms' 'math_science' 'grades_prek_2' 'literacy_language' 'mrs']
```

2.4.1.2 Top 10 important features of negative class from SET 2

In [103]:

```
neg_class_prob_sorted2=nb1.feature_log_prob_[0,:].argsort()
print(neg_class_prob_sorted2[-10:])
```

```
[14347 14278 14279 14277 14346 14344 14256 14349 14255 14343]
```

In [0]:

```
arr1=neg_class_prob_sorted2[-10:]
```

```
In [105]:
```

```
print(np.take(arr_set2,arr1,axis=None,out=None,mode='raise'))
```

```
['grades_6_8' 'literature_writing' 'mathematics' 'literacy' 'grades_3_5'  
 'ms' 'math_science' 'grades_prek_2' 'literacy_language' 'mrs']
```

3. Conclusions

```
In [108]:
```

```
#http://zetcode.com/python/prettytable/
```

```
from prettytable import PrettyTable
```

```
x = PrettyTable()
```

```
x.field_names = ["Vectorizer", "Parameter", "Hyper Parameter", "AUC"]
```

```
x.add_row(["BOW", "MultinomialNB", 10, 0.763])
```

```
x.add_row(["TFIDF", "MultinomialNB", 0.1, 0.844])
```

```
print(x)
```

```
+-----+-----+-----+-----+  
| Vectorizer | Parameter | Hyper Parameter | AUC |  
+-----+-----+-----+-----+  
| BOW | MultinomialNB | 10 | 0.763 |  
| TFIDF | MultinomialNB | 0.1 | 0.844 |  
+-----+-----+-----+-----+
```

Hence, on comparing both the vectorizers, each having respective Hyper paramter, we can see that AUC is slightly higher for TFIDF in comparison to BOW dataset.