Ninth program - loading CSV files to MySQL

The problem I had with the reading the separated columns in a CSV file that had a column with all characters which are used usually to separate the fileds and the rows in a CSV file, and therefore, MySQL or even SQL Server could not detect the value of the column completely, and divided it to the next columns. The issue resolved with using **csvreader** which could read a CSV file row by row and item by item in a perfect way (like Excel itself).

We start with reading all items (**csvreader**), then deleting delimiter characters, and then writing them to a new CSV file (**csvwriter**).

some other issues:

1. Having problems with ascii codes: resolved by using utf8, both in reading and also writing data.
2. Blank lines between main lines of data while writing, resolved by specifying **lineterminator** argument.

```
In [1]:  # Ninth program - loading CSV files to MySQL

         import xlrd
         import csv
         from os.path import join
         from decimal import Decimal
         import time

         # import nltk
         # nltk.download("stopwords")
         # nltk.download('wordnet')
         from nltk.corpus import stopwords
         from nltk.stem.wordnet import WordNetLemmatizer

         import string
         import gensim
         from gensim import corpora
```

C:\Users\au548008\AppData\Local\Continuum\anaconda3\lib\site-packages\gensim\utils.py:1197: UserWarning: detected Windows; aliasing chunkize to chunkize_serial
  warnings.warn("detected Windows; aliasing chunkize to chunkize_serial")

```
In [6]:  def clean(doc, stop, exclude, lemma):
             stop_free = " ".join([i for i in doc.lower().split() if i not in stop])
             punc_free = ''.join(ch for ch in stop_free if ch not in exclude)
             normalized = " ".join(lemma.lemmatize(word) for word in punc_free.split())
             return normalized

         def clean_doc(doc):
             # if len(doc) != len(doc.encode()): return ''
             if not all(ord(x) < 127 for x in doc): return ''
             items = ['<a href=', '<script src=', '<div class=', '<img src=', '<section class=']
             for item in items:
                 while doc.find(item) > -1:
                     fst_loc = doc.find(item)
                     if fst_loc > -1:
                         temp = doc[:fst_loc]
                         doc = doc[fst_loc:]
                         sec_loc = doc.find('>')
                         if sec_loc > -1:
                             doc = temp + doc[sec_loc + 1:]
                         else:
                             break
                     else:
                         break
             return doc

         def create_topic_list(in_file, out_file, prep_file, in_spl = ',', portion_thresholds = 0.5, num_top = 10, num_wrd = 5
         ):
             my_emojs = ['(', ')', '-', '"', '…', '?', ';', '{', '}', '<', '>', '~']
             my_signs = ["'", '.', '-', '_', ':', '!']
             my_removes = ['<p>', '</p>', ' ', '<em>', '</em>', '<strong>', '</strong>', '</a>', '<br>', '<br />', \
                           '</script>', '<div>', '</div>', '<li>', '</li>', '<ul>', '</ul>', \
                           '<ol>', '</ol>', '&amp;', '</section>']
             with open(in_file, 'r', encoding='utf8') as infile, open(out_file, 'w', encoding='utf8') as outfile:
                 reader = csv.reader(infile, delimiter = in_spl); next(reader)
                 header = ['project_id', 'topic_id']
                 writer = csv.writer(outfile, lineterminator = '\n'); writer.writerow(header)
                 my_list = []; my_projects = []
                 for line in reader:                        # reading input table
                     desc = clean_doc(line[2] + line[3])    # reading 'name' and 'decs' columns
                     for rm in my_removes: desc = desc.replace(rm, ' ')
                     # desc = desc.replace('&#39;', "'").lower().split()
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        desc = desc.replace('&#39;', "'")
        my_list.append(desc)
        my_projects.append(line[0])

    # print(my_list)

    stop = set(stopwords.words('english'))
    exclude = set(string.punctuation)
    lemma = WordNetLemmatizer()

    doc_clean = [clean(doc, stop, exclude, lemma).split() for doc in my_list]

    # Creating the term dictionary of our courpus, where every unique term is assigned an index.
    dictionary = corpora.Dictionary(doc_clean)

    # dropping most frequent words from dictionary
    dictionary.filter_extremes(no_below=1, no_above=portion_thresholds)

    # dropping adverbs, determiners, prepositions, verbs
    adverbs = ['abnormally', 'about', 'above', 'abroad', 'absentmindedly', 'absolutely', 'accidentally', 'across',
    'actually', 'adventurously', 'afterwards', 'again', 'ago', 'ahead', 'almost', 'alone', 'along', 'already', 'also', 'al
    together', 'always', 'angrily', 'annually', 'anxiously', 'any', 'anyway', 'anywhere', 'apart', 'around', 'arrogantly',
    'as', 'aside', 'automatically', 'away', 'awkwardly', 'back', 'bad', 'badly', 'bashfully', 'basically', 'beautifully',
    'before', 'behind', 'below', 'best', 'better', 'between', 'bitterly', 'bleakly', 'blindly', 'blissfully', 'boastfully'
    , 'boldly', 'both', 'bravely', 'briefly', 'bright', 'brightly', 'briskly', 'broadly', 'busily', 'by', 'calmly', 'caref
    ully', 'carelessly', 'cautiously', 'certainly', 'cheap', 'cheerfully', 'clean', 'clear', 'clearly', 'cleverly', 'clos
    e', 'closely', 'coaxingly', 'collect', 'colorfully', 'commonly', 'completely', 'constantly', 'continually', 'cool', 'c
    oolly', 'correctly', 'courageously', 'coyly', 'crazily', 'crossly', 'cruelly', 'curiously', 'currently', 'daily', 'dai
    ntily', 'dearly', 'deceivingly', 'deeply', 'defiantly', 'definitely', 'deftly', 'deliberately', 'delightfully', 'devot
    edly', 'diligently', 'dimly', 'direct', 'directly', 'doubtfully', 'down', 'downtown', 'dramatically', 'dreamily', 'dut
    ifully', 'each', 'eagerly', 'early', 'easily', 'easy', 'effectively', 'elegantly', 'else', 'elsewhere', 'energeticall
    y', 'enormously', 'enough', 'enthusiastically', 'equally', 'especially', 'essentially', 'even', 'evenly', 'eventually'
    , 'ever', 'everywhere', 'exactly', 'excitedly', 'extra', 'extremely', 'fair', 'fairly', 'faithfully', 'famously', 'fa
    r', 'fast', 'fatally', 'ferociously', 'fervently', 'fiercely', 'finally', 'fine', 'first', 'flat', 'fondly', 'foolishl
    y', 'forever', 'forth', 'fortunately', 'forward', 'frankly', 'frantically', 'free', 'freely', 'frenetically', 'frequen
    tly', 'fresh', 'frightfully', 'full', 'fully', 'furiously', 'generally', 'generously', 'gently', 'gladly', 'gleefully'
    , 'gracefully', 'gratefully', 'greatly', 'greedily', 'gross', 'happily', 'hard', 'hardly', 'hastily', 'healthily', 'he
    avily', 'helpfully', 'helplessly', 'here', 'highly', 'honest', 'honestly', 'hopefully', 'hopelessly', 'hourly', 'how',
    'however', 'hungrily', 'ill', 'immediately', 'in', 'initially', 'innocently', 'inquisitively', 'instantly', 'instead',
    'intensely', 'intently', 'interestingly', 'inwardly', 'irritably', 'item', 'jaggedly', 'jealously', 'jovially', 'joyfu
    lly', 'joyously', 'jubilantly', 'judgmentally', 'just', 'justly', 'keenly', 'kiddingly', 'kindheartedly', 'kindly', 'k
    navishly', 'knowingly', 'knowledgeably', 'kookily', 'last', 'late', 'later', 'lazily', 'least', 'left', 'les', 'less',
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    'lightly', 'likely', 'limply', 'literally', 'little', 'lively', 'loftily', 'longingly', 'loosely', 'lot', 'loud', 'loudly', 'lovingly', 'lower', 'loyally', 'madly', 'mainly', 'majestically', 'maybe', 'meaningfully', 'mechanically', 'merely', 'merrily', 'miserably', 'mockingly', 'monthly', 'more', 'moreover', 'morning', 'mortally', 'mostly', 'much', 'mysteriously', 'naturally', 'near', 'nearby', 'nearly', 'neatly', 'necessarily', 'nervously', 'never', 'new', 'next', 'nicely', 'no', 'noisily', 'none', 'normally', 'not', 'now', 'nowhere', 'obediently', 'obnoxiously', 'obviously', 'occasionally', 'oddly', 'off', 'offensively', 'officially', 'often', 'ok', 'on', 'once', 'only', 'openly', 'optimistically', 'originally', 'otherwise', 'out', 'overall', 'overconfidently', 'painfully', 'partially', 'patiently', 'perfectly', 'personally', 'physically', 'playfully', 'please', 'politely', 'poorly', 'positively', 'possibly', 'potentially', 'powerfully', 'pray', 'pretty', 'previously', 'primarily', 'probably', 'promptly', 'proper', 'properly', 'punctually', 'quaintly', 'queasily', 'queerly', 'questionably', 'quick', 'quicker', 'quickly', 'quietly', 'quirkily', 'quite', 'quizzically', 'randomly', 'rapidly', 'rarely', 'rather', 'readily', 'real', 'really', 'reassuringly', 'recently', 'recklessly', 'regularly', 'relatively', 'reluctantly', 'repeatedly', 'reproachfully', 'restfully', 'right', 'righteously', 'rightfully', 'rigidly', 'roughly', 'rudely', 'safely', 'scarcely', 'scarily', 'searchingly', 'sedately', 'seemingly', 'seldom', 'selfishly', 'separately', 'seriously', 'shakily', 'sharply', 'sheepishly', 'short', 'shrilly', 'shyly', 'significantly', 'silently', 'similarly', 'simply', 'since', 'sleepily', 'slightly', 'slow', 'slowly', 'small', 'smooth', 'smoothly', 'so', 'softly', 'solemnly', 'solidly', 'somehow', 'sometimes', 'somewhat', 'somewhere', 'soon', 'specifically', 'speedily', 'stealthily', 'sternly', 'straight', 'strange', 'strictly', 'strongly', 'successfully', 'such', 'suddenly', 'super', 'supposedly', 'sure', 'surprisingly', 'suspiciously', 'sweetly', 'swiftly', 'sympathetically', 'technically', 'tediously', 'tenderly', 'tensely', 'terribly', 'thankfully', 'the', 'then', 'there', 'therefore', 'thick', 'thin', 'thoroughly', 'though', 'thoughtfully', 'through', 'thus', 'tight', 'tightly', 'to', 'today', 'together', 'tomorrow', 'tonight', 'too', 'totally', 'tourist', 'tremendously', 'triumphantly', 'truly', 'truthfully', 'twice', 'ultimately', 'unabashedly', 'unaccountably', 'unbearably', 'under', 'unethically', 'unexpectedly', 'unfortunately', 'unimpressively', 'unnaturally', 'unnecessarily', 'up', 'upbeat', 'upright', 'upside-down', 'upward', 'urgently', 'usefully', 'uselessly', 'usually', 'utterly', 'vacantly', 'vaguely', 'vainly', 'valiantly', 'vastly', 'verbally', 'very', 'viciously', 'victoriously', 'violently', 'virtually', 'vivaciously', 'voluntarily', 'warmly', 'weakly', 'wearily', 'weekly', 'well', 'wetly', 'whatever', 'when', 'whenever', 'where', 'wholly', 'why', 'wide', 'widely', 'wild', 'wildly', 'willfully', 'wisely', 'within', 'without', 'woefully', 'wonderfully', 'worriedly', 'wrong', 'wrongly', 'yawningly', 'yeah', 'yearly', 'yearningly', 'yesterday', 'yet', 'yieldingly', 'youthfully', 'zealously', 'zestfully', 'zestily']
        determiners = ['1', '10', '100', '11', '12', '13', '14', '15', '16', '17', '18', '19', '2', '20', '21', '22', '23', '24', '25', '26', '27', '28', '29', '3', '30', '31', '32', '33', '34', '35', '36', '37', '38', '39', '4', '40', '41', '42', '43', '44', '45', '46', '47', '48', '49', '5', '50', '51', '52', '53', '54', '55', '56', '57', '58', '59', '6', '60', '61', '62', '63', '64', '65', '66', '67', '68', '69', '7', '70', '71', '72', '73', '74', '75', '76', '77', '78', '79', '8', '80', '81', '82', '83', '84', '85', '86', '87', '88', '89', '9', '90', '91', '92', '93', '94', '95', '96', '97', '98', '99', 'a', 'all', 'an', 'another', 'any', 'both', 'each', 'eight', 'either', 'enough', 'every', 'few', 'fewer', 'fewest', 'five', 'four', 'half', 'her', 'his', 'its', 'least', 'less', 'little', 'lot', 'many', 'more', 'most', 'much', 'my', 'neither', 'nine', 'no', 'of', 'one', 'other', 'our', 'quite', 'rather', 'seven', 'several', 'six', 'some', 'such', 'ten', 'that', 'the', 'their', 'these', 'this', 'those', 'three', 'two', 'what', 'which', 'whose', 'your']
        prepositions = []
        prep_wb = xlrd.open_workbook(join(path, prep_file)); prep_ws = prep_wb.sheet_by_index(0)
        for i in range(prep_ws.nrows): prepositions.append(prep_ws.cell_value(i, 0))
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# We drop 'suit', 'train' from the verb list
verbs = ['', '2', '4', 'B4', 'a', 'abaft', 'abate', 'abbreviate', 'abeam', 'abide', 'ablow', 'aboard', 'aboon', 'abort', 'about', 'above', 'abscond', 'absent', 'absorb', 'abstain', 'abun', 'abune', 'abuse', 'accede', 'accelerate', 'accent', 'accentuate', 'accept', 'accommodate', 'accompany', 'accordance', 'according', 'accost', 'account', 'accuse', 'ache', 'achieve', 'acknowledge', 'acquiesce', 'acquire', 'across', 'act', 'adapt', 'add', 'addition', 'address', 'adhere', 'adjacent', 'adjust', 'administer', 'admire', 'admit', 'admonish', 'adopt', 'adore', 'adorn', 'advance', 'advertise', 'advise', 'advocate', 'affirm', 'affix', 'afford', 'afk', 'afore', 'afraid', 'afront', 'after', 'again', 'against', 'aggravate', 'ago', 'agonize', 'agree', 'ahead', 'ahind', 'aid', 'ail', 'aim', 'air', 'ajax', 'alert', 'align', 'allege', 'allow', 'allude', 'along', 'alongside', 'alongst', 'aloof', 'alphabetise', 'alphabetize', 'alter', 'alternate', 'am', 'amble', 'amend', 'amid', 'amidst', 'among', 'amongst', 'amuse', 'analyse', 'analyze', 'anear', 'anenst', 'anent', 'angle', 'anigh', 'anighst', 'animate', 'annotate', 'announce', 'annoy', 'anoint', 'answer', 'antagonise', 'antagonize', 'anticipate', 'apart', 'apologise', 'apologize', 'appeal', 'appear', 'appease', 'applaud', 'apply', 'appraise', 'appreciate', 'approach', 'appropriate', 'approve', 'apropos', 'apud', 'arc', 'arch', 'are', 'argue', 'arise', 'around', 'arrange', 'arrest', 'arrive', 'articulate', 'as', 'ascend', 'ascertain', 'aside', 'ask', 'asked', 'aslant', 'assail', 'assault', 'assay', 'assent', 'assert', 'assess', 'assign', 'assist', 'assume', 'assure', 'astonish', 'astride', 'at', 'ate', 'athwart', 'atop', 'attach', 'attack', 'attempt', 'attend', 'attract', 'atween', 'atwix', 'auction', 'audit', 'authorise', 'authorize', 'aver', 'avert', 'avoid', 'avow', 'await', 'awake', 'awaken', 'away', 'ayond', 'babble', 'back', 'backhand', 'backpedal', 'backtrack', 'badger', 'badmouth', 'baffle', 'bait', 'bake', 'balance', 'balk', 'ball', 'ban', 'bandage', 'bang', 'banish', 'banter', 'bar', 'bare', 'bargain', 'barge', 'bark', 'barrage', 'barter', 'bash', 'bask', 'baste', 'bat', 'bathe', 'battle', 'bawl', 'bay', 'be', 'beam', 'bear', 'beat', 'beaten', 'beautify', 'became', 'because', 'beckon', 'become', 'been', 'befall', 'before', 'befriend', 'beg', 'began', 'begin', 'begun', 'behalf', 'behave', 'behest', 'behind', 'behither', 'behold', 'being', 'belch', 'believe', 'belittle', 'bellow', 'belong', 'below', 'bemoan', 'ben', 'bend', 'beneath', 'benorth', 'bent', 'berate', 'beseech', 'beside', 'besides', 'besiege', 'bestow', 'bet', 'betray', 'between', 'betwixt', 'bewest', 'beyond', 'bicker', 'bid', 'bind', 'bit', 'bite', 'bitten', 'blame', 'blanch', 'blare', 'blaspheme', 'blat', 'blather', 'bleach', 'bleat', 'bleed', 'blend', 'bless', 'blew', 'blind', 'blink', 'block', 'blossom', 'blot', 'blow', 'blown', 'blubber', 'bludgeon', 'bluff', 'blunder', 'blurt', 'blush', 'bluster', 'boast', 'bob', 'boggle', 'boil', 'bolster', 'bolt', 'bomb', 'bond', 'bonk', 'boo', 'book', 'boom', 'boost', 'bop', 'bore', 'borrow', 'boss', 'bought', 'bounce', 'bound', 'bow', 'box', 'brace', 'brag', 'braid', 'brake', 'branch', 'brand', 'brandish', 'brawl', 'bray', 'break', 'breathe', 'breed', 'breez', 'bribe', 'bridle', 'brighten', 'bring', 'bristle', 'broach', 'broadcast', 'broaden', 'broil', 'broke', 'broken', 'brood', 'brought', 'browbeat', 'browse', 'bruise', 'brush', 'bubble', 'buck', 'buckle', 'buff', 'buffet', 'bug', 'build', 'built', 'bulge', 'bully', 'bumble', 'bump', 'bunch', 'bundle', 'burble', 'burn', 'burnedburnt', 'burnish', 'burp', 'burrow', 'burst', 'bury', 'buss', 'bust', 'bustle', 'but', 'butcher', 'button', 'buy', 'buzz', 'by', 'c', 'ca', 'cackle', 'cajole', 'calculate', 'call', 'called', 'calm', 'came', 'camp', 'can', 'cantillate', 'canvass', 'caper', 'capitulate', 'capture', 'care', 'careen', 'caress', 'carol', 'carry', 'cartwheel', 'carve', 'case', 'cash', 'cast', 'castle', 'catalog', 'catapult', 'catcall', 'catch', 'categorise', 'categorize', 'caterwaul', 'caught', 'cause', 'caution', 'cavort', 'caw', 'cease', 'celebrate', 'center', 'centre', 'certify', 'challenge', 'change', 'chant', 'chaperone', 'charge', 'chase', 'chasten', 'chastise', 'chat', 'chatter', 'cheat', 'check', 'cheer', 'cherish', 'chew', 'chez', 'chide', 'chill', 'chime', 'chinch', 'chip', 'chirp', 'chirr', 'chisel', 'chitter', 'choke', 'chomp', 'choose', 'chop', 'chortle', 'chose', 'chosen', 'chuck', 'chuckle', 'cinch', 'circa', 'circle', 'cite', 'claim', 'clamber', 'clamor', 'clamp', 'clang', 'clap', 'clarify', 'clash', 'clasp', 'classify', 'claw', 'clean', 'cleanse', 'clear', 'cleave', 'clench', 'click', 'climb', 'clinch', 'cling', 'clink', 'clip', 'clop', 'close', 'clothe', 'club', 'cluck', 'clutch', 'coach', 'coax', 'cobble', 'cock',
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'coddle', 'coerce', 'coil', 'collapse', 'collect', 'collide', 'color', 'colour', 'comb', 'combine', 'come', 'comfort', 'command', 'commence', 'commend', 'comment', 'commentate', 'commiserate', 'commit', 'commune', 'communicate', 'compare', 'compel', 'compete', 'complain', 'complete', 'compliment', 'comply', 'comport', 'compose', 'comprehend', 'compress', 'compromise', 'conceal', 'concede', 'concenter', 'concentrate', 'concern', 'conclude', 'concur', 'condemn', 'condescend', 'condone', 'conduct', 'confer', 'confess', 'confide', 'confine', 'confirm', 'confiscate', 'confront', 'confuse', 'congratulate', 'conjecture', 'connect', 'connote', 'conquer', 'consecrate', 'consent', 'conserve', 'consider', 'consign', 'consist', 'console', 'consort', 'conspire', 'constrain', 'constrict', 'construct', 'consult', 'cont', 'contain', 'contemplate', 'contend', 'contest', 'continue', 'contort', 'contract', 'contradict', 'contribute', 'control', 'convene', 'converge', 'converse', 'convert', 'convey', 'convict', 'convince', 'convulse', 'coo', 'cook', 'cool', 'cooperate', 'coordinate', 'cope', 'copy', 'corner', 'correct', 'correspond', 'corrode', 'corrupt', 'cosset', 'cost', 'cough', 'could', 'counsel', 'count', 'counter', 'counteract', 'court', 'cover', 'covet', 'cower', 'cozen', 'crack', 'crackle', 'cradle', 'cram', 'crane', 'crash', 'crave', 'crawl', 'crease', 'create', 'creep', 'crimp', 'cringe', 'crinkle', 'criticise', 'criticize', 'critique', 'croak', 'crochet', 'crook', 'croon', 'crop', 'cross', 'crossexamine', 'crouch', 'crow', 'crowd', 'crumble', 'crumple', 'crunch', 'crush', 'cry', 'cuddle', 'cue', 'cuff', 'cup', 'curb', 'cure', 'curl', 'curse', 'curtsey', 'curtsy', 'curve', 'cuss', 'cut', 'cycle', 'dab', 'dabble', 'dally', 'dam', 'damage', 'dampen', 'dance', 'dancearm', 'dancecheek', 'dancecircle', 'dancedip', 'dancefollow', 'dancehop', 'dancejig', 'dancelead', 'danceleap', 'danceleft', 'dancepromenade', 'dancerhythm', 'danceright', 'danceshuffle', 'dancesidestep', 'dancesweep', 'danceswirl', 'dancetwirl', 'dancewaltz', 'dancewhirl', 'dandle', 'dangle', 'dare', 'darken', 'dart', 'dash', 'dawdle', 'daydream', 'dazzle', 'deadpan', 'deal', 'debate', 'decay', 'deceive', 'decide', 'decipher', 'declaim', 'declare', 'decline', 'decorate', 'decrease', 'decree', 'decry', 'dedicate', 'deduce', 'deem', 'defend', 'defer', 'defile', 'define', 'deflate', 'deflect', 'defy', 'dehors', 'delay', 'delegate', 'delete', 'deliberate', 'delight', 'deliver', 'delve', 'demand', 'demonstrate', 'demur', 'denounce', 'deny', 'depend', 'deplore', 'deposit', 'deprive', 'deride', 'descend', 'describe', 'desecrate', 'desert', 'deserve', 'design', 'desire', 'despair', 'despite', 'despoil', 'destroy', 'detach', 'detect', 'deter', 'determine', 'develop', 'devour', 'diagnose', 'dial', 'dictate', 'did', 'die', 'differ', 'differentiate', 'dig', 'digest', 'digress', 'dilate', 'dim', 'diminish', 'dimple', 'dine', 'dip', 'direct', 'disagree', 'disappear', 'disapprove', 'disbelieve', 'discern', 'discipline', 'disclaim', 'disclose', 'discombobulate', 'discourage', 'discover', 'discriminate', 'discuss', 'disentangle', 'disfavor', 'disfavour', 'disguise', 'dishevel', 'dislike', 'dislodge', 'dismiss', 'dismount', 'disobey', 'disparage', 'displace', 'display', 'disport', 'dispute', 'disregard', 'disrespect', 'dissemble', 'dissolve', 'distance', 'distinguish', 'distort', 'distract', 'distribute', 'distrust', 'disturb', 'disuse', 'dither', 'dive', 'dived', 'divert', 'divide', 'divorce', 'divulge', 'do', 'dock', 'dodder', 'dodge', 'does', 'doff', 'dole', 'donate', 'done', 'doodle', 'dote', 'double', 'doublecheck', 'doubt', 'dove', 'down', 'download', 'downplay', 'doze', 'draft', 'drag', 'drain', 'dramatise', 'dramatize', 'drank', 'drape', 'draw', 'drawl', 'drawn', 'dream', 'dreameddreamt', 'drench', 'dress', 'drew', 'dribble', 'drift', 'drill', 'drink', 'drip', 'drive', 'drivel', 'driven', 'drone', 'drool', 'droop', 'drop', 'drove', 'drown', 'drum', 'drunk', 'dry', 'dub', 'duck', 'due', 'duel', 'dug', 'dump', 'dunk', 'dupe', 'during', 'dust', 'dwell', 'dye', 'earn', 'ease', 'east', 'eat', 'eaten', 'eavesdrop', 'echo', 'edge', 'edit', 'educate', 'effuse', 'elaborate', 'elbow', 'elect', 'elevate', 'elope', 'elucidate', 'elude', 'embarrass', 'embellish', 'emboss', 'embrace', 'embroider', 'emerge', 'emforth', 'emigrate', 'emit', 'empathise', 'empathize', 'emphasise', 'emphasize', 'employ', 'empower', 'empty', 'emulate', 'encase', 'enchant', 'encircle', 'enclose', 'encode', 'encompass', 'encounter', 'encourage', 'encroach', 'end', 'endanger', 'endorse', 'endure', 'energize', 'enfold', 'enforce', 'engage', 'engrave', 'engulf', 'enhance', 'enjoin', 'enjoy', 'enlarge', 'enlighten', 'enquire', 'enshroud', 'ensnare', 'entangle', 'enter', 'entertain', 'enthuse', 'entice', 'entreat', 'entwine', 'enumerate', 'enunciate', 'envelop', 'envision', 'envy', 'equivocate', 'erase', 'ere', 'escape', 'escort', 'espy', 'establish', 'estimat

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ate', 'swab', 'swagger', 'swallow', 'swam', 'swat', 'sway', 'swear', 'sweat', 'sweep', 'swell', 'swerve', 'swill', 'sw
im', 'swing', 'swipe', 'swirl', 'swish', 'switch', 'swivel', 'swoon', 'swoop', 'swum', 'symbolize', 'sympathise', 'sym
pathize', 'systemize', 'tabulate', 'tackle', 'tailor', 'take', 'taken', 'talk', 'tally', 'tame', 'tangle', 'tantalize'
, 'tap', 'target', 'task', 'taste', 'tattle', 'tattoo', 'taught', 'taunt', 'teach', 'tear', 'tease', 'teeter', 'teleph
one', 'tell', 'temper', 'tempt', 'tend', 'tense', 'terrify', 'test', 'testify', 'than', 'thank', 'thanks', 'thaw', 'th
e', 'theorise', 'theorize', 'think', 'thought', 'thrash', 'thread', 'threaten', 'threw', 'thrive', 'throttle', 'throug
h', 'throughout', 'throw', 'thrown', 'thru', 'thruout', 'thrust', 'thumb', 'thump', 'thunder', 'thwack', 'thwap', 'tic
k', 'tickle', 'tidy', 'tie', 'tighten', 'til', 'till', 'tilt', 'time', 'tingle', 'tinker', 'tinkle', 'tip', 'tiptoe',
'tire', 'tisk', 'titter', 'to', 'toast', 'toddle', 'toe', 'tofore', 'toil', 'told', 'tolerate', 'took', 'toot', 'top',
'topple', 'tore', 'torn', 'toss', 'tote', 'totter', 'touch', 'toughen', 'tour', 'tousle', 'tow', 'toward', 'towards',
'tower', 'toy', 'trace', 'track', 'trade', 'trail', 'train', 'traipse', 'tramp', 'trample', 'transcribe', 'transfer',
'transform', 'translate', 'transmit', 'transport', 'trap', 'travel', 'traverse', 'tread', 'treasure', 'treat', 'tred',
'tremble', 'trick', 'trickle', 'tried', 'trill', 'trim', 'trip', 'triumph', 'trivialize', 'trot', 'trouble', 'troubles
hoot', 'trounce', 'trudge', 'trumpet', 'trundle', 'trust', 'try', 'tuck', 'tug', 'tumble', 'tune', 'turn', 'tutor', 't
weak', 'tweeze', 'twiddle', 'twine', 'twinkle', 'twirl', 'twist', 'twitch', 'twitter', 'twixt', 'type', 'ululate', 'u
m', 'umb', 'umbe', 'unbend', 'unbind', 'unbraid', 'unbuckle', 'unbutton', 'unclasp', 'unclench', 'uncoil', 'uncover',
'uncross', 'uncurl', 'under', 'undergo', 'underneath', 'understand', 'understate', 'understood', 'undertake', 'undo',
'undress', 'undulate', 'unfasten', 'unfocus', 'unfold', 'unfurl', 'unhand', 'unhook', 'unify', 'unite', 'unknot', 'unl
ace', 'unleash', 'unlike', 'unlock', 'unmake', 'unmask', 'unpack', 'unpin', 'unravel', 'unroll', 'untangle', 'untie',
'until', 'unto', 'untuck', 'untwine', 'untwist', 'unveil', 'unwear', 'unwield', 'unwind', 'unwrap', 'up', 'update', 'u
pgrade', 'uphold', 'upon', 'upset', 'upside', 'upstage', 'uptill', 'urge', 'use', 'used', 'usher', 'usurp', 'utilize',
'utter', 'v', 'vacillate', 'vacuum', 'validate', 'value', 'vanish', 'vanquish', 'vault', 'veer', 'vent', 'venture', 'v
erbalize', 'verify', 'versus', 'vex', 'via', 'vibrate', 'vice', 'view', 'virtue', 'visit', 'visualise', 'visualize',
'visàvis', 'vituperate', 'vocalise', 'vocalize', 'vociferate', 'voice', 'volley', 'volunteer', 'vomit', 'vote', 'vouc
h', 'vow', 'vs', 'w', 'waddle', 'wade', 'waft', 'wag', 'wager', 'waggle', 'wail', 'wait', 'wake', 'walk', 'wallop', 'w
allow', 'waltz', 'wander', 'want', 'wanted', 'warble', 'warm', 'warn', 'warp', 'was', 'wash', 'waste', 'watch', 'wate
r', 'wave', 'waver', 'wear', 'weave', 'wed', 'wedge', 'weep', 'weigh', 'welcome', 'well', 'wend', 'went', 'were', 'we
t', 'whack', 'wheedle', 'wheeze', 'whet', 'whimper', 'whine', 'whinny', 'whip', 'whirl', 'whisk', 'whisper', 'whistle'
, 'whittle', 'who', 'whoami', 'whoop', 'wi', 'widen', 'wield', 'wiggle', 'will', 'wilt', 'win', 'wince', 'wind', 'wind
mill', 'wink', 'wipe', 'wish', 'with', 'withal', 'withdraw', 'withhold', 'within', 'without', 'withstand', 'witness',
'wo', 'wobble', 'woke', 'woken', 'won', 'wonder', 'woo', 'wore', 'work', 'worked', 'worn', 'worry', 'worship', 'worth'
, 'would', 'wrack', 'wrangle', 'wrap', 'wreck', 'wrench', 'wrest', 'wrestle', 'wriggle', 'wring', 'wrinkle', 'write',
'writhe', 'written', 'wrote', 'xray', 'yank', 'yap', 'yawn', 'yawp', 'yearn', 'yell', 'yelp', 'yield', 'yodel', 'yowl'
, 'zip', 'zoom']
```

```python
    for adverb in adverbs:
        if adverb in dictionary.token2id: dictionary.filter_tokens(bad_ids=[dictionary.token2id[adverb]])
    for determiner in determiners:
        if determiner in dictionary.token2id: dictionary.filter_tokens(bad_ids=[dictionary.token2id[determiner]])
    for verb in verbs:
        if verb in dictionary.token2id: dictionary.filter_tokens(bad_ids=[dictionary.token2id[verb]])
    for preposition in prepositions:
        if preposition in dictionary.token2id: dictionary.filter_tokens(bad_ids=[dictionary.token2id[preposition
]])

    # Converting list of documents (corpus) into Document Term Matrix using dictionary prepared above.
    doc_term_matrix = [dictionary.doc2bow(doc) for doc in doc_clean]

    # Creating the object for LDA model using gensim library
    Lda = gensim.models.ldamodel.LdaModel

    # Running and Trainign LDA model on the document term matrix.
    ldamodel = Lda(doc_term_matrix, num_topics=num_top, id2word = dictionary, passes=50, alpha = 'auto')
    # passes: Maximum number of iterations allowed to LDA algorithm for convergence

    print(ldamodel.print_topics(num_topics=num_top, num_words=num_wrd))
    print(ldamodel.print_topics(num_topics=num_top, num_words=num_wrd * 2))
    print(len(doc_clean))
    """
    print(doc_term_matrix[0])
    print(ldamodel.get_document_topics(doc_term_matrix[0]))
    print(doc_term_matrix[1])
    print(ldamodel.get_document_topics(doc_term_matrix[1]))
    print(doc_term_matrix[2])
    print(ldamodel.get_document_topics(doc_term_matrix[2]))
    print(doc_term_matrix[3])
    print(ldamodel.get_document_topics(doc_term_matrix[3]))
    print(doc_term_matrix[10])
    print(ldamodel.get_document_topics(doc_term_matrix[10]))

    print(ldamodel.get_document_topics(doc_term_matrix[0])[0])

    print(len(doc_term_matrix))
    """

    for i in range(len(doc_term_matrix)):
        # top_len = len(ldamodel.get_document_topics(doc_term_matrix[i]))
```

```python
            top_len = len(doc_term_matrix[i])
            if top_len > 0:
                max_top = 0; max_percent = 0
                for top in ldamodel.get_document_topics(doc_term_matrix[i]):
                    # print('top[1]', top[1])
                    if top[1] > max_percent:
                        max_percent = top[1]
                        max_top = top[0]
            else:
                # max_top = ldamodel.get_document_topics(doc_term_matrix[i])[0][0]
                max_top = -1
            # print('max_top for i =', i, 'is', max_top)
            row = []; row.append(my_projects[i]); row.append(max_top); writer.writerow(row); del row
```

```
In [7]:  ############## main function ###################
         path = r'C:\Aarhus\Internship\Morten\9\data'
         in_file = r'new\08\project.csv'; in_spl = ','; portion_thresholds = 0.25; num_top = 10; num_wrd = 5
         out_file = r'topic\project_topic.csv';
         prep_file = r'topic\prepositions 1.xlsx';

         # 1: HS-unigrams.txt
         # 2: HS-bigrams.txt

         start_time = time.time()
         pos_list = create_topic_list(join(path, in_file), join(path, out_file), join(path, prep_file), in_spl, portion_thresho
         lds, \
                                      num_top, num_wrd)
         print("--- %s seconds ---" % (time.time() - start_time))
```

```
[(0, '0.037*"building" + 0.030*"city" + 0.028*"floor" + 0.025*"room" + 0.020*"roof"'), (1, '0.052*"house" + 0.026*"ro
bot" + 0.026*"table" + 0.017*"family" + 0.014*"bed"'), (2, '0.040*"en" + 0.038*"de" + 0.037*"dir" + 0.018*"la" + 0.01
7*"le"'), (3, '0.033*"red" + 0.025*"black" + 0.024*"blue" + 0.024*"white" + 0.020*"tree"'), (4, '0.024*"minifigures"
+ 0.020*"includes" + 0.017*"figure" + 0.016*"series" + 0.016*"mini"'), (5, '0.059*"lang" + 0.045*"id" + 0.037*"ltr" +
0.036*"p" + 0.022*"spanspan"'), (6, '0.041*"car" + 0.015*"vehicle" + 0.014*"feature" + 0.014*"truck" + 0.013*"engin
e"'), (7, '0.085*"game" + 0.020*"hero" + 0.013*"sword" + 0.011*"ninjago" + 0.011*"video"'), (8, '0.028*"piece" + 0.02
2*"brick" + 0.015*"it" + 0.015*"great" + 0.014*"space"'), (9, '0.053*"war" + 0.016*"fighter" + 0.013*"mountain" + 0.0
10*"clone" + 0.009*"imperial"')]
[(0, '0.037*"building" + 0.030*"city" + 0.028*"floor" + 0.025*"room" + 0.020*"roof" + 0.017*"wall" + 0.015*"modular"
+ 0.014*"area" + 0.011*"door" + 0.011*"second"'), (1, '0.052*"house" + 0.026*"robot" + 0.026*"table" + 0.017*"family"
+ 0.014*"bed" + 0.014*"kitchen" + 0.013*"desk" + 0.012*"spanthe" + 0.011*"chair" + 0.010*"living"'), (2, '0.040*"en"
+ 0.038*"de" + 0.037*"dir" + 0.018*"la" + 0.017*"le" + 0.014*"bus" + 0.012*"verticalalign" + 0.012*"inherit" + 0.012
*"e" + 0.011*"un"'), (3, '0.033*"red" + 0.025*"black" + 0.024*"blue" + 0.024*"white" + 0.020*"tree" + 0.019*"green" +
0.016*"boat" + 0.013*"dark" + 0.013*"yellow" + 0.012*"dragon"'), (4, '0.024*"minifigures" + 0.020*"includes" + 0.017
*"figure" + 0.016*"series" + 0.016*"mini" + 0.015*"character" + 0.015*"movie" + 0.015*"world" + 0.012*"minifigure" +
0.012*"based"'), (5, '0.059*"lang" + 0.045*"id" + 0.037*"ltr" + 0.036*"p" + 0.022*"spanspan" + 0.015*"enus" + 0.011
*"spanspanspan" + 0.011*"engb" + 0.007*"resultbox" + 0.007*"spani"'), (6, '0.041*"car" + 0.015*"vehicle" + 0.014*"fea
ture" + 0.014*"truck" + 0.013*"engine" + 0.012*"wheel" + 0.010*"side" + 0.009*"door" + 0.009*"wing" + 0.008*"powe
r"'), (7, '0.085*"game" + 0.020*"hero" + 0.013*"sword" + 0.011*"ninjago" + 0.011*"video" + 0.010*"minecraft" + 0.010
*"ninja" + 0.010*"cream" + 0.010*"chess" + 0.009*"board"'), (8, '0.028*"piece" + 0.022*"brick" + 0.015*"it" + 0.015
*"great" + 0.014*"space" + 0.011*"ship" + 0.011*"fun" + 0.011*"good" + 0.010*"people" + 0.009*"different"'), (9, '0.0
53*"war" + 0.016*"fighter" + 0.013*"mountain" + 0.010*"clone" + 0.009*"imperial" + 0.009*"episode" + 0.008*"trooper"
+ 0.008*"cave" + 0.008*"legend" + 0.008*"shuttle"')]
130969
--- 1547.516170501709 seconds ---
```

```python
print(ldamodel.print_topics(num_topics=10, num_words=10))
```

```python
import xlrd
import xlsxwriter
from nltk.corpus import wordnet as wn

path = r'C:\Aarhus\Internship\Morten\9\Topic Modeling\files'

###### Adverbs
out_file = r'adverbs.xlsx'
in_file = r'book1.xlsx'

my_str = "accidentally always angrily anxiously awkwardly badly blindly boastfully boldly bravely brightly cheerfully
 coyly crazily defiantly deftly deliberately devotedly doubtfully dramatically dutifully eagerly elegantly enormously
 evenly eventually exactly faithfully finally foolishly fortunately frequently gleefully gracefully happily hastily ho
nestly hopelessly hourly hungrily innocently inquisitively irritably jealously justly kindly lazily loosely madly merr
ily mortally mysteriously nervously never obediently obnoxiously occasionally often only perfectly politely poorly pow
erfully promptly quickly rapidly rarely regularly rudely safely seldom selfishly seriously shakily sharply silently sl
owly solemnly sometimes speedily sternly technically tediously unexpectedly usually victoriously vivaciously warmly we
arily weekly wildly yearly"
my_list = my_str.split()

my_str = "abnormally absentmindedly accidentally actually adventurously afterwards almost always annually anxiously ar
rogantly awkwardly bashfully beautifully bitterly bleakly blindly blissfully boastfully boldly bravely briefly brightl
y briskly broadly busily calmly carefully carelessly cautiously certainly cheerfully clearly cleverly closely coaxingl
y colorfully commonly continually coolly correctly courageously crossly cruelly curiously daily daintily dearly deceiv
ingly deeply defiantly deliberately delightfully diligently dimly doubtfully dreamily easily elegantly energetically e
normously enthusiastically equally especially even evenly eventually exactly excitedly extremely fairly faithfully fam
ously far fast fatally ferociously fervently fiercely fondly foolishly fortunately frankly frantically freely frenetic
ally frightfully fully furiously generally generously gently gladly gleefully gracefully gratefully greatly greedily h
appily hastily healthily heavily helpfully helplessly highly honestly hopelessly hourly hungrily immediately innocentl
y inquisitively instantly intensely intently interestingly inwardly irritably jaggedly jealously jovially joyfully joy
ously jubilantly judgmentally justly keenly kiddingly kindheartedly kindly knavishly knowingly knowledgeably kookily l
azily les lightly likely limply lively loftily longingly loosely loudly lovingly loyally madly majestically meaningful
ly mechanically merrily miserably mockingly monthly more mortally mostly mysteriously naturally hopelessly hourly hung
rily immediately innocently inquisitively instantly intensely intently interestingly inwardly irritably jaggedly jealo
usly jovially joyfully joyously jubilantly judgmentally justly keenly kiddingly kindheartedly kindly knavishly knowing
ly knowledgeably kookily lazily less lightly likely limply lively loftily longingly loosely loudly lovingly loyally ma
dly majestically meaningfully mechanically merrily miserably mockingly monthly more mortally mostly mysteriously natur
ally nearly neatly nervously never nicely noisily not obediently obnoxiously oddly offensively officially often only o
penly optimistically overconfidently painfully partially patiently perfectly physically playfully politely poorly posi
tively potentially powerfully promptly properly punctually quaintly queasily queerly questionably quicker quickly quie
tly quirkily quizzically randomly rapidly rarely readily really reassuringly recklessly regularly reluctantly repeated
```

```python
ly reproachfully restfully righteously rightfully rigidly roughly rudely safely scarcely scarily searchingly sedately
 seemingly seldom selfishly separately seriously shakily sharply sheepishly shrilly shyly silently sleepily slowly smo
othly softly solemnly solidly sometimes soon speedily stealthily sternly strictly successfully suddenly supposedly sur
prisingly suspiciously sweetly swiftly sympathetically tenderly tensely terribly thankfully thoroughly thoughtfully ti
ghtly tomorrow too tremendously triumphantly truly truthfully rightfully scarcely searchingly sedately seemingly selfi
shly separately seriously sheepishly smoothly solemnly sometimes speedily stealthily successfully suddenly supposedly
 surprisingly suspiciously sympathetically tenderly thankfully thoroughly thoughtfully tomorrow tremendously triumphan
tly truthfully ultimately unabashedly unaccountably unbearably unethically unexpectedly unfortunately unimpressively u
nnaturally unnecessarily upbeat upright upside-down upward urgently usefully uselessly usually utterly vacantly vaguel
y vainly valiantly vastly verbally very viciously victoriously violently vivaciously voluntarily warmly weakly wearily
well wetly wholly wildly willfully wisely woefully wonderfully worriedly wrongly yawningly yearly yearningly yesterday
yieldingly youthfully zealously zestfully zestily"
my_list_1 = my_str.split()

my_list_2 = []
in_wb = xlrd.open_workbook(join(path, in_file)); in_ws = in_wb.sheet_by_index(0)
for i in range(in_ws.nrows):
    my_list_2.append(in_ws.cell_value(i, 0))

for word in my_list_1:
    if word not in my_list: my_list.append(word)
for word in my_list_2:
    if word not in my_list: my_list.append(word)

my_list.sort()
print('adverbs', my_list)

conc_wb = xlsxwriter.Workbook(join(path, out_file)); conc_ws = conc_wb.add_worksheet()
for i in range(len(my_list)):
    conc_ws.write(i, 0, my_list[i])
conc_wb.close()

###### Adverbs

###### Deteminers
out_file = r'determiners.xlsx'
in_file = r'book2.xlsx'

my_str = "few fewer fewest every most that half much the another her my their a an his neither these all its no this a
ny one two three those both least our what each less several which either many some whose enough more such your"
my_list = my_str.split()
```

```python
my_list_1 = []
in_wb = xlrd.open_workbook(join(path, in_file)); in_ws = in_wb.sheet_by_index(0)
for i in range(in_ws.nrows):
    if in_ws.cell_type(i, 0) == 2 or in_ws.cell_type(i, 0) == 3:
        my_list_1.append(str(int(in_ws.cell_value(i, 0))))
    else:
        my_list_1.append(in_ws.cell_value(i, 0))

for word in my_list_1:
    if word not in my_list: my_list.append(word)

my_list.sort()
print('determiners', my_list)

conc_wb = xlsxwriter.Workbook(join(path, out_file)); conc_ws = conc_wb.add_worksheet()
for i in range(len(my_list)):
    conc_ws.write(i, 0, my_list[i])
conc_wb.close()

###### Deteminers

###### Prepositions
out_file = r'prepositions.xlsx'
in_file = r'book3.xlsx'

my_list = []
in_wb = xlrd.open_workbook(join(path, in_file)); in_ws = in_wb.sheet_by_index(0)
for i in range(in_ws.nrows):
    if in_ws.cell_type(i, 0) == 2 or in_ws.cell_type(i, 0) == 3:
        my_list.append(str(int(in_ws.cell_value(i, 0))))
    else:
        my_list.append(in_ws.cell_value(i, 0))

in_file = r'book4.xlsx'

my_list_1 = []
in_wb = xlrd.open_workbook(join(path, in_file)); in_ws = in_wb.sheet_by_index(0)
for i in range(in_ws.nrows):
    if in_ws.cell_type(i, 0) == 2 or in_ws.cell_type(i, 0) == 3:
        my_list_1.append(str(int(in_ws.cell_value(i, 0))))
    else:
        my_list_1.append(in_ws.cell_value(i, 0))
```

```python
for word in my_list_1:
    if word not in my_list: my_list.append(word)

my_list.sort()
print('prepositions', my_list)

conc_wb = xlsxwriter.Workbook(join(path, out_file)); conc_ws = conc_wb.add_worksheet()
for i in range(len(my_list)):
    conc_ws.write(i, 0, my_list[i])
conc_wb.close()

###### Prepositions

###### Verbs
in_file = r'verbs.xlsx'

my_list = []
in_wb = xlrd.open_workbook(join(path, in_file)); in_ws = in_wb.sheet_by_index(0)
for i in range(in_ws.nrows):
    if in_ws.cell_type(i, 0) == 2 or in_ws.cell_type(i, 0) == 3:
        my_list_1.append(str(int(in_ws.cell_value(i, 0))))
    else:
        my_list_1.append(in_ws.cell_value(i, 0))

for word in my_list_1:
    word = ''.join(e for e in word if e.isalnum())
    if word not in my_list: my_list.append(word)

my_list.sort()
print('verbs', my_list)
###### Verbs
```

adverbs ['abnormally', 'about', 'above', 'abroad', 'absentmindedly', 'absolutely', 'accidentally', 'across', 'actually', 'adventurously', 'afterwards', 'again', 'ago', 'ahead', 'almost', 'alone', 'along', 'already', 'also', 'altogether', 'always', 'angrily', 'annually', 'anxiously', 'any', 'anyway', 'anywhere', 'apart', 'around', 'arrogantly', 'as', 'aside', 'automatically', 'away', 'awkwardly', 'back', 'bad', 'badly', 'bashfully', 'basically', 'beautifully', 'before', 'behind', 'below', 'best', 'better', 'between', 'bitterly', 'bleakly', 'blindly', 'blissfully', 'boastfully', 'boldly', 'both', 'bravely', 'briefly', 'bright', 'brightly', 'briskly', 'broadly', 'busily', 'by', 'calmly', 'carefully', 'carelessly', 'cautiously', 'certainly', 'cheap', 'cheerfully', 'clean', 'clear', 'clearly', 'cleverly', 'close', 'closely', 'coaxingly', 'collect', 'colorfully', 'commonly', 'completely', 'constantly', 'continually', 'cool', 'coolly', 'correctly', 'courageously', 'coyly', 'crazily', 'crossly', 'cruelly', 'curiously', 'currently', 'daily', 'daintily', 'dearly', 'deceivingly', 'deeply', 'defiantly', 'definitely', 'deftly', 'deliberately', 'delightfully', 'devotedly', 'diligently', 'dimly', 'direct', 'directly', 'doubtfully', 'down', 'downtown', 'dramatically', 'dreamily', 'dutifully', 'each', 'eagerly', 'early', 'easily', 'easy', 'effectively', 'elegantly', 'else', 'elsewhere', 'energetically', 'enormously', 'enough', 'enthusiastically', 'equally', 'especially', 'essentially', 'even', 'evenly', 'eventually', 'ever', 'everywhere', 'exactly', 'excitedly', 'extra', 'extremely', 'fair', 'fairly', 'faithfully', 'famously', 'far', 'fast', 'fatally', 'ferociously', 'fervently', 'fiercely', 'finally', 'fine', 'first', 'flat', 'fondly', 'foolishly', 'forever', 'forth', 'fortunately', 'forward', 'frankly', 'frantically', 'free', 'freely', 'frenetically', 'frequently', 'fresh', 'frightfully', 'full', 'fully', 'furiously', 'generally', 'generously', 'gently', 'gladly', 'gleefully', 'gracefully', 'gratefully', 'greatly', 'greedily', 'gross', 'happily', 'hard', 'hardly', 'hastily', 'healthily', 'heavily', 'helpfully', 'helplessly', 'here', 'highly', 'honest', 'honestly', 'hopefully', 'hopelessly', 'hourly', 'how', 'however', 'hungrily', 'ill', 'immediately', 'in', 'initially', 'innocently', 'inquisitively', 'instantly', 'instead', 'intensely', 'intently', 'interestingly', 'inwardly', 'irritably', 'item', 'jaggedly', 'jealously', 'jovially', 'joyfully', 'joyously', 'jubilantly', 'judgmentally', 'just', 'justly', 'keenly', 'kiddingly', 'kindheartedly', 'kindly', 'knavishly', 'knowingly', 'knowledgeably', 'kookily', 'last', 'late', 'later', 'lazily', 'least', 'left', 'les', 'less', 'lightly', 'likely', 'limply', 'literally', 'little', 'lively', 'loftily', 'longingly', 'loosely', 'lot', 'loud', 'loudly', 'lovingly', 'lower', 'loyally', 'madly', 'mainly', 'majestically', 'maybe', 'meaningfully', 'mechanically', 'merely', 'merrily', 'miserably', 'mockingly', 'monthly', 'more', 'moreover', 'morning', 'mortally', 'mostly', 'much', 'mysteriously', 'naturally', 'near', 'nearby', 'nearly', 'neatly', 'necessarily', 'nervously', 'never', 'new', 'next', 'nicely', 'no', 'noisily', 'none', 'normally', 'not', 'now', 'nowhere', 'obediently', 'obnoxiously', 'obviously', 'occasionally', 'oddly', 'off', 'offensively', 'officially', 'often', 'ok', 'on', 'once', 'only', 'openly', 'optimistically', 'originally', 'otherwise', 'out', 'overall', 'overconfidently', 'painfully', 'partially', 'patiently', 'perfectly', 'personally', 'physically', 'playfully', 'please', 'politely', 'poorly', 'positively', 'possibly', 'potentially', 'powerfully', 'pray', 'pretty', 'previously', 'primarily', 'probably', 'promptly', 'proper', 'properly', 'punctually', 'quaintly', 'queasily', 'queerly', 'questionably', 'quick', 'quicker', 'quickly', 'quietly', 'quirkily', 'quite', 'quizzically', 'randomly', 'rapidly', 'rarely', 'rather', 'readily', 'real', 'really', 'reassuringly', 'recently', 'recklessly', 'regularly', 'relatively', 'reluctantly', 'repeatedly', 'reproachfully', 'restfully', 'right', 'righteously', 'rightfully', 'rigidly', 'roughly', 'rudely', 'safely', 'scarcely', 'scarily', 'searchingly', 'sedately', 'seemingly', 'seldom', 'selfishly', 'separately', 'seriously', 'shakily', 'sharply', 'sheepishly', 'short', 'shrilly', 'shyly', 'significantly', 'silently', 'similarly', 'simply', 'since', 'sleepily', 'slightly', 'slow', 'slowly', 'small', 'smooth', 'smoothly', 'so', 'softly', 'solemnly', 'solidly', 'somehow', 'sometimes', 'somewhat', 'somewhere', 'soon', 'specifically', 'speedily', 'stealthily', 'sternly', 'straight', 'strange', 'strictly', 'strongly', 'successfully', 'such', 'suddenly', 'super', 'supposedly', 'sure', 'surprisingly', 'suspiciously', 'sweetly',

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t', 'commune', 'communicate', 'compare', 'compel', 'compete', 'complain', 'complete', 'compliment', 'comply', 'comport', 'compose', 'comprehend', 'compress', 'compromise', 'conceal', 'concede', 'concenter', 'concentrate', 'concern', 'conclude', 'concur', 'condemn', 'condescend', 'condone', 'conduct', 'confer', 'confess', 'confide', 'confine', 'confirm', 'confiscate', 'confront', 'confuse', 'congratulate', 'conjecture', 'connect', 'connote', 'conquer', 'consecrate', 'consent', 'conserve', 'consider', 'consign', 'consist', 'console', 'consort', 'conspire', 'constrain', 'constrict', 'construct', 'consult', 'cont', 'contain', 'contemplate', 'contend', 'contest', 'continue', 'contort', 'contract', 'contradict', 'contribute', 'control', 'convene', 'converge', 'converse', 'convert', 'convey', 'convict', 'convince', 'convulse', 'coo', 'cook', 'cool', 'cooperate', 'coordinate', 'cope', 'copy', 'corner', 'correct', 'correspond', 'corrode', 'corrupt', 'cosset', 'cost', 'cough', 'could', 'counsel', 'count', 'counter', 'counteract', 'court', 'cover', 'covet', 'cower', 'cozen', 'crack', 'crackle', 'cradle', 'cram', 'crane', 'crash', 'crave', 'crawl', 'crease', 'create', 'creep', 'crimp', 'cringe', 'crinkle', 'criticise', 'criticize', 'critique', 'croak', 'crochet', 'crook', 'croon', 'crop', 'cross', 'crossexamine', 'crouch', 'crow', 'crowd', 'crumble', 'crumple', 'crunch', 'crush', 'cry', 'cuddle', 'cue', 'cuff', 'cup', 'curb', 'cure', 'curl', 'curse', 'curtsey', 'curtsy', 'curve', 'cuss', 'cut', 'cycle', 'dab', 'dabble', 'dally', 'dam', 'damage', 'dampen', 'dance', 'dancearm', 'dancecheek', 'dancecircle', 'dancedip', 'dancefollow', 'dancehop', 'dancejig', 'dancelead', 'danceleap', 'danceleft', 'dancepromenade', 'dancerhythm', 'danceright', 'danceshuffle', 'dancesidestep', 'dancesweep', 'danceswirl', 'dancetwirl', 'dancewaltz', 'dancewhirl', 'dandle', 'dangle', 'dare', 'darken', 'dart', 'dash', 'dawdle', 'daydream', 'dazzle', 'deadpan', 'deal', 'debate', 'decay', 'deceive', 'decide', 'decipher', 'declaim', 'declare', 'decline', 'decorate', 'decrease', 'decree', 'decry', 'dedicate', 'deduce', 'deem', 'defend', 'defer', 'defile', 'define', 'deflate', 'deflect', 'defy', 'dehors', 'delay', 'delegate', 'delete', 'deliberate', 'delight', 'deliver', 'delve', 'demand', 'demonstrate', 'demur', 'denounce', 'deny', 'depend', 'deplore', 'deposit', 'deprive', 'deride', 'descend', 'describe', 'desecrate', 'desert', 'deserve', 'design', 'desire', 'despair', 'despite', 'despoil', 'destroy', 'detach', 'detect', 'deter', 'determine', 'develop', 'devour', 'diagnose', 'dial', 'dictate', 'did', 'die', 'differ', 'differentiate', 'dig', 'digest', 'digress', 'dilate', 'dim', 'diminish', 'dimple', 'dine', 'dip', 'direct', 'disagree', 'disappear', 'disapprove', 'disbelieve', 'discern', 'discipline', 'disclaim', 'disclose', 'discombobulate', 'discourage', 'discover', 'discriminate', 'discuss', 'disentangle', 'disfavor', 'disfavour', 'disguise', 'dishevel', 'dislike', 'dislodge', 'dismiss', 'dismount', 'disobey', 'disparage', 'displace', 'display', 'disport', 'dispute', 'disregard', 'disrespect', 'dissemble', 'dissolve', 'distance', 'distinguish', 'distort', 'distract', 'distribute', 'distrust', 'disturb', 'disuse', 'dither', 'dive', 'dived', 'divert', 'divide', 'divorce', 'divulge', 'do', 'dock', 'dodder', 'dodge', 'does', 'doff', 'dole', 'donate', 'done', 'doodle', 'dote', 'double', 'doublecheck', 'doubt', 'dove', 'down', 'download', 'downplay', 'doze', 'draft', 'drag', 'drain', 'dramatise', 'dramatize', 'drank', 'drape', 'draw', 'drawl', 'drawn', 'dream', 'dreameddreamt', 'drench', 'dress', 'drew', 'dribble', 'drift', 'drill', 'drink', 'drip', 'drive', 'drivel', 'driven', 'drone', 'drool', 'droop', 'drop', 'drove', 'drown', 'drum', 'drunk', 'dry', 'dub', 'duck', 'due', 'duel', 'dug', 'dump', 'dunk', 'dupe', 'during', 'dust', 'dwell', 'dye', 'earn', 'ease', 'east', 'eat', 'eaten', 'eavesdrop', 'echo', 'edge', 'edit', 'educate', 'effuse', 'elaborate', 'elbow', 'elect', 'elevate', 'elope', 'elucidate', 'elude', 'embarrass', 'embellish', 'emboss', 'embrace', 'embroider', 'emerge', 'emforth', 'emigrate', 'emit', 'empathise', 'empathize', 'emphasise', 'emphasize', 'employ', 'empower', 'empty', 'emulate', 'encase', 'enchant', 'encircle', 'enclose', 'encode', 'encompass', 'encounter', 'encourage', 'encroach', 'end', 'endanger', 'endorse', 'endure', 'energize', 'enfold', 'enforce', 'engage', 'engrave', 'engulf', 'enhance', 'enjoin', 'enjoy', 'enlarge', 'enlighten', 'enquire', 'enshroud', 'ensnare', 'entangle', 'enter', 'entertain', 'enthuse', 'entice', 'entreat', 'entwine', 'enumerate', 'enunciate', 'envelop', 'envision', 'envy', 'equivocate', 'erase', 'ere', 'escape', 'escort', 'espy', 'establish', 'estimate', 'etch', 'evacuate', 'evade', 'evaluate', 'evaporate', 'evoke', 'exaggerate', 'examine', 'excavate', 'except', 'exchange', 'excite', 'exclaim', 'exclud

e', 'excuse', 'exercise', 'exhale', 'exhibit', 'exhort', 'exist', 'exits', 'exosculate', 'expand', 'expect', 'expel', 'experience', 'explain', 'explode', 'exploit', 'explore', 'expose', 'expound', 'express', 'extend', 'extinguish', 'extoll', 'extract', 'extrapolate', 'extricate', 'exult', 'eye', 'eyeball', 'fabricate', 'face', 'fade', 'fail', 'faint', 'fake', 'falen', 'fall', 'fallen', 'falter', 'familiarise', 'familiarize', 'fan', 'fancy', 'fantasize', 'far', 'fasten', 'favor', 'favour', 'fawn', 'fax', 'fear', 'feed', 'feel', 'feign', 'feint', 'fell', 'felt', 'fence', 'fend', 'ferry', 'fetch', 'fib', 'fiddle', 'fidget', 'fight', 'file', 'fill', 'film', 'finalize', 'find', 'finger', 'finish', 'fire', 'fish', 'fit', 'fix', 'flail', 'flank', 'flap', 'flare', 'flash', 'flatten', 'flatter', 'flaunt', 'flee', 'flew', 'flex', 'flick', 'flinch', 'fling', 'flip', 'flirt', 'flit', 'float', 'flood', 'flop', 'floss', 'flounce', 'flounder', 'flourish', 'flout', 'flow', 'flower', 'flown', 'flub', 'fluff', 'flush', 'flute', 'flutter', 'fly', 'foam', 'focus', 'fold', 'follow', 'fondle', 'fool', 'for', 'forbid', 'forby', 'force', 'foreanent', 'forecast', 'foregain', 'foregainst', 'forenenst', 'foretell', 'forewarn', 'forgave', 'forge', 'forgeaddress', 'forgeerase', 'forget', 'forgewrite', 'forgive', 'forgiven', 'forgot', 'forgotten', 'form', 'forsake', 'forth', 'fortify', 'forumulate', 'fought', 'found', 'frame', 'free', 'freemorph', 'freeze', 'fret', 'frighten', 'frisk', 'frolic', 'from', 'fromward', 'fromwards', 'front', 'froth', 'froward', 'frown', 'froze', 'frozen', 'fry', 'fulfil', 'fumble', 'fume', 'furl', 'furrow', 'furth', 'fuss', 'gabble', 'gag', 'gain', 'gainst', 'gainward', 'gallivant', 'gallop', 'gamble', 'gambol', 'gape', 'garden', 'gargle', 'gash', 'gasp', 'gather', 'gauge', 'gave', 'gawk', 'gaze', 'gel', 'generalize', 'genuflect', 'gesticulate', 'gesture', 'get', 'gibber', 'giggle', 'gild', 'give', 'given', 'glance', 'glare', 'glide', 'glimpse', 'gloat', 'glow', 'glower', 'glue', 'gnash', 'gnaw', 'go', 'goad', 'gobble', 'goggle', 'gone', 'goose', 'gossip', 'got', 'gotten', 'gouge', 'govern', 'grab', 'grade', 'grant', 'grapple', 'grasp', 'grate', 'gravitate', 'graze', 'grease', 'greet', 'grew', 'grieve', 'grill', 'grimace', 'grin', 'grind', 'grip', 'gripe', 'grit', 'groan', 'groom', 'grope', 'grouch', 'ground', 'grovel', 'grow', 'growl', 'grown', 'grumble', 'grump', 'grunt', 'guarantee', 'guard', 'guess', 'guffaw', 'guide', 'gulp', 'gurgle', 'gush', 'guzzle', 'gyrate', 'hack', 'had', 'haggle', 'hail', 'hallucinate', 'halt', 'hammer', 'hand', 'handle', 'hang', 'happen', 'harass', 'harden', 'hark', 'harm', 'harmonize', 'harness', 'harry', 'harvest', 'has', 'hassle', 'hasten', 'hatch', 'hate', 'haul', 'haunt', 'have', 'head', 'headbutt', 'heal', 'health', 'heap', 'hear', 'heard', 'hearten', 'heat', 'heave', 'heckle', 'hector', 'hedge', 'heed', 'heft', 'held', 'help', 'hem', 'hence', 'herald', 'hesitate', 'hew', 'hiccup', 'hid', 'hidden', 'hide', 'highlight', 'hijack', 'hike', 'hinder', 'hint', 'hiss', 'hit', 'hitch', 'hoard', 'hobble', 'hog', 'hoist', 'hold', 'holler', 'hone', 'honk', 'hook', 'hoot', 'hop', 'hope', 'horrify', 'hound', 'hover', 'howl', 'huddle', 'huff', 'hug', 'hum', 'humiliate', 'humor', 'humour', 'hunch', 'hung', 'hunt', 'hurl', 'hurrah', 'hurry', 'hurt', 'hurtle', 'hush', 'hustle', 'hypnotize', 'ice', 'idea', 'idealize', 'identify', 'idolize', 'ignite', 'ignore', 'illuminate', 'illustrate', 'imagine', 'imbibe', 'imell', 'imitate', 'immerse', 'immigrate', 'immolate', 'impair', 'impale', 'impart', 'impede', 'implant', 'implore', 'imply', 'import', 'impose', 'impress', 'imprint', 'imprison', 'improve', 'improvise', 'in', 'inaugurate', 'inch', 'incline', 'include', 'increase', 'incriminate', 'indent', 'indicate', 'induce', 'indulge', 'infect', 'infer', 'infest', 'inflame', 'inflate', 'inflect', 'influence', 'inform', 'infuse', 'ingest', 'inhale', 'initiate', 'inject', 'injure', 'ink', 'inmid', 'inmiddes', 'inquire', 'inscribe', 'insert', 'inside', 'insinuate', 'insist', 'inspect', 'inspire', 'install', 'instead', 'instigate', 'instruct', 'insult', 'intend', 'interact', 'intercept', 'interest', 'interfere', 'interject', 'interlace', 'interlock', 'interpret', 'interrogate', 'interrupt', 'intertwine', 'intervene', 'interview', 'into', 'intone', 'introduce', 'invent', 'inventory', 'invert', 'invest', 'investigate', 'invite', 'invoke', 'iron', 'irritate', 'is', 'itch', 'iterate', 'jab', 'jabber', 'jail', 'jam', 'jangle', 'jeer', 'jerk', 'jest', 'jibe', 'jiggle', 'jingle', 'jog', 'join', 'joke', 'jolt', 'jostle', 'judge', 'juggle', 'jumble', 'jump', 'justify', 'jut', 'keen', 'keep', 'kept', 'kick', 'kid', 'kill', 'kiss', 'knead', 'knee', 'kneel', 'knew', 'knit', 'knock', 'knot', 'know', 'known', 'kowtow', 'label', 'lace', 'lack', 'laid', 'lain', 'lament', 'land', 'languish', 'lap', 'lash', 'last', 'latch', 'lathe

r', 'laud', 'laugh', 'launch', 'lavish', 'lay', 'lead', 'leaf', 'lean', 'leap', 'learn', 'leave', 'lecture', 'led', 'leer', 'left', 'lend', 'lengthen', 'lent', 'less', 'let', 'level', 'license', 'lick', 'lie', 'lieu', 'lift', 'ligh t', 'lighten', 'like', 'lilt', 'limp', 'linger', 'lisp', 'list', 'listen', 'live', 'load', 'loaf', 'loan', 'lob', 'lo cate', 'lock', 'log', 'loiter', 'loll', 'long', 'look', 'looked', 'loom', 'loop', 'loosen', 'lope', 'lose', 'lost', 'lounge', 'love', 'lower', 'lug', 'lull', 'lumber', 'lunge', 'lurch', 'lure', 'lurk', 'made', 'mail', 'maintain', 'ma ke', 'man', 'manage', 'maneuver', 'mang', 'mangle', 'manhandle', 'manipulate', 'manoeuvre', 'manufacture', 'map', 'ma r', 'march', 'mark', 'market', 'marry', 'marvel', 'mash', 'mask', 'massage', 'match', 'mate', 'matter', 'mauger', 'ma ugre', 'maul', 'maunder', 'may', 'mean', 'meander', 'means', 'meant', 'measure', 'meddle', 'mediate', 'meditate', 'me ep', 'meet', 'melt', 'memorize', 'menace', 'mend', 'mention', 'mentor', 'meow', 'merge', 'mesh', 'met', 'mew', 'mew l', 'mid', 'midst', 'might', 'migrate', 'milk', 'mime', 'mimic', 'mince', 'mind', 'mine', 'mingle', 'minus', 'misdire ct', 'mishear', 'misjudge', 'mislead', 'mispronounce', 'miss', 'misspell', 'mistake', 'misunderstand', 'mix', 'moan', 'mock', 'model', 'modify', 'moisten', 'mold', 'molest', 'mollify', 'mollycoddle', 'molt', 'mong', 'mongst', 'monito r', 'moo', 'moor', 'mope', 'more', 'morph', 'mosey', 'motion', 'motivate', 'mould', 'mount', 'mourn', 'mouth', 'mov e', 'mow', 'muffle', 'mug', 'mull', 'multiply', 'mumble', 'munch', 'murder', 'murmur', 'muse', 'muss', 'must', 'mutil ate', 'mutter', 'nag', 'nail', 'name', 'nap', 'narrate', 'narrow', 'navigate', 'near', 'nearer', 'nearest', 'nearhan d', 'neaten', 'neath', 'need', 'needed', 'neglect', 'negotiate', 'neigh', 'nest', 'nestle', 'never', 'next', 'nibbl e', 'nick', 'nicker', 'nigh', 'nip', 'nod', 'nominate', 'normalize', 'notch', 'note', 'notice', 'notify', 'notwithsta nding', 'nudge', 'number', 'nurse', 'nuzzle', 'o', 'obey', 'object', 'oblige', 'observe', 'obsess', 'obtain', 'occup y', 'occur', 'oer', 'of', 'off', 'offend', 'offer', 'officiate', 'ogle', 'oil', 'omit', 'on', 'onto', 'ontop', 'ooc', 'ooze', 'open', 'operate', 'opine', 'oppose', 'opposed', 'opposite', 'oppugn', 'opt', 'or', 'orate', 'order', 'organi se', 'organize', 'orient', 'originate', 'ornament', 'osculate', 'other', 'out', 'outdo', 'outen', 'outline', 'outmane uver', 'outmanoeuvre', 'outside', 'outwit', 'outwith', 'over', 'overbalance', 'overbear', 'overcome', 'overcompensat e', 'overdo', 'overdraw', 'overflow', 'overhear', 'overlook', 'overpower', 'overrun', 'overtake', 'overthrow', 'overt hwart', 'overturn', 'owe', 'owing', 'own', 'pace', 'pack', 'pad', 'paddle', 'paid', 'paint', 'palaver', 'pale', 'pal m', 'palpate', 'pamper', 'panic', 'pant', 'parade', 'paraphrase', 'pardon', 'park', 'parrot', 'parry', 'part', 'parti cipate', 'pass', 'past', 'paste', 'pat', 'patch', 'patrol', 'patronize', 'pause', 'paw', 'pay', 'peck', 'pedal', 'pee k', 'peel', 'peep', 'peer', 'peg', 'pelt', 'per', 'perceive', 'perch', 'perfect', 'perform', 'perk', 'permit', 'persi st', 'perspire', 'persuade', 'peruse', 'pester', 'pet', 'philosophise', 'philosophize', 'phone', 'photograph', 'pic k', 'picture', 'pierce', 'pile', 'pilot', 'pin', 'pinch', 'pine', 'pinpoint', 'pioneer', 'pipe', 'pitch', 'pity', 'pi vot', 'placate', 'place', 'plait', 'plan', 'plant', 'play', 'plead', 'please', 'pledge', 'plod', 'plonk', 'plop', 'pl ot', 'plow', 'pluck', 'plug', 'plump', 'plunge', 'plus', 'point', 'poke', 'polish', 'pon', 'ponder', 'pontificate', 'pop', 'pore', 'pose', 'position', 'possess', 'post', 'postulate', 'pounce', 'pound', 'pour', 'pout', 'practice', 'pr actise', 'praise', 'prance', 'prattle', 'pray', 'pre', 'preach', 'precede', 'predict', 'preen', 'prefer', 'prepare', 'prescribe', 'present', 'preserve', 'press', 'pressure', 'presume', 'pretend', 'prevaricate', 'prevent', 'prick', 'pr imp', 'print', 'prior', 'prise', 'pro', 'probe', 'proceed', 'process', 'proclaim', 'procrastinate', 'procure', 'pro d', 'produce', 'profess', 'proffer', 'prognosticate', 'program', 'progress', 'prohibit', 'project', 'promenade', 'pro mise', 'promote', 'prompt', 'prong', 'pronounce', 'proofread', 'prop', 'propel', 'prophesize', 'prophesy', 'propose', 'proposition', 'prostrate', 'protect', 'protest', 'prove', 'provide', 'provoke', 'prowl', 'pry', 'publicize', 'pucke r', 'puff', 'pull', 'pummel', 'pump', 'punch', 'puncture', 'punish', 'purchase', 'purr', 'purse', 'pursuant', 'pursu e', 'push', 'put', 'putter', 'qua', 'quack', 'quaff', 'quail', 'quake', 'qualify', 'quarrel', 'quaver', 'query', 'que stion', 'queue', 'quibble', 'quicken', 'quiet', 'quilt', 'quip', 'quirk', 'quit', 'quiver', 'quiz', 'quoad', 'quote', 'race', 'radiate', 'rage', 'rain', 'raise', 'rake', 'rally', 'ram', 'ramble', 'ran', 'rang', 'rank', 'ransack', 'ran

t', 'rap', 'rasp', 'rate', 'rather', 'ratify', 'rationalise', 'rationalize', 'rattle', 'ravage', 'rave', 're', 'reach', 'reacquaint', 'react', 'read', 'readall', 'readjust', 'ready', 'reaffirm', 'realign', 'realise', 'realize', 'rearrange', 'reason', 'reassert', 'reassess', 'reassure', 'reattach', 'rebuff', 'rebuke', 'recall', 'recap', 'receive', 'reciprocate', 'recite', 'reckon', 'reclaim', 'recline', 'recognise', 'recognize', 'recoil', 'recollect', 'recommend', 'reconcile', 'reconsider', 'record', 'recount', 'recover', 'recruit', 'recuperate', 'redden', 'redirect', 'rediscover', 'reduce', 'reel', 'reevaluate', 'refer', 'reference', 'refill', 'refine', 'reflect', 'refocus', 'refrain', 'refuse', 'refute', 'regain', 'regale', 'regard', 'regardless', 'regards', 'regret', 'regulate', 'rehabilitate', 'reign', 'reinforce', 'reintroduce', 'reiterate', 'reject', 'rejoice', 'relate', 'relax', 'relay', 'release', 'relent', 'relinquish', 'relish', 'rely', 'remain', 'remark', 'remember', 'remind', 'reminisce', 'remonstrate', 'remove', 'rend', 'render', 'reorganize', 'repack', 'repair', 'repeat', 'repel', 'repent', 'rephrase', 'replace', 'reply', 'report', 'reposition', 'represent', 'repress', 'reprimand', 'reproach', 'reproduce', 'repudiate', 'repulse', 'request', 'rescind', 'rescue', 'research', 'resent', 'reside', 'resign', 'resist', 'resolve', 'respect', 'respond', 'rest', 'restate', 'restrain', 'restructure', 'resume', 'retaliate', 'retch', 'retell', 'retire', 'retort', 'retract', 'retreat', 'retrieve', 'return', 'reveal', 'revel', 'revere', 'reverse', 'revert', 'review', 'revise', 'revoke', 'reward', 'reword', 'rhapsodize', 'rhyme', 'rid', 'ridden', 'riddle', 'ride', 'ridicule', 'riffle', 'rifle', 'right', 'ring', 'rinse', 'rip', 'riposte', 'rise', 'risen', 'risk', 'roam', 'roar', 'roast', 'rob', 'rock', 'rode', 'roll', 'romp', 'rose', 'rot', 'rotate', 'round', 'rouse', 'row', 'rub', 'ruffle', 'ruin', 'rule', 'rumble', 'ruminate', 'rummage', 'rumormonger', 'run', 'rung', 'rush', 'rustle', 'sack', 'said', 'sail', 'sake', 'salivate', 'salute', 'salvage', 'sang', 'sans', 'sashay', 'sat', 'satirize', 'satisfy', 'saturate', 'sauf', 'saunter', 'savage', 'save', 'savor', 'savour', 'saw', 'say', 'scale', 'scamper', 'scan', 'scare', 'scatter', 'schedule', 'scheme', 'school', 'scoff', 'scold', 'scoop', 'scoot', 'scorch', 'score', 'scorn', 'scour', 'scowl', 'scramble', 'scrape', 'scratch', 'scrawl', 'scream', 'screech', 'screw', 'scribble', 'scribe', 'scrub', 'scrunch', 'scrutinise', 'scrutinize', 'scuff', 'scurry', 'scuttle', 'seal', 'seam', 'search', 'section', 'secure', 'see', 'seek', 'seem', 'seen', 'seend', 'seep', 'seethe', 'seize', 'select', 'sell', 'send', 'sense', 'sent', 'sentence', 'separate', 'serenade', 'serve', 'service', 'set', 'settle', 'sever', 'sew', 'shade', 'shake', 'shall', 'shamble', 'shampoo', 'shape', 'share', 'sharpen', 'shatter', 'shave', 'shear', 'sheathe', 'shed', 'shelter', 'shield', 'shift', 'shine', 'shirk', 'shiver', 'shock', 'shoo', 'shoot', 'shop', 'short', 'shorten', 'should', 'shoulder', 'shout', 'shove', 'shovel', 'show', 'showcase', 'showed', 'shower', 'shown', 'shred', 'shriek', 'shrink', 'shrug', 'shudder', 'shuffle', 'shush', 'shut', 'sidestep', 'sidle', 'sift', 'sigh', 'sign', 'signal', 'silence', 'simmer', 'simper', 'simplify', 'sin', 'since', 'sing', 'singe', 'sink', 'sip', 'sit', 'sithence', 'size', 'skate', 'skateboard', 'sketch', 'skewer', 'ski', 'skid', 'skim', 'skip', 'skitter', 'skulk', 'slam', 'slander', 'slap', 'slash', 'slather', 'slay', 'sleep', 'slept', 'slice', 'slick', 'slide', 'sling', 'slink', 'slip', 'slit', 'slither', 'slobber', 'slosh', 'slouch', 'slow', 'slumber', 'slump', 'slur', 'slurp', 'smack', 'smash', 'smear', 'smell', 'smile', 'smirk', 'smite', 'smoke', 'smolder', 'smooch', 'smooth', 'smother', 'smoulder', 'smudge', 'smush', 'snake', 'snap', 'snarl', 'snatch', 'sneak', 'sneer', 'sneeze', 'snicker', 'sniff', 'sniffle', 'snigger', 'snip', 'snipe', 'snitch', 'snivel', 'snoop', 'snooze', 'snore', 'snort', 'snow', 'snub', 'snuff', 'snuffle', 'snuggle', 'soak', 'sob', 'sober', 'social', 'socialise', 'socialize', 'soften', 'sold', 'solve', 'somersault', 'soon', 'soothe', 'soothsay', 'sort', 'sough', 'sound', 'sow', 'span', 'spank', 'spare', 'spark', 'sparkle', 'spasm', 'speak', 'specify', 'speculate', 'speed', 'spell', 'spend', 'spent', 'spike', 'spill', 'spin', 'spit', 'spite', 'splash', 'splay', 'splinter', 'split', 'splutter', 'spoil', 'spoke', 'spoken', 'spot', 'sprawl', 'spray', 'spread', 'spring', 'sprinkle', 'sprint', 'sprout', 'spur', 'spurn', 'sputter', 'spy', 'squall', 'square', 'squash', 'squat', 'squawk', 'squeak', 'squeal', 'squeeze', 'squint', 'squirm', 'squirt', 'squish', 'stab', 'stabilize', 'stack', 'stagger', 'stain', 'stalk', 'stall', 'stammer', 'stamp', 'stand', 'star', 'stare', 'start', 'startle', 'stash', 'state', 'station', 'stay', 'steady', 'stea

l', 'steeple', 'steer', 'step', 'stick', 'stiffen', 'stifle', 'still', 'stimulate', 'sting', 'stink', 'stipulate', 'stir', 'stitch', 'stock', 'stockpile', 'stoke', 'stomp', 'stood', 'stoop', 'stop', 'store', 'storm', 'storypoint', 'stow', 'straddle', 'straighten', 'strain', 'strangle', 'strap', 'stray', 'streak', 'streamline', 'strengthen', 'stress', 'stretch', 'stride', 'strike', 'string', 'strip', 'strive', 'stroke', 'stroll', 'structure', 'struggle', 'strum', 'strut', 'study', 'stuff', 'stumble', 'stump', 'stun', 'stunt', 'stutter', 'style', 'subdue', 'sublet', 'submerge', 'submerse', 'submit', 'subsequent', 'subside', 'subtract', 'succeed', 'succumb', 'such', 'suck', 'suffer', 'suggest', 'suit', 'sulk', 'summarise', 'summarize', 'summon', 'sunder', 'sung', 'supervise', 'supplement', 'supply', 'support', 'suppose', 'surge', 'surmise', 'surprise', 'surrender', 'surround', 'survey', 'suspect', 'suspend', 'susurrate', 'swab', 'swagger', 'swallow', 'swam', 'swat', 'sway', 'swear', 'sweat', 'sweep', 'swell', 'swerve', 'swill', 'swim', 'swing', 'swipe', 'swirl', 'swish', 'switch', 'swivel', 'swoon', 'swoop', 'swum', 'symbolize', 'sympathise', 'sympathize', 'systemize', 'tabulate', 'tackle', 'tailor', 'take', 'taken', 'talk', 'tally', 'tame', 'tangle', 'tantalize', 'tap', 'target', 'task', 'taste', 'tattle', 'tattoo', 'taught', 'taunt', 'teach', 'tear', 'tease', 'teeter', 'telephone', 'tell', 'temper', 'tempt', 'tend', 'tense', 'terrify', 'test', 'testify', 'than', 'thank', 'thanks', 'thaw', 'the', 'theorise', 'theorize', 'think', 'thought', 'thrash', 'thread', 'threaten', 'threw', 'thrive', 'throttle', 'through', 'throughout', 'throw', 'thrown', 'thru', 'thruout', 'thrust', 'thumb', 'thump', 'thunder', 'thwack', 'thwap', 'tick', 'tickle', 'tidy', 'tie', 'tighten', 'til', 'till', 'tilt', 'time', 'tingle', 'tinker', 'tinkle', 'tip', 'tiptoe', 'tire', 'tisk', 'titter', 'to', 'toast', 'toddle', 'toe', 'tofore', 'toil', 'told', 'tolerate', 'took', 'toot', 'top', 'topple', 'tore', 'torn', 'toss', 'tote', 'totter', 'touch', 'toughen', 'tour', 'tousle', 'tow', 'toward', 'towards', 'tower', 'toy', 'trace', 'track', 'trade', 'trail', 'train', 'traipse', 'tramp', 'trample', 'transcribe', 'transfer', 'transform', 'translate', 'transmit', 'transport', 'trap', 'travel', 'traverse', 'tread', 'treasure', 'treat', 'tred', 'tremble', 'trick', 'trickle', 'tried', 'trill', 'trim', 'trip', 'triumph', 'trivialize', 'trot', 'trouble', 'troubleshoot', 'trounce', 'trudge', 'trumpet', 'trundle', 'trust', 'try', 'tuck', 'tug', 'tumble', 'tune', 'turn', 'tutor', 'tweak', 'tweeze', 'twiddle', 'twine', 'twinkle', 'twirl', 'twist', 'twitch', 'twitter', 'twixt', 'type', 'ululate', 'um', 'umb', 'umbe', 'unbend', 'unbind', 'unbraid', 'unbuckle', 'unbutton', 'unclasp', 'unclench', 'uncoil', 'uncover', 'uncross', 'uncurl', 'under', 'undergo', 'underneath', 'understand', 'understate', 'understood', 'undertake', 'undo', 'undress', 'undulate', 'unfasten', 'unfocus', 'unfold', 'unfurl', 'unhand', 'unhook', 'unify', 'unite', 'unknot', 'unlace', 'unleash', 'unlike', 'unlock', 'unmake', 'unmask', 'unpack', 'unpin', 'unravel', 'unroll', 'untangle', 'untie', 'until', 'unto', 'untuck', 'untwine', 'untwist', 'unveil', 'unwear', 'unwield', 'unwind', 'unwrap', 'up', 'update', 'upgrade', 'uphold', 'upon', 'upset', 'upside', 'upstage', 'uptill', 'urge', 'use', 'used', 'usher', 'usurp', 'utilize', 'utter', 'v', 'vacillate', 'vacuum', 'validate', 'value', 'vanish', 'vanquish', 'vault', 'veer', 'vent', 'venture', 'verbalize', 'verify', 'versus', 'vex', 'via', 'vibrate', 'vice', 'view', 'virtue', 'visit', 'visualise', 'visualize', 'visàvis', 'vituperate', 'vocalise', 'vocalize', 'vociferate', 'voice', 'volley', 'volunteer', 'vomit', 'vote', 'vouch', 'vow', 'vs', 'w', 'waddle', 'wade', 'waft', 'wag', 'wager', 'waggle', 'wail', 'wait', 'wake', 'walk', 'wallop', 'wallow', 'waltz', 'wander', 'want', 'wanted', 'warble', 'warm', 'warn', 'warp', 'was', 'wash', 'waste', 'watch', 'water', 'wave', 'waver', 'wear', 'weave', 'wed', 'wedge', 'weep', 'weigh', 'welcome', 'well', 'wend', 'went', 'were', 'wet', 'whack', 'wheedle', 'wheeze', 'whet', 'whimper', 'whine', 'whinny', 'whip', 'whirl', 'whisk', 'whisper', 'whistle', 'whittle', 'who', 'whoami', 'whoop', 'wi', 'widen', 'wield', 'wiggle', 'will', 'wilt', 'win', 'wince', 'wind', 'windmill', 'wink', 'wipe', 'wish', 'with', 'withal', 'withdraw', 'withhold', 'within', 'without', 'withstand', 'witness', 'wo', 'wobble', 'woke', 'woken', 'won', 'wonder', 'woo', 'wore', 'work', 'worked', 'worn', 'worry', 'worship', 'worth', 'would', 'wrack', 'wrangle', 'wrap', 'wreck', 'wrench', 'wrest', 'wrestle', 'wriggle', 'wring', 'wrinkle', 'write', 'writhe', 'written', 'wrote', 'xray', 'yank', 'yap', 'yawn', 'yawp', 'yearn', 'yell', 'yelp', 'yield', 'yodel', 'yowl', 'zip', 'zoom']

```
In [70]: possible_adj = []
         for ss in wn.synsets('terribly'):
             for lemmas in ss.lemmas():              # all possible lemmas
                 for ps in lemmas.pertainyms():      # all possible pertainyms
                     possible_adj.append(ps.name())
         print(possible_adj)
```

['terrible', 'atrocious', 'awful', 'rotten']

```
In [49]: import nltk
         print(nltk.stem.WordNetLemmatizer().lemmatize('love'))
         print(nltk.stem.WordNetLemmatizer().lemmatize('advise', pos = 'v'))
```

love
advise

```
In [ ]: path = r'C:\Aarhus\Internship\Morten\9\Data\topic'; in_file = r'prepositions 1.xlsx';
        prep_list = []
        in_wb = xlrd.open_workbook(join(path, in_file)); in_ws = in_wb.sheet_by_index(0)
        for i in range(in_ws.nrows):

            if in_ws.cell_type(i, 0) == 2 or in_ws.cell_type(i, 0) == 3:
                my_list_1.append(str(int(in_ws.cell_value(i, 0))))
            else:
                my_list_1.append(in_ws.cell_value(i, 0))
```