Tag Prediction on Stack Exchange

Group 3

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Problem Description and Original Analytics Plan

Primary objectives:

This project aims to use data and modeling to explore and predict tags for questions on Stack Exchange by using Natural Language Processing (NLP) with Keras Word2Vec , Paragraph2Vec. The primary objectives are as follows:

- I. Data Extraction -> Stack Exchange API
- 2. Exploratory Data Analysis (EDA) -> ggplot, wordcolud, word embedding
- 3. Machine Learning Model Development -> Keras Word2Vec and Paragraph2Vec technique

Comments and Reviews

Peer Comments and Reviews

Data Retrieval - To retrieve data and tags from the Stack Exchange API in R, we are using the httr package, which allows you to send HTTP requests and handle responses. httr will be used to interact with APIs and retrieve data for analysis.

Reduce manual tagging efforts - The project aims to streamline and improve the tagging process on Stack Exchange by automating the suggestion of relevant tags through a combination of NLP, machine learning, and statistical analysis, enhancing the overall user experience on the platform.

Professor's Comments and Reviews

Given the extensive amount of data and tags available, need to narrow down your focus - To refine our search, we will concentrate on a specific topic, like Python, as a focal point.

Data Summary

- Data Retrieval using Stack Exchange API in R.
- Number of Rows 650K+ and Columns 11
- Summary of columns -
 - tags: Categories or labels associated with the questions.
 - question_id: Unique identifier for each question.
 - title:Title of the question.
 - is_answered: Indicates whether the question has been answered (TRUE or FALSE).
 - view_count: Number of views the question has received.
 - answer_count: Number of answers the question has.
 - score: Score assigned to the question based on votes.
 - last_activity_date:Timestamp of the last activity on the question.
 - creation_date:Timestamp of when the question was created.
 - last_edit_date:Timestamp of the last edit made to the question.
 - content_license: License under which the content is distributed.
 - link: URL link to the question on Stack Overflow.

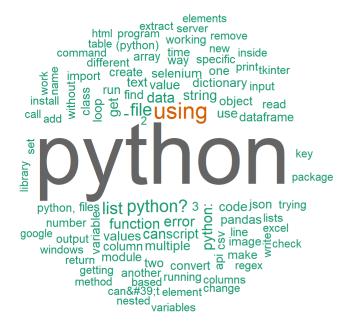
Data

```
example_data <- head(df, 5)
knitr::kable(
  example_data,
  caption = "Stack Exchange Dataset",
  format = "html",
  full_width = FALSE
)</pre>
```

tags	question_id	title	is_answered	view_count	answer_count sco
python contour scipy- optimize data- fitting uncertainty	77592064	How do I find the uncertainties on a fit with correlated parameters in python?	False	4	0
python	77591142	How to check whether a string is Palindrome or not in Python programme?	True	57	3
python python- import relative- path relative-import	73991299	Importing a Python module from subfolder of another folder using relative path	True	1003	2
python gitlab repository	77547154	Python Code to Check Multiple Files on Gitlab repository by group ID	False	30	I
python image- processing python- imaging- library huffman-code	77591994	Huffman Encoding/Decoding - Black Image Issue. [Python]	False	9	0

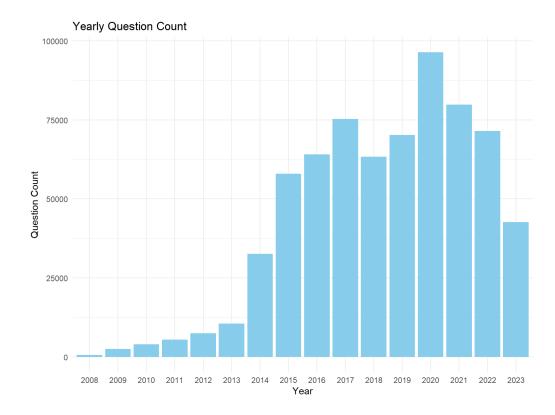
Exploratory Data Analysis

Common words/tags in titles



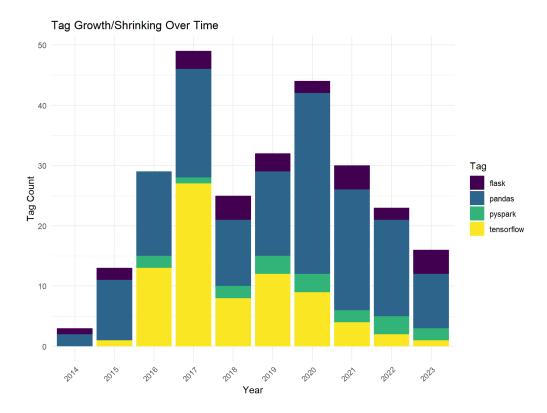
Exploratory Data Analysis

Questions asked over Years



Exploratory Data Analysis

Tag growth/shrinking over time



Keras Word2Vec Model

Word2Vec is a tool that learns compact numerical representations (vectors) for words by analyzing how they are used together in a given set of text.

- Goal: Word2Vec is like a brain for computers that tries to understand words in a way that's similar to how humans do.
- Representation: Instead of just knowing what a word is, Word2Vec wants to represent each word as a special kind of number. These numbers capture the essence of what each word means.
- How it Learns: Imagine teaching a computer to understand words by reading a lot of text. It looks at the words that often appear together and learns that they must be related.
- Two Jobs: Word2Vec has two main jobs or games to play: Guess the Word: Given the words around it, try to guess what the missing word is. This helps the computer learn the meaning of words based on context.
- Guess the Context: Given a word, try to guess what words are likely to appear around it. This helps the computer understand how words relate to each other.
- Vectors: Once trained, each word gets its special set of numbers (vector). Words with similar meanings have vectors that point in similar directions.

Keras Word2Vec Results

Question -> How to run python in conda environment?

```
## run elevenlabs pitch layered book days logstash
## 1.0000000 0.5737176 0.5550957 0.5288951 0.4849439 0.4794046 0.4791245
```

Vector Representation

```
##
                             X1
                                        X2
## lttrgt
                      -0.79423070 -1.28407741 0.203916699 -0.602335632
## expose
                     -0.27607352 -1.41493046 -1.510694861 1.609885812
## socketaccept
                      -0.83635324 1.04424453 1.013631105 -1.411699533
                      ## methoddescriptor
## mud
                      -1.60589099 0.49050245 -1.456710458 1.520637393
## proper
## belonging
                      -1.42912698 -1.57354057 -0.281750888 -0.671806157
## dosnt
                      1.21090126 0.07892574 -0.018372336 0.014927704
## wrongversionnumber -1.50266111 0.56841779 0.713584304 -0.948245525
                      ## pyrunstring
                     1.66171360 -0.90709376 -0.925389051 1.346472502
## sanitizer
                     0.29699481 1.58176374 1.239713550 1.449180961
                     -1.47845495 -1.56826878 1.647583604 -0.285922199
## ole
## render
## daskdataframe
## sclient
## render
                     1.06253958 -1.42736411 0.816846609 -0.601772070
                     -0.24726555 0.79329157 -0.820488751 -0.438574940
## sclient
                      0.41411054 -0.53869110 -0.272140920 0.089128695
## piece
                     0.74496943 1.33534861 0.907051980 -0.232196674
## dictkey
                     -1.75209320 0.76328844 -1.604280949 -0.570318997
## stringformat
                    -0.42781830 -0.49450153 1.325998306 0.241534978
## normals
                     0.27462873 1.31846988 0.441989243 0.585204303
                     ## poisson
## memsal
                     1.41905713 1.06992614 0.943943620 0.783887982
## googlepythonapi
## unclickable
                      1.49607968 -1.43566632 -0.883384645 -1.542677283
                      -0.83594298 -1.26282954 -1.381439328 0.467082888
## supress
                     1.33865011 -1.53367126 -0.682529867 0.443771809
## transferfunction
                     0.82393259 -1.37119102 1.171897054 -0.168635041
                     0.88874650 -0.74955946 1.524606824 0.730212212
## id
## cqlengine
                     -0.65419877 1.37112498 0.728502095 0.110353306
## succeeds
                     -0.31942984 -0.06261003 -0.612340629 0.275542051
## developers
## inspectelement
## avarage
                     -1.16451478 1.20324802 -0.713726282 -0.073104665
                    -1.41065633 0.57559741 -1.559493303 0.191982478
                      1.14237547 0.65392601 0.745464325 1.204539895
                     0.25724348 1.02681100 0.272620052 -0.620065629
## httpcookie
## windowsx
                     1.06453991 -1.43261480 1.026276946 0.407535613
## track
                      0.83318573  0.87926728  1.157831430  1.337311625
## exercise
                     0.40662095 -0.33518410 0.966509581 1.525183916
                     0.04763725 0.17839810 0.376185596 0.553191304
## scrabble
## ipythonjupyter
                     -0.94188374 1.59437871 -0.898275197 -0.224107713
                    -0.29442963 -1.41740131 -1.135309219 -1.298245788
## mkdir
## comparing
                      0.57091725 -0.45691180 0.786144555 -1.274830103
                     1.35653937 -0.12221926 -0.981368124 0.747888386
## anticaptcha
## ifconfig
                      0.43122217 -0.15935835 -1.219967842 1.623334050
## rpg
                      ## rich
                      1.47579205 -1.13515842 0.904275298 1.505739689
                    0.10884722 -0.29560307 0.497144610 0.880148113
## autoincrement
                      1.78014183 1.24918807 -0.427780598 0.743317008
## netsh
                      ## finding
1.38989055 0.75163007 -0.693740249 -1.633390427
## spoofing
              0.23636235 -0.14729461 0.049920801 -1.372698069
1.64225185 0.99353832 1.251419544 1.101413488
## nalette
## suitable
## gil
                     -0.49447116 -0.48054582 0.855047107 0.503097713
## headerquot
                    -0.33941147 -1.61251402 -0.500254095 -1.400086880
## excecute
                    -1.49356878 0.90741473 0.503752530 -0.712455451
## lightfm
                     1.46085930 0.39472401 0.410369247 0.138185918
## folium
                     1.29728866 -1.09322584 0.568385303 -0.718932867
## daskdelayed
                      0.03387673 -0.98379570 0.197630346 -1.465566754
                     -0.73723584 -0.91624671 -1.378408313 -0.312622726
## ntlm
## hovertool
                     0.18539020 0.20778881 -0.978680491 -1.149105310
## rasterizing
                     -0.91070694   0.88977593   1.308933377   0.002347792
                     1.46194482 1.30532932 1.136706829 -0.839638054
## sendkevs
## statsforecast
                     1.63736773 1.47514713 0.020440955 -0.462225646
## serialexception
                      ## thanks
                      0.09635360 -0.81333923 -0.784790277 -1.198826909
                     -0.34601274 1.37726200 -0.212269068 0.838192463
## listview
## maturity
                      ## pythonsocialauth
                     -1.35658824 0.02187494 -1.351445317 -0.568048596
## randomchoice
                      0.67049152 0.26719907 0.854467571 0.839644551
                      1.65719724 0.67252415 -1.130508780 -0.984478354
## systematically
## compilerconstruction 1.41106868 1.82252681 0.411938757 0.328981459
## directed
                      0.05766616 1.12361634 0.653206348 -1.076934695
## ordinals
                     -0.59693009 -0.31570044 1.692836404 0.671741903
## projection
                     ## assignmentoperator
                      0.16875969 -0.63360840 -0.103643201 0.351853877
## mpeg
                     1.53713572 -1.28669131 -1.480736494 1.589659691
                     0.13322102 1.15790653 1.093874335 0.934960842
## serviceaccount
                     -1.48556042 -0.83697933 0.276637644 -0.902684033
## knowledgegraph
```

```
## generatorexpression 1.29781127 -1.23685312 -0.312930822 0.860291898
## experiencing
                         0.86245656 1.45172977 0.740266621 -1.291226864
## tokenise
                   -1.14057171 1.41273868 -0.310774177 0.869016290 0.71246356 0.94216383 1.773010254 -0.573320389
## readcsv
## managerdict
## cleardb
                       0.80008161 1.41766167 0.830957830 -1.187817216
## qtmultimedia
## executescript
                        0.20111500 -1.59583306 0.079110913 -1.512818336
                         1.79068971 0.99324811 -0.630772114 -1.376997828
## fluid
                         0.02090038 0.81411213 0.214962900 0.120147489
## flag
## pssh
                       -1.11972606 -1.14471221 -0.818511665 -1.289352655
##
   fitness
                         0.49676198 -0.87083209 -1.003238559 -0.463190019
                        1.03804696 -0.35947427 -0.970511079 -0.648340821
## nascal
## idlepython
                        1.34283912 0.98987734 1.411104441 -0.319805086
## cloned
                         0.49844918 -1.66466057 0.790416181 -1.039585948
## neg
                        -1.71235049 -1.75281227 0.810105741 0.301926196
## excelformula
## expr
                      -0.08707480 0.40356222 -0.043857232 0.136461094
                         ## quotconnection
                        -0.70457983   0.98859531   -1.413608909   0.388208598

      0.67320526
      0.09501800
      -0.733267844
      -0.636688113

      0.04429740
      0.05718592
      1.606619477
      1.589232802

      -0.01106502
      0.23940264
      -1.254002094
      0.044750083

      1.50219262
      0.73782599
      -0.272179455
      -0.711121202

      0.22300972
      -0.54878801
      -1.488012552
      1.509037375

## sqlites
## apachenifi
## celerybeat
## relaxation
## difficult
## userprofile
                        1.00077748 1.20103931 -1.407129288 0.086817175
                         -1.02306521 1.36103642 1.554088593 0.945089698
## lating
## plver
                       0.58250773 0.77183312 1.148370504 0.274734706
## djangoregistration
                         1.59036255 1.49478102 -1.617294312 0.569635332
## googlechromeextension 0.94987953 -0.17274065 0.164508671 0.159573302
-0.90501612 -1.56892574 0.094751544 -0.139476925
## hiddenmarkovmodels
## nestled
                        0.05679462 -0.40834716 -0.835513413 -0.236678898
                 0.05679462 -0.40834716 -0.835513413 -0.236678898 -0.11912489 -0.88738108 -1.156136394 -0.141888410
## processed
## trojan
                         0.83240730 -1.82480311 -0.070284002 -1.602274776
## commontableexpression -1.65110886 -0.97950232 -0.371436745 -1.083721519
               1.11181378 -1.16776371 -0.487007231 0.102899902
## vork
                         0.33953053 1.39182305 0.147321567 0.553345025
## teamviewer
## adhoc
                       -0.56384069 1.51939511 -0.901673913 -1.373241305
   store
                        0.25922206 -0.14207144 0.010927340 0.773119569
                      -0.87002861 -0.45132759 -1.339586496 0.405411065
## rediscli
                       -1.61340797 -0.56747800 0.013755821 -1.227051854
## sine
## mulitple
                        0.74894422 -0.93948597 0.258815736 0.619463503
## undo
                        0.52483320 -1.58052754 1.619137049 0.310001791
                        -1.76066148 -0.68081766 -1.417104959 -1.558813691
## autoconf
                      -0.03196272  0.40195903  0.531510055 -1.640128374
## lxmletree
## sar
                       0.58816117 -1.51833844 -0.819224715 1.302022099
                        0.97815078 -0.95156950 -0.409673005 0.494609147
## absent
                        -1.00588834 1.72741532 0.255791605 -0.943676591
## rookie
                       -1.42820954 -0.26339254 -0.689771414 0.404506862
## garbled
## rpyc
                        0.96770746 -0.65675509 0.253275961 -0.983408213
## buckets
## encrypted
                        1.24583888 0.20181717 -1.173973680 1.222151518
                        -0.03727077 -1.56843102 -0.784081757 -0.295588106
## deallocate
## gstandarditemmodel 1.16303420 -1.01253808 0.134611487 0.885917902
## newline
                        -0.73549533 -1.46668029 0.066418529 1.023972154
## changelog
                         1.69011891 -1.78496420 -0.824988842 -0.362701118
0.47689399 -1.11998856 -0.522749901 -1.195894241
## armv
## standardscaler
                         1.18394935 -0.87023443 -1.705564976 -1.214293838
## pythonbeautifulsoup -0.89183670 -0.49914610 1.735131860 -1.056904435
## refactoring
                        -0.08406000 0.06747656 -1.160468340 0.656785071
## superclasses
                       -1.22734928 1.18328524 0.995809436 0.765883625
## predecessor
                        1.30150926 -1.07125366 1.216383576 -0.506467104
## ltgt
                        1.16012537 0.34136811 0.026423551 0.285569012
## sequential
                        -1.06745088 0.71435583 1.286775827 -0.943934858
                        -1.44745433 0.96340221 -0.066577181 0.597859561
## module
## configurationfiles 1.40827274 0.46050540 1.635234475 -1.134753704
## ultimately
                         -1.68983734 -1.30207837 -0.965768278 0.751861751
                         1.20358062 -1.58869660 1.229616761 -1.104492188
## uisng
## byquot 0.94527817 0.12871353 1.543325305 1.262049556 ## cpuarchitecture -0.86459178 -1.34990132 0.986172676 0.805169821 ## deltars -1.69775748 -0.63071114 -0.194934979 -1.762810111 ## knowing -0.47834498 -1.23200730 1.2250174 1.762810111
## hacking
                        -1.16798997 0.35849124 1.166123152 0.655642986
## imgkit
                        0.89661014 1.46464837 -1.368572235 1.232362986
## ramp
                        -1.35342336 -0.95258683 0.457879931 1.629544854
## lat
                        ## natural
                       -1.04329383 -0.56365776 0.766171455 -0.778474808
```

```
1.36858666 1.75253975 -0.481077999 0.566416860
## screenbrightness
                      -1.20596290 0.96920437 1.316245794 0.805268705
## dplot
                       1.52565098 -1.60098028 -1.096407294 0.776678741
## scissor
                       1.27858770 0.11373997 1.172429562 -0.846922040
  lemmatize
## windowsfirewall
                       1.44882548 -0.64520556 0.095547184 0.850213528
## pops
                       1.38564956 -0.69966632 -1.635656357 1.354761362
                       1.14390719 -0.01758063 0.564296663 0.960573792
##
   quotexceptquot
## fa
                       1.38492465 -0.33185259 -1.363876939 0.643821299
## googleclouddlp
                      -0.03125916  0.94660109  1.791564703  1.549597144
##
   jax
                       1.36836982 -0.94287592 -1.050178528 -0.087666668
   iboss
                      ##
   voicerecognition
                       0.79579788 0.52277660 0.264091909 1.474284053
                       0.09103872 1.06494212 0.942877233 -1.552028894
## splitting
## numberquot
                      1.55041063 -0.55317128 -0.236470103 0.547715247
## methodsignature
## sourced
## linst
                       1.16427982 -1.23400879 -0.935148001 -1.543366075
                      1.88170958 0.45303878 0.926620960 0.151021034
                      -1.13161063 0.81444824 -1.477352619 -0.624569237
## liust
## linux
                       0.92481232 -1.08594799 0.439290851 -1.329598069
                     0.76282692 1.49293983 -0.707725585 0.756307006
1.55898333 0.69258964 1.467899799 0.967663050
## offloading
                  ## dashdb
## ansicolors
## observe
                      0.83372474 -1.36662698 -0.254002392 -1.109335423
## getpost
## digitsum
                      -1.44794154 0.21716817 0.951447487 -0.598730326
                      1.07839680 -0.45112476 -0.963390768 -1.756026387
## faiss
                      -1.39234126 -0.03390603 0.981906831 1.375737667
## clexe
##
                                          X6
## lttrgt
                     -0.602295995  0.756303787 -1.630963445  0.880876780
                      1.305548549 1.750806928 1.285775185 -1.493934274
## expose
## socketaccept
                      -1.354790568 -0.419297129 -1.495347261 1.002404451
## methoddescriptor
                      -0.812083542 -0.988813698 -1.292249322 0.816805005
## dosnt
                       1.099816799 -0.686281681 1.066651225 0.075735986
## wrongversionnumber -0.117528893 0.415148616 -1.501836419 -0.669082880
## transformer
## transformer
## pyrunstring
## sanitizer
## ole
## render
## daskdataframe
## sclient
                      1.627051353 0.186419517 0.943660736 0.417450875
                      -0.375442982 -0.619493961 1.290322542 1.463653922
                      1.305851817 -0.299559355 -0.441017389 1.379198194
                      -0.638105512 -1.388297439 -0.122596331 -1.645055652
                      -0.163526714 -0.755032480 1.159085155 0.709842563
                      1.301654577 -1.241336465 0.189482808 -1.236168504
                      -0.936333477 1.480123043 -0.753125608 -1.321438193
                      0.401440054 -0.701338768 0.333631903 -0.732611001
## piece
0.891615212  0.927460790 -1.485214591  0.267420322
## memsql
## googlepythonapi
## unclickable
## supress
                      1.696849704 1.115452409 -1.574373960 -0.449813128
                      -1.355406046 -1.559502840 -0.412110955 -1.536792040
## supress
                      -1.105797768 -0.871381581 1.432089686 0.528607845
                     -0.304010063 -0.063896880 -1.056100965 -1.308349133
## track
                       0.786717474 -1.346659184 -0.152503625 -1.242114305
## exercise
## scrabble
## ipythonjupyter
## exercise
                      0.303286910 -1.568498015 -1.466813922 0.323248953
                      -1.323191404 -1.628952742 0.539188504 -0.725330949
                      0.208279118 -1.567095995 -0.445584446 0.319500566
## mkdir
## comparing
                      -0.964893758 -1.421604395 -1.163794756 -0.076611601
## anticaptcha
                      -1.166668296 1.592201710 0.001545492 1.394139647
                      0.151527181 -0.644623876 0.178432405 -0.054479826
## ifconfig
                      1.252487898 1.298032045 -1.533359408 1.321158767
## rpg
## rich
                      -1.597122908 -0.139441639 -0.478590399 -0.968708098
## autoincrement
                    0.228238046 0.899597287 0.951127827 0.052676424
## netsh
                      0.832026005 -0.588548064 0.924216926 -0.229413345
## finding
                       1.400644183 0.767624974 1.168537378 0.680973470
## texttable
                     1.419080257 0.577714384 1.252784848 1.192687869
```

```
## vmwareworkstation
                              1.046449661 1.336180806 -0.828620434 1.127297163
## regularlanguage
## spoofing
## palette
                              0.401988745 -0.840450108 -1.073348045 -0.376429498
                             -0.721929967   0.826416194   -0.861864030   1.220667481
                             -1.165653706   0.366751760   -0.208994463   -0.421510011
                           1.452045918 0.243037432 -0.243098259 1.132275701
## suitable
## gil
                            1.644048572 0.217183530 -1.194161415 -0.218076155
                              0.045215335 -1.583849669 -0.484373391 -1.035813332
## headerquot
                       0.045215335 -1.583849669 -0.404373391 -1.03521332
-1.587484479 0.366666675 -0.635935843 -1.014740705
0.790443957 -1.234581470 1.378414035 1.297135115
-0.407162905 1.133542776 1.519531131 -1.112581849
## excecute
## lightfm 0.790443957 -1.234581470 1.378414035 1.297135115
## folium -0.407162905 1.133542776 1.519531131 -1.112581849
## daskdelayed -0.222141504 -1.409248710 -0.077059187 0.992408693
## ntlm -0.254670739 0.886749625 -1.982430577 0.723817229
## hovertool
                             0.315262526 -1.559504986 -1.035434365 -0.869223475
## rasterizing 1.450067282 -1.591670394 -0.188361809 -0.938765168
## sendkeys 0.818414629 -1.263267994 -1.390483022 -0.242307425
## statsforecast -0.214433789 -0.236557350 -0.919463634 0.442397386
## serialexception 0.028650951 1.121191621 -0.605882704 -0.334465712
## thanks -0.010089435 -1.429326415 -0.460971206 -1.152469397
## listview 0.965045750 1.079263806 1.775324702 0.450215369
## maturity
                             -1.011330485 1.376951575 -1.596429944 -0.202414945
## pythonsocialauth
## randomchoice
## systematically
                            0.048266895 -1.215649128 1.377001047 1.549341083
                            1.630739808 -1.022612572 -0.415375680 -0.957768977
                             -0.213597581 -0.927082598 -1.379665136 -0.202997848
## systematically
## compilerconstruction 0.720744431 0.330209792 1.483493328 1.062591910
## directed
                             1.571138144 1.242241621 -0.136464417 0.652721941
## ordinals
                              1.711012363 -1.712769866 -1.295985579 0.356550604
## projection
                              1.372497201 -0.648892879 1.200017095 -1.173344493
## assignmentoperator 0.693265975 0.929488182 -0.088584371 1.359107375
## mpeg
                              0.808101714 1.733440280 -1.644641757 0.404590845
## serviceaccount -0.719525814 1.368128777 0.994116545 0.143047407
                             0.967641950 -0.959710479 -1.200589657 0.543347120
## knowledgegraph
## generatorexpression 0.724088311 -1.312148094 1.051319361 0.206424132
-0.262399405 -1.124274731 0.743710279 0.079718292
## pssh
## plyer -0.719423771 1.720262051 0.191904351 1.603433728 ## djangoregistration 0.350973815 -0.063595057 -1.456994295 0.129433990
## googlechromeextension -0.752026975 1.591258407 -0.141289443 0.652263045
## incrementdecrement -1.442343593 -0.872166753 0.015624637 -1.699637651
## objectrecognition
                             -0.529976487 -1.239256382 0.677550673 0.694518209
## hiddenmarkovmodels 0.627687573 1.268226385 1.492710829 -0.252542704
                 1.161914468 0.117483102 0.453121334 -0.588875055
0.239569440 1.149356723 -0.509938657 0.360445172
-1.117100358 0.953744945 1.0100345
## nestled
## processed
## troian
                           -1.117100358 0.053744845 1.044204712 -0.014862021
## commontableexpression 0.522126317 -0.637121320 1.256449223 -1.112122059
                  -0.396751374 -1.012986422 -1.209056616 0.068154946
## vork
## teamviewer
                             -1.041751862 -1.378225088 -1.462758303 -1.136129498
1.904712081 0.729746103 1.689904928 0.017881412
-0.178716317 -0.210801229 1.046285510 -0.192173019
## adhoc
## store
## rediscli
                         ## sine
## mulitple
                           -0.723965228 -0.329753011 0.738153577 0.864300251
-0.802670956 -0.453147322 -0.189108789 -1.372702122
## undo
## autoconf
## lxmletree
                            1.004932046 0.100556187 1.631486773 1.063598990
## sar
                             0.652990282 -0.657555878 -1.188332319 1.176558733
## absent
                              1.734206319 0.165842876 -0.722929597 -1.408452868
                            1.611210942 -0.022013150 -0.495112151 -0.347028971
## rookie
```

```
## garbled
                        1.939156413 1.159161448 1.060578108 0.268973947
                        0.092981465 -1.597910285 -0.277646035 1.580389619
## rpyc
                       -0.694927156 -0.254860491 0.782748342 0.345767438
## buckets
## encrypted
                       -1.116029501 -0.820694625 -0.776147008 0.258474976
                       0.847769022 0.336736560 1.346462846 0.845485866
## deallocate
## qstandarditemmodel 1.449244499 -1.519855380 -1.117050767 -1.082303882
                        -0.746911526 -1.162986755   0.635227382   1.153090954
## newline
## changelog
                       -1.052948952 -1.096138835 0.581805825 0.261989862
                      -1.686290026 0.755112708 -1.356027603 -1.244828820
## afiledialog
                        1.081657648 -0.592626929 0.974524140 1.454464316
## partitioning
                       -1.240747690 -0.487860292 0.568253219 -0.856319726
## standardscaler
                        0.748181164 -1.035156965 -0.578594327 0.222183168
## pythonbeautifulsoup    0.406207144 -1.356772304    1.401690006    0.414366961
## refactoring
                       0.708469391 1.627817154 0.893094480 0.179160461
## superclasses
                        -0.593794703 -0.563459873 -0.811576545 0.215691373
                       1.003646612 -0.501749337 0.205401570 1.119610429
## predecessor
                        0.705221415 1.536146283 -0.407155007 -1.557922840
## ltgt
## sequential
                        0.244937032 -1.524474263 -0.367706239 -0.649314284
                        -0.110766761 -0.743737638 -1.427214861 -0.801347613
## module
## configurationfiles
                        0.253070205 -1.531444073 -0.071534403 -0.277811348
## ultimately
                        1.761338830 -1.144724846 -1.835120082 0.409596145
                       -1.743966699 0.518801212 0.082812071 -1.152071118
## uisng
## cpuarchitecture
## deltars
## knowing
                        0.642505050 -0.779928148 -0.562176883 -0.106033824
                       -1.714670658 -1.309221983 -0.954564035 1.400413513
                       -0.340843648 -0.163276553 -1.247604847 -0.232509360
                       -0.654599071 1.547495961 -1.440595150 1.400779843
                      0.040410399 1.252366900 1.196964741 -0.782547235
## hacking
                       0.587734401 -0.397918552 0.238649353 -0.969606698
## imgkit
## ramp
                        1.643651962 -1.072379827 -0.796894252 0.714196682
                       -0.616702437   0.757229447   1.025973678   1.426582217
## lat
                        0.102840073 -1.008669019 0.101486549 -1.332826734
## natural
## screenbrightness 0.529037058 1.058520675 1.400025249 0.418331325
                        1.219743848 -0.665884614 -1.381222129 0.604270875
## dplot
## scissor
                        1.444076777 1.609782934 0.468841791 0.918774068
                        ## lemmatize
## windowsfirewall
                       -1.244036436 0.200905725 1.138302803 0.294344157
                        -0.436204016 -1.055643797 1.489726424 0.548328340
## pops
                       -1.152057052 -0.940197408 -0.028862111 -0.363680005
## quotexceptquot
                        0.635570228 -1.598803997 1.412070274 0.405410737
## fa
                        -0.542884469 -0.784503102 1.520185947 -0.249247670
## googleclouddlp
  jax
                        -1.085107088 -0.507903576 -1.641841650 0.048043821
                        -0.001663716 -1.404954433 -0.458032101 -0.368759364
## iboss
                       -1.199846864 -1.242367268 -1.623775959 0.238007382
## voicerecognition
## splitting
                        1.389723778 -0.695564985 1.506466150 -0.022638867
## numberquot
                        0.808284581 -0.846052229 -0.117898695 1.487081170
## methodsignature
## sourced
                       -0.691399813 -1.337651730 1.242332935 1.548789144
                       0.307185471 -1.082888484 -0.818299472 -0.868105233
## ljust
                       -1.520330548 -1.538938284 -1.084752798 1.441954970
## linux
                        0.845029473 -1.499929786 1.073192716 -0.384626836
## pythonalpine
## vscoderemote
## pythonfractions
## mapquest
## duestdb
                        0.859921575 -0.410449862 -1.492653370 -1.075552702
                        0.902635694 0.853271902 1.100738049 1.514179826
                       -1.050567508 -0.900619507 1.670981646 0.292045742
                       0.181812704 -0.187438607 -0.739250124 0.084829323
                       0.537789583  0.317390203  1.571512699  -0.128914714
## auestdb
0.664627433 1.341186643 -0.296546429 0.493566871 1.042876840 -1.130536199 -1.438867569 0.809618473
## sports
                       1.541750550 1.366664290 -1.034737468 0.909373522
## itertools
                       -0.640604377 -0.135670334 -0.577697158 -0.594211400
## hybrid
                     1.184502721 0.008073395 0.012946559 -1.103403807
1.242989898 0.446954548 1.551819921 -0.217675552
## offloading
## dashdb
## ansicolors
                       -1.632334471 0.133686855 -0.723936975 0.642455637
## observe
                      -0.991320729 -1.408762217 0.210771963 -1.360611200
                       0.903377771 0.920899808 -1.200142860 -0.983182669
## getpost
                       1.304160476 -1.283615947 1.262398243 1.182027578
## digitsum
## faiss
                       -0.509243071 -1.227019072 1.507858634 1.397123694
## clexe
                        0.052237201 0.546204627 1.538544893 -1.221481085
                                          X10
##
                                X9
                                                      X11
                                                                    X12
                       -0.85961765 -0.524217665 0.565011680 1.569824219
## lttrgt
                       -0.02251733 -0.298529357 0.184556589 1.007649779
## expose
## socketaccept
                        1.15159583 -0.909707725 -1.419108391 -0.067678154
## methoddescriptor
                        -0.39494321 -0.124060102 -1.273154378 -0.849569261
## mud
                        -0.43231666 -0.831214964 -0.729509175 -1.183175206
## proper
                        -0.08780704 -1.101050138 -1.537033439 1.691101074
## belonging
                        -0.32534683 -0.912782848 -1.708855271 -1.634752154
## dosnt
## wrongversionnumber
                        -0.10400884 -1.211538911 0.504305124 1.034168124
## transformer
                        -1.49718368 1.005357265 0.835761905 -1.658173442
                        ## pyrunstring
## sanitizer
                        0.77485985 -1.363894820 -0.018085463 -1.286607385
## ole
                       -1.48736906 -0.162820280 0.274140686 -0.901830912
## render
                        -0.80727881 -0.756627262 0.207078025 -0.911186814
## daskdataframe
                        -0.50533122 1.549224734 -1.494415879 -1.478963614
                        1.59913874 -0.036168803 1.343248963 -0.945675790
## sclient
## piece
                        0.91323704 -0.114561595 -0.749862134 0.507795453
```

```
## dictkey
                     0.18147635 -1.460205555 -0.861356020 -0.614238977
                    -1.27756774 0.401808649 0.539789140 -0.268336594
## stringformat
## normals
                    1.27787244 0.812086344 0.485391766 1.499358058
                    -1.59213626 -0.009441261 0.413777441 0.560554802
 ## poisson
## memsql
                    0.37176040 -0.342581213 1.227480531 -0.302102208
## googlepythonapi
## unclickable
## supress
                   -1.38482749 0.134170189 -0.842732966 -0.529455423
                    -0.07037520 1.137729883 -1.193312049 0.601123810
## supress -1.51200855 -1.228729606 -0.580616236 -0.313945204
## transferfunction -0.88186675 0.881503284 -0.935606658 0.829592943
## id -0.29268751 1.447856188 -0.180577353 0.138769642
## pythonsocialauth -0.14553139 -0.778030694 -0.747690678 1.480569959
## compilerconstruction 0.95485765 -1.566839695 -0.096169136 0.174373433
            0.38277066 0.106071584 0.443955809 -1.060967565
## directed
                    0.48065597 0.761346877 1.552664757 1.049642563
## ordinals
## projection
## generatorexpression -0.40794128 -1.408280253 1.229527473 -0.337379634
0.04162252 0.902794659 0.466243446 -0.300807565
## pssh
## fitness
                   1.35699856 -1.324518442 -1.537430048 1.383793473
                    1.50501335 1.386237025 -1.310543656 0.670221150
## pascal
                    0.15833087 1.436975121 -1.448195457 -0.607834995
              0.15833087 1.436975121 -1.448153437 -0.00.2-
-1.10620248 1.144309640 -0.113464095 1.582373500
## idlepython
## cloned
## celerybeat
                    0.17942332 1.205151081 1.304304361 0.416617036
## relaxation
                   -0.61668289 1.480924129 -0.856285751 1.708926201
```

```
## difficult
                          ## userprofile
                         -1.38952744 -0.341488600 -0.407229483 -1.440880299
## lating
                         -0.04614873 -0.114145719 0.522994816 -1.339045405
## plver
                         0.15518329 -1.624066949 0.629398286 -1.242154837
## djangoregistration -1.19217658 1.123121858 1.127192378 -1.055224299
## googlechromeextension -0.62853682 1.145300388 -1.752201557 0.378427893
## incrementdecrement -1.45077682 0.082646847 0.098426282 -1.221523046
                 -0.13221204 0.374533296 0.799448967 0.487158984
-1.08911490 0.675644934 1.154042006 -0.242324069
-0.18849744 1.320159435 0.702162623 -0.788454890
-1.17777145 -1.643391490 -0.659387350 -1.541117311
## user
                         ## quotdatequot
## signalsslots
## inject
## inferior
                         0.72585577 -1.179267526 1.404120088 1.260354280
## objectrecognition -0.99381047 0.979673028 -0.781438291 1.566001892
## hiddenmarkovmodels 1.49891198 -0.106960334 -1.450614333 0.698188365
                0.10848208 1.645040035 0.592373908 1.495207667
0.04810452 -0.016672065 1.621725917 -0.354380727
## nestled
## processed
                         0.91242826 1.552061677 1.268428922 -0.485722333
## troian
## commontableexpression 0.30125397 1.344462991 0.680458248 1.309345484
             1.38224101 -0.3812397 1.344462991 0.680458248 1.309345484 0.03423846 -0.880436778 -1.704312205 -0.567662001 0.024168257 -1.010362029 -0.866900980 -0.648055971 0.80247664 0.807349205 -1.246656299 -0.695222080 0.170272458 -1.104753971 0.104725048 0.898161054 0.60420704 1.152234554 -0.532061458 1.621083498 1.64331377 0.643789053 -0.136464983 -0.698807716 0.138224101 -0.312305659 -0.048410542 1.266269803
## york
## teamviewer
## adhoc
## store
## rediscli
## sine
## mulitple
                         -1.57198644 -1.297543287 1.170854688 -1.175116658
                    1.18606055 0.962622702 0.839764237 1.207188368
-0.43836555 -1.645107269 0.412928402 0.321661770
-0.74287480 0.270631015 -1.118141294 -1.079214454
-0.82446539 0.791063845 -0.897140920 -0.978199065
## autoconf
## lxmletree
## sar
## absent
                     ## rookie
## garbled
## rpyc
                 ## buckets
## encrypted
## deallocate
                         0.17571028 -0.992376685 0.527451336 0.601563036
## qstandarditemmodel -1.18190634 -1.499089956 0.548867643 -0.464458197
## pythonbeautifulsoup -0.60811883 1.363135576 -0.429355294 0.441714346
## module 1.24642563 0.130376786 0.478145748 -0.112401448  
## configurationfiles 1.23893118 -0.621085882 -0.0476050
-1.24618983 0.770859599 -0.930687129 -1.356301546
## ramp
## lat
                          1.35472548 0.136981219 -0.693702817 -0.211532399
## natural
                          1.47201526 0.838091195 0.046723254 -0.989571750
## screenbrightness 0.76276702 -1.809928298 0.979618430 0.354111046
                          0.69481373 -0.687259078 -1.103677750 -0.133459494
## dplot
                          ## scissor
## lemmatize
                          1.20983219 0.393479586 1.287580490 1.579894066
## windowsfirewall
                          -0.68058240 -0.084628575 1.401669383 -1.023945332
                          -1.11295164 0.284357160 1.443023682 -1.383645654
## pops
                          -0.85045445   0.703706443   -0.666341066   -0.842556775
## quotexceptquot
## fa
                          0.87864131 0.338337779 1.374366879 1.190482497
## googleclouddlp
                         1.60691237 -0.473595798 0.712725997 0.155439749
## iax
                          0.33077088    0.611056566    -0.024462163    -0.095497012
                          -0.13406321 0.255589247 -1.671628118 0.220089525
## jboss
## voicerecognition
                         1.66744685 0.266884774 -0.370254636 -1.719232917
## splitting
                          0.30178273  0.593691289  1.723294020 -0.539531469
## numberquot
                         -0.41073564 0.597882748 -1.398592353 0.329962432
## methodsignature 1.27550006 -1.463203311 1.534413815 -0.579293013
## sourced
                          0.83140725 -1.509546399 -0.323012054 0.589290917
                          1.21794438 -1.192417622 -1.293914318 -1.285014749
## liust
## linux
                         0.22309220 1.241903305 -0.849968791 0.473067909
## pythonalpine
## vscoderemote
## pythonfractions
                         -1.48425341 -0.547853231 -0.124082603 0.170709014
                         -0.02411418 -0.896811366 -1.032357693 0.038218439
                          0.46391019 1.210758328 -0.874595165 1.506264806
## mapquest
                          1.13696957 -0.441066951 0.053766005 -0.451159716
## questdb
                          0.14752327 -1.177426934 -1.189599633 -0.618210375
```

```
## dnsresolver
                                       -1.58167791 0.866750956 1.050892234 -0.295589328
                                      -1.35273802 1.533283114 -0.858474851 0.535107493
  ## meanshift
                                     -0.76568496 -1.343422771 0.451785475 -0.986931741
  ## sports
                                       1.66413355 -1.322831035 0.665622413 1.518416882
  ## itertools
                                       ## hvbrid
                                     -0.42241663 -0.654006660 1.025017619 -1.631428957
  ## offloading
                                        0.70803642 0.530960679 1.451783180 0.650628328
  ## dashdb
                                     -1.69782209 -0.403561264 -0.295065790 0.480293572
  ## ansicolors
  ## observe
                                      ## getpost
  ## digitsum
                                     0.84208953 -0.638101816 -0.730937719 0.148776069
  ## faiss
                                        0.07043102 0.015935935 1.543264031 -0.095918730
                                       1.47270513 -1.114381909 -1.486158729 0.758623123
  ## clexe
  ##
                                                     X13
                                                                       X14
                                                                                         X15
                                                                                                                X16
  ## lttrgt
                                     -1.342755914 0.14334795 1.604348660 -0.255260915
  ## proper
                                        -0.040959712 -0.10239343 0.271411121 0.845334768
                              -1.285846710 -1.54376400 -0.921245158 0.019650815
  ## belonging
                                       -0.070504516 -0.48239625 -1.541758895 -1.592577219
  ## dosnt
  ## wrongversionnumber
                                      -1.238717079 1.52176011 -0.819033742 -0.965761423
  ## normals
                                        0.843522489 -0.25498655 0.336149305 -1.568502307
                                        1.110759258 1.63345730 0.266339034 -0.323637635
  ## poisson
 ## possor
## googlepythonapi
## unclickable
                                        1.586407661 0.73701417 0.031348202 1.126089454
                                         0.526345015 -0.02548562 0.098869219 1.403799415
                                       1.170386195 1.64949059 -0.046375144 -1.395633340
                                      -0.359991848 1.27187276 -1.430994987 1.186982751
  ## transferfunction
                                         0.291835904 -0.95124257 -0.414841950 0.836297452
  ## id
                                       0.303121060 -0.26294360 0.481213778 0.227570906
  ## cqlengine
                                       -1.233833909 0.36623916 1.498040676 1.304639101
 1.623228669 -0.26428488 0.758514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.58514155 0.5851455 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.5851450 0.585140 0.585140 0.585140 0.585140 0.585140 0.585140 0.585140 0.585140 0.585140 0.585140 0.585140 0.585140 0.585140 0.585140 
  ## vmwareworkstation
  ## regularlanguage -0.796225429 -1.49822/83 -0.13203105 -0.165302306 -0.736906528 0.95343274 0.556095779 0.165302306
  ## palette
                                       0.716365457 1.90073645 0.444582134 -0.227170587
  ## suitable
                                      -1.016392708 0.88697881 0.748649657 -0.727291882
                                       1.598120093 1.89308035 1.171980619 1.256269574
  ## gil
  ## headerquot
                                      0.748864591 -0.60930574 0.066709593 0.830727279
  ## excecute
                                       0.974557459 1.56395435 0.948053479 0.599411726
                               0.974557459 1.56595455 0.948053479 0.59411726
-1.223949671 -0.86060601 0.158650160 -0.441268533
-1.197363853 1.51691329 -0.771342754 -0.369382590
  ## lightfm
                                     -1.197363853 1.51691329 -0.771342754 -0.369382590
-1.577669501 -0.61693513 -0.331796885 -0.021875335
  ## folium
  ## daskdelayed
  ## ntlm
                                       1.641105294 -0.22938567 -0.966205657 -1.802173495
  ## hovertool
                                       -0.443325698 1.76196814 1.771419406 0.575995326
                                     0.590068161 0.46537486 1.652957439 -1.519907355
  ## rasterizing
 ## sendkeys
## statsforecast
## serialexception
                                       0.413455337 1.37539804 -1.296643257 1.421930552
                                       -0.002877815 1.73916006 1.354252458 0.814461112
                                        1.567139387 0.22790679 -0.445576906 0.199743122
                                       -1.313833356 1.13942552 -0.542448282 1.590617776
  ## thanks
  ## listview
                                         0.042009644 -0.01210653 1.326620817 0.887748003
 ## maturity
## pythonsocialauth
## randomchoice
## systematically
## optionsocialauth
## 1.566678643 -1.57637286 -0.497410029 1.1044473540
-0.398467094 -0.97808683 -0.746837318 1.172147989
-0.054256696 1.33395898 1.298386216 0.706353486
  ## maturity
                                     0.749933004 0.27573976 1.527680635 1.487032652
```

```
## compilerconstruction 1.784911871 0.89448237 -0.479068547 0.755615056
                      1.350691795 0.44386098 -1.413960934 1.304246545
## directed
## ordinals
                      0.607080460 -0.73440105 -1.128793240 0.126399815
## projection
                      1.537447333 1.10261476 -1.327654839
## assignmentoperator
                      -0.044902284 -1.66301298 -1.011288166 0.664624035
## mpeg
                     0.263974160 -0.18824026 -1.542934656 0.644797981
                     -1.192237854 1.35883641 -1.458328605 0.304218918
## serviceaccount
                     -1.276631236 0.70278257 1.400536060 -1.083575368
## knowledgegraph
## generatorexpression
                     1.349877596 -0.84589982 1.607339501 0.719371498
## experiencing
              -0.987430930 -0.476001107 0.322-0.371496439 1.14454556 0.277631193 -0.939929843
                      -0.987430930 -0.47605187 0.929444373 0.720080197
## tokenise
## readcsv
                     0.821260929 -0.86092633 -0.040422156 1.120677352
## managerdict
                     -1.173512578 1.62114465 0.444206566 0.687112868
## cleardb
                     1.243042827 1.11160469 1.418874145 -0.408913642
1.257778287 -0.38496897 -1.763012409 1.541975141
## flag
                      ## pssh
                     -0.760708511 1.11177707 -1.235551000 0.068620078
## fitness
                      1.499476075 -1.48586226 1.565239549 0.007914783
                     0.177990198 -1.28373325 0.730845571 -0.894153297
## pascal
                     1.229627848 0.27108717 -0.786845386 0.206552625
## idlepython
                      1.357031107 -0.29485026 -1.475342512 -1.468104482
## cloned
                     -0.014903717 -0.33282864 0.376775295 1.482122064
## neg
## excelformula
                     1.430303574 -0.98189557 -0.295111865 0.021503072
                      ## expr
## quotconnection
                    -0.043334782 -0.62509173 -0.486920953 -1.468544245
## salites
                     ## apachenifi
                     -0.890387714 -0.69888502 0.963942587 0.047038119
## celerybeat
                     0.161106884 -0.34090844 -1.519056082 -0.069376267
                     1.258010983 -0.77259570 -1.232997656 1.068823338
## relaxation
                     -1.477347612 0.96134561 1.007639289 0.217233375
## difficult
                     ## userprofile
## lating
                     -1.001937032 0.67232734 0.412646115 0.046353143
                     -1.084568024 -1.36941135 1.304818749 -1.594009876
## plyer
                    -0.659943402 -0.03700899 -0.801091790 -1.242063522
## djangoregistration
  googlechromeextension 0.041553207 -1.01505136 -0.930339575 1.647542834
## incrementdecrement -0.970108271 0.38473812 -1.127645612 0.215035379
                      1.130463481 -1.63324070 -0.616067529 0.449244350
## user
## quotdatequot
                      ## signalsslots
                      0.192268282 -1.38468218 -0.362032682 1.381033659
                      1.530960917 0.16189386 -0.058564845 1.351409554
## inject
                      0.678683162 -1.53358400 1.483908176 0.196802691
## inferior
## objectrecognition
                      0.847305536 -1.32488084 1.596979737 -1.260809541
## hiddenmarkovmodels
                     -0.161876276 -0.49024794  0.819630206  0.893223405
                      -1.526263475 -0.27197197 -0.549776673 1.592878580
## nestled
## processed
                      -0.791387737   0.19455875   -0.664382279   1.703542829
## trojan
                      0.046649210 -0.14728819 0.639753759 -0.675186872
## commontableexpression -1.562226057 -0.55666459 0.269082099 0.963068902
                     0.920400262 0.76747507 -1.455116749 1.550568938
## vork
## teamviewer
                     -0.476979792 1.39947939 1.624159336 0.044283174
                     0.181546822 1.07022643 -1.270098925 0.258758247
## adhoc
                     ## store
                    -0.195870936 1.21279514 -0.392943740 -1.288424730
## rediscli
## sine
                    ## mulitple
                      1.249324441 0.85500932 1.531203747 -0.045499530
                    ## undo
## autoconf
                     1.184760451 -1.69839752 0.120063342 1.138555408 0.490430176 0.16095220 1.356489658 0.337466240
## lxmletree
## sar
                    -0.651476622 -1.66960776  0.028299265 -1.234997869
                    1.492194772 -1.28626728 0.193303555 1.178206325
0.044472199 -1.63381195 -0.426899076 0.119891763
## absent
## rookie
                    -0.025170410 -0.26573610 0.618699312 0.023076933
## garbled
                     0.934941590 1.07997584 -1.219701409 -0.062909819
## rpvc
                     -1.410421252 -1.35975540 -0.109465048 -0.311529428
## buckets
              -1.41042125 -1.35975540 -0.109465048 -0.311529428
-1.194779158 0.01632258 -0.241240159 1.564823627
## encrypted
## deallocate
                      0.511215866 -0.85034627 0.950193226 -1.114203930
## qstandarditemmodel
                      0.501045465 -0.02840508 0.403819501 0.807684660
## newline
                     -0.414631754 -0.95448327 1.146136880 0.540256977
## changelog
                      1.489443898 -0.39115885 -0.707583606 0.225218788
## qfiledialog
                      0.893721402 -1.60799849 -0.168949008 1.505807400
## partitioning
                      1.179762959 0.22527051 0.727453232 -0.416920602
## standardscaler
## army
                     ## pythonbeautifulsoup
                     -0.592005610 -0.22102012 0.914283156 1.559800625
                      1.595508695 1.57448196 -1.670992017 -1.554773569
## refactoring
## superclasses
                     -0.918324351 0.19532610 1.086798429 0.082534693
## predecessor
                     -0.844366312 -0.86020607 -0.174055591 1.016056418
                     1.428906560 -0.21554427 1.696725488 -1.721795321
## ltgt
                     0.255403459 -1.15266621 1.301827073 -0.135385484
## sequential
## module
                     -1.465670705 -1.55729556  0.681072533 -1.613652468
## configurationfiles
                      0.477674574 -0.47288623 -0.912518799 -0.836423934
## ultimately
                      1.165153146 -0.72818929 -0.578329384 0.110351682
## uisng
                      0.645861983 -1.45329475 -1.497001052 0.253459930
## byquot
```

```
## cpuarchitecture
                             -1.742068887 -0.61612624 -0.421761721 -1.419254899
## deltars
                            -0.366424114 -1.48436856 -0.718330383 -1.507866859
## knowing
    hacking
                             -0.461386979 1.41582346 -1.303630829 0.885608375
                            0.381969571 -1.72065222 0.248297051 1.238091588
## imgkit
## ramp
                             0.893931866 -0.61182249 -0.019200429 -0.890588582
                             -1.008757949 -0.94820338 0.382317454 -1.575487852
## lat
## natural
                             0.837914586 -1.63904989 1.140004635 -0.780897915
## screenbrightness -0.628858089 0.36975521 0.232654959 -0.378417760
                               0.931926608 1.57181549 -0.615114927 0.309813172
## dplot
## scissor
                             -1.238920569 0.96437013 0.742250919 -0.181663856
## lemmatize
                               0.975623488 0.71912229 0.135133713 -0.094037153
## windowsfirewall
                               0.242140323 -0.22833741 -1.470809340 0.819027603
## pops
                               1.172419786 -0.55491459 1.449741483 1.149170637
 ##
    quotexceptquot
                               0.652227759 -0.03922214 -1.700798392 1.270754695
## fa
                               1.334023118 1.29836214 0.129854918 -0.764623404
                              -1.497652292 0.13291889 -0.379646480 -0.472099274
## googleclouddlp
##
    iax
                               1.480982423 1.60410297 1.149115801 -0.320433050
## jboss
                             -0.864601731 -0.01708981 -0.735413432 -0.290181577
## voicerecognition
                              -0.394072503 1.30830455 0.394863993 0.232129201
## splitting
## splitting -0.394072503 1.30830455 0.394863993 0.232129201 
## numberquot 0.966331661 -0.82689589 0.834941328 -0.057010252 
## methodsignature 0.201063469 0.13568106 -0.793597639 1.336044431 
## splitting -0.394072503 1.3568106 -0.793597639 1.336044431 
-0.436832756 -0.67046583 -1.369557142 0.648781955 
## liust 0.944815874 -1.24393106 0.723356366 1.146561623
## liust
                             0.944815874 -1.24393106 0.723356366 1.146561623
-1.080490828 1.47557998 -0.234046638 0.207933053
## ansicolors
## observe
                             ## getpost
                             1.405718207 -0.70085216 0.664612949 -0.209116593
                             -0.918191791 -1.25107992 0.761257112 -1.513339639
## digitsum
                             -1.684665561 0.86765075 1.182224989 0.513843596
## faiss
## clexe
                             0.536855578 -0.76434249 0.549904823 -1.080364347
                                        X17
                                                    X18
                                                                 X19
                             0.8243902922 -0.84950238 1.249624729 -0.380525976
## lttrgt
## proper
                             -1.4847856760 1.14508092 1.564718962 -0.410352707
                        -1.5130888224 -0.64996570 -0.722261727 -1.469932556
## belonging
                              1.3975492716 0.85716867 1.604468346 -0.451509446
## dosnt
## wrongversionnumber -0.3849260807 -0.15287787 -0.876648605 0.879201949
## transformer 0.699133365 -0.19374126 -0.329420835 -1.306565404  
## pyrunstring -0.3621896207 -1.20192778 -0.751033068 -0.986640573  
## sanitizer -0.6846010685 1.09055638 -0.498125285 0.444795191  
## ole -0.0114540830 0.74603558 0.219204709 1.132602453  
## render 1.1601192951 1.5084889 -1.303448439 1.669130325  
## daskdataframe 1.3221448660 0.18318200 -1.563293099 0.377234578  
## sclient -1.6732518673 -1.00482273 1.235643148 1.703913212  
## sclient -1.5805689096 -1.33057857 0.168168992 0.125823259
## piece
## dictkey
## stringformat
                           -0.8998091817 1.84712338 -0.001410907 -1.684910417
                             -0.5355564952 -1.33668768 1.460963845 -0.582179070
                             -1.1608873606 1.66072690 -0.493309110 -0.114315823
## normals
## poisson
                              1.3020935059 0.38800630 0.767548382 0.500069320
## memsql
                             -0.5066895485 -1.03094018 0.513372660 1.710670948
## googlepythonapi
## unclickable
## supress
                              0.1758541763 0.58297169 1.172243357 -0.737878561
                             -0.6371970177 -0.53209257 -1.273999095 -1.617122531
                             -1.2667973042 -0.91410738 0.220090315 1.497124076
## transferfunction -1.1821966171 -1.36212587 -0.666851401 0.097894005
                             -0.8251990080 -1.22533107 -1.227839828 0.127611712
## id
                             -0.6339681149 -1.05137074 1.473350286 0.358348250
## cqlengine
## succeeds
                             1.1905648708 1.46768320 -1.005364656 -0.306862324
## succeeds 1.1905648708 1.46768320 -1.005364656 -0.306862324 
## developers 0.9758365750 -0.02627542 -0.077559285 -0.117756836 
## inspectelement 1.2023175955 1.44073474 -1.347000360 -1.270614028 
## avarage 1.4869437218 0.78190386 -1.410269618 -0.045931984 
## httpcookie 0.6972944140 -0.79764587 -0.833493650 0.571374297
                             -0.6034254432  0.95162022  0.511186540 -1.211352706
## windowsx
                             -1.1935344934 0.15791929 0.248152882 -0.701651931
## track
## exercise
                              1.7514213324 -1.62099612 0.471580088 -0.917030275
## scrabble
## scrabble -0.4126784801 0.72720522 -0.812930465 0.827426851
## ipythonjupyter 1.5226809978 0.30501765 -1.117024541 -1.695350766
## mkdir -0.4943825901 -1.04413521 1.197017074 1.027293921
## comparing
                             1.5533037186 1.13635314 0.554469347 -0.844103038
```

```
1.3505839109 -1.36950958 0.593949437 -0.407006472
## anticaptcha
                       -1.4400272369 -1.20903838 -0.660044074 -0.066938974
## ifconfig
                       0.3670732975 1.57200420 -0.985439360 -1.092228174
## rpg
                        0.6782002449 -1.58760333 0.331385374 0.631676257
 ## rich
## autoincrement
                       -0.9235343933 -0.95818418 0.798142672 1.415620446
## netsh
                      -1.3150006533 1.19030094 1.500450611 -1.770936966
                        1.6130089760 0.41083235 -1.587923646 0.636221886
## finding
                      -0.2962365150 0.52298212 0.843262017 1.267796993
## texttable
## palette
                    -1.5387102365 -0.73057651 -1.5255655
-1.0072890520 -0.21947177 -1.429055095 -0.648664713
                       -1.5387102365 -0.73097831 -1.525300384 0.862537861
## suitable
## gil
                      0.5220161676 -1.27295780 0.172151104 0.267745674
 ## headerquot
                       0.0418302901 1.61847687 0.857847452 0.487963766
## excecute
                       -1.6782262325 -0.55557173 0.473933041 0.879124224

      0.1783522666
      -1.34723282
      -0.300772935
      1.623626232

      -0.8623239398
      0.32544374
      -1.572116733
      -1.070886254

      -1.4756566286
      -0.76768965
      -0.559261501
      0.913801193

## lightfm
## folium
## daskdelayed
## randomchoice -1.5630317926 -0.29539225 -0.479185581 -1.591429591
                       -0.7450703382 -0.29116756 -0.359289140 1.329703569
## systematically
## compilerconstruction -0.7518898845 0.45856979 0.460814804 1.359211683
                1.2136335373 -1.34603298 0.648684919 0.352276534
## directed
## ordinals
                       -0.5860961676 1.04175794 -0.192092553 0.142738417
                        0.9171565175 -0.58232754 0.342954755 -0.880808413
## projection
## assignmentoperator -0.2898445725 1.07477450 0.001569897 1.471980572
## knowledgegraph
                       -0.1936223805 -0.75922197 1.144780874 -0.188820317
## generatorexpression -1.3714100122 1.20629919 -0.957769692 -0.107658699
## flag
                      0.4475091398 -1.19883668 0.702874780 -0.862531960
                       0.3027358651 1.47486663 1.303808689 0.426135302
## pssh
## fitness
                       -0.9223522544 1.41290677 0.247750267 0.495939970
## pascal
                       1.3369644880 0.35807633 1.199067831 0.976370513
## idlepython
                       0.8037467003 -1.65433669 -0.536275327 0.096577816
## cloned
## neg
                       0.6326382756 -1.46203113 -1.513660431 -0.478346765
0.6200124621 1.38602555 -1.294283986 0.699782312
1.5219558477 1.10643947 1.339556932 0.959286213
## userprofile
## lating
## plyer -1.0725290775 1.19130325 1.554918408 1.629139662
## djangoregistration -0.8336377740 0.89337641 1.577382207 0.472553283
## googlechromeextension 0.9405567050 -0.22646368 1.170969963 0.567175925
## incrementdecrement -1.5422871113 -0.54641622 -0.712443709 -1.126329780
                       -1.4563245773 -0.27307785 -0.418885022 1.529462337
## user
1.3149557114 0.38160470 1.072715998 -0.993117452 -0.7609068751 -1.69981039 1.141134143 0.834037066
## inject
                      0.9056743979 1.45785105 1.384265184 0.016406186
## inferior
                       0.2751533091 -1.48045540 -0.710694253 0.589427769
## objectrecognition
## hiddenmarkovmodels -1.0776462555 1.20378256 -1.316627860 -0.392537087
## nestled
                       -0.2220184952  0.70947659  1.490364909  0.284567654
## processed
                        0.0857979730 1.67776906 -0.648199022 -1.293579340
                        1.4730925560 0.04034600 -0.733804405 -1.805121303
## troian
 ## commontableexpression 0.8111727238 -1.61878598 -0.127829701 -0.351381212
## teamviewer
## york
                        0.8458238840 0.15952544 1.537686586 0.542770326
                       -1.6855340004 0.07212375 -0.655083477 1.358265758
                      1.0338525772 1.00351226 0.737668335 0.908193946 1.3432202339 1.35218859 0.150969595 1.272298932
## adhoc
## store
## rediscli
                      -1.7618447542 -1.47232449 0.438408405 1.296764493
```

```
-0.6429547668 -0.78426707 -1.174828053 0.006930123
## sine
                     1.3388261795 0.25232473 0.458049655 -1.671507239
## mulitple
                     0.3449853063 0.54382288 1.094131351 1.469564795
## undo
                     -1.0324975252 1.73390818 0.022883276 1.186726570
  autoconf
## lxmletree
                   -0.5721428394   0.92443401   -0.625693917   -0.859155059
                    0.1509643942 -1.13005447 0.853159964 -0.033522781
## sar
                     -1.3438787460 1.45178080 0.840039074 -0.107287519
## absent
                   ## rookie
                   0.1136912778 -0.86786610 -2.041070938 0.142386019 -1.4643574953 -0.38797966 -0.459814519 -1.249241471
## garbled
## rpyc
## buckets 0.4964753985 1.64096749 -1.701266527 1.715855241 ## encrypted 0.6904107928 -0.32340646 1.174155235 1.287952900 ## deallocate -1.1325647831 -0.76011527 -1.005869985 -1.417062759
## pythonbeautifulsoup -1.3061009645 0.91545171 0.360428542 -0.327743053
## configurationfiles 1.5206648111 0.03254657 1.254283309 1.560019970  
## ultimately -1.7994402647 0.69987148 1.577463865 -0.953144610  
## uisng 1.0084798336 0.30921414 0.244056880 -0.968516648
-0.4274030030 0.97932029 0.220492125 0.241076127
                     0.8000347018 -1.37812090 -0.717705607 -0.570236623
## hacking
                  -1.0911235809 -0.38339502 -1.555308342 0.338943630
## imgkit
                     0.8313004375 -0.50784248 -1.054850698 -1.743283033
## ramp
## lat
                    -1.3120535612 -0.43910736  0.060540121 -0.218082175
## natural
## screenbrightness
## dplot
## natural
                     0.2825802267 1.12781918 0.576028645 0.782244265
                     -0.2114460319 -0.70603848 -0.157018617 0.994356036
                     ## scissor
                     0.5967544913 1.28056777 -0.888279200 -1.293687463
## lemmatize
## windowsfirewall
                     0.8153270483 1.29377890 0.228119954 -1.207223296
## pops
                     -0.5922178030 0.96125060 0.257919371 0.814865708
                     -0.7454411387 -1.48856115 -0.266699761 -0.220765024
## quotexceptquot
                     -0.4470946193 -0.31773171 0.026473030 -0.476450562
## fa
## googleclouddlp
                      ## jax
                     -1.4129577875 -0.77214879 0.423412353 1.135743856
## iboss
## ljust
                     -1.0440434217 -1.16599381 -0.764348805 -1.049173236
## dashdb
                     0.0852021202 1.21810424 0.388667762 1.419246674
                 ## ansicolors
## observe
                    1.5327436924 -0.77421790 -0.138487607 1.041092873 0.4090321362 -0.04077145 -0.672388554 -0.938965201
## getpost
## digitsum
## faiss
                    ## clexe
                     0.6102572680 -0.85121119 -1.306361556 1.241818428
##
                             X21
                                         X22
                                                    X23
                                                               X24
                     -4.104007e-01 -0.8919203281 0.483828753 0.240009308
## lttrgt
## expose
                     -1.832796e+00 -0.4407058656 -0.288612038 -0.837716937
## socketaccept
                     1.352260e+00 -1.3464723825 0.820686758 0.793474436
                     -6.462678e-01 0.9761474729 -1.108595967 -0.767527819
## methoddescriptor
                     -2.485269e-01 1.3793687820 0.802156687 1.644128680
## mud
                     1.666731e+00 0.6370465159 -1.443751454 -1.313472629
## proper
## belonging
                     1.383944e-01 -1.0833044052 -0.348551601 1.034720302
## dosnt
                     -1.447553e+00 0.4868796170 -1.286805034 0.005919957
## wrongversionnumber
                     -4.458209e-05 -1.5863633156 -0.844943702 1.371119022
```

```
## transformer
                                1.198000e+00 0.1499320567 0.391013384 -1.097465158
                               -1.285172e+00 0.7026937604 -1.718840957 0.098395966
 ## pyrunstring
                               -7.943449e-01 1.3067680597 -1.518323660 -0.399603367
 ## sanitizer
                               -4.478408e-01 -1.2322157621 0.669671714 0.384273469
## render
                               -1.487749e+00 1.3919477463 0.287505180 -0.635536551
## daskdataframe
                               1.299087e+00 -0.0091409981 0.816708624 -0.933503985
                               -1.072981e+00 -1.6185551882 -1.670665026 1.542029381
 ## sclient
                                2.396196e-01 -0.0574846007 -1.474944234 -0.957732141
 ## piece
 ## dictkev
                                3.703945e-01 -0.1492427289 0.257805109 0.848579347
                               8.102200e-01 -1.1988408566 0.315852523 1.401017904
 ## stringformat
 ## normals
                               -1.501257e+00 0.8294999599 0.033280451 1.158605576
 ## poisson
                                -4.918118e-02 -1.5171798468 0.897540748 0.211781844
                               1.173107e-02 1.5596992970 0.966167510 -0.663798571
## memsal
## googlepythonapi -4.516913e-01 -0.0652210265 -0.740747333 -0.185832903
## unclickable 1.311911e-01 0.1288550943 -1.189875007 -1.203326941
## supress 3.912836e-01 1.4318914413 0.545626342 0.249614134
                                3.912836e-01 1.4318914413 0.545626342 0.249614134
 ## supress
 ## transferfunction -2.327174e-01 0.2028605938 0.454271466 -0.351027906
 ## id
                                 1.943984e+00 1.5169134140 -0.239249676 -0.684350073
 ## cqlengine
                             -1.326498e-01 -0.0676389188 -1.581499100 -0.845882595
## succeeds 2.627088e-01 -1.0413873196 1.557285309 -1.538305044

## developers 9.104742e-01 -0.7091701627 0.114140488 1.328896999

## inspectelement -1.256455e+00 0.2727523744 -1.595819592 -1.277389884

## avarage 1.486654e+00 -1.3552346230 -1.035497427 0.730726123

## httpcookie -1.602184e+00 1.2158607244 0.975840807 -1.742556453

## windowsx 1.059478e+00 0.2078908980 -0.382181644 0.028182028
## autoincrement
                              1.178354e+00 1.4901671410 -1.617823720 -1.474678874
                                5.155736e-01 1.0819382668 0.644615471 -0.397496134
 ## netsh
## finding
                               3.858826e-02 -0.5649958253 -1.100532532 1.153456450
 ## excecute
                             -4.950750e-01 0.7814216018 1.555218697 1.597877622
 ## lightfm
                               9.271121e-01 -0.2613267601 -1.218547583 -0.089569114
 ## folium
                               -1.161396e+00 0.9316335917 -1.197531819 0.352433175
                             1.787232e-01 -0.9153188467 -1.269673347 1.074006319 5.267723e-01 0.1557999998 -0.395466387 0.093849249
 ## daskdelaved
 ## ntlm
## hovertool
## rasterizing -1.96213/e---
## sendkeys 6.931516e-01 -1.33985bbzcc
## statsforecast 1.309033e+00 -0.0642858297 0.0635004z/ --
## serialexception -7.310466e-01 -0.6232479811 -0.530692101 -1.368083119
## thanks -5.084856e-01 -0.9708365202 -1.083751798 -0.367647767
## listview -1.757764e+00 -1.1084607840 0.338253587 0.081049897
-8.371677e-02 1.2823486328 -1.312374592 0.214586705
-0.460714e-01 -1.5281763077 0.656267405 -0.345753133
-0.4665718019 1.219359875 1.631935000
## directed 8.235112e-01 0.9894829988 -1.192214966 0.257210970
## ordinals -9.013588e-01 -1.7168049812 0.116521165 1.633152962
## projection 1.555883e+00 -0.2736061215 1.50000000
 ## assignmentoperator -4.042712e-01 -0.2556158900 0.248906195 -0.384833038
                               2.747000e-02 -0.2732937336 -0.705868125 0.464937627
 ## mpeg
## mpeg 2.747000e-02 -0.2732937336 -0.705868125 0.464937627

## serviceaccount -6.105440e-01 1.4199832678 -1.141188145 -1.519264936

## knowledgegraph -1.067017e+00 0.6338481903 0.937633276 -1.471196771
 ## generatorexpression -1.461341e+00 1.1770896912 1.671845913 1.548825502
## experiencing 1.242019e+00 -1.8155280352 -0.292800099 0.239868060
 ## tokenise
                               -1.529438e+00 -0.7965769768 0.944138288 -0.559391558
## flag
                               -3.198993e-01 1.4876480103 0.011803696 1.248395324
                               -1.487651e+00 0.9690030217 -1.324542165 1.455935121
 ## pssh
 ## fitness
                              -8.869795e-01 -0.1518760920 -0.968310595 0.486990273
                               -4.126189e-01 1.6339166164 0.070499457 0.387873799
 ## pascal
 ## idlepython
                               8.739036e-01 0.5426160693 0.467711329 1.449415684
 ## cloned
                              -6.723114e-01 -1.0962953568 -1.514076233 1.642967343
```

```
4.734434e-01 -0.9027639031 -1.615227818 1.212034345
## neg
                        -3.421949e-01 -0.0312168077 -0.401676446 1.494635820
## excelformula
                        -1.565756e+00 1.6366199255 -0.777691841 -1.226740599
## expr
                         7.651812e-02 -0.4490308166 1.403815985 -1.200918436
## quotconnection
## salites
                         1.495421e+00 0.3129137754 -1.276404262 0.971598089
## apachenifi
                       -6.969292e-02 0.6877458096 0.048616208 0.706170857
                         1.019578e+00 -0.9477980733 1.297049642 1.472909808
## celerybeat
## relaxation
                       -2.728970e-01 -0.0715382770 0.583365202 -0.868084192
                        1.373441e+00 1.1527417898 -0.665564656 0.088784851
## difficult
                        -1.496237e+00 0.9241460562 0.076044530 -0.659673572
## userprofile
## lating
                        -1.244565e+00 0.6946880221 -1.369710922 0.904819906
                        -9.785864e-01 -1.2220751047 0.235004500 -0.121083364
## plyer
## djangoregistration
                        1.285364e+00 -0.2493446022 -0.240673557 -0.042423692
## googlechromeextension -1.868886e+00 -1.1113783121 -1.814007163 -0.668159544
## incrementdecrement -5.937616e-01 -0.9658763409 0.197867051 1.040055394
                      -1.075924e+00 1.0319330692 -1.507140636 -0.578368425
-1.804954e+00 -0.7315300567 0.5578368425
## user
## quotdatequot
## signalsslots
                        6.391566e-01 -1.1084355116 0.028565215 1.516905427
## inject
                        -5.256885e-01 -0.9723005891 -0.915175319 0.787807345
## inferior
## objectrecognition
                        4.933849e-01 0.9573076963 -1.467001796 -0.567224026
## hiddenmarkovmodels 1.228013e+00 -0.1924545169 -1.144151449 -1.692371964
                        -4.520237e-01 1.6045708656 0.429155052 1.591471553
## nestled
                         1.749303e+00 -0.2947913706 -1.074921489 1.099425912
## processed
## troian
                        1.322574e+00 -0.6721885204 1.019823432 -0.262766093
## commontableexpression -1.221129e+00 -0.6488361359 1.056273580 -1.219154716
               1.665590e+00 -0.2316629291 -0.591586351 0.264567226
## vork
## teamviewer
                        4.843558e-01 -1.5896099806 0.884199262 -0.744736135
## adhoc
                        1.501069e+00 -1.3576924801 0.579161704 1.470361114
## store
                      -1.458173e+00 1.2524567842 -0.443011284 1.030782819
                       1.678101e+00 0.0045351633 0.582149088 -1.392367840 1.180335e-01 -0.1907002032 1.278394699 0.042580627
## rediscli
## sine
                        4.876587e-01 -1.3944160938 -0.712592423 1.361467719
## mulitple
## undo
                        -1.644247e-01 0.9496973753 0.045919985 -0.626681030
                       -1.007879e+00 0.9033353329 -1.028624415 -0.787916899
## autoconf
## lxmletree
                        6.960931e-01 -1.4256672859 -1.105087399 -1.479571819
## sar
                        -1.957936e-01 -1.3557257652 -0.676701963 -0.139152274
## absent
                        1.495620e+00 1.3290194273 -0.050872080 -0.171576962
                         9.968213e-01 -0.4409183264 0.735368669 -1.069611549
## rookie
## garbled
                        -3.699020e-01 -0.0228894558 1.369658470 -0.195941493
## rpyc
                       -1.989667e-01 -1.6873223782 1.350384593 0.827538073
                        1.482309e+00 -0.0596980192 0.122446135 -0.834010780
## buckets
                        -5.048113e-01 -0.6285946965 0.195407599 -1.618296027
## encrypted
## deallocate
                       -9.058849e-01 1.3189796209 0.478165448 -0.167128533
## qstandarditemmodel
                        1.183500e+00 -1.1666702032 0.667778373 -0.762551963
                        -9.796191e-01 0.0392921641 -1.445690274 1.317597628
## newline
## changelog
                        -1.677995e+00 0.4955375791 0.336135179 -1.812249541
## qfiledialog
                         1.169178e+00 1.1177073717 1.408868790 0.175135389
## partitioning
                        -1.388816e-01 -0.0196437370 -1.234902501 1.087248802
## army
                         7.056020e-01 -1.4339371920 1.320308089 -1.561704755
## standardscaler
                        -1.296190e+00 1.2542500496 0.987664461 -0.080676973
## pythonbeautifulsoup -1.311805e+00 -1.1318572760 -1.617223382 -0.550650835
                        -1.596476e+00 -1.3533322811 -1.472957015 -0.663905501
## refactoring
                        8.432533e-01 0.4646704197 0.263729781 -0.515860796
## superclasses
## predecessor
                        -1.046280e+00 -0.9936521053 -1.467165947 1.383263707
## ltgt
                        -1.151957e+00 1.0969288349 1.264957190 -0.888514876
                         3.355240e-01 -1.4362070560 -1.200301290 1.139292836
## sequential
                        1.106708e+00 1.4713418484 0.014207444 0.336144894
## module
## configurationfiles
                         1.493619e-01 1.4626880884 0.372350901 1.097997427
## ultimately
                       -6.843193e-01 -1.2476937771 0.170625150 0.025539432
## uisng
                         6.893318e-01 1.5238360167 -1.478263378 0.668087006
## byquot
                        -9.115419e-01 -1.4978253841 1.281539917 1.578198671
## cpuarchitecture
                       1.580337e+00 0.3915208578 -0.920497954 -1.208550096
                         3.035343e-01 -0.6726265550 -0.786728919 -0.763408363
## deltars
                       -1.380710e+00 -1.5025531054 -0.842641234 1.395837188
## knowing
## hacking
                        1.453199e+00 0.1054250225 -1.492408156 0.237253129
## imgkit
                        -9.161265e-01 -1.5053702593 0.407961488 -1.383203387
                         5.560659e-01 1.1216613054 -1.549453378 -1.214447975
## ramp
## lat
                        -1.404108e+00 0.8847472668 1.606614351 1.025025845
                         9.421923e-01 0.6595040560 -0.932658315 0.271250546
## natural
## screenbrightness
                        2.052692e-01 0.0279240031 0.492719084 1.031659722
                         1.586909e+00 -0.0989953578 0.530607164 1.514797211
## dplot
## scissor
                         1.501709e+00 0.4041682184 -1.043797970 -1.450424075
## lemmatize
                        -4.402864e-01 -0.8898247480 -0.535484374 1.426049232
                         2.201428e-01 -1.3350863457 -0.274977177 -1.344509244
## windowsfirewall
                        -5.700305e-01 1.2240198851 -1.474762678 -1.340567708
## pops
## quotexceptquot
                         2.704208e-01 -0.1504338235 -1.099436641 -1.871430755
## fa
                         1.259179e+00 -1.2737177610 0.361094415 0.163783997
                         ## googleclouddlp
                         1.390393e+00 -1.4056754112 -1.629929900 -0.725266278
## jax
##
                        -1.673906e+00 -0.9736259580 -0.070913985 0.729926288
  jboss
## voicerecognition
                        1.765321e-01 0.6850885749 -0.140777618 -0.776613712
                        -1.568663e+00 -0.3557950258 1.640305161 -0.322514683
## splitting
## numberquot
                        -1.395829e+00 -0.5209757090 0.861107886 0.416502655
## methodsignature
                        -5.741817e-01 0.4963743091 1.229734659 -0.785530806
```

```
-5.605912e-02   0.6760405898   -0.487595171   1.358572483
## sourced
                      -9.316068e-01 -0.9662277699 1.351252913 -0.134197086
## ljust
## linux
                       1.329144e+00 -1.2808752060 1.103125811 -0.187818050
                       5.648063e-01 1.0018930435 -1.527419090 -0.231875107
## pythonalpine
                       7.657570e-01 0.9492964149 0.633240283 -1.305453300
## vscoderemote
## pythonfractions
                       1.663571e+00 -1.5661830902 0.009603253 1.390047908
                       -1.107668e+00 1.4364229441 -1.570479155 1.261504650
## mapquest
## questdb
                      1.296835e+00 -1.5002623796 0.073004641 -1.260845304
                       1.018658e+00 -1.0335303545 1.119161963 1.066505075
## dnsresolver
                      3.194075e-01 1.2460349798 -1.248830557 0.867645144
## meanshift
## sports
                      5.262206e-01 0.2244811207 -1.263608932 0.172967568
## itertools
                      -1.048424e+00 -1.3052979708 0.444534600 -1.037132740
                     -7.793463e-01 1.2249614000 -1.523754120 -1.644883275
## hvbrid
## offloading
                     -1.107199e+00 -0.9135501981 0.288812906 1.342800379
## dashdb
                       9.062367e-01 -1.5725121498 -0.565495610 -0.684247494
                      1.662123e+00 0.6654967666 -1.028623343 1.516668558
## ansicolors
                      -1.620512e+00 -0.6200028658 -0.211171255 0.974191904
## observe
## getpost
                      -1.172639e+00 0.2001822591 -0.145854369 0.423378944
## digitsum
                      1.550057e+00 -1.4643948078 0.581475377 0.450422347
## faiss
                      -9.059758e-01 0.5588844419 0.248559743 0.558262169
## clexe
                      1.322710e+00 0.0378382020 0.539347410 -0.328097701
                              X25
                                          X26
                                                      X27
## lttrgt
                       1.326266527 -0.8293788433 0.332437992 1.18630874
                       0.522901833  0.9740210176 -0.712052345  1.60710204
## expose
## socketaccept
## methoddescriptor
                      -0.774959087  0.4663389921  0.843122602  1.52162433
## mud
                       1.403112173 0.6829330325 -0.059979588 1.09882319
                      ## proper
                      -0.547871947 -1.6889784336 1.600592732 0.86777717
## belonging
## dosnt
                      0.647555649 1.4185321331 -0.479540914 -0.14115852
## wrongversionnumber
                      0.948940635 -1.5933028460 -1.162353516 -0.51819211
                       1.208892345 -1.0510137081 -1.505036592 -1.11234510
## transformer
                      ## pyrunstring
## sanitizer
                      -1.096321940 1.3695262671 0.362978965 0.17321779
                      0.241870850 1.1283979416 0.969486773 0.74411303
## ole
                      -0.497265220 -0.8455811143 -1.415374279 0.95768970
## render
                      1.420257330 0.1458235681 0.404374927 -0.05667334
## daskdataframe
## sclient
                     -0.543641150 -0.7239108086 -1.478762627 -0.24477261
## piece
                      0.815362811 -1.5776602030 -0.473214328 -0.08777409
## dictkey
                      -0.876789868 -1.4560810328 0.747651398 -0.72720170
## stringformat
                     -1.041518211 -1.3343269825 1.151758909 1.01738310
                      -1.633455634 0.7294530869 -0.062359851 -1.32575572
## normals
                       1.199491262 -1.3453959227 1.624482393 -0.69066578
## poisson
## memsql
                      0.276750892 1.7112162113 0.153930768 0.79372591
## googlepythonapi
## unclickable
                       0.520207882 -1.2290583849 1.130854964 -1.02637374
                       -0.056130391 -1.5885744095 -0.061627086 -0.13815302
## supress
                       0.170359105 -0.8432281613  0.616858661 -0.70328468
## transferfunction
                       0.770198822 1.7265771627 -1.515834212 -0.69352752
## id
                      ## developers
## inspectelement
## avarage
## httpcookie
## windowsx
## track
## exerci
                       1.185165167 -1.1392314434 -1.499224305 0.56827295
## calengine
                      -0.066282533 1.5826017857 0.515436530 0.77914464
                      1.143918872 -0.2192049325 -0.540036142 0.33032572
                      -0.619382322 -1.5185887814 0.381686181 1.04710662
                     -0.382065743 1.0935777426 1.132888436 -0.29559240
                       1.508061290 0.7645654082 -1.525030255 -0.46857792
                      1.409788609 1.2008943558 0.393206596 1.13724351
                      0.184283569 0.3201564550 1.417190552 0.77296680
-0.074251913 1.4634569883 -1.486720800 0.63807118
## comparing
                      -0.604123533 1.1233721972 0.836932778 -1.21013677
                     -1.333437085 -0.3889478743 0.217412904 -1.49560404
## anticaptcha
                       1.439969778 -1.6119619608 -1.496122122 1.42234433
## ifconfig
                      -1.105850697 -0.5876404643 -0.283323705 -1.61573231
## rpg
## rich
                       0.102578066 -0.0523788594 0.527680218 0.38027483
## autoincrement
                       0.638026536 1.4411748648 -0.876437485 -1.36982071
                       0.419971108 -0.2555010915 0.136709407 0.30378294
## netsh
                      0.865899861 1.4770734310 -1.075173974 1.30033410
## finding
## texttable
                       -1.266545773 1.5832427740 0.255508721 1.40435481
## vmwareworkstation
                      -0.455258369 -0.4194725454 -1.559813738 1.14041615
## regularlanguage
## regular _____
## spoofing
                      -0.711680710 -1.5017007589 -1.440276027 -0.81618184
## palette
                     -0.625326097 -1.9077755213 -0.338254750 0.98161501
## suitable
                      0.033631090 0.5219556689 1.475341082 -1.02343225
                      1.090677142 -0.0928956047 1.305833220 -0.90279734
## gil
## headerquot
                      -1.465822577 -0.1707352251 0.307856768 -0.14376363
## excecute
                       0.683317900 1.2486914396 1.465440512 -0.28374326
                      1.620604396 1.1321998835 1.407317162 0.60482442
## lightfm
                      -0.883987904 -0.1567423940 -0.664744735 -0.35028666
## folium
                  -0.056822773 -0.2515729368 -1.312651038 1.46656728
## daskdelayed
## ntlm
                      -0.587041676  0.4783184826  0.964028656  -0.67730761
## hovertool
## rasterizing
                       0.980180502 1.1796679497 0.815158665 -0.74401075
## sendkeys
                      0.366861016  0.6904516816  1.494340181  1.53313398
```

```
## statsforecast
                                                  -0.249165609 1.5056105852 1.063579679 -1.39899552
                                                    1.713435888 0.0968872309 0.872404218 1.48593116
 ## serialexception
 ## thanks
                                                    0.615845144 1.4714009762 1.215125203 -0.41482562
                                                    0.757732868 -0.5673751235 1.041235924 0.13629451
  ## listview
 ## pythonsocialauth 0.936665595 1.2146317959 -1.560906053 0.16095175  
## randomchoice -1.689199805 1.4191854000 1.574284196 0.61104584  
## systematically 1.020093799 -0.6058404446 0.698727310 0.032323
 ## compilerconstruction 1.057153940 0.8208089471 -0.011721763 -1.76692915
                                                    1.601148963 0.3819341660 -1.372042298 -1.01422918
 ## directed
                                   1.601148963 0.3819341660 -1.372042298 -1.01422918 -1.133988500 -0.1155851781 0.136418641 -0.56486905
 ## ordinals
 ## serviceaccount ## knowledgegraph ## generatescound ## generates
 ## projection
                                                   0.495206267 -0.7773605585 -0.954866707 0.90718842
 ## generatorexpression -0.128114596 1.6166864634 -0.255543351 -1.61516213
 -0.489978313 1.2425367832 -0.037847109 1.32201946
 ## plver
 ## djangoregistration 0.893593132 0.2397398502 -1.222168684 -1.44417167
 ## googlechromeextension 1.220595598 -1.3940050602 -0.392431676 0.91518629
 ## hiddenmarkovmodels
                                                  -0.329404831 1.1948040724 -0.795171320 -1.70664537
                                                  1.516850471 0.3200927675 0.588175058 -0.24094397
 ## nestled
                             1.516850471 0.3200927675 0.588175058 -0.24094397
-1.841210485 0.4317430258 1.249697685 1.43386245
 ## processed
       trojan
                                                    1.842769980 -0.0946346074 0.038149726 -0.30904353
 ## commontableexpression -1.545724630 -0.4739131033 -1.512096643 0.23444635
                              0.490509152 1.3579790592 -0.423567325 0.87620968
1.133280873 -1.3058531284 1.279653072 -0.07941773
-0.716817200 -0.8767293692 -0.336148500 1.26532602
-1.384111881 0.0002628073 -0.539932430 0.44294292
-0.053872947 0.9896647334 -0.570076108 0.32893452
 ## vork
 ## teamviewer
 ## adhoc
 ## store
 ## rediscli
                                    1.294464350 -1.7116056681 1.351837635 1.72622049

1.175088048 -1.1072437763 -1.489343166 0.51966029

-1.567481518 0.9336324334 -1.319185615 -0.89346498

-1.331296325 -1.7180309296 -0.791407466 0.86886740

0.272214621 -0.6872590780 -0.344420940 -0.01071641

1.409544230 -1.5370749235 -0.245683387 0.57236373
 ## mulitple
 ## undo
 ## autoconf
 ## lxmletree
 ## sar
                                           1.409544230 -1.53/0/49253 -0.2430355.

-0.156421378 -1.0075204372 -1.684860945 -0.80569500

-0.057401031 -0.6808924079 -0.191678867 -1.66847146
 ## absent
                                 -0.057401031 -0.6808924079 -0.191678867 -1.66847146

-0.692223132 0.7700660229 -0.063038580 1.48716545

0.830585599 0.3827484846 -1.250178933 0.36283630

-1.415163279 0.7039186954 0.097337365 1.23024452

0.668471932 0.7541574240 -1.557945848 -1.02038288

1.099813581 -0.6284652352 0.067314206 1.2507888
 ## rookie
 ## garbled
 ## rpyc
 ## buckets
 ## encrypted
 ## deallocate 1.099813581 -0.6284652352 0.967214286 1.50794077 ## qstandarditemmodel 1.371208549 0.2827061117 0.592775702 0.77385533
 ## newline
                                                   0.726276755 -0.7335914969 1.240386486 -1.30346847
 ## changelog
                                                  ## qfiledialog 0.499169499 -0.4032825530 -0.325598687 -0.03169636
## partitioning 1.024331331 0.7419317961 0.697307110 -0.50474679
 ## armv
                                                    0.952975988 -0.6806310415 -0.746207416 -1.49364722
 ## armv 0.952975988 -0.6806310415 -0.746207416 -1.49364722
## standardscaler -1.125496268 0.9875904918 -1.518129110 1.29605031
 ## pythonbeautifulsoup -0.526298642 -0.8961111307 -1.379844666 -0.26608470
```

```
## predecessor
                       -0.062751509 0.7637138367 1.219097376 1.37657511
                        0.196366698 -0.0707063675 0.719849527 0.18140736
## ltgt
## sequential
                       ## module
                       -1.675811768 -1.3912513256 -1.334515214 1.00388551
## configurationfiles -0.264957696 -1.5697141886 1.640523553 -1.61042011
                  0.397010088 0.0276775304 1.531748295 1.90238941
## ultimately
## uisng 1.185839295 -1.7491676807 1.078209162 -0.34110048

## byquot -1.012674093 -1.1671750546 1.480942249 -0.52257603

## cpuarchitecture 0.552783489 -0.3865260780 -1.110603690 1.06155063

## deltars 0.099470079 -0.7420828938 0.534705400 0.28848526

## knowing -1.132484674 -0.7055286765 -0.350708783 -0.39409935

## hacking 0.716823637 0.8911048770 1.039699554 -0.47366899
                        1.185839295 -1.7491676807 1.078209162 -0.34110048
## uisng
                       -0.285867274 -0.5769864917 -0.004865678 0.07985551
## imgkit
## ramp
                       0.184701130 1.2178305387 0.303482324 -0.92749453
## lat
                       -0.517125666 -0.2857755423 1.425651789 -0.10658288
                       1.308700681 0.6155298352 1.074081898 -1.29623795
## natural
## screenbrightness
## dplot
                       0.131672338 1.6033818722 1.384959221 -1.02948987
                       -1.337222457 -0.9799845815 -0.593811929 1.13154888
                       -1.452518940 -0.8667876720 -0.082430087 -1.64475334
## scissor
## lemmatize
                       -0.098466344 -0.7144110799 1.551037431 1.51233721
                       1.386705637 0.6299746037 1.038689137 -1.41201639
## windowsfirewall
                        0.571007848    0.5638659596    1.282051563    -0.77060789
## pops
                       -1.245944858 1.4596657753 0.868016422 -1.29491019
##
   quotexceptquot
                       -0.446108729 -1.7531417608 0.425488740 -0.55994332
## fa
## googleclouddlp
                       1.552252412 -1.5519789457 0.544588149 -1.26576746
##
  jax
## iboss
                       -1.083679318 0.9031833410 -0.411134452 -0.95529348
## voicerecognition
                       -0.003202664   0.2625321448   1.691940427   0.48158354
                       -1.239955783 0.4449849427 0.501329064 0.44456145
## splitting
                       0.292526364 1.7194970846 1.298042893 -1.32282484
## numberquot
## methodsignature
## sourced
## linst
                       1.107284307 1.2887777090 0.495253265 -1.40697730
                       -1.709907889 -0.3518075645 0.319390684 0.29167691
                       ## ljust
## hybrid
                      0.239493385 1.3865331411 0.142455816 -0.25385815
## offloading
                       1.595696211 -0.2209584117 0.541495204 -0.94685781
                  ## dashdb
                      ## ansicolors
## observe
                      1.179862022 -1.0959084034 1.393565297 -1.37057590
## getpost
                     0.199171707  0.5090853572  -0.507143021  1.13671696
## digitsum
## faiss
                       0.263933033 -0.2718454003 0.791545510 -0.30204350
## clexe
                      -0.885351598 -0.8799566031 -1.187094331 1.12098706
                                                       X31
##
                               X29
                                           X30
## lttrgt
                      1.246420145 -0.985334218 -1.479344368 -1.32747650
## expose
                       -0.435983330 1.425488830 -0.737429917 0.91374809
## socketaccept
                       -1.299760342 -0.077265486 1.586112738 1.43363285
## socketaccept
## methoddescriptor
                       1.668906808 -1.341914892 0.528743982 -0.84811127
                       1.376746774 -1.278794408 -1.440086365 -0.64102089
## mud
                 1.376746774 -1.278794408 -1.440086365 -0.64102089 -0.764159083 -1.472310424 -0.434569329 -0.66581917 -0.336948991 -0.433000743 0.791654468 0.88561547
## proper
## belonging
                      ## dosnt
## wrongversionnumber
-0.326490819 -1.055778623 0.940919638 1.07123852
## render
                       0.228335679  0.361122638  0.570722103 -0.72279918
## daskdataframe
                       0.956530392 -0.199301049 -0.443875939 -1.08926010
## sclient
                       0.884955585 -0.803613067 -0.232723713 0.75316352
                       -1.148115993 1.108952403 -0.041591685 1.69572914
## piece
## dictkey
                      0.218393862 -1.161719680 -0.833985209 -0.81311393
                       ## stringformat
## normals
## poisson
                       -0.381769985 -0.219215870 -1.652132154 -1.44867790
                        1.057789087 1.308492422 -0.213514313 0.58245009
## memsal
## supress
                       -0.009866055 1.593351364 0.393220872 -0.65648574
## transferfunction
                       -0.946721137 -1.502595663 1.546271324 1.00018466
                       0.117306970 -0.040734626 0.924394429 -0.80591601 -0.438100010 -1.354373217 0.902323365 -0.99411887
## id
## cqlengine
## succeeds
                       1.590625167 1.565720201 1.504767776 -1.63309610
## developers
                       -0.021437675 -0.512071729 1.631363869 -0.66511756
## inspectelement
                       -1.609478831 -0.223462626 -1.119043827 0.43049192
                      -1.515333891 0.974431932 -0.840293646 0.41093659
## avarage
```

```
## httpcookie
                        0.525151968 1.202313542 -1.131535769 -0.78864205
                        0.502581775 -0.645043671 -0.168100253 1.26100922
## windowsx
                        0.175908729 -0.573950231 1.261055708 1.36007345
## track
                        0.967072546 -0.427921563 0.412888646
## exercise
                                                           1,27190185
                       ## scrabble
                      -0.608485937 -0.311123997 0.904581130 0.61190671
## ipythonjupyter
                       -0.381507784 1.532780647 -0.565302789 1.58435011
## mkdir
                       0.594913840 1.433272243 1.411175013 -0.61827755
## comparing
                       -1.024292588 0.535768986 -0.635066271 0.16395840
## anticaptcha
## ifconfig
                      -1.576647162 1.307908654 -0.973444521 0.28584510
## rpg
                     -0.697659314 -0.557192385 -1.437711000 -1.60687113
## rich
                       0.790790856 1.291939735 -0.484736145 -0.74128813
## autoincrement
                      -0.529109538 -0.683773577 0.420439750 -0.59986693
## netsh
                       0.261141151 1.302387118 1.339730382 1.14523304
## finding
                       1.090084314 0.759750664 -0.977184951 0.14485042
                       -0.194223225   0.079396248   0.506247580   0.35723674
## texttable
## vmwareworkstation
                      -1.219381094 -0.028531116 0.630317450 1.60155869
## regularlanguage
                       -0.230758488 -1.740621209 -0.265742093 -0.85931474
## spoofing
                      -0.738711953 -0.753386497 1.282865286 0.15478390
## palette
                       -0.402736664 -1.507830381 -0.398853928 -1.36304915
                     ## suitable
                       0.041067999 -0.271373868 -0.649199843 1.58168387
## gil
##
                 -1.283740520 0.941039920 0.175980896 0.58472955

-0.844110250 0.399427474 -0.986341000 -0.06131358

1.429612517 -1.549879432 -1.529412389 0.23551783

0.359381348 -1.356139660 1.533645868 -1.76095736

-0.047401343 -0.017273039 1.313748479 -1.42256522

0.685847878 0.686956704 0.378560543 -0.70538205
                       -1.283740520 0.941039920 0.175980896 0.58472955
   headerquot
## excecute
## lightfm
## folium
## daskdelayed
                       ## ntlm
## hovertool
                      -0.389565736 -0.258050650 -1.423289061 -0.92678142
                      0.759365618 -1.582468748 1.585561633 -0.17355560
## rasterizing
-1.235895991 -0.843146145 -1.465396166 -1.77136648
## listview
                       ## maturity
## pythonsocialauth
                       -0.821654558 -0.458697170 0.002243204 0.73039693
## randomchoice
                      -1.172155857 0.177093700 0.936427832 1.19445753
## systematically
                        1.299645662 1.273368597 -1.197220087 -0.87168765
## compilerconstruction -1.659351468 0.068042547 -0.990112782 0.48383904
                      -1.623884797 -1.020017266 -0.292528838 1.42771006
## directed
                        1.355535030 -1.086936474 0.059772264 -1.58046603
## ordinals
                        1.571383953 1.365104914 -0.247109875 0.34601244
## projection
## assignmentoperator -1.571151614 -1.231312513 -0.498651028 1.30270433
## mpeg
                       1.323344231 -0.249528646 1.400586605 1.32787132
## serviceaccount -1.464739084 0.515937865 -1.323486447 -0.31168801 ## knowledgegraph 0.55378251 1.402503464 -0.31168801
                       0.553178251 -1.103582144 1.254566550 1.29182649
## knowledgegraph
## generatorexpression -0.838982582 0.991340995 -1.494333506 0.33667329
## experiencing 0.301189870 -0.246490031 -0.077763632 0.65606737 ## tokenise 0.227485731 -0.094590500 -1.102904439 0.32824132
## readcsv
                       0.972712159 -1.411474586 -0.828190923 0.83224589
## managerdict
## cleardb
## qtmultimedia
## executescript
## fluid
                       0.974674881 0.266429007 -0.075993523 1.37010157
                       0.604456544 -0.723328412 0.453249604 -1.17568910
                       1.360598803 -0.422008991 0.716468275 -1.54896343
## fluid
                       ## flag
                       0.121033132 1.151324034 -1.197125793 1.20042396
                      -1.456106901 -0.339064270 -0.441988081 0.94041014
## pssh
                      -0.847872674 -1.024990797 -0.676069677 -1.47155035
## fitness
## pascal
                      -0.647424817 -0.651813328 -1.017082214 1.17206275
                      -0.811680675 0.743546307 0.735378206 1.68062150
## idlepython
## cloned
                       0.675717711 1.407258272 -1.100511312 0.22767295
                      -0.159262240 -0.709776461 -0.872120678 -0.33658549
## neg
                 -1.457458854 1.047053337 0.167106748 -1.54390526
## excelformula
                       1.317430496 -0.717733800 1.162050605 -1.33828115
## expr
## apachenifi
                       1.687166452 0.060380235 0.866515756 -0.64761949
## celerybeat
                      -1.295274019 1.316319942 0.543694556 -1.39934266
## relaxation
                       1.306127548 -1.435145974 0.773935616 -1.74685323
## difficult
                      1.194103599 1.548455477 -0.401797831 1.28866303
                       1.124787331 1.582281232 -0.645754099 1.50701535
## userprofile
## lating
                       -1.224356890 0.544672430 0.854692578 0.37408516
## plyer
                       1.090293765 0.448918968 1.007564187 -1.46877670
## diangoregistration
## googlechromeextension 0.251944661 0.238396615 0.771330953 -0.56080484
## incrementdecrement
                        0.071836442  0.358144909  0.705646157  1.45732725
## user
                        0.141123995 0.797508478 0.155879989 0.99288636
                       -0.542408049 -1.129194736 1.089300036 -0.28481016
## quotdatequot
## quotdatequot
## signalsslots
                     -0.562131763 -0.754456580 0.666809916 -0.21237150
## inject
                        0.905390680 0.957722604 -0.664644182 0.60242045
## inferior
                       ## objectrecognition
                       -0.648657739 0.141093537 1.504067540 -1.25033164
## hiddenmarkovmodels
                       -1.606218457 0.039755885 0.934091508 1.05662882
## nestled
                        1.558381081 -1.019861937 -1.437979937 -0.65235466
```

```
## processed
                      -1.681959867 -1.110275626 -1.311830878 -1.72305977
## trojan
## commontableexpression -0.331557423 -1.311748862 -1.644246578 1.05373740
  vork
                      1.494108677 0.938992321 -1.563887596
                      ## teamviewer
## adhoc
                     -0.219174743 -0.402822882 0.980371535 0.74023640
                     ## store
## rediscli
                      0.304073423 -0.918190837 -0.884635150 0.65572691
                      0.151548386 1.418280125 1.539290428 0.40583092
## sine
## mulitple
                      1.291250229 1.693992734 0.616926670 0.68958491
## undo
                     0.770522594   0.643128276   0.491703093   -0.37310070
  autoconf
                     -0.336261004 -0.049371790 0.126070336 -1.32710159
## lxmletree
## sar
                     0.032260317 -0.004296883 0.815216839 1.33286726
## absent
                     -1.147502303 -0.394953549 1.512999892 1.14764977
                      1.774076700 -0.596582592 -0.831006348 -1.82515287
## rookie
                     -1.995785356 -0.210974231 0.954265654 -0.31362289
## garbled
## rpvc
                     -0.977072358 -1.348729968 0.522156894 0.38896886
                     -0.386840254 -0.475796849 0.905257463 -1.44408309
## buckets
                     -0.578612328 -0.034631122 -0.909427047 0.29569119
## encrypted
## deallocate
                      0.971057475 -0.879232109 1.303678274 1.32801104
## qstandarditemmodel -0.194512710 1.627965689 -0.585849524 -1.24272573
                      -1.444119334 0.021756615 -1.149653554 1.04249942
## newline
                     -0.299649894 -0.255838394 -1.153034687 0.93303365
## changelog
## afiledialog
                      0.006266654 -1.457983494 0.756314337 0.82930642
## partitioning
                      1.387815118 -1.209770560 -0.256968796 1.11312211
                       1.169186831 -0.639965177 -1.156389475 -1.56196558
## armv
## standardscaler
                      -0.825052738 -0.991909444 0.673298895 0.68312567
## pythonbeautifulsoup -0.897860646 0.900138676 1.030415893 -0.27845141
## refactoring
                     -1.138262987 -0.253233671 -1.585188508 1.14332736
## superclasses
                     0.466754556 -0.821483433 0.973544240 1.02737081
## predecessor
                     -0.768464744 -0.575899124 -1.106131673 -0.93941551
## ltgt
## sequential
                      -0.031126944 -1.692045808 -0.556216359 -1.47951901
                       0.586777031 0.536468089 0.922034383 -0.53053260
## module
## configurationfiles
                      0.190986872 1.051197886 0.326462597 -0.97889274
                      -1.475976110 0.552004814 0.278200924 0.79592526
## ultimately
## uisng
                     -1.679970145 0.433374345 0.759620428 1.10976613
                       0.858751595 1.312960505 -1.329119563 -0.11881814
## byquot
## cpuarchitecture
                      1.611495972   0.631224632   -0.091890536   -0.15020625
                     -1.326972127 -1.523259163 0.726416528 -1.58555925
## deltars
                     -1.447773933 -1.264685154 0.521547079 -0.11251138
## knowing
                     -0.266934037 -1.270558476 -0.195652291 0.73528618
## hacking
## imgkit
                      0.497506201 1.584542632 -1.737180948 0.37767029
## ramp
                      -1.727918506 0.167843387 -0.288130730 0.03342037
                      1.580244422 0.872261643 1.587451220 -1.14792836
## lat
                      0.523826480 -1.072293758 -1.115788221 0.95682734
## natural
## screenbrightness
                      -1.544354916 -0.402918369 -1.039887667 1.64782619
                     -1.285221934   0.142137766   -1.164734364   1.17527795
## dplot
                       0.223079950    0.618905067    1.103562474    1.34168947
## scissor
## lemmatize
                      -1.567864537 0.189551935 -0.550274849 -1.47136009
## windowsfirewall
                      -1.306165099 0.237030879 -1.321799874 1.46062827
                       0.719070613 1.333253741 0.853344083 -1.31600499
## pops
## quotexceptquot
                       1.258938074 1.186113238 -0.505590975 -1.23812222
## fa
                      ##
                       1.686436772 -0.435599029 -0.806829751 -1.25853431
  googleclouddlp
                       0.202806652 -0.336275309 -0.464512348 -0.96389884
## iax
## iboss
                      -1.267075539 0.998543799 -0.885803878 -1.31193519
## voicerecognition
                       0.879759192 -1.613307714 -0.231158197 0.47006574
                       1.496185780 -0.070435569 -0.449063867 -1.75891829
## splitting
## numberquot
                       ## methodsignature
                      -0.441620857 -0.403454572 -0.985662639 -0.42140326
                      -0.785528600 0.137579024 -0.534826100 -1.20550549
## sourced
                      -1.030454755 1.056159377 1.188054323 -0.06877180
## liust
                      -0.476645082 -1.677074432 0.784386098 -1.26032996
## linux
## pythonalpine
                      -1.644210219 -0.921477556 -1.201766491 -0.07584009
## vscoderemote
                      -0.412514389   0.497359127   0.184775338   -0.43853614
                      0.777315259 1.378007889 -0.724102437 0.53631574
## pythonfractions
## mapquest
                      -1.004981756 -0.436898738 -0.997466922 -0.78374141
                      1.420503736 1.370881438 -0.845433772 -1.47356474
## questdb
## dnsresolver
                     -1.601940274 -1.087296724 -0.857668698 -0.22361639
## meanshift
                     -1.296576619 -0.689348042 -1.334696293 1.13909733
                     -1.242877603 1.497689486 0.324163914 -1.10582113
## sports
## itertools
                     -0.333062500 0.671874523 -0.620429099 0.60282463
                      1.367216706 -0.623473346 0.450532109 0.76251972
## hvbrid
## offloading
                     -1.505588889 -1.123993635 -1.585293174 0.30519783
## dashdb
                      ## ansicolors
                      0.829398990 -0.313543946 -1.578923821 0.30396751
                     -1.508238792 1.735230446 1.366434813 0.53752571
## observe
                     -1.161271095 -1.229297757 -0.157434374 0.59957308
## getpost
## digitsum
                     -0.549141645 -0.647925317 0.421051592 -1.03345394
## faiss
                      ## clexe
                     -1.042688251 -1.149819613 -0.731779754 -1.19245052
##
                             X33
                                          X34
                                                    X35
                                                                X36
## lttrgt
                     -0.529265940 1.6687444448 -0.70237541 0.360823005
```

```
-1.432065129 0.6242745519 0.35062146 1.427985311
## expose
## socketaccept
                     -1.517747641 1.1529182196 1.32383478 1.560779452
## methoddescriptor
                     1.045047522 1.7589989901 -0.35351318 0.800987661
                     ## proper
## belonging
                     0.629195631 -1.0984369516 -0.14470635  0.684465766
## dosnt
## wrongversionnumber -0.247777745 0.8594482541 -1.18995416 1.077768445
## poisson
                    -1.277042985 -1.0915668011 1.38494933 -1.179715037
## memsal
                    -1.640143871 1.5759413242 -0.37913093 -1.602909327
1.155973792 0.2333158404 0.88852286 0.703102231
## hovertool 0.955202460 1.0757420063 0.84879535 0.782637894
## rasterizing 0.832093358 -1.6461727619 -0.91892940 0.606302321
## sendkeys -0.318807542 1.2331959009 0.49475116 0.525589347
## statsforecast -0.798705876 0.4078969359 -1.53468823 -1.406027079
## serialexception -1.118523598 0.9659354091 -1.65244782 -1.624302268
## thanks -0.434308529 0.5837493539 1.11452198 -1.345353365
## listview -1.217512965 0.9744133949 -0.43273655 -0.949404955
## maturity -0.668396950 1.2714289427 -0.11583400 0.544606149
## maturity
                    -0.668396950 1.2714289427 -0.11583400 0.544606149
## pythonsocialauth
                    -1.456670165 0.7826949954 1.50035965 -0.897964060
## randomchoice
## systematically
                    0.912915528 -1.0018916130 -0.56731129 -0.236629546
                    -0.766965628 -0.4895028770 -1.50195765 0.727027714
## compilerconstruction -0.236484647 -0.2176730484 -1.15590799 0.568253815
             ## directed
## ordinals
## projection
                    ## assignmentoperator
                     0.489706129 -1.4816666842 1.45544207 -0.900029302
## generatorexpression 0.510403574 0.1343497038 0.55160409 0.294165432
## experiencing 0.567382514 -1.6974633932 1.86319971 0.816216588
## tokenise
                    -1.210713744 0.0265880991 1.10406482 0.445627481
## managerdict
## cleardb
## gtmv25
                    -0.977470875 -0.3474052250 -0.12287614 0.365207821
                    -0.416644365 -1.0006455183 -1.66467309 -1.422165275
                     0.110343859 -1.1869798899 -1.63459599 1.101751328
## qtmultimedia
```

```
0.181042701 -0.9294931293 -1.11195469 1.411758304
## executescript
                       -0.755095899 -1.1447728872 -0.64026254 0.520126164
## fluid
## flag
                       -1.330000639 -0.3331801891 -1.43967021 1.454699039
## pssh
## fitness
                       0.180800468 -0.4265975952 -0.84657586 0.794686854
                      ## pascal
                        1.266252756 1.5969153643 1.65341496 0.828128397
## idlepython
                       1.171894193 0.1343709081 1.27503455 -0.756983101
## cloned
                       0.213419646 -0.4880782664 0.62827474 0.164406002
## neg
                  -0.513857186 1.0983455181 1.29252076 1.467719674
## excelformula
                      -1.215358615 1.0392884016 0.91319680 -0.903571486
## expr
## plver
                        0.402622461 0.2943332791 1.67138767 1.310499072
## djangoregistration 1.401547790 -0.9895681739 -0.12334113 -1.001156092
## googlechromeextension -1.194236279 -0.1968073994 0.34818143 -0.332918316
## incrementdecrement 0.416481733 0.8684794903 -1.33972394 0.347778827
-1.633633971 1.7071154118 -1.80970466 0.696787596
## inferior -1.089989066 -0.5631897449 -0.70874321 0.031931169
## objectrecognition -0.040314011 -0.9078742862 1.02324605 -0.562343180
## hiddenmarkovmodels 1.428697467 1.6031020880 0.11400937 0.812461913
               -0.541886747 -0.5185320973 0.04912005 1.068144679 0.062734663 -1.6698461771 -0.10738783 -0.321411997 -0.590018988 -0.444667305 0.062734663
## nestled
## processed
                       -0.590018988 -0.0442667305 -1.08144093 0.360640287
## trojan
## commontableexpression -0.957493722 -1.0643520355 0.47720587 -0.406231850
              ## vork
## teamviewer
## adhoc
## store
## rediscli
## sine
## mulitple
                  0.516389012 -1.0848531723 -1.16371071 -0.120082960

0.290231794 0.4128392041 0.57408702 -0.782205403

0.653515637 0.8109847307 1.60513186 -0.147715017

0.015686398 0.6660021544 -1.20815980 -0.595549047

-0.006096733 -0.3998944461 1.65850067 0.189891607
## undo
## autoconf
## lxmletree
## sar
## absent
                     ## rookie
## garbled
## qstandarditemmodel -0.428767592 1.2253104448 1.52924359 0.838655174
## pythonbeautifulsoup -1.208542466 1.4405936003 0.75844216 -1.552436233
## refactoring
1.076548219 -0.0550860725 -0.09422064 -0.895611465
## superclasses
-1.770390034 -1.8043247461 -1.18096626 0.995697796
## predecessor
0.899599016 1.4743899107 0.50263149 -1.532815814
## ltgt
-0.629673898 0.7131685019 -1.01499844 -1.161671281
## sequential
1.266192555 -0.5814893246 1.44578445 -1.295566239
## module
1.660314202 -0.9643927217 -0.6958309 0.451253951
## configurationfiles -1.119966865 -1.0429055691 -0.01472841 0.341689438
## contiguide:
## ultimately
                       1.049997330 -1.6241887808 -0.70575124 -0.071425684
                       -0.571963966 0.7222535014 -0.60720414 0.313218325
## uisng
-1.216751099 1.2400966883 0.71767724 1.122596741
## knowing
## hacking
                       1.519386411 1.0151399374 0.74639356 1.154372334
                       0.968766749 -0.8668935895 0.47261664 0.267161518
## imgkit
                       ## ramp
## lat
                       -1.549169540 -1.2170473337 -1.07089400 -1.400880933
## natural
                        1.717025638 -1.5319766998 -0.69949925 1.205710530
## screenbrightness 0.601598322 -1.6402741671 1.75049710 -0.295990765
                        0.574094832 -1.0804671049 0.40167850 1.299410939
## dplot
## scissor
                        -0.596543968 -0.4000844359 -0.41594318 -1.053060174
## lemmatize
                        ## windowsfirewall
                        0.898327351 1.5071309805 1.45927656 -1.256453872
## pops
                        0.191396832 -0.5051535368 1.44492877 -0.209825709
## quotexceptquot
                       1.439653993 0.2126960903 -0.53816175 -0.926472843
```

```
-1.116922021 1.4006810188 1.30654597 -1.303517580
## fa
## googleclouddlp
                        -1.525174856 0.1885160208 0.23731731 0.143720940
## jax
                         -0.321592063 -1.1577882767 -1.51896131 -1.364512444
                         1.253886223 -1.0553964376 1.50050020 -1.623236179
##
   iboss
## voicerecognition
                         0.590281785 -0.5102394223 -0.12408735 1.566709042
## splitting
                        -1.086853504 0.0843062252 1.55127537 -0.424805760
                        ## numberquot
## methodsignature
                      -0.355045199 -0.0766118467 0.67741036 -1.055714846
                        0.323869050 0.0293140300 1.97510540 1.159528971
## sourced
## 1just
## 1just
## 1inux
## pythonalpine
## vscoderemote
## pythonfractions
*** management
                        0.271711081 -0.4901372492 1.50651121 1.282076001
                        -0.142165408 -1.4876919985 -0.87478113 0.981991470
                        -1.056881189 -1.2039729357 -0.27930188 0.549644291
                        -1.417545676 -0.3155961037 0.24242891 -1.715396762
                        1.169288635 -0.0173988901 0.27786607 0.579405844
                        -0.995442748 1.0354005098 1.37346745 0.108330503
                        -0.708120108 -1.5206429958 0.68724370 0.130927190
## dusresolver
## meanshift
## sports
## introis
                        1.192459583 -0.8589298129 0.64794081 1.594719768
                         0.825384736  0.4275223315  0.30293173  1.041710615
                        -1.324920535 0.0474110246 1.60154796 1.222911716
                       -1.008398056 -1.5067439079 0.54124254 0.401960522
## hvbrid
                        0.290921152 1.5426913500 -0.53043765 0.596285343
                  -0.888364196 -0.3168328404 -0.13941105 -0.289794058
-1.024481773 0.0006150069 0.83531106 -1.449993968
## offloading
## dashdb
                       -1.685085773 1.1855756044 1.36047423 -0.707313538
## ansicolors
## observe
                        -0.918079078 1.5185667276 -1.40319133 0.938509881
## getpost
                      1.396471143 -0.3661477268 -1.38865149 1.262828350
## digitsum
## faiss
                        1.426774025 1.5512440205 0.36760148 -1.443059206
                       -0.798901856 -0.1280927807 -0.81928176 1.155245662
## clexe
                                X37
                                             X38
                                                          X39
                      -1.28439665 0.686371863 1.376858e+00 -0.29246962
## lttrgt
## expose 1.21531105 -1.855396867 -8.925149e-01 -1.65483367 |
## socketaccept -0.17750847 0.029445201 -7.555762e-01 -0.03513026 |
## methoddescriptor -1.09631717 1.334393144 -7.428440e-02 0.92626125 |
## mud -1.67739356 -1.194099665 -9.667356e-02 -1.49485004 |
## proper 0.10153047 0.626150668 6.637763e-01 -1.52378130 |
## belonging 0.25010937 0.179970875 -8.704871e-01 1.29417384
                        1.21531105 -1.855396867 -8.925149e-01 -1.65483367
## expose
## dosnt
                        -0.34485814 1.016818285 1.347631e+00 0.42719233
## wrongversionnumber 1.29960668 -0.800059140 1.472925e+00 1.37530935
                        -1.27234519 0.979716539 3.723600e-01 1.31614459
## transformer
## pyrunstring
## sanitizer
## ole
## render
## daskdataframe
## sclient
## pyrunstring
                        1.39934599 -0.810401678 -8.510198e-01 0.16040055
                        -0.70521033 1.436757684 3.532035e-01 1.35151291
                       -0.59397441 1.620766878 1.351469e+00 0.73119754
                        1.39150476 1.454530358 1.463146e+00 1.32532394
                         1.12761784 0.018625842 -1.343919e+00 1.60397983
                        0.48133451 0.693857014 -9.848675e-01 -1.26433313
                        -0.58189565 -1.071939468 -1.725779e+00 0.49343592
## piece
## plece
## dictkey
## stringformat
                        0.06400432 -0.405515432 -1.512658e+00 -1.43472707
                        -0.86838961 0.513288438 5.880026e-01 1.39534748
## poisson
                        0.04988120 0.562340260 6.621742e-01 -0.43431151
## transferfunction -1.09336913 0.151260838 -8.625317e-01 1.27800822 ## id -1.47819066 1.310853004 -1.624256e+00 -0.18186155 ## calengine 0.63189089 0.936229944 -1.379395e+00 1.59528804
                        0.63189089 0.936229944 -1.379395e+00 1.59528804
## cqlengine
                        0.54333991 0.603481531 1.270710e+00 0.71789426
## succeeds
-1.58047020 0.007324684 -1.609671e+00 0.51275378
## windowsx
                        1.59224319 0.727519214 -1.176894e+00 0.12595299
## track
## exercise
                       -1.16816056 -0.383978873 9.478818e-01 0.24276908
## scrabble
                         1.39678276 -0.634514332 -6.249343e-01 -1.34891522
                       ## ipythonjupyter
                        1.11156762 0.934875906 7.621118e-01 -1.58060169
## mkdir
## rich
                        -0.96890467 -0.177985713 -6.409068e-01 -1.48225760
                       -0.35435840 -1.627334714 -1.401908e+00 1.30064821
## autoincrement
                        0.19682661 -0.410488188 1.142743e+00 -0.33828765
## netsh
## finding
                        0.67244673 -0.471963853 9.554099e-01 0.17113112
## texttable
                         ## vmwareworkstation -0.30360976 -1.718679070 -1.257321e+00 -1.37949109
                        1.59483957 0.849378884 7.476504e-01 -0.94718921
## regularlanguage
## spoofing
                        -1.23992097 -0.436243981 1.442392e+00 0.41684595
## palette
                        1.44099593 1.165975809 1.279804e+00 0.62520778
                        1.32350957 -0.262643129 4.804249e-01 0.52458709
## suitable
## gil
                         1.49478447 1.687271118 1.327769e+00 0.62241614
## headerquot
                        1.23637795 -0.166014731 1.592944e+00 -0.51512516
```

```
-1.39703083 -0.301196754 -5.356119e-01 0.57561672
## excecute
## lightfm
                      1.24413240 0.407079786 3.586729e-01 0.07213093
                     -0.56038266 0.523021817 1.528196e+00 1.32764065
## folium
                     -0.03533518 1.445394278 1.128672e+00 1.22181058
## daskdelaved
                      0.17947941 0.198584408 -3.194975e-01 0.87877667
## ntlm
## hovertool
                     -0.94440067 -1.157652736 1.825234e+00 1.62874854
                      0.16744521 0.223198548 -6.151263e-01 0.72369915
## rasterizing
## sendkeys
## statsforecast
## serialexception
## thanks
## listview
## ## maturity
                     1.52874529 0.782509863 -5.759938e-01 -1.28672063
                      1.16645443 1.398384213 1.144010e+00 -1.63771093
                     -1.41886199 -1.553824902 -9.968160e-01 0.28772137
                      -0.25002429 -0.935790718 3.964701e-01 -1.55546629
                     -1.39532220 1.400831103 1.061618e+00 0.43078274
## maturity
## pythonsocialauth
                     1.48995411 -1.051449180 -7.340869e-01 -1.00806308
## randomchoice
## systematically
                      1.29064405 1.781609297 8.248023e-01 -0.27690268
                      0.93088728 -1.541862130 -1.050084e+00 -0.14783140
## compilerconstruction -1.76091135 -0.909743726 9.199679e-01 0.86996275
## directed
             1.63188636 -1.601287484 -9.981627e-01 0.48967561
-0.47821361 -0.407736033 1.507776e+00 -1.10336375
0.12590650 0.498224378 1.605461e+00 1.23162687
## ordinals
## projection
-1.64126706 -0.527702749 -3.739709e-01 -1.17574596
## mpeg
## serviceaccount 1.39093888 -0.975337982 -7.969036e-01 1.20257783
## knowledgegraph -0.99868470 -0.933012605 6.960877e-01 -1.17041373
## generatorexpression -0.59012914 1.129372239 -1.650023e-01 0.70714647
## experiencing -0.25126582 0.933321893 -5.739682e-01 0.09432627
## tokenise
                      0.14732140 -0.752357841 7.531921e-01 -1.38833189
                     ## pascal
## idlepython
                     ## cloned
                     -0.59658915 0.702361941 8.723891e-01 -0.57492214
## plyer
                      -0.89010131 0.950628638 -8.500053e-01 0.97843724
## djangoregistration -1.30068743 0.371546984 6.695766e-01 -0.90764290
## googlechromeextension -1.33735931 0.793763459 5.921718e-01 1.09568870
## incrementdecrement 1.43616855 -0.562676013 1.005723e+00 -1.55389369
                      1.38205755 0.315788448 7.538354e-01 1.73267663
## user
-1.10339606 -0.749782264 -8.087235e-01 0.89902306
## inferior
## objectrecognition
                      1.06606638 -1.026721478 1.193660e+00 1.39389467
## hiddenmarkovmodels 1.68659008 -1.100796223 -8.687963e-01 -0.32977167 
## nestled 1.49475837 -0.095667779 8.786384e-01 -0.42283988
                      1.66405034 -1.322958827 7.930269e-01 1.26504111
## processed
                     -1.43541324 0.468792796 -6.380257e-01 1.62164497
## trojan
## commontableexpression 1.20656478 -0.695290565 -9.378955e-03 0.89057034
             -0.19586900 1.572298646 1.676525e+00 1.68866372
## vork
## teamviewer
                      1.56504977 0.081316195 -3.938778e-02 0.75639808
                    0.55502951  0.975106716  7.615383e-01 -1.56506550
1.69354749 -0.242207110 -2.968699e-01  1.54234254
## adhoc
## store
                    ## rediscli
## sine
                     ## mulitple
## undo
## autoconf
                     1.01284814 -1.739692807 -1.471738e-01 0.50515574
## lxmletree
                     -1.50031662 -1.402357459 1.447072e+00 0.99652010
                    -1.53084064 1.673155665 5.104927e-01 0.05269034
## sar
## absent
                     -1.11773992 -0.388392061 9.614632e-01 1.00004232
## rookie
                     -1.32345903 1.433761477 -1.799222e+00 0.56957918
                      1.08653343 1.508454442 1.767438e+00 -1.10958982
## garbled
                      1.29871655 -0.139578193 1.458438e+00 0.96813172
## rpyc
## buckets
                      -0.31078658 -0.962207079 1.573250e+00 -1.43384659
## encrypted
                     1.42177117 0.216103151 1.722291e+00 -1.62207937
## deallocate
                      1.17181170 -0.925230980 -7.699696e-01 -1.33823395
## qstandarditemmodel -0.20997652 1.711110711 1.689729e-02 1.47825110
## newline
                      -1.25894463 0.996536136 8.026758e-01 0.32360232
```

```
0.22485958 0.706943691 -5.259379e-01 -0.25905943
## changelog
                        0.38167921 -0.500747740 1.010766e+00 1.34334219
## qfiledialog
                        ## partitioning
                        0.01731196 1.480656743 -3.848986e-01 0.26299372
## armv
## standardscaler
                      0.54787797 -0.454915375 1.234168e+00 -1.41940713
## pythonbeautifulsoup 1.62675858 -0.684922278 4.384542e-01 -0.40401378
## refactoring
                        1.05025518 -0.732058048 -3.658400e-01 0.57108551
## superclasses
                      -1.32445669 0.184129760 -1.129918e+00 0.02964555
                  -0.19466195 1.439181924 -3.300278e+00 -1.59645951
-1.65568566 -0.187183589 1.030278e+00 -1.59645951
## predecessor
## ltgt
                -0.47303057 -0.132918343 -2.709268e-02 -1.10926700
## sequential
                      -0.86780798 -0.831685722 -8.663529e-01 1.28784609
## module
## configurationfiles -1.16020870 -0.584136903 -1.540302e+00 0.71661842
## ultimately 0.55681229 0.543063939 8.219267e-01 0.10434939
1.47155809 -0.998296320 -2.296397e-01 -1.33642328
0.40017256 -1.349033713 7.968042e-01 1.31156921
## hacking
## imgkit
                      1.40222466 -1.734765053 -4.601956e-03 1.00850487
## ramp
                       1.06008065 0.587166131 1.084651e+00 -0.37442163
## lat
                      -1.53902876 -1.386089206 1.705070e+00 0.72411346
## natural
## screenbrightness
                      0.30258536 -0.272142261 1.422037e+00 -1.27368915
                       -0.35335812   0.561586082   1.259396e+00 -1.10332060
## dplot
                        0.61927134 -0.337410569 1.436621e+00 0.64708561
## scissor
## lemmatize
                        0.79245353 -1.327163339 1.051859e+00 -1.30261588
## windowsfirewall
                        0.61232883 0.072155394 1.209710e+00 0.83752471
                        ## pops
                       -1.51797211 -1.333043575 -6.167490e-01 0.49922085
## quotexceptquot
                       -1.22631252 -1.124515414 -9.789024e-02 -1.45658076
## fa
                       -0.72686309 -0.985982895 1.060361e+00 1.68853641
## googleclouddlp
##
  iax
                        1.54166889   0.540073335   -1.353321e+00   -0.58899724
                        0.20420779 1.404602885 1.600176e+00 -0.41401848
## jboss
## voicerecognition
                      -1.37266481 1.745431542 8.014570e-01 1.65979791
## splitting
                       -1.71110666 -0.492836058 1.050779e+00 -0.31621459
-1./8549993 1.420949697 1.007462e+00 -0.21446417
## methodsignature -1.40310347 -1.122374296 -1.129662e+00 1.60775471
## sourced 0.65704560 0.503881335 1.109190e+00 -1.12595522
## liust
## liust
                      -0.02116349 0.993940651 -1.298213e+00 0.35426757
                      -0.55685091 0.936471999 -1.551836e+00 0.52830356
## linux
## sports
                      -1.21120226 -1.384235144 1.134175e+00 -0.40399703
## itertools
                       1.37174881 0.539131761 -1.522673e+00 1.32205999
## hybrid
                     -1.34635460 0.676472306 -3.524279e-01 -1.46753240
## offloading
                      0.21490833 -0.710462153 -7.647739e-01 0.34385437
                      -1.12916422 1.457568169 -1.551858e+00 0.39541745
## dashdh
                     1.07718921 -0.359395713 1.602025e+00 -0.55490190 0.18738467 0.355395713 7.555490190
## ansicolors
                      ## observe
## getpost
## digitsum
                     -0.83043277 -0.789025545 -3.389309e-02 0.75270450
## faiss
                      -1.17830753 -0.088084295 1.341312e+00 0.37922892
                     -0.49064222 1.026328444 1.443465e+00 -1.25340271
## clexe
##
                              X41
                                         X42
                                                      X43
                                                                   X44
## lttrgt
                      0.844214022 1.25290215 -1.5695497990 -1.578938484
                       0.711237729 -0.23859061 1.3120366335 -0.304496467
## expose
## socketaccept
## methoddescriptor
## mud
                       -0.036628872 -1.63676286 -0.8384030461 0.510523081
                      -1.097224355 -1.26416457 -1.5784202814 0.607962132
## mud
                       ## proper
                       -0.984974861 -1.14338291 -0.1498958021 -1.448141098
## belonging
## dosnt
                       1.338860750 -1.28878880 0.2739666402 -1.008639812
## wrongversionnumber
                       0.406140476 1.56213963 -1.5078815222 0.218096793
## transformer
                      -0.157271087 -0.89036721 -0.5887833238 0.301616549
## pyrunstring
                       0.957654238 -1.72741282 -1.4097602367 -0.582329154
                      -1.231438279 -0.55474073 0.7385310531 -0.225750446
## sanitizer
## ole
                      -0.643075347 -0.14591998 -0.9265409112 -0.137103349
                       1.366355896 -1.71255887 -0.1543334424 0.380132794
## render
                      -1.608919978 -0.53746271 0.5627264380 0.030017696
## daskdataframe
## sclient
                      -0.280469239 1.57208741 0.3571489453 -1.094315886
## piece
                      -1.190780997 0.62622368 -0.5633119345 -1.228925824
                       1.305228710 -1.05208015 0.6992571950 -1.046569943
## dictkev
                       ## stringformat
## normals
                       -0.311684668 -1.62062323 -0.8140255809 0.019122450
## poisson
                       0.395483136 1.41037917 -1.0580726862 0.550846994
## memsal
                      -0.033428416 -0.83406681 1.1692703962 0.357955962
## googlepythonapi
                       1.015308022 -1.75048411 -0.2753427327 -1.503203630
## unclickable
                     -0.424145430 -1.58537829 -0.3586307764 0.619195938
```

```
-1.483071804 -0.33239600 -0.7355628610 1.346873164
## supress
## transferfunction
                         0.080094986 -1.76119137 -0.8681666851 -1.107413530
                         0.875887871 1.58215475 -1.1804074049 -1.062499166
## id
                         -1.487760425 -0.96284902 0.6355123520 1.468513370
## cqlengine
## succeeds
## developers
## inspectelement
"" avarage
                        1.261777282 -1.00950885 -0.4524240792 -1.068615675
                        1.176214695 1.72430182 -0.5127689838 -0.505750239
                         1.143581033 1.42995584 -1.2659891844 -1.020758510
                        0.375803262 0.91885608 0.9910401106 1.583865047
                      ## windowsx
## track
                       -0.329436511 -0.79673612 1.2707778215 1.502958894
## exercise
## scrabble
## ipythonjupyter
                        1.561939716 -0.47076339 -0.5854223967 -0.857622862
                        1.624478102 -0.20346086 -1.1663451195 -0.791860640
## mkdir
                        -0.444737732 -0.43111235 0.2605085969 0.060921967
## rpg
1.295065880 0.60160422 1.4641383886 -1.524566412
0.764701366 0.54590505 -1.5989086628 -0.222823188
                         0.764701366  0.54590505 -1.5989086628 -0.222823188
## texttable
## vmwareworkstation -0.122391015 -0.50091273 0.3866021335 -0.509006441
## regularlanguage 1.266518593 0.62200528 -1.0989267826 -0.341133058
## spoofing 0.793974578 -0.60520953 -1.0990816355 1.372237563
               0.793974578 -0.60520953 -1.0990816355 1.372237563

0.086238787 -0.10767388 -1.3856981993 -0.042046778

-1.298221111 -1.64910483 1.4782967567 -0.320217311

1.492199898 0.07261222 0.9007370472 0.954689384

1.046839118 -1.26796627 -0.9106379747 1.417048097

0.524755657 0.94540566 -1.2016631365 -1.334612370
## spoofing
## palette
## suitable
## gil
## headerquot
## excecute
                   ## lightfm
## folium
## daskdelayed
## ntlm
                      0.222986370 -0.29924962 0.2964175344 -0.955980420 0.526933372 -0.68868738 1.6038595438 -0.020713801
## hovertool
## rasterizing
-0.563688755 -1.26390636  0.8401198983 -1.095696092
## thanks
                        1.111460209 -0.21700038 -1.8446006775 1.447606206
## listview
## maturity
                        0.159719512 1.42477190 -1.0660065413 -0.137595490
## pythonsocialauth
                        -1.254629493 0.03567947 0.3472931683 0.432528973
## randomchoice
                         0.767364502 -0.59008223 0.7553991079 -0.150387138
                         1.030706286 1.09948695 -1.4971985817 1.212763548
## systematically
## compilerconstruction -1.761275053 -1.23941302 -0.6483023167 0.415734738
## directed
                         0.553119004 0.59265220 1.2891960144 -0.180384189
                        0.797875762  0.68790716  1.0189228058  1.397723436
## ordinals
## projection
                        -1.493448734 1.39242721 -0.2451888025 1.314677715
## assignmentoperator -1.461155295 -0.54385507 0.3744890094 -0.996700644
## mpeg
                        -1.394199491 0.17635572 0.1437876970 1.487364054
## serviceaccount
## knowledgegraph
                        -1.028605461 1.37352371 1.4310241938 1.246229172
## generatorexpression -0.001342421 -1.11256206 -1.3996286392 0.529424727
## experiencing
                        -0.594652951   0.46999526   -1.8091882467   1.775315404
                       -0.406782925  0.88501930  1.5131968260  -0.017430900
## tokenise
## pssh
                       -1.226841092 0.69576043 1.2942756414 0.096796140
## fitness
                       -1.182259083 -0.35538030 -1.0715986490 1.339384913
                        1.454128265 -1.61180115 1.2416653633 0.852142811
## pascal
## idlepython
                      -0.532348454 1.33696640 0.6981903911 -0.902349114
                        1.375177860 -0.22077654 -0.6662633419 0.852141023
## cloned
## neg
                        ## excelformula
## expr
## quotconnection
                        -0.877472460 -1.13841105 -1.2806419134 1.228665352
                       -0.730802059 -0.82740712 -1.0450925827 0.573405206
                        1.572919011 1.11268604 -1.6005985737 -1.202838421
                         1.272116542 0.87601644 0.6176794767 0.072621733
## salites
              1.272116542 0.87601644 0.6176794767 0.072621733

-0.370409727 0.69103742 1.3017398119 1.130139470

-0.217907727 -1.04917526 -0.1644161642 -0.156870246

-1.619326115 -1.20003569 1.1618010998 0.645259798

-0.832502484 -0.97631472 -0.1309019178 -0.463470638
## apachenifi
## celerybeat
## relaxation
## difficult
                       -0.027140332  0.72982651 -1.5698268414  0.634093523
## userprofile
## lating
                         0.080292612 1.54246902 -1.4371529818 -0.515994310
## plyer
                        1.199644923 0.42985132 -0.5774277449 -1.199055791
## diangoregistration 1.130949378 -0.70870519 -0.8856772780 -0.844001293
## googlechromeextension -1.524368048 -0.65567541 1.3826957941 -1.565029860
## incrementdecrement -0.272440761 -0.14511578 -0.6800761223 0.113923691
```

```
-1.406429529 -1.55486655 0.0967039242 -1.476891398
## user
                        -1.514442921 -0.32761586 -0.1934300065 0.846880198
## quotdatequot
## signalsslots
                         0.381203890 1.02365088 1.3266780376 -0.424626559
  inject
                         0.062788114 -1.23262584 -1.4837397337 -0.209306389
## inferior
                        -1.560738087 -0.18388164 1.0658155680 1.281611562
## objectrecognition
                         0.679593563 1.59132099 -0.4963806272 -1.180772781
                         ## hiddenmarkovmodels
## nestled
                         ## processed
                        -1.752571940 0.36568567 -0.0634781048 1.053928614
                         0.542101800 1.65311921 0.9650663733 0.944760680
## trojan
## commontableexpression 1.202611327 -0.87175930 1.1429880857 -1.143883824
                -1.387457728 0.14033230 -1.0295841694 0.477295130
## vork
## teamviewer
                         1.015607476 -1.66655540 1.2118405104 0.824086189
                    -0.296407968 -0.92406911 0.8350659013 -0.693640232
## adhoc
                      -0.092625834 -0.07169933 -0.5081089735 -1.579696894
0.350622624 -1.13561308 -1.2719362974 0.901752591
## store
## rediscli
                        1.367147923 -0.33052433 -0.8160650730 -1.531394243
## sine
## mulitple
                        -0.955725670 1.25264072 -1.5965943336 0.348207742
## undo
                        1.260166287 1.23357737 -0.5711855888 -1.164960623
                        0.349012971 -1.59425199 -0.1604582965 -0.344370008
0.863868415 -1.76716793 -0.9664816856 -1.491165638
## autoconf
## lxmletree
                       -1.238012910 -0.04570010 0.7542960048 0.798012018
                       -1.492066860 0.62007749 0.1882204860 -0.527778685 0.885420859 -0.56403643 -1.7073093653 1.763313651
## absent
## rookie
                        0.626406610 -1.06550622 -0.2493605167 -1.460954785
## garbled
## rpyc
                        -0.480933279 -0.26310414 -1.1172447205 1.718002796
               -1.135045767 1.30687904 -1.7661694288 -0.828486621
0.978078425 0.39012355 0.9983395934 -0.522200286
0.227103516 1.15081096 1.4980412722 -1.026300073
## buckets
## encrypted
## deallocate
## qstandarditemmodel -0.035300970 0.79788703 0.1142794490 1.388566732
               0.077970326 -0.29464215 -0.3907302732
-0.768061459 -1.44733465 -0.1249349266 1.303905368
                        0.077970326 -0.29464215 -0.9873627424 0.698863566
## newline
## changelog
## qfiledialog
## partitioning
## approx
                        1.699220896 0.90819758 -1.2413460016 0.551589489
## pythonbeautifulsoup -0.914169729 -1.67659581 1.5686531067 0.033654634
## refactoring
                        -1.297783852   0.45553562   0.7604928613   -0.224383458
## superclasses
                        -0.185933053 -0.08764310 0.3288625777 -1.823945761
## predecessor
                        -0.621152639 -1.43459988 0.5729466677 1.069016218
## ltgt
                        -0.585690022 -0.39740491 0.7818714380 1.065623045
                         0.301759034 -0.20421021 0.3943695426 -1.737834573
## sequential
                         0.788952529 -0.28263250 1.3197814226 -1.147149324
## module
## configurationfiles 0.004842727 0.65854007 0.6887986660 -0.122084305
## ultimately
                        -1.253975391 -0.67536646 0.0794423446 -0.647202015
                         1.354448676 1.42074549 1.2618747950 0.009547745
## uisng
## byquot 1.3544486/6 1.426/4549 1.2618/4/950 0.00954//45
## byquot 1.096976757 0.7172144 1.4464155436 0.717135549
## cpuarchitecture 0.065359756 -0.20214576 0.3889262974 0.401750922
## deltars 0.164052963 1.47838068 0.2391593605 -1.507651329
## knowing -0.511096478 -1.47546923 0.5554561019 0.502502203
## hacking
                        0.029193863 -1.12773180 1.4569863081 -0.731371105
                      -0.490926623 -0.38682899 -0.5128107667 -1.411205649
## imgkit
## ramp
                        -1.230886102 -0.13136269 -0.5119967461 1.688979268
## lat
                        -0.594412386 -0.84849268 -1.2178994417 -1.291488647
## natural
                        1.043252230 0.66608274 0.3102511764 -0.363234937
## screenbrightness
                         0.178559348 1.62732434 1.7572764158 -1.056652427
                         1.636964917 0.66467410 1.4970068932 -0.019057160
## dplot
                         0.084738635 -0.43725437 -0.2059381008 1.283605099
## scissor
                         -1.124806285 -0.45387217 -0.4587604105 1.306679845
## lemmatize
                         -0.897422850 -0.35676098 1.0035932064 -1.223461747
## windowsfirewall
                         -1.423168540 0.78839797 -0.4186924696 0.429510742
## pops
## quotexceptquot
                         1.851283431 1.76005530 0.0896093547 0.972866237
                         1.066384435 -0.86818498 0.7237502337 -1.093501925
## fa
                         -0.488262683 -1.64884877 1.6164221764 -1.148079753
## googleclouddlp
                         0.404715955 0.02081500 0.1779626608 0.093158670
## iax
## jboss
                        -0.689686179 -1.60018110 -1.5216124058 0.834027588
## voicerecognition
                         ## splitting
                         1.226568103 -0.31574395 0.9269943833 -1.376773000
## numberquot
                        -1.243573904 -0.24647279 -1.6069409847 -0.666503847
## methodsignature
                         ## sourced
                        -1.672437906 1.03000379 1.7544140816 0.983496845
## liust
                         0.212862387 -0.29819086 -1.1340336800 -0.744842410
                         1.464122295 0.48302335 1.1167919636 0.290899217
## linux
## pythonalpine
## vscoderemote
## pythonfractions
## manguest
                        -0.829094589 1.77651083 -1.3562445641 0.649193287
                        -0.004882299 1.04098165 0.8206792474 -1.365137815
## mapquest
                        -1.408153892 -0.70877188 0.9295871258 1.556163907
## auestdb
                         0.747930110 0.01901545 -0.6360329390 -1.432555914
                        -1.347745419 1.51968277 1.2890124321 -0.527423978
## dnsresolver
                        1.153702974 -0.30623958 0.9715768099 0.330770582
## meanshift
## sports
                        0.771975935 1.19081354 1.4747889042 0.748077571
## itertools
                        0.710769713 -0.63353670 -1.0754406452 0.703704536
## hvbrid
                        -0.505633175 -1.61308813 -1.0126368999 -1.436015010
## offloading
                         1.464531422 -1.26116979 1.1260287762 1.384289265
## dashdb
                        0.666074336 -1.43554175 -0.2387516946 -0.471345007
```

```
-0.657948256 -0.22155085 0.9263027310 -0.005828288
## ansicolors
                     0.003993494   0.41074586   1.3878911734   0.714132130
## observe
                     ## getpost
                      1.567307591 0.73765498 1.3838167191 -1.572176456
  digitsum
## faiss
                      1.244816184 -0.53161520 -0.1755079776 1.380779982
                     -1.491636634 -0.40562224 -0.3166001439 1.216410995
## clexe
##
                             X45
                                       X46
                                                 X47
                     -1.189560175 -0.423167855 0.48803458 0.54945385
## lttrgt
                     -1.121120930 0.233451784 0.83478445 0.22800106
## expose
## socketaccept
## socketaccept
## methoddescriptor
                     -1.658089995 -0.903740168 -0.87232673 1.05445457
                      0.299119741 -1.220764637 0.33842257 0.23633732
                      0.815475821 -1.610048294 0.70796508 0.83872372
## mud
                     -0.911740303 -0.216694206 -0.25255948 0.81307620
## proper
                -0.332168311 -0.011755645 -0.35490084 0.05689013
## belonging
## dosnt
                     0.451844782 -0.147430435 1.34615099 1.41718280
## wrongversionnumber -0.173750743 1.084663630 -0.14650802 -1.06579638
## transformer
                     0.783602834 -1.144160986 -1.37274456 1.30843425
0.158151388 1.101087928 0.50746077 1.32949781
## id
                     -0.780232191  0.484834701  -0.57044339  1.21121550
-1.042709708 -0.130024478  0.48384479 -0.73111230
## calengine
## windowsx
                    0.405816406 -1.129871368 0.07452063 1.13126493
                ## anticaptcha
## ifconfig
                     -1.513525724 0.655340135 0.01238043 -0.92226344
## rpg
## rich
                     -0.722838938 -0.574209154 -0.98981702 -0.64233476
## rich
## autoincrement
## netsh
                     1.290305495 0.088985279 1.15618682 -0.92339605
                      1.558898211 -0.043768227 0.01724750 0.79811561
                    -1.495976925 0.500289798 0.76096594 -1.53329968
## finding
## texttable
                     0.254403383 -0.896497488 -0.77269375 -1.02735889
1.021744609 -0.791771710 -0.96494222 0.89356571
## gil
               -1.342733026 1.663065553 1.35296893 0.26806936 0.942025006 -0.521014750 0.55045360 1.21549952 0.263154298 -1.011993289 0.30604663 1.26351774 -0.852432251 1.012192130 0.14258318 -1.48297989 -0.457241058 -0.890181124 -1.32454240 1.49391091 -1.810432673 0.153810903 0.58465338 0.19223668
## headerquot
## excecute
## lightfm
## folium
## daskdelayed
## ntlm
                     -1.810432673 0.153810903 0.58465338 0.19223668
                     0.887614310 -0.106741957 -0.93702126 1.17656481
## hovertool
                    -0.625904083 -1.080826163 -0.72469223 1.62253344
## rasterizing
0.808245361 1.006398439 -1.36751509 0.45296216
## sendkeys
## listview
                     -0.221430242 -0.502435923 0.90352088 1.09012568
                      1.504131556 -0.015609422 -0.28302512 -0.02384785
## maturity
## pythonsocialauth
## randomchoice
## systematically
                      0.963929951 -0.252084434 0.25499943 -0.20927572
                     0.094998732  0.634456396  0.61321300 -1.26271760
## systematically
                     -1.404570222   0.915535748   -0.42395952   1.23285675
## compilerconstruction -0.337572485 1.022444129 -0.99145156 -1.30429435
                     -0.403071374   0.614485979   1.33404827   1.07385898
## directed
## ordinals
                     -0.658571184   0.134325713   1.67577457   -0.45640782
## projection
                      0.017526539 -1.179551125 -0.78136396 0.33605105
## assignmentoperator
                      1.025224924 0.127020836 1.53059173 1.09363377
## mpeg
                      -0.076393224 1.020022631 -0.63879168 -0.58560824
## serviceaccount
                     1.510694027 0.786535144 -0.60210603 -0.64302093
```

```
-0.771535337 -1.228022099 0.43735918 1.04208040
## knowledgegraph
## generatorexpression -0.697519183 -1.056184649 0.44543159 1.37498212
## experiencing
                      -0.617664218   0.581416786   0.45927268   -0.46626538
                       -1.343363166 1.156719327 -1.56082439 0.13711597
## tokenise
                      1.339935660 -1.331299424 -1.37862945 0.42998359
## readcsv
## managerdict
                     -0.565322459 -1.508220911 -1.08876598 -0.87196267
                       0.968496263 -1.053798437 0.12522532 -0.93748128
## cleardb
## qtmultimedia
                      1.094595075 1.147775412 0.02379082 0.96268338
                      ## executescript
                       1.171787262 0.038283732 1.85647190 0.36838296
## fluid
## flag
                      -1.445947170 -0.994637191 -1.51990545 1.46704876
## pssh
                      -0.256313413 -1.413145304 0.10796285 -1.27781034
## fitness
                      -0.089298628 0.421192288 0.74697548 1.01976836
## pascal
                      idlepython
                      0.162405148 -0.719446123 0.47368589 0.81039959
## cloned
                       1.108231187   0.614411533   -0.30835557   1.28567564
## neg
## excelformula
                       -0.792201281 -0.955069542 -0.07188315 0.01576402
## expr
                      0.067082331 -0.992777586 -1.07610905 -1.00279236
## quotconnection
                      ## salites
                      -1.153290629 -1.456307888 -0.02564794 -0.39097127
                 -1.153290629 -1.45630/888 -0.02564/94 -0.3909/12/
-0.030800458 0.869857371 0.91464263 0.12955850
-0.56483411 0.430360615 1.59961319 -0.80283552
## apachenifi
## celerybeat
                     -1.659188509 1.558539987 -0.10035273 0.82230234
## relaxation
## difficult
                      0.722941756  0.971500576  -1.17460835  -1.33255839
                      -0.611809492 -0.269708097 -0.62423450 0.31714681
## userprofile
## lating
                      1.354575515 -1.257964373 0.56811291 0.90818906
                      -0.731231451  0.808625638  -0.85793173  -1.18296623
## plyer
## djangoregistration
                       0.610508561 0.807181656 1.47877085 1.11588955
## googlechromeextension 0.349025160 -0.014310251 -1.48808980 -0.99364114
## incrementdecrement 0.596788526 1.521023154 -0.67417729 -1.58068287
                       0.067479052 -0.543862581 1.23129928 0.91104376
## user
## quotdatequot
                     -0.865453839 1.488760114 1.16391444 -1.31687105
## signalsslots
                       1.440860391 1.449633956 1.20608282 1.31022191
                      -1.291017652 -0.877149165 0.86530757 -1.16849136
## inject
## inferior
                      0.182821989 1.269274354 1.00622034 -1.46441388
                      -1.306204081 -0.977524579 -0.34982333 -0.73231214
## objectrecognition
## hiddenmarkovmodels -0.172566146 0.044522580 -1.55785179 0.85730171
## nestled
                      -1.625328064 0.970835686 -1.63565803 0.46294495
                       1.230815768 -1.019748926 0.07907094 0.12674423
## processed
## troian
                      0.497293770 -0.727550507 0.43089619 0.38609645
## commontableexpression -1.287388682 0.039345216 0.10221421 0.67247367
## vork
                      -0.609043777 0.236697376 0.08659410 0.60445142
## teamviewer
                      1.332893968 1.700886369 1.52223814 1.02874184
## adhoc
                      0.081971750 -1.298229694 -1.34728825 -1.49440908
                      0.574553251 -0.735359967 0.10192551 1.47932887
## store
                     -0.359699935 -0.227882072 -1.45207369 1.32691789
## rediscli
## sine
                      -1.241245747 1.044182420 -0.24211206 -0.24454984
                      1.353882313 1.332898021 1.68547583 0.77949607
## mulitple
                      -1.138065934 -0.519797266 1.24608672 0.13750739
## undo
## autoconf
                       ## lxmletree
                     -1.327321887 1.646023631 0.42239097 -0.98717654
## sar
                       1.376738906 -1.409509063 1.68280888 -0.83661181
                      1.381534100 -0.778234363 1.25316167 0.46850383
## absent
## rookie
                      ## garbled
                      0.631529868 -1.180390358 -1.50925326 -1.23187757
                     -1.757638454 -0.268540323 0.71753472 0.60612375
## rpvc
## buckets
                     -0.672961771 -0.253902465 -0.94564480 -1.11237204
                       1.719010472 0.665269196 0.48507202 -1.33277798
## encrypted
                      -1.300041795 0.057393711 -0.84345120 1.29428947
## deallocate
## qstandarditemmodel
                       1.153287768 1.496962428 0.31609926 -1.41476071
## newline
                      -0.606198549 -1.524496794 1.48482442 -0.47927448
                       1.128208756 0.675769150 0.37051496 0.05461045
## changelog
                       0.661216557 -0.813678682 -0.93198389 -0.48685816
## afiledialog
                       1.534037948 -1.444576740 1.35420549 1.57177377
## partitioning
## armv
                      -0.444298446 1.107051611 1.44067299 -0.53918833
## standardscaler
                       -0.488455743 -0.210086763 -0.29686683 -0.37608463
## pythonbeautifulsoup
                       ## refactoring
                       0.401526213 -1.257981062 -0.59782553 1.10161340
## superclasses
                       0.344226182 -1.740161300 0.12920101 -1.11257076
## predecessor
                      1.060369372 -1.278059840 -0.25886449 -0.90932542
                       1.484377384 -0.504848123 -1.64156449 1.23506486
## ltgt
## sequential
                      -0.112476580 -1.015568256 -0.85299873 -0.23395155
## module
                      -1.166992307 -1.267245173 -1.09198821 0.44533917
## configurationfiles
                      -0.924795508 1.706565142 1.42434859 1.64361691
                      1.517299414 -0.854976118 0.72660065 -0.33929235
## ultimately
## uisng
                      0.977538884 0.028117174 -0.29542735 1.15477610
## byquot
## cpuarchitecture
                       -0.665910602 -1.233182788  0.88742834  0.03845970
                      1.183401108 0.827896237 -1.05842793 1.76061678
                      0.443456680 -1.190996885 0.86100727 -0.17331821
## deltars
## knowing
                      -0.408103317 -1.412410498 -0.78066075 -0.19658580
## hacking
                      1.519644022 0.257967502 1.48840141 0.41164953
## imgkit
                       1.140667796 -1.234204054 -1.35284114 -0.98213863
## ramp
                       1.094902515 -0.275750846 -0.11829603 -0.40208036
## lat
                       0.580968499 -0.884133875 0.15293683 -1.10298955
```

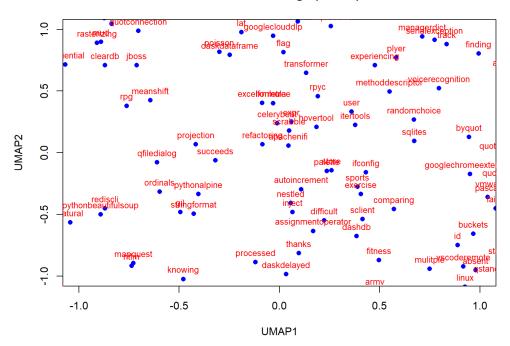
```
0.219048560 0.224002689 0.36621007 1.55481470
## natural
                        0.330412716 -0.007297884 0.18409564 -0.92256987
## screenbrightness
                       -0.117108412 -1.541712999 0.67272460 1.00561666
## dplot
                       scissor
## lemmatize
                       1.215537786 0.553046227 0.34928676 -0.27404568
## windowsfirewall
                       0.004334925 -1.485643625 -0.78112513 1.50841260
                        1.148415208 -0.336068839 1.18555689 1.36751461
## pops
                        0.326441199 1.063831449 0.61786270 -1.02084911
## quotexceptquot
                        0.161581978 -1.242282748 -0.28307676 0.39251605
## fa
                       -1.050430655 1.001682162 -0.42453596 -0.34475040
## googleclouddlp
## jax
                       -0.683902383 -1.517178059 1.19084871 -0.15023886
 ##
                       1.684176326 0.896099269 -0.28761426 -0.18191446
   iboss
## voicerecognition
                        0.589678288 -1.403525710 -1.22855985 -0.77372646
##
                             X49
                                         X50
                       1.64040756 -0.166161850
## lttrgt
1.64778304 -0.040022597
## mud
## proper
                       0.58650100 -1.615690947
 ## belonging
                       0.40050611 -0.196792915
                       1.13638425 -0.786134362
## dosnt
## wrongversionnumber 1.34148180 0.858937085
## dictkey
## stringformat
## normals
## noisson
                       0.15643471 0.109535597
                      0.96203846 0.585360646
                      -0.45066521 -1.411158085
## poisson
                       1.70394373 -0.966014087
## googlepythonapi
## unclickable
## supress
                       0.17502965 1.424419284
                      -0.83504045 -0.042335860
                      -0.68133926 -0.610435009
                      1.16007876 0.172348529
## transferfunction
## id
                       1.55068851 -1.491584778
-1.85368907 -1.027099848
## windowsx
                       0.78433770 -1.559032798
## track
## exercise
                     -0.72704720 -1.236282110
## exercise -0.72704/20 -1.236282110
## scrabble 0.51207668 -0.689567327
## ipythonjupyter 1.10157800 -0.176628873
## mkdir 1.11868338 1.234624439
## mkdir
                       1.11868238 1.324024439
## comparing
                       -0.62865728 -0.994893193
                      1.14671302 -0.978617311
## anticaptcha
## ifconfig
                      -1.56717372 0.192012772
## rpg
                      -0.36957052 -1.600130916
## rich
                      -1.41317856 -1.458555102
                       1.04322660 0.579692662
## autoincrement
## netsh
                      -0.49136227 1.591154218
## finding
                       0.64991784 0.597551763
```

```
## texttable
                          -0.10615606 0.717534602
## vmwareworkstation
                           1.67064273 0.404379010
## regularlanguage
                           0.64513946 1.094817758
## spoofing
                           1.50722563 1.326135278
## palette
                         0.21215178 -1.933072567
                         1.28654766 0.786024451
## suitable
                           0.54199332 -1.277284265
## gil
                         -1.70262277 -0.781629324
## headerquot
## excecute
                          1.10757482 1.071742773
## lightfm
                          1.17296016 1.467865467
## folium
                          -0.51028383 -0.996661007
## daskdelayed
                          -1.48862422 -0.490933657
                         -1.90052366 1.490020275
## ntlm
## hovertool
                        -1.34104800 0.008679443
## rasterizing
                          0.65151566 1.008068204
                         -0.04113439 1.511607528
## sendkeys
## statsforecast
## serialexception
                          0.21079774 -1.104818583
                          -0.18378398 -0.753286421
## thanks
                          1.51421142 1.208058953
## listview
                          0.74630910 -1.642956138
                          -0.05194772 0.079756729
## maturity
## pythonsocialauth -0.03106773 -1.528019905
## randomchoice 1.43071699 1.420907378 ## systematically 0.29450756 0.581257820
## compilerconstruction 0.46343502 1.098526835
                          0.24684471 0.994203091
## directed
## ordinals
                          -0.43405864 -0.654582918
## projection
                          -0.42192689 0.752741098
## assignmentoperator -0.99685407 -1.036568880
                  -0.77375430 -0.091288708
1.16147113 1.509976983
1.01818478 -0.612635195
## mpeg
## serviceaccount
## knowledgegraph
## generatorexpression -0.34832263 -0.844481528
## experiencing 0.22023621 1.069307804
## tokenise
                          1.44985926 0.916721821
                  -1.82109046 0.715180155
-1.33804142 -0.266627580
-0.59971988 -1.630562067
## readcsv
## managerdict
## cleardb
                          1.08517480 -0.924908817
## qtmultimedia
                           0.62109095 -1.527098179
## executescript
## fluid
                         -0.37048832 -1.700835705
                         -0.84022254 -1.631576657
## flag
                          1.35715294 -0.991614938
## pssh
## fitness
                          0.31456208 0.276739627
## pascal
                          -1.06662655 -1.339667916
## idlepython
                          1.51938832 -1.024233580
## cloned
                          0.88367486 0.414793164
## neg
                          -0.43375966 -1.389468908
## excelformula
                          1.14955473 -0.972944915
                         -1.47659302 0.621493101
## expr
                  -0.88565904 -1.212465346
-1.16922629 1.285574913
-1.64121962 -0.260813087
-1.30249846 0.853720725
0.36907718 -0.024521902
## quotconnection
## sqlites
## apachenifi
## celerybeat
## relaxation
## difficult
                         -0.80117100 -0.588825583
                          1.08210599 1.646237373
## userprofile
## latlng
                         -1.54868627 -0.291029632
                           0.03275444 -0.650679052
## plyer
## djangoregistration
                        1.24437928 -1.009359956
## googlechromeextension -1.81245208 -0.040616330
## incrementdecrement 1.37559390 1.145794630
## user 0.59418815 -0.716255009
                  0.59418815 -0.716255009
-1.07074428 -0.689202547
0.40128261 0.206507891
-1.06878257 0.004608884
## quotdatequot
## signalsslots
## inject
## inferior
                          -1.33137023 -0.101596467
## objectrecognition
                         -1.18683946 -1.318191051
## hiddenmarkovmodels
                          0.80491179 0.406142920
## nestled
                          -1.56101632 -1.337692976
## processed
                          -1.44106698 -0.548662901
## trojan
                          -0.43325064 0.663341403
## commontableexpression 1.47900343 0.919050992
                -1.56947243 -1.356299400
                          -0.92038864 -0.558949411
## teamviewer
                         -0.54028440 -0.150889918
## adhoc
                         1.62417161 -1.829111576
0.47225928 -1.500605941
## store
## rediscli
                         -1.67451453 -1.017154455
## sine
## mulitple
                        -1.66544390 -0.576652050
## undo
                          1.34029317 -1.690613031
## autoconf
                         1.41016340 -0.070968278
## lxmletree
                          0.64306116 1.345404863
## sar
                           1.23238158 -1.627702951
## absent
                         -0.15293829 1.419087410
```

## rookie	-1.45845938 1.481530666
## garbled	0.66768765 0.848276913
## rpyc	-1.46526527 1.096764088
## buckets	-0.75021648 1.468821645
## encrypted	1.48390079 1.362107992
## deallocate	-0.64967614 0.741755128
## qstandarditemmodel	-1.81760597 -0.897769511
-	-1.52146482 1.310391188
## newline	
## changelog	-1.81431091 1.822762012
## qfiledialog	1.67447519 -0.767771661
## partitioning	1.15219891 0.998644114
## armv	-0.97209787 0.774494648
## standardscaler	0.02198995 1.521277189
## pythonbeautifulsoup	-0.46487072 0.705803156
## refactoring	-1.00182021 -0.176901489
## superclasses	0.42758664 -1.385091543
## predecessor	1.11923575 1.358852625
## ltgt	1.05628896 0.662893176
## sequential	-0.93206179 0.613371372
## module	0.93528891 -1.410671949
## configurationfiles	0.45804030 0.260753781
## ultimately	0.04307108 0.476832688
## uisng	0.62788278 -0.455062538
## byquot	-0.48181126 -1.527821422
## cpuarchitecture	-1.45103967 -1.092700601
## deltars	1.19687486 -0.008672883
## knowing	-1.36519372 -1.435611844
## hacking	0.36113489 0.775537908
## imgkit	1.12076867 0.486346543
## ramp	1.72938406 0.816727698
## lat	0.76541227 -1.344077468
## natural	1.70379829 -0.305124521
## screenbrightness	0.35434285 1.568468332
## dplot	0.97039348 1.231617576
## scissor	1.04047656 1.233367682
## lemmatize	-1.05916810 1.529113776
## windowsfirewall	0.81486315 0.481023103
## pops	-0.24546936 1.480110168
## quotexceptquot	0.99423909 0.316583276
## fa	-1.25155389 1.628226286
## googleclouddlp	0.60305613 -0.079615146
## jax	1.59764266 0.907754183
## jboss	-0.05167729 1.388969421
## voicerecognition	-1.08287656 -1.719904786
## splitting	-0.49252528 0.162359521
## numberquot	0.41072613 -1.746206641
## methodsignature	-0.12656264 -0.082800858
## sourced	0.98858893 -0.128698453
## ljust	0.35314956 -0.818909824
## linux	-1.34305763 -1.653745532
## pythonalpine	-0.15454900 -0.369424254
## vscoderemote	0.78078741 -2.015949249
## pythonfractions	-0.17653695 -1.091134071
## mapquest	1.22603905 0.162896231
## questdb	0.73051184 0.850082046
## dnsresolver	-0.07426711 -0.989258945
## meanshift	-0.69597125 0.861299574
## sports	1.37199914 0.044170909
## sports ## itertools	
	-1.17470396 0.650672078
## hybrid	1.56754053 0.501002616
## offloading	-1.24944210 -0.813041747
## dashdb	-1.40119994 -0.784851015
## ansicolors	0.20290776 0.567008555
## observe	-0.48299465 1.477677822
	-0.88266438 1.278304577
## getpost	-0.00200430 I.2/03043//
• .	
## digitsum	0.42447051 -1.626768351
• .	

Word Embedding

Word Embeddings (UMAP)



Paragraph2vec Approach

- Contextual Understanding: Paragraph2Vec excels at capturing contextual information in variablelength Stack Overflow questions, providing a holistic view of the entire text.
- Document-Level Semantics: Tailored for understanding document-level semantics, Paragraph2Vec is well-suited for tasks that require comprehending the overall context and purpose of Stack Overflow questions.
- Efficient Retrieval and Similarity: Ideal for tasks like document retrieval and similarity,
 Paragraph2Vec embeddings facilitate efficient operations by reducing dimensionality while retaining semantic information.
- Handling Variable-Length Texts: As Stack Overflow questions vary in length, Paragraph2Vec's ability to handle variable-length texts ensures robust performance in capturing meaningful relationships within questions.

Paragraph2Vec Result

Question -> How to run python in conda environment?

Similarity Matrix

```
term2 similarity rank
           term1
## 1
                    anaconda 0.9151204
           conda
## 2
           conda environement 0.8750440
## 3
           conda
                   miniconda 0.8700238
## 4
           conda
                   pippython 0.8859061
                                          3
                       pyopt 0.8862889
## 5
           conda
                                          2
## 6 environment
                        env 0.9720023
                 enviroment 0.9143285
## 7 environment
## 8 environment
                   utility 0.8447001
## 9 environment
                       venv 0.8642362
                    virtual 0.9175690
## 10 environment
## 11
          python
                  overwrite 0.8554232
## 12
          python
                   passing 0.8754611
## 13
          python
                  printing 0.8479622
## 14
                     pythonx 0.8709121
          python
## 15
          python
                     writing 0.8501320
## 16
            run
                     execute 0.9763917
                                          1
## 17
                   executing 0.9418076
             run
## 18
             run
                      launch 0.9300061
## 19
                     running 0.9352252
                        runs 0.9377644
## 20
             run
```

Related Tags

```
[1] "execute"
[6] "launch"
                                           "executing"
                          "env"
                                                                              "running"
                                                            "runs"
                          "virtual"
                                           "anaconda"
##
                                                            "enviroment"
                                                                              "pyopt"
## [11] "pippython"
                          "passing"
                                           "environement" "pythonx"
                                                                             "miniconda"
                          "overwrite"
## [16] "venv'
                                           "writing"
```

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```
## [1] "execute" "env" "launch" "virtual" "anaconda" "miniconda"
## [7] "overwrite"
```

Thank You