

SoTP

August 4, 2020

```
[1]: from google.colab import drive
drive.mount('/content/drive')
```

Go to this URL in a browser: https://accounts.google.com/o/oauth2/auth?client_id=947318989803-6bn6qk8qdgf4n4g3pfee6491hc0brc4i.apps.googleusercontent.com&redirect_uri=urn%3aietf%3awg%3aoauth%3a2.0%3aob&response_type=code&scope=email%20https%3a%2f%2fwww.googleapis.com%2fauth%2fdocs.test%20https%3a%2f%2fwww.googleapis.com%2fauth%2fdrive%20https%3a%2f%2fwww.googleapis.com%2fauth%2fdrive.photos.readonly%20https%3a%2f%2fwww.googleapis.com%2fauth%2fpeopleapi.readonly

Enter your authorization code:

ûûûûûûûûûûû

Mounted at /content/drive

```
[2]: import os
os.chdir("/content/drive/My Drive/SoTP")
!ls -l
```

```
total 811002
-rw----- 1 root root      8192 Aug  3 20:34 Processed.db
-r----- 1 root root 601718784 Apr  5  2018 Titlemoreweight.db
-rw----- 1 root root  66168730 Aug  3 23:07 x_test_multilabel.pkl
-rw----- 1 root root 154617199 Aug  3 23:06 x_train_multilabel.pkl
-rw----- 1 root root  2308361 Aug  3 23:07 y_test.pkl
-rw----- 1 root root  5643581 Aug  3 23:07 y_train.pkl
```

```
[3]: ! pip install scikit-multilearn
```

Collecting scikit-multilearn

Downloading https://files.pythonhosted.org/packages/bb/1f/e6ff649c72a1cd1f2c7a1d31eb21705110ce1c5d3e7e26b2cc300e1637272/scikit_multilearn-0.2.0-py3-none-any.whl (89kB)

|| 92kB 2.3MB/s

Installing collected packages: scikit-multilearn

Successfully installed scikit-multilearn-0.2.0

```
[4]: import warnings
warnings.filterwarnings("ignore")
import pandas as pd
import sqlite3
import csv
import matplotlib.pyplot as plt
import seaborn as sns
import numpy as np
from wordcloud import WordCloud
import re
import os
from sqlalchemy import create_engine # database connection
import datetime as dt
from nltk.corpus import stopwords
from nltk.tokenize import word_tokenize
from nltk.stem.snowball import SnowballStemmer
from sklearn.feature_extraction.text import CountVectorizer
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.multiclass import OneVsRestClassifier
from sklearn.linear_model import SGDClassifier
from sklearn import metrics
from sklearn.metrics import f1_score, precision_score, recall_score
from sklearn import svm
from sklearn.linear_model import LogisticRegression
from skmultilearn.adapt import mlknn
from skmultilearn.problem_transform import ClassifierChain
from skmultilearn.problem_transform import BinaryRelevance
from skmultilearn.problem_transform import LabelPowerset
from sklearn.naive_bayes import GaussianNB
from datetime import datetime
```

1 Stack Overflow: Tag Prediction

1. Business Problem

1.1 Description

Description

Stack Overflow is the largest, most trusted online community for developers to learn, share their programming knowledge, and build their careers. Stack Overflow is something which every programmer use one way or another. Each month, over 50 million developers come to Stack Overflow to learn, share their knowledge, and build their careers. It features questions and answers on a wide range of topics in computer programming. The website serves as a platform for users to ask and answer questions, and, through membership and active participation, to vote questions and answers up or down and edit questions and answers in a fashion similar to a wiki or Digg. As of April 2014 Stack Overflow has over 4,000,000 registered users, and it exceeded 10,000,000 questions in late August 2015. Based on the type of tags assigned to questions, the top eight most discussed topics on the site are: Java, JavaScript, C#, PHP, Android, jQuery, Python and HTML.

Problem Statement

Suggest the tags based on the content that was there in the question posted on Stackoverflow.

Source: <https://www.kaggle.com/c/facebook-recruiting-iii-keyword-extraction/>

1.2 Source / useful links

Data Source : <https://www.kaggle.com/c/facebook-recruiting-iii-keyword-extraction/data> Youtube : <https://youtu.be/nNDqbUhtIRg> Research paper : <https://www.microsoft.com/en-us/research/wp-content/uploads/2016/02/tagging-1.pdf>
Research paper : <https://dl.acm.org/citation.cfm?id=2660970&dl=ACM&coll=DL>

1.3 Real World / Business Objectives and Constraints

1. Predict as many tags as possible with high precision and recall.
2. Incorrect tags could impact customer experience on StackOverflow.
3. No strict latency constraints.

2. Machine Learning problem

2.1 Data

2.1.1 Data Overview

Refer: <https://www.kaggle.com/c/facebook-recruiting-iii-keyword-extraction/data> All of the data is in 2 files: Train and Test.

The questions are randomized and contains a mix of verbose text sites as well as sites related to math and programming. The number of questions from each site may vary, and no filtering has been performed on the questions (such as closed questions).

Data Field Explanation

Dataset contains 6,034,195 rows. The columns in the table are:

2.1.2 Example Data point

2.2 Mapping the real-world problem to a Machine Learning Problem

2.2.1 Type of Machine Learning Problem

It is a multi-label classification problem Multi-label Classification: Multilabel classification assigns to each sample a set of target labels. This can be thought as predicting properties of a data-point that are not mutually exclusive, such as topics that are relevant for a document. A question on Stackoverflow might be about any of C, Pointers, FileIO and/or memory-management at the same time or none of these. **Credit:** <http://scikit-learn.org/stable/modules/multiclass.html>

2.2.2 Performance metric

Micro-Averaged F1-Score (Mean F Score) : The F1 score can be interpreted as a weighted average of the precision and recall, where an F1 score reaches its best value at 1 and worst score at 0. The relative contribution of precision and recall to the F1 score are equal. The formula for the F1 score is:

$$F1 = 2 * (\text{precision} * \text{recall}) / (\text{precision} + \text{recall})$$

In the multi-class and multi-label case, this is the weighted average of the F1 score of each class.

'Micro f1 score': Calculate metrics globally by counting the total true positives, false negatives and false positives. This is a better metric when we have class imbalance.

'Macro f1 score': Calculate metrics for each label, and find their unweighted mean. This does not take label imbalance into account.

<https://www.kaggle.com/wiki/MeanFScore> http://scikit-learn.org/stable/modules/generated/sklearn.metrics.hamming_loss.html
Hamming loss : The Hamming loss is the fraction of labels that are incorrectly predicted.
<https://www.kaggle.com/wiki/HammingLoss>

3. Exploratory Data Analysis

3.1 Data Loading and Cleaning

3.1.1 Using Pandas with SQLite to Load the data

```
[ ]: #Creating db file from csv
#Learn SQL: https://www.w3schools.com/sql/default.asp
if not os.path.isfile('train.db'):
    start = datetime.now()
    disk_engine = create_engine('sqlite:///train.db')
    start = dt.datetime.now()
    chunksize = 180000
    j = 0
    index_start = 1
    for df in pd.read_csv('Train.csv', names=['Id', 'Title', 'Body', 'Tags'],
    →chunksize=chunksize, iterator=True, encoding='utf-8', ):
        df.index += index_start
        j+=1
        print('{} rows'.format(j*chunksize))
        df.to_sql('data', disk_engine, if_exists='append')
        index_start = df.index[-1] + 1
    print("Time taken to run this cell :", datetime.now() - start)
```

3.1.2 Counting the number of rows

```
[ ]: if os.path.isfile('train.db'):
    start = datetime.now()
    con = sqlite3.connect('train.db')
    num_rows = pd.read_sql_query("""SELECT count(*) FROM data""", con)
    #Always remember to close the database
    print("Number of rows in the database :", "\n", num_rows['count(*)'].
    →values[0])
    con.close()
    print("Time taken to count the number of rows :", datetime.now() - start)
else:
    print("Please download the train.db file from drive or run the above cell,
    →to generate train.db file")
```

Number of rows in the database :
6034196

Time taken to count the number of rows : 0:01:15.750352

3.1.3 Checking for duplicates

```
[ ]: #Learn SQL: https://www.w3schools.com/sql/default.asp
if os.path.isfile('train.db'):
    start = datetime.now()
    con = sqlite3.connect('train.db')
    df_no_dup = pd.read_sql_query('SELECT Title, Body, Tags, COUNT(*) as
    →cnt_dup FROM data GROUP BY Title, Body, Tags', con)
```

```

con.close()
print("Time taken to run this cell :", datetime.now() - start)
else:
    print("Please download the train.db file from drive or run the first to_
    →generate train.db file")

```

Time taken to run this cell : 0:04:33.560122

```

[: df_no_dup.head()
# we can observe that there are duplicates

```

```

[:
                                Title \
0      Implementing Boundary Value Analysis of S...
1      Dynamic Datagrid Binding in Silverlight?
2      Dynamic Datagrid Binding in Silverlight?
3      java.lang.NoClassDefFoundError: javax/serv...
4      java.sql.SQLException: [Microsoft] [ODBC Dri...

                                Body \
0  <pre><code>#include<istream>\n#include<...
1  <p>I should do binding for datagrid dynamicall...
2  <p>I should do binding for datagrid dynamicall...
3  <p>I followed the guide in <a href="http://sta...
4  <p>I use the following code</p>\n\n<pre><code>...

                                Tags  cnt_dup
0                                c++ c      1
1      c# silverlight data-binding      1
2  c# silverlight data-binding columns      1
3                                jsp jstl      1
4                                java jdbc      2

```

```

[: print("number of duplicate questions :", num_rows['count(*)'].values[0]-
    →df_no_dup.shape[0], "(", (1-((df_no_dup.shape[0])/(num_rows['count(*)'].
    →values[0]))) * 100, "% )")

```

number of duplicate questions : 1827881 (30.2920389063 %)

```

[: # number of times each question appeared in our database
df_no_dup.cnt_dup.value_counts()

```

```

[: 1    2656284
   2    1272336
   3     277575
   4         90
   5         25
   6          5
Name: cnt_dup, dtype: int64

```

```
[ ]: start = datetime.now()
df_no_dup["tag_count"] = df_no_dup["Tags"].apply(lambda text: len(text.split("
→")))
# adding a new feature number of tags per question
print("Time taken to run this cell :", datetime.now() - start)
df_no_dup.head()
```

Time taken to run this cell : 0:00:03.169523

```
[ ]:                                     Title \
0      Implementing Boundary Value Analysis of S...
1      Dynamic Datagrid Binding in Silverlight?
2      Dynamic Datagrid Binding in Silverlight?
3      java.lang.NoClassDefFoundError: javax/serv...
4      java.sql.SQLException: [Microsoft][ODBC Dri...

                                     Body \
0 <pre><code>#include<istream>\n#include&...
1 <p>I should do binding for datagrid dynamicall...
2 <p>I should do binding for datagrid dynamicall...
3 <p>I followed the guide in <a href="http://sta...
4 <p>I use the following code</p>\n\n<pre><code>...

                                     Tags  cnt_dup  tag_count
0                                     c++ c          1          2
1      c# silverlight data-binding          1          3
2  c# silverlight data-binding columns          1          4
3                                     jsp jstl          1          2
4                                     java jdbc          2          2
```

```
[ ]: # distribution of number of tags per question
df_no_dup.tag_count.value_counts()
```

```
[ ]: 3      1206157
2      1111706
4      814996
1      568298
5      505158
Name: tag_count, dtype: int64
```

```
[ ]: #Creating a new database with no duplicates
if not os.path.isfile('train_no_dup.db'):
    disk_dup = create_engine("sqlite:///train_no_dup.db")
    no_dup = pd.DataFrame(df_no_dup, columns=['Title', 'Body', 'Tags'])
    no_dup.to_sql('no_dup_train', disk_dup)
```

```
[ ]: #This method seems more appropriate to work with this much data.
#creating the connection with database file.
if os.path.isfile('train_no_dup.db'):
```

```

start = datetime.now()
con = sqlite3.connect('train_no_dup.db')
tag_data = pd.read_sql_query("""SELECT Tags FROM no_dup_train""", con)
#Always remember to close the database
con.close()

# Let's now drop unwanted column.
tag_data.drop(tag_data.index[0], inplace=True)
#Printing first 5 columns from our data frame
tag_data.head()
print("Time taken to run this cell :", datetime.now() - start)
else:
    print("Please download the train.db file from drive or run the above cells_
    ↳to generate train.db file")

```

Time taken to run this cell : 0:00:52.992676

3.2 Analysis of Tags

3.2.1 Total number of unique tags

```

[:]: # Importing & Initializing the "CountVectorizer" object, which
#is scikit-learn's bag of words tool.

#by default 'split()' will tokenize each tag using space.
vectorizer = CountVectorizer(tokenizer = lambda x: x.split())
# fit_transform() does two functions: First, it fits the model
# and learns the vocabulary; second, it transforms our training data
# into feature vectors. The input to fit_transform should be a list of strings.
tag_dtm = vectorizer.fit_transform(tag_data['Tags'])

[:]: print("Number of data points :", tag_dtm.shape[0])
print("Number of unique tags :", tag_dtm.shape[1])

```

Number of data points : 4206314

Number of unique tags : 42048

```

[:]: #'get_feature_name()' gives us the vocabulary.
tags = vectorizer.get_feature_names()
#Lets look at the tags we have.
print("Some of the tags we have :", tags[:10])

```

Some of the tags we have : ['.a', '.app', '.asp.net-mvc', '.aspxauth', '.bash-profile', '.class-file', '.cs-file', '.doc', '.drv', '.ds-store']

3.2.3 Number of times a tag appeared

```

[:]: # https://stackoverflow.com/questions/15115765/
↳how-to-access-sparse-matrix-elements
#Lets now store the document term matrix in a dictionary.

```

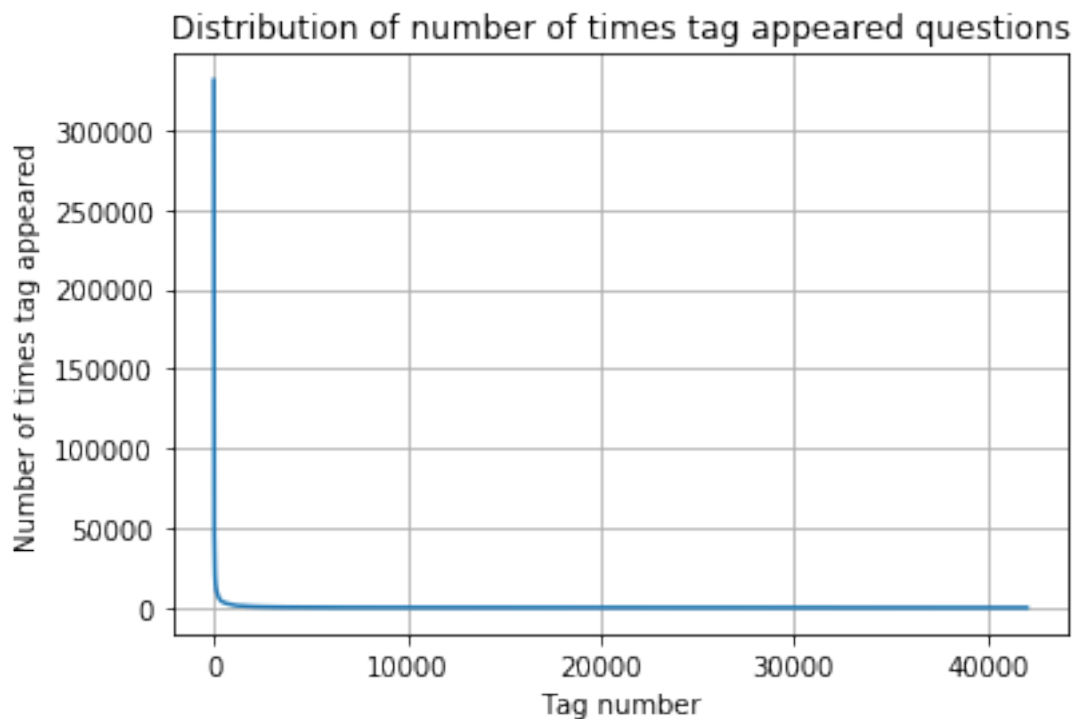
```
freqs = tag_dtm.sum(axis=0).A1
result = dict(zip(tags, freqs))
```

```
[ ]: #Saving this dictionary to csv files.
if not os.path.isfile('tag_counts_dict_dtm.csv'):
    with open('tag_counts_dict_dtm.csv', 'w') as csv_file:
        writer = csv.writer(csv_file)
        for key, value in result.items():
            writer.writerow([key, value])
tag_df = pd.read_csv("tag_counts_dict_dtm.csv", names=['Tags', 'Counts'])
tag_df.head()
```

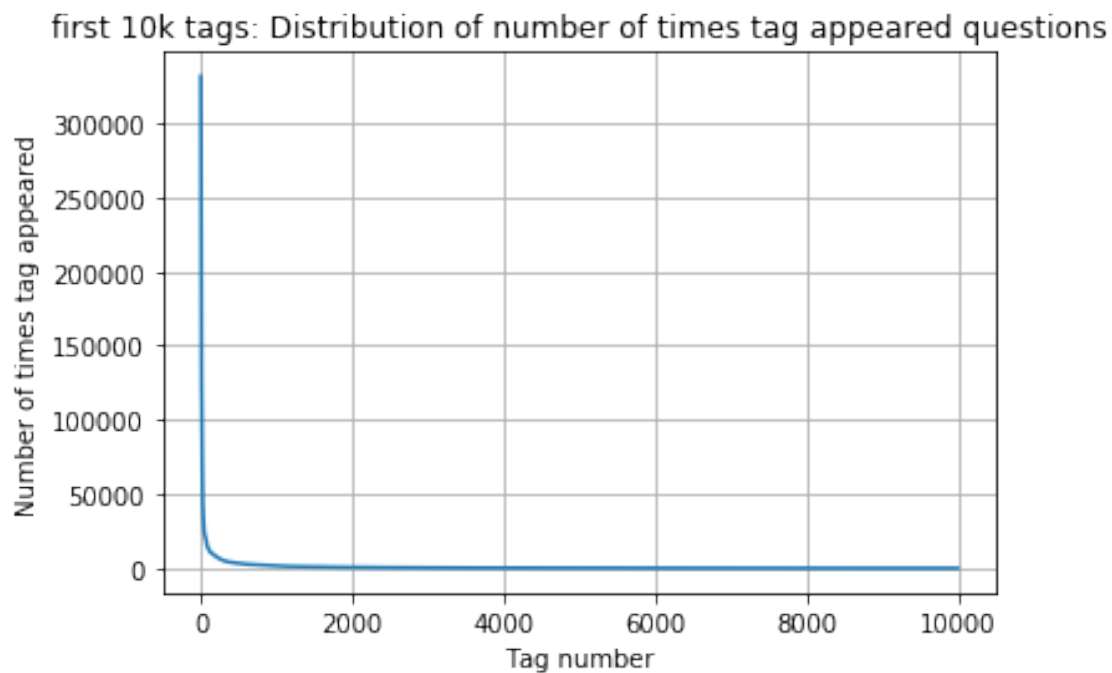
```
[ ]:
      Tags  Counts
0      .a      18
1     .app     37
2 .asp.net-mvc      1
3   .aspxauth     21
4 .bash-profile    138
```

```
[ ]: tag_df_sorted = tag_df.sort_values(['Counts'], ascending=False)
tag_counts = tag_df_sorted['Counts'].values
```

```
[ ]: plt.plot(tag_counts)
plt.title("Distribution of number of times tag appeared questions")
plt.grid()
plt.xlabel("Tag number")
plt.ylabel("Number of times tag appeared")
plt.show()
```



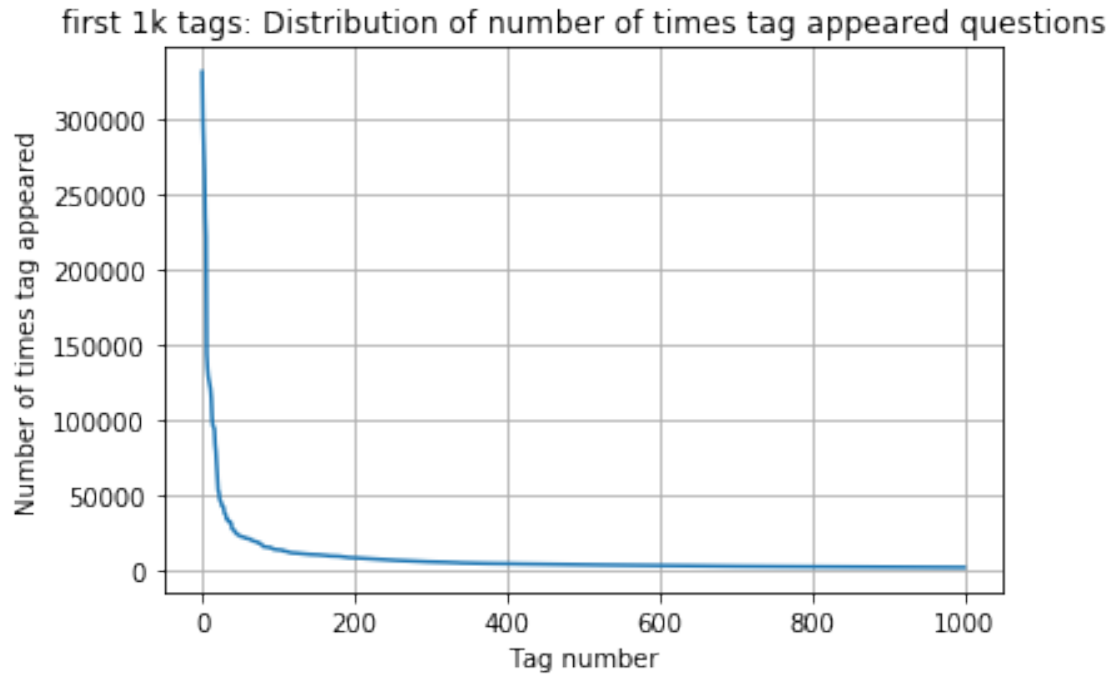

```
[ ]: plt.plot(tag_counts[0:10000])
plt.title('first 10k tags: Distribution of number of times tag appeared_
→questions')
plt.grid()
plt.xlabel("Tag number")
plt.ylabel("Number of times tag appeared")
plt.show()
print(len(tag_counts[0:10000:25]), tag_counts[0:10000:25])
```



400	[331505	44829	22429	17728	13364	11162	10029	9148	8054	7151
6466	5865	5370	4983	4526	4281	4144	3929	3750	3593	
3453	3299	3123	2989	2891	2738	2647	2527	2431	2331	
2259	2186	2097	2020	1959	1900	1828	1770	1723	1673	
1631	1574	1532	1479	1448	1406	1365	1328	1300	1266	
1245	1222	1197	1181	1158	1139	1121	1101	1076	1056	
1038	1023	1006	983	966	952	938	926	911	891	
882	869	856	841	830	816	804	789	779	770	
752	743	733	725	712	702	688	678	671	658	
650	643	634	627	616	607	598	589	583	577	
568	559	552	545	540	533	526	518	512	506	
500	495	490	485	480	477	469	465	457	450	
447	442	437	432	426	422	418	413	408	403	
398	393	388	385	381	378	374	370	367	365	

361	357	354	350	347	344	342	339	336	332
330	326	323	319	315	312	309	307	304	301
299	296	293	291	289	286	284	281	278	276
275	272	270	268	265	262	260	258	256	254
252	250	249	247	245	243	241	239	238	236
234	233	232	230	228	226	224	222	220	219
217	215	214	212	210	209	207	205	204	203
201	200	199	198	196	194	193	192	191	189
188	186	185	183	182	181	180	179	178	177
175	174	172	171	170	169	168	167	166	165
164	162	161	160	159	158	157	156	156	155
154	153	152	151	150	149	149	148	147	146
145	144	143	142	142	141	140	139	138	137
137	136	135	134	134	133	132	131	130	130
129	128	128	127	126	126	125	124	124	123
123	122	122	121	120	120	119	118	118	117
117	116	116	115	115	114	113	113	112	111
111	110	109	109	108	108	107	106	106	106
105	105	104	104	103	103	102	102	101	101
100	100	99	99	98	98	97	97	96	96
95	95	94	94	93	93	93	92	92	91
91	90	90	89	89	88	88	87	87	86
86	86	85	85	84	84	83	83	83	82
82	82	81	81	80	80	80	79	79	78
78	78	78	77	77	76	76	76	75	75
75	74	74	74	73	73	73	73	72	72]

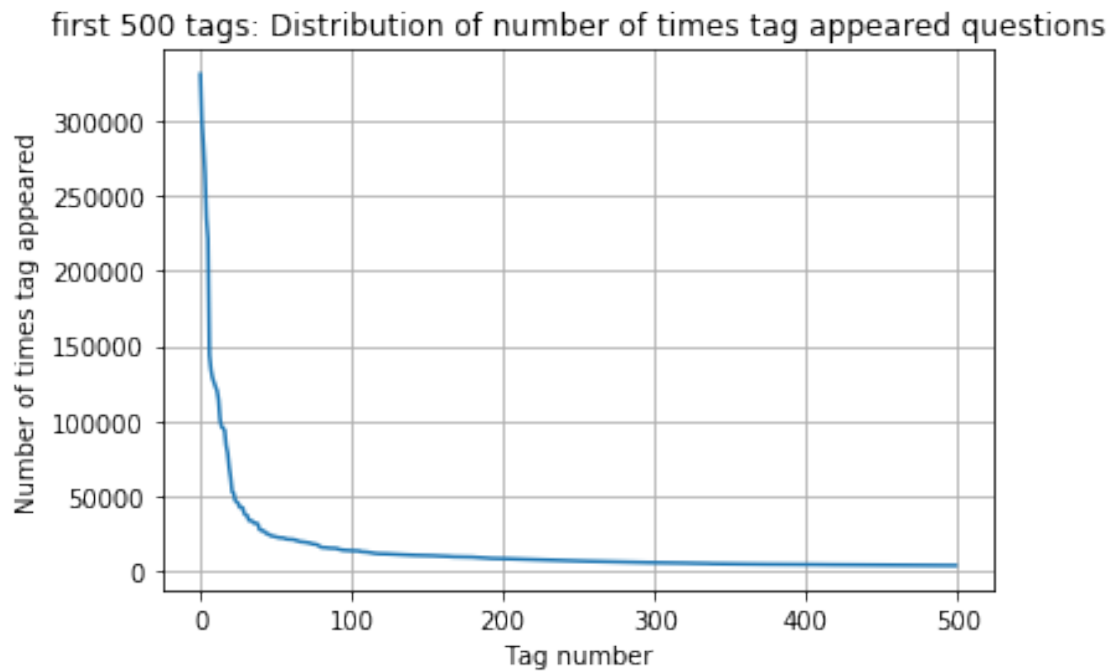
```
[ ]: plt.plot(tag_counts[0:1000])
plt.title('first 1k tags: Distribution of number of times tag appeared_
→questions')
plt.grid()
plt.xlabel("Tag number")
plt.ylabel("Number of times tag appeared")
plt.show()
print(len(tag_counts[0:1000:5]), tag_counts[0:1000:5])
```



200	331505	221533	122769	95160	62023	44829	37170	31897	26925	24537
22429	21820	20957	19758	18905	17728	15533	15097	14884	13703	
13364	13157	12407	11658	11228	11162	10863	10600	10350	10224	
10029	9884	9719	9411	9252	9148	9040	8617	8361	8163	
8054	7867	7702	7564	7274	7151	7052	6847	6656	6553	
6466	6291	6183	6093	5971	5865	5760	5577	5490	5411	
5370	5283	5207	5107	5066	4983	4891	4785	4658	4549	
4526	4487	4429	4335	4310	4281	4239	4228	4195	4159	
4144	4088	4050	4002	3957	3929	3874	3849	3818	3797	
3750	3703	3685	3658	3615	3593	3564	3521	3505	3483	
3453	3427	3396	3363	3326	3299	3272	3232	3196	3168	
3123	3094	3073	3050	3012	2989	2984	2953	2934	2903	
2891	2844	2819	2784	2754	2738	2726	2708	2681	2669	
2647	2621	2604	2594	2556	2527	2510	2482	2460	2444	
2431	2409	2395	2380	2363	2331	2312	2297	2290	2281	
2259	2246	2222	2211	2198	2186	2162	2142	2132	2107	
2097	2078	2057	2045	2036	2020	2011	1994	1971	1965	
1959	1952	1940	1932	1912	1900	1879	1865	1855	1841	
1828	1821	1813	1801	1782	1770	1760	1747	1741	1734	
1723	1707	1697	1688	1683	1673	1665	1656	1646	1639]	

```
[ ]: plt.plot(tag_counts[0:500])
plt.title('first 500 tags: Distribution of number of times tag appeared_
→questions')
plt.grid()
```

```
plt.xlabel("Tag number")
plt.ylabel("Number of times tag appeared")
plt.show()
print(len(tag_counts[0:500:5]), tag_counts[0:500:5])
```



100	331505	221533	122769	95160	62023	44829	37170	31897	26925	24537
22429	21820	20957	19758	18905	17728	15533	15097	14884	13703	
13364	13157	12407	11658	11228	11162	10863	10600	10350	10224	
10029	9884	9719	9411	9252	9148	9040	8617	8361	8163	
8054	7867	7702	7564	7274	7151	7052	6847	6656	6553	
6466	6291	6183	6093	5971	5865	5760	5577	5490	5411	
5370	5283	5207	5107	5066	4983	4891	4785	4658	4549	
4526	4487	4429	4335	4310	4281	4239	4228	4195	4159	
4144	4088	4050	4002	3957	3929	3874	3849	3818	3797	
3750	3703	3685	3658	3615	3593	3564	3521	3505	3483	

```
[ ]: plt.plot(tag_counts[0:100], c='b')
plt.scatter(x=list(range(0,100,5)), y=tag_counts[0:100:5], c='orange',
    →label="quantiles with 0.05 intervals")
# quantiles with 0.25 difference
plt.scatter(x=list(range(0,100,25)), y=tag_counts[0:100:25], c='m', label =
    →"quantiles with 0.25 intervals")

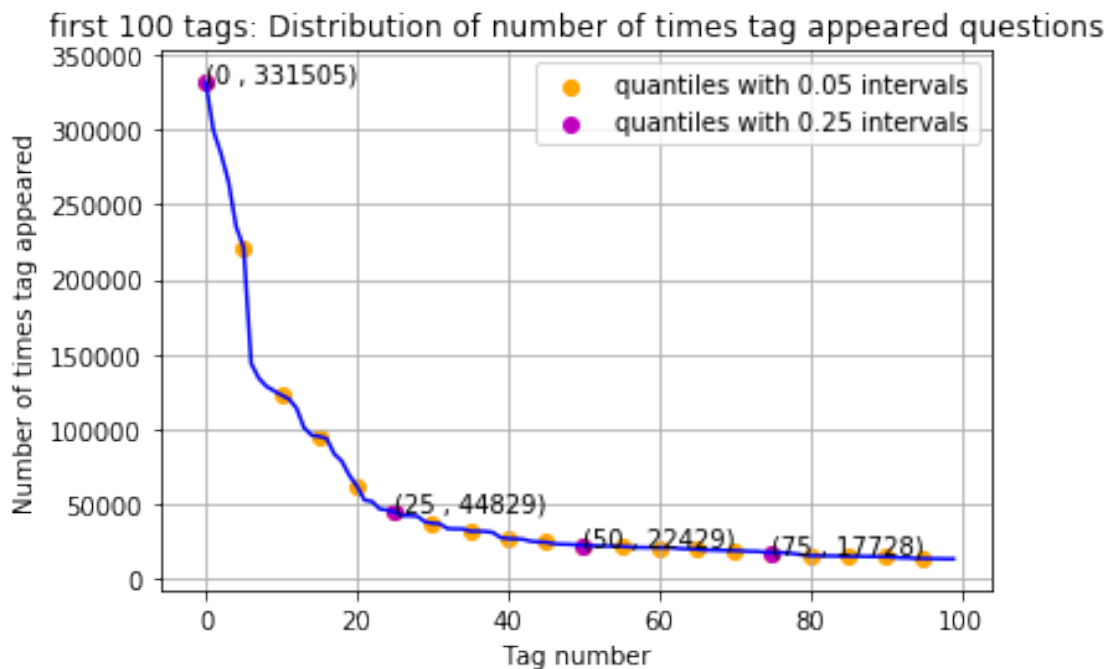
for x,y in zip(list(range(0,100,25)), tag_counts[0:100:25]):
```

```

plt.annotate(s="({} , {})".format(x,y), xy=(x,y), xytext=(x-0.05, y+500))

plt.title('first 100 tags: Distribution of number of times tag appeared_
→questions')
plt.grid()
plt.xlabel("Tag number")
plt.ylabel("Number of times tag appeared")
plt.legend()
plt.show()
print(len(tag_counts[0:100:5]), tag_counts[0:100:5])

```



```

20 [331505 221533 122769 95160 62023 44829 37170 31897 26925 24537
    22429 21820 20957 19758 18905 17728 15533 15097 14884 13703]

```

```

[: # Store tags greater than 10K in one list
lst_tags_gt_10k = tag_df[tag_df.Counts>10000].Tags
#Print the length of the list
print ('{} Tags are used more than 10000 times'.format(len(lst_tags_gt_10k)))
# Store tags greater than 100K in one list
lst_tags_gt_100k = tag_df[tag_df.Counts>100000].Tags
#Print the length of the list.
print ('{} Tags are used more than 100000 times'.format(len(lst_tags_gt_100k)))

```

```

153 Tags are used more than 10000 times
14 Tags are used more than 100000 times

```

Observations: 1. There are total 153 tags which are used more than 10000 times. 2. 14 tags are used more than 100000 times. 3. Most frequent tag (i.e. c#) is used 331505 times. 4. Since some tags occur much more frequently than others, Micro-averaged F1-score is the appropriate metric for this problem.

3.2.4 Tags Per Question

```
[ ]: #Storing the count of tag in each question in list 'tag_count'
tag_quest_count = tag_dtm.sum(axis=1).tolist()
#Converting list of lists into single list, we will get [[3], [4], [2], [2], [3]] and we are converting this to [3, 4, 2, 2, 3]
tag_quest_count=[int(j) for i in tag_quest_count for j in i]
print('We have total {} datapoints.'.format(len(tag_quest_count)))

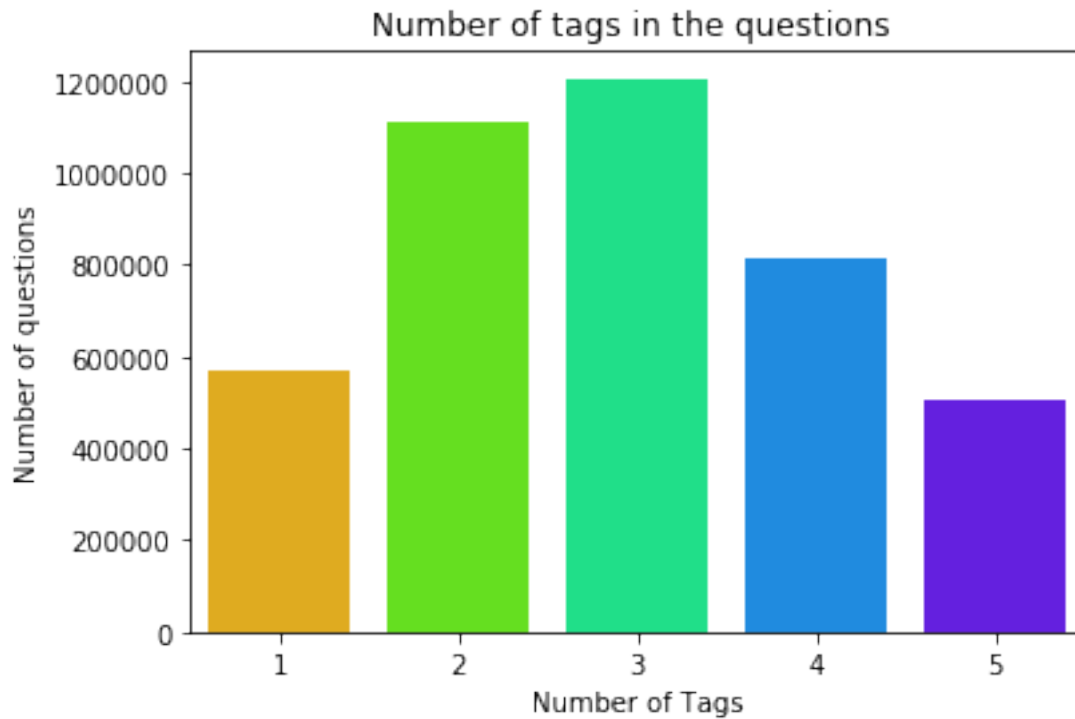
print(tag_quest_count[:5])
```

We have total 4206314 datapoints.
[3, 4, 2, 2, 3]

```
[ ]: print("Maximum number of tags per question: {}".format(max(tag_quest_count)))
print("Minimum number of tags per question: {}".format(min(tag_quest_count)))
print("Avg. number of tags per question: {}".format((sum(tag_quest_count)*1.0)/len(tag_quest_count)))
```

Maximum number of tags per question: 5
Minimum number of tags per question: 1
Avg. number of tags per question: 2.899440

```
[ ]: sns.countplot(tag_quest_count, palette='gist_rainbow')
plt.title("Number of tags in the questions ")
plt.xlabel("Number of Tags")
plt.ylabel("Number of questions")
plt.show()
```



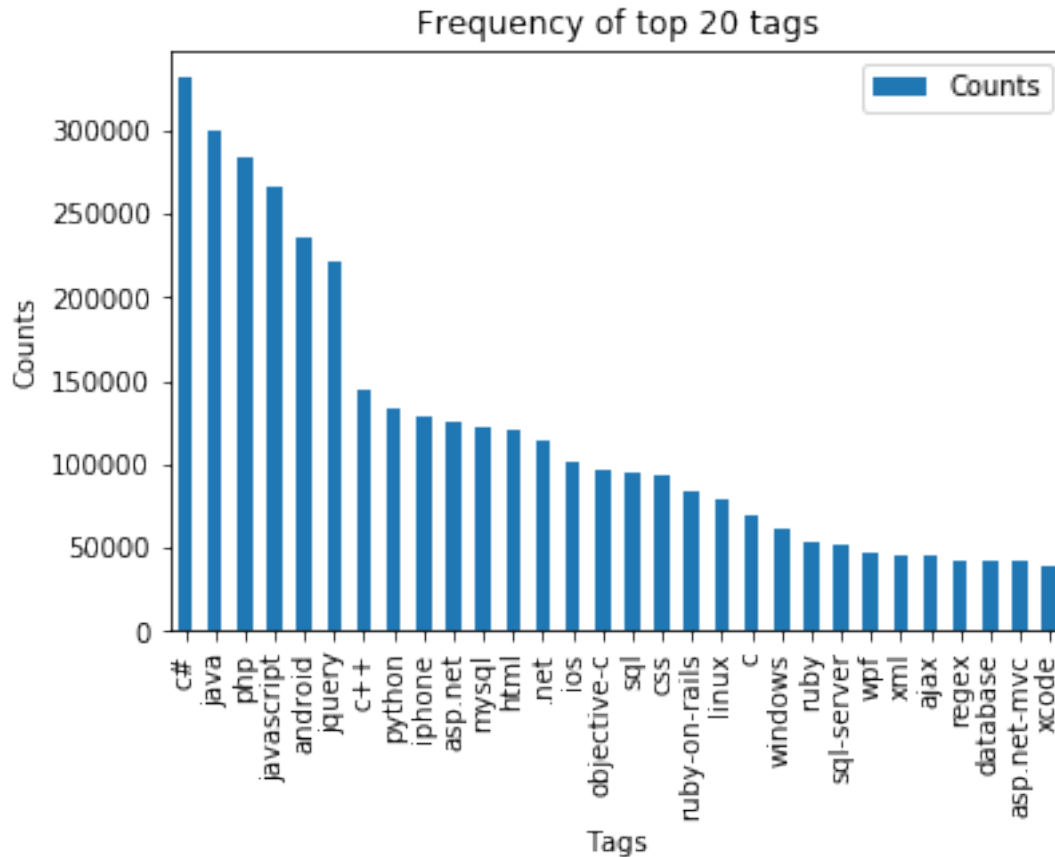
Observations: 1. Maximum number of tags per question: 5 2. Minimum number of tags per question: 1 3. Avg. number of tags per question: 2.899 4. Most of the questions are having 2 or 3 tags

3.2.5 Most Frequent Tags

```
[ ]: # Plotting word cloud
start = datetime.now()

# Lets first convert the 'result' dictionary to 'list of tuples'
tup = dict(result.items())
#Initializing WordCloud using frequencies of tags.
wordcloud = WordCloud(    background_color='black',
                           width=1600,
                           height=800,
                           ).generate_from_frequencies(tup)

fig = plt.figure(figsize=(30,20))
plt.imshow(wordcloud)
plt.axis('off')
plt.tight_layout(pad=0)
fig.savefig("tag.png")
plt.show()
print("Time taken to run this cell :", datetime.now() - start)
```

Observations: 1. Majority of the most frequent tags are programming language. 2. C# is the top most frequent programming language. 3. Android, IOS, Linux and windows are among the top most frequent operating systems.

3.3 Cleaning and preprocessing of Questions

3.3.1 Preprocessing

- Sample 1M data points
- Separate out code-snippets from Body
- Remove Special characters from Question title and description (not in code)
- Remove stop words (Except 'C')
- Remove HTML Tags
- Convert all the characters into small letters
- Use SnowballStemmer to stem the words

```
[ ]: def striphtml(data):
    cleanr = re.compile('<.*?>')
    cleantext = re.sub(cleanr, ' ', str(data))
    return cleantext
stop_words = set(stopwords.words('english'))
stemmer = SnowballStemmer("english")
```

```
[ ]: #http://www.sqlitetutorial.net/sqlite-python/create-tables/
def create_connection(db_file):
    """ create a database connection to the SQLite database
        specified by db_file
    :param db_file: database file
    :return: Connection object or None
    """
    try:
        conn = sqlite3.connect(db_file)
        return conn
    except Error as e:
        print(e)

    return None

def create_table(conn, create_table_sql):
    """ create a table from the create_table_sql statement
    :param conn: Connection object
    :param create_table_sql: a CREATE TABLE statement
    :return:
    """
    try:
        c = conn.cursor()
        c.execute(create_table_sql)
    except Error as e:
        print(e)

def checkTableExists(dbcon):
    cursr = dbcon.cursor()
    str = "select name from sqlite_master where type='table'"
    table_names = cursr.execute(str)
    print("Tables in the databse:")
    tables = table_names.fetchall()
    print(tables[0][0])
    return(len(tables))

def create_database_table(database, query):
    conn = create_connection(database)
    if conn is not None:
        create_table(conn, query)
        checkTableExists(conn)
    else:
        print("Error! cannot create the database connection.")
    conn.close()
```

```

sql_create_table = """CREATE TABLE IF NOT EXISTS QuestionsProcessed (question_
→text NOT NULL, code text, tags text, words_pre integer, words_post integer,
→is_code integer);"""
create_database_table("Processed.db", sql_create_table)

```

Tables in the database:
QuestionsProcessed

```

[ ]: # http://www.sqlitetutorial.net/sqlite-delete/
# https://stackoverflow.com/questions/2279706/
→select-random-row-from-a-sqlite-table
start = datetime.now()
read_db = 'train_no_dup.db'
write_db = 'Processed.db'
if os.path.isfile(read_db):
    conn_r = create_connection(read_db)
    if conn_r is not None:
        reader = conn_r.cursor()
        reader.execute("SELECT Title, Body, Tags From no_dup_train ORDER BY_
→RANDOM() LIMIT 1000000;")

if os.path.isfile(write_db):
    conn_w = create_connection(write_db)
    if conn_w is not None:
        tables = checkTableExists(conn_w)
        writer = conn_w.cursor()
        if tables != 0:
            writer.execute("DELETE FROM QuestionsProcessed WHERE 1")
            print("Cleared All the rows")
print("Time taken to run this cell :", datetime.now() - start)

```

Tables in the database:
QuestionsProcessed
Cleared All the rows
Time taken to run this cell : 0:06:32.806567

__ we create a new data base to store the sampled and preprocessed questions __

```

[ ]: #http://www.bernzilla.com/2008/05/13/
→selecting-a-random-row-from-an-sqlite-table/

start = datetime.now()
preprocessed_data_list=[]
reader.fetchone()
questions_with_code=0
len_pre=0
len_post=0

```

```

questions_proccesed = 0
for row in reader:

    is_code = 0

    title, question, tags = row[0], row[1], row[2]

    if '<code>' in question:
        questions_with_code+=1
        is_code = 1
    x = len(question)+len(title)
    len_pre+=x

    code = str(re.findall(r'<code>(.*?)</code>', question, flags=re.DOTALL))

    question=re.sub('<code>(.*?)</code>', '', question, flags=re.MULTILINE|re.
→DOTALL)
    question=stripthtml(question.encode('utf-8'))

    title=title.encode('utf-8')

    question=str(title)+" "+str(question)
    question=re.sub(r'[^A-Za-z]+', ' ',question)
    words=word_tokenize(str(question.lower()))

    #Removing all single letter and and stopwords from question exceptt for the
→letter 'c'
    question=' '.join(str(stemmer.stem(j)) for j in words if j not in
→stop_words and (len(j)!=1 or j=='c'))

    len_post+=len(question)
    tup = (question,code,tags,x,len(question),is_code)
    questions_proccesed += 1
    writer.execute("insert into
→QuestionsProcessed(question,code,tags,words_pre,words_post,is_code) values (?
→,?,?,?,?,?)",tup)
    if (questions_proccesed%100000==0):
        print("number of questions completed=",questions_proccesed)

no_dup_avg_len_pre=(len_pre*1.0)/questions_proccesed
no_dup_avg_len_post=(len_post*1.0)/questions_proccesed

print( "Avg. length of questions(Title+Body) before processing:
→%d"%no_dup_avg_len_pre)
print( "Avg. length of questions(Title+Body) after processing:
→%d"%no_dup_avg_len_post)

```

```
print ("Percent of questions containing code: %d"%((questions_with_code*100.0)/
→questions_proccesed))

print("Time taken to run this cell :", datetime.now() - start)
```

```
number of questions completed= 100000
number of questions completed= 200000
number of questions completed= 300000
number of questions completed= 400000
number of questions completed= 500000
number of questions completed= 600000
number of questions completed= 700000
number of questions completed= 800000
number of questions completed= 900000
Avg. length of questions(Title+Body) before processing: 1169
Avg. length of questions(Title+Body) after processing: 327
Percent of questions containing code: 57
Time taken to run this cell : 0:47:05.946582
```

```
[ ]: # dont forget to close the connections, or else you will end up with locks
conn_r.commit()
conn_w.commit()
conn_r.close()
conn_w.close()
```

```
[ ]: if os.path.isfile(write_db):
    conn_r = create_connection(write_db)
    if conn_r is not None:
        reader =conn_r.cursor()
        reader.execute("SELECT question From QuestionsProcessed LIMIT 10")
        print("Questions after preprocessed")
        print('='*100)
        reader.fetchone()
        for row in reader:
            print(row)
            print('-'*100)
    conn_r.commit()
    conn_r.close()
```

Questions after preprocessed

```
=====
=====

('ef code first defin one mani relationship differ key troubl defin one zero
mani relationship entiti ef object model look like use fluent api object
composit pk defin batch id batch detail id use fluent api object composit pk
defin batch detail id compani id map exist databas tpt basic idea
submittedtransact zero mani submittedsplittransact associ navig realli need one
```

way submittedtransact submittedsplittransact need dbcontext class onmodelcr
overrid map class lazi load occur submittedtransact submittedsplittransact help
would much appreci edit taken advic made follow chang dbcontext class ad follow
onmodelcr overrid must miss someth get follow except thrown submittedtransact
key batch id batch detail id zero one mani submittedsplittransact key batch
detail id compani id rather assum convent creat relationship two object configur
requir sinc obvious wrong',)

('explan new statement review section c code came accross statement block come
accross new oper use way someon explain new call way',)

('error function notat function solv logic riddl iloczyni list structur list
possibl candid solut list possibl coordin matrix wan na choos one candid compar
possibl candid element equal wan na delet coordin call function skasuj look like
ni knowledg haskel cant see what wrong',)

('step plan move one isp anoth one work busi plan switch isp realli soon need
chang lot inform dns wan wan wifi question guy help mayb peopl plan correct
chang current isp new one first dns know receiv new ip isp major chang need take
consider exchang server owa vpn two site link wireless connect km away citrix
server vmware exchang domain control link place import server crucial step
inform need know avoid downtim busi regard ndavid',)

('use ef migrat creat databas googl migrat tutori af first run applic creat
databas ef enabl migrat way creat databas migrat rune applic tri',)

('magento unit test problem magento site recent look way check integr magento
site given point unit test jump one method would assum would big job write whole
lot test check everyth site work anyon involv unit test magento advis follow
possibl test whole site custom modul nis exampl test would amaz given site
heavili link databas would nbe possibl fulli test site without disturb databas
better way automaticlli check integr magento site say integr realli mean fault
site ship payment etc work correct',)

('find network devic without bonjour write mac applic need discov mac pcs iphon
ipad connect wifi network bonjour seem reason choic turn problem mani type
router mine exampl work block bonjour servic need find ip devic tri connect
applic specif port determin process run best approach accomplish task without
violat app store sandbox',)

('send multipl row mysql databas want send user mysql databas column user skill

```
time nnow want abl add one row user differ time etc would code send databas
nthen use help schema',)
```

```
('insert data mysql php powerpoint event powerpoint present run continu way
updat slide present automat data mysql databas websit',)
```

```
[ ]: #Taking 1 Million entries to a dataframe.
write_db = 'Processed.db'
if os.path.isfile(write_db):
    conn_r = create_connection(write_db)
    if conn_r is not None:
        preprocessed_data = pd.read_sql_query("""SELECT question, Tags FROM_
→QuestionsProcessed""", conn_r)
    conn_r.commit()
    conn_r.close()
```

```
[ ]: preprocessed_data.head()
```

```
[ ]:
           question                                     tags
0  reziz root window tkinter reziz root window re...  python tkinter
1  ef code first defin one mani relationship diff...  entity-framework-4.1
2  explan new statement review section c code cam...          c++
3  error function notat function solv logic riddl...  haskell logic
4  step plan move one isp anoth one work busi pla...          dns isp
```

```
[ ]: print("number of data points in sample :", preprocessed_data.shape[0])
print("number of dimensions :", preprocessed_data.shape[1])
```

```
number of data points in sample : 999999
```

```
number of dimensions : 2
```

4. Machine Learning Models

4.1 Converting tags for multilabel problems

```
X
y1
y2
y3
y4
x1
0
1
1
0
x1
1
```

```
0
0
0
x1
0
1
0
0
```

```
[ ]: # binary='true' will give a binary vectorizer
vectorizer = CountVectorizer(tokenizer = lambda x: x.split(), binary='true')
multilabel_y = vectorizer.fit_transform(preprocessed_data['tags'])
```

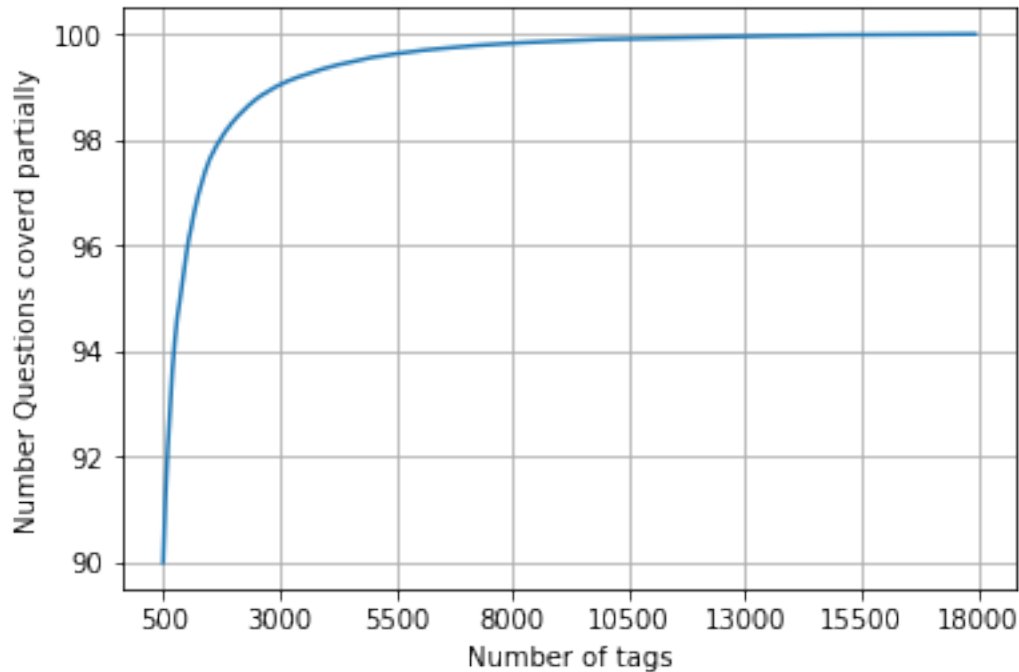
__ We will sample the number of tags instead considering all of them (due to limitation of computing power) __

```
[ ]: def tags_to_choose(n):
    t = multilabel_y.sum(axis=0).tolist()[0]
    sorted_tags_i = sorted(range(len(t)), key=lambda i: t[i], reverse=True)
    multilabel_yn=multilabel_y[:,sorted_tags_i[:n]]
    return multilabel_yn

def questions_explained_fn(n):
    multilabel_yn = tags_to_choose(n)
    x= multilabel_yn.sum(axis=1)
    return (np.count_nonzero(x==0))
```

```
[ ]: questions_explained = []
total_tags=multilabel_y.shape[1]
total_qs=preprocessed_data.shape[0]
for i in range(500, total_tags, 100):
    questions_explained.append(np.round(((total_qs-questions_explained_fn(i))/
→total_qs)*100,3))
```

```
[ ]: fig, ax = plt.subplots()
ax.plot(questions_explained)
xlabel = list(500+np.array(range(-50,450,50))*50)
ax.set_xticklabels(xlabel)
plt.xlabel("Number of tags")
plt.ylabel("Number Questions covered partially")
plt.grid()
plt.show()
# you can choose any number of tags based on your computing power, minimum is 50
→50(it covers 90% of the tags)
print("with ",5500,"tags we are covering ",questions_explained[50],"% of
→questions")
```

with 5500 tags we are covering 99.04 % of questions

```
[ ]: multilabel_yx = tags_to_choose(5500)
print("number of questions that are not covered :",
      →questions_explained_fn(5500),"out of ", total_qs)
```

number of questions that are not covered : 9599 out of 999999

```
[ ]: print("Number of tags in sample :", multilabel_y.shape[1])
print("number of tags taken :", multilabel_yx.shape[1],"(",(multilabel_yx.
      →shape[1]/multilabel_y.shape[1])*100,"%")")
```

Number of tags in sample : 35422

number of tags taken : 5500 (15.527073570097679 %)

__ We consider top 15% tags which covers 99% of the questions __

4.2 Split the data into test and train (80:20)

```
[ ]: total_size=preprocessed_data.shape[0]
train_size=int(0.80*total_size)

x_train=preprocessed_data.head(train_size)
x_test=preprocessed_data.tail(total_size - train_size)
```

```
y_train = multilabel_yx[0:train_size,:]
y_test = multilabel_yx[train_size:total_size,:]
```

```
[ ]: print("Number of data points in train data :", y_train.shape)
      print("Number of data points in test data :", y_test.shape)
```

Number of data points in train data : (799999, 5500)

Number of data points in test data : (200000, 5500)

4.3 Featurizing data

```
[ ]: start = datetime.now()
      vectorizer = TfidfVectorizer(min_df=0.00009, max_features=200000,
      ↳smooth_idf=True, norm="l2", \
                                   tokenizer = lambda x: x.split(),
      ↳sublinear_tf=False, ngram_range=(1,3))
      x_train_multilabel = vectorizer.fit_transform(x_train['question'])
      x_test_multilabel = vectorizer.transform(x_test['question'])
      print("Time taken to run this cell :", datetime.now() - start)
```

Time taken to run this cell : 0:09:50.460431

```
[ ]: print("Dimensions of train data X:",x_train_multilabel.shape, "Y :",y_train.
      ↳shape)
      print("Dimensions of test data X:",x_test_multilabel.shape,"Y:",y_test.shape)
```

Diamensions of train data X: (799999, 88244) Y : (799999, 5500)

Diamensions of test data X: (200000, 88244) Y: (200000, 5500)

```
[ ]: # https://www.analyticsvidhya.com/blog/2017/08/
      ↳introduction-to-multi-label-classification/
      #https://stats.stackexchange.com/questions/117796/
      ↳scikit-multi-label-classification
      # classifier = LabelPowerset(GaussianNB())
      """
      from skmultilearn.adapt import MLkNN
      classifier = MLkNN(k=21)

      # train
      classifier.fit(x_train_multilabel, y_train)

      # predict
      predictions = classifier.predict(x_test_multilabel)
      print(accuracy_score(y_test,predictions))
      print(metrics.f1_score(y_test, predictions, average = 'macro'))
      print(metrics.f1_score(y_test, predictions, average = 'micro'))
      print(metrics.hamming_loss(y_test,predictions))
```

```

"""
# we are getting memory error because the multilearn package
# is trying to convert the data into dense matrix
# -----
#MemoryError                                Traceback (most recent call last)
#<ipython-input-170-f0e7c7f3e0be> in <module>()
#----> classifier.fit(x_train_multilabel, y_train)

```

```

[:]: "\nfrom skmultilearn.adapt import MLkNN\nnclassifier = MLkNN(k=21)\n\n#
train\nclassifier.fit(x_train_multilabel, y_train)\n\n# predict\npredictions = c
lassifier.predict(x_test_multilabel)\nprint(accuracy_score(y_test,predictions))\
nprint(metrics.f1_score(y_test, predictions, average =
'macro'))\nprint(metrics.f1_score(y_test, predictions, average =
'micro'))\nprint(metrics.hamming_loss(y_test,predictions))\n\n"

```

4.4 Applying Logistic Regression with OneVsRest Classifier

```

[:]: # this will be taking so much time try not to run it, download the
    ↳lr_with_equal_weight.pkl file and use to predict
# This takes about 6-7 hours to run.
classifier = OneVsRestClassifier(SGDClassifier(loss='log', alpha=0.00001,
    ↳penalty='l1'), n_jobs=-1)
classifier.fit(x_train_multilabel, y_train)
predictions = classifier.predict(x_test_multilabel)

print("accuracy :",metrics.accuracy_score(y_test,predictions))
print("macro f1 score :",metrics.f1_score(y_test, predictions, average =
    ↳'macro'))
print("micro f1 scoore :",metrics.f1_score(y_test, predictions, average =
    ↳'micro'))
print("hamming loss :",metrics.hamming_loss(y_test,predictions))
print("Precision recall report :\n",metrics.classification_report(y_test,
    ↳predictions))

```

```

accuracy : 0.081965
macro f1 score : 0.0963020140154
micro f1 scoore : 0.374270748817
hamming loss : 0.00041225090909090907
Precision recall report :

```

	precision	recall	f1-score	support
0	0.62	0.23	0.33	15760
1	0.79	0.43	0.56	14039
2	0.82	0.55	0.66	13446
3	0.76	0.42	0.54	12730
4	0.94	0.76	0.84	11229
5	0.85	0.64	0.73	10561
6	0.70	0.30	0.42	6958

7	0.87	0.61	0.72	6309
8	0.70	0.40	0.50	6032
9	0.78	0.43	0.55	6020
10	0.86	0.62	0.72	5707
11	0.52	0.17	0.25	5723
12	0.55	0.10	0.16	5521
13	0.59	0.25	0.35	4722
14	0.61	0.22	0.32	4468
15	0.79	0.52	0.63	4536
16	0.58	0.27	0.37	4545
17	0.80	0.53	0.64	4069
18	0.61	0.24	0.35	3638
19	0.57	0.18	0.27	3218
20	0.33	0.06	0.10	3000
21	0.73	0.34	0.46	2585
22	0.59	0.29	0.38	2439
23	0.88	0.61	0.72	2199
24	0.64	0.39	0.48	2157
25	0.67	0.39	0.49	2123
26	0.86	0.65	0.74	1948
27	0.35	0.07	0.12	2027
28	0.59	0.29	0.39	2013
29	0.61	0.20	0.30	1801
30	0.48	0.24	0.32	1728
31	0.94	0.75	0.84	1725
32	0.60	0.26	0.36	1581
33	0.49	0.14	0.22	1533
34	0.81	0.33	0.47	1565
35	0.75	0.62	0.68	1568
36	0.76	0.50	0.60	1542
37	0.74	0.50	0.59	1536
38	0.37	0.12	0.19	1524
39	0.40	0.12	0.19	1345
40	0.65	0.38	0.48	1292
41	0.41	0.11	0.17	1264
42	0.69	0.25	0.37	1265
43	0.59	0.29	0.38	1171
44	0.41	0.15	0.22	1173
45	0.38	0.10	0.16	1137
46	0.62	0.12	0.20	1125
47	0.26	0.07	0.11	1116
48	0.44	0.15	0.22	1042
49	0.40	0.02	0.03	1096
50	0.63	0.38	0.48	1031
51	0.47	0.14	0.22	1033
52	0.87	0.68	0.76	1042
53	0.32	0.09	0.14	1027
54	0.53	0.14	0.22	1063

55	0.63	0.34	0.44	1048
56	0.78	0.42	0.54	1054
57	0.91	0.77	0.83	1058
58	0.37	0.10	0.16	1000
59	0.26	0.03	0.05	973
60	0.76	0.42	0.54	978
61	0.74	0.43	0.54	977
62	0.27	0.06	0.10	957
63	0.81	0.22	0.34	958
64	0.88	0.63	0.73	944
65	0.76	0.49	0.60	923
66	0.67	0.36	0.47	959
67	0.55	0.15	0.24	951
68	0.38	0.13	0.20	924
69	0.71	0.25	0.37	897
70	0.78	0.47	0.59	900
71	0.82	0.40	0.54	893
72	0.21	0.01	0.01	836
73	0.74	0.16	0.26	850
74	0.58	0.37	0.45	838
75	0.88	0.64	0.74	855
76	0.47	0.28	0.35	837
77	0.68	0.41	0.52	824
78	0.14	0.01	0.01	793
79	0.34	0.09	0.14	751
80	0.31	0.08	0.13	793
81	0.71	0.33	0.45	758
82	0.60	0.28	0.38	764
83	0.82	0.59	0.69	710
84	0.82	0.48	0.61	734
85	0.79	0.42	0.55	723
86	0.44	0.23	0.30	708
87	0.93	0.58	0.72	714
88	0.91	0.53	0.67	683
89	0.58	0.20	0.30	711
90	0.71	0.42	0.53	699
91	0.44	0.03	0.06	725
92	0.71	0.47	0.57	676
93	0.47	0.10	0.16	672
94	0.66	0.40	0.50	645
95	0.86	0.66	0.75	691
96	0.57	0.09	0.15	664
97	0.91	0.59	0.72	633
98	0.64	0.38	0.48	615
99	0.53	0.19	0.29	667
100	0.89	0.71	0.79	656
101	0.22	0.03	0.05	648
102	0.64	0.13	0.22	654

103	0.92	0.63	0.75	653
104	0.87	0.52	0.65	656
105	0.20	0.02	0.04	607
106	0.68	0.34	0.45	635
107	0.23	0.03	0.05	594
108	0.40	0.18	0.25	592
109	0.32	0.07	0.12	604
110	0.46	0.21	0.29	606
111	0.70	0.39	0.50	567
112	0.68	0.27	0.38	571
113	0.61	0.36	0.45	578
114	0.47	0.18	0.26	564
115	0.35	0.13	0.19	537
116	0.93	0.66	0.77	583
117	0.59	0.09	0.15	534
118	0.66	0.35	0.46	566
119	0.20	0.04	0.07	567
120	0.48	0.16	0.24	497
121	0.55	0.19	0.29	536
122	0.24	0.05	0.08	528
123	0.81	0.53	0.64	550
124	0.50	0.21	0.29	563
125	0.35	0.06	0.10	545
126	0.49	0.18	0.27	544
127	0.95	0.76	0.84	549
128	0.63	0.34	0.44	495
129	0.94	0.59	0.73	509
130	0.34	0.11	0.16	501
131	0.28	0.04	0.07	524
132	0.48	0.26	0.34	485
133	0.55	0.37	0.45	515
134	0.32	0.04	0.08	536
135	0.77	0.38	0.51	526
136	0.67	0.34	0.45	493
137	0.40	0.08	0.14	501
138	0.31	0.05	0.09	501
139	0.29	0.02	0.04	523
140	0.88	0.64	0.74	508
141	0.33	0.11	0.16	490
142	0.77	0.50	0.60	482
143	0.49	0.25	0.33	461
144	0.74	0.48	0.58	496
145	0.62	0.17	0.26	521
146	0.39	0.13	0.19	481
147	0.00	0.00	0.00	486
148	0.37	0.09	0.14	497
149	0.54	0.09	0.16	470
150	0.37	0.11	0.17	459

151	0.74	0.45	0.56	464
152	0.50	0.24	0.32	482
153	0.46	0.09	0.15	507
154	0.29	0.04	0.07	503
155	0.90	0.59	0.71	456
156	0.50	0.27	0.35	480
157	0.54	0.26	0.35	443
158	0.92	0.70	0.80	457
159	0.57	0.08	0.13	478
160	0.16	0.03	0.05	470
161	0.37	0.18	0.24	468
162	0.24	0.05	0.09	428
163	0.40	0.08	0.13	462
164	0.73	0.32	0.45	493
165	0.93	0.68	0.79	437
166	0.40	0.20	0.26	435
167	0.30	0.02	0.03	448
168	0.53	0.16	0.25	436
169	0.36	0.10	0.15	437
170	0.38	0.09	0.15	410
171	0.59	0.32	0.41	450
172	0.69	0.39	0.50	435
173	0.91	0.67	0.77	427
174	0.45	0.16	0.24	427
175	0.43	0.17	0.24	424
176	0.64	0.43	0.52	410
177	0.67	0.29	0.40	426
178	0.74	0.49	0.59	459
179	0.52	0.13	0.20	433
180	0.71	0.36	0.48	452
181	0.91	0.62	0.74	427
182	0.46	0.13	0.20	410
183	0.28	0.02	0.04	404
184	0.69	0.42	0.52	406
185	0.68	0.41	0.52	411
186	0.22	0.02	0.03	394
187	0.90	0.65	0.75	414
188	0.64	0.10	0.18	430
189	0.16	0.04	0.06	389
190	0.28	0.03	0.05	418
191	0.36	0.16	0.22	371
192	0.83	0.57	0.68	363
193	0.91	0.55	0.69	389
194	0.44	0.04	0.07	411
195	0.49	0.22	0.31	383
196	0.95	0.74	0.83	423
197	0.91	0.54	0.68	378
198	0.69	0.38	0.49	382

199	0.12	0.01	0.02	344
200	0.71	0.31	0.44	383
201	0.77	0.34	0.47	390
202	0.18	0.02	0.04	405
203	0.43	0.07	0.11	365
204	0.42	0.14	0.21	346
205	0.21	0.05	0.08	378
206	0.67	0.27	0.39	390
207	0.33	0.07	0.11	379
208	0.39	0.11	0.17	386
209	0.42	0.15	0.22	339
210	0.27	0.07	0.12	382
211	0.37	0.05	0.08	374
212	0.62	0.38	0.47	364
213	0.94	0.76	0.84	372
214	0.96	0.63	0.76	350
215	0.76	0.38	0.50	352
216	0.00	0.00	0.00	351
217	0.64	0.29	0.40	329
218	0.72	0.31	0.44	341
219	0.94	0.71	0.81	331
220	0.49	0.27	0.35	342
221	0.76	0.39	0.52	339
222	0.29	0.04	0.06	332
223	0.43	0.12	0.18	327
224	0.31	0.06	0.11	324
225	0.51	0.21	0.30	352
226	0.65	0.30	0.41	317
227	0.54	0.12	0.20	355
228	0.57	0.19	0.29	341
229	0.58	0.37	0.46	334
230	0.64	0.49	0.56	304
231	0.43	0.04	0.07	321
232	0.77	0.50	0.61	311
233	0.32	0.10	0.15	312
234	0.09	0.01	0.02	306
235	0.03	0.00	0.01	305
236	0.16	0.02	0.04	340
237	0.58	0.30	0.40	316
238	0.65	0.23	0.34	297
239	0.35	0.13	0.19	305
240	0.73	0.44	0.55	310
241	0.67	0.36	0.47	307
242	0.58	0.16	0.25	316
243	0.26	0.07	0.11	314
244	0.51	0.12	0.19	316
245	0.67	0.46	0.55	313
246	0.79	0.46	0.58	325

247	0.60	0.36	0.45	291
248	0.33	0.01	0.02	311
249	0.57	0.24	0.33	314
250	0.38	0.05	0.09	309
251	0.30	0.08	0.13	300
252	0.55	0.27	0.36	325
253	0.76	0.51	0.61	316
254	0.43	0.09	0.15	306
255	0.54	0.19	0.28	289
256	0.49	0.11	0.18	304
257	0.16	0.02	0.04	268
258	0.85	0.58	0.69	266
259	0.06	0.00	0.01	298
260	0.55	0.36	0.43	292
261	0.25	0.05	0.08	289
262	0.50	0.01	0.01	305
263	0.00	0.00	0.00	281
264	0.59	0.25	0.35	295
265	0.16	0.02	0.04	281
266	0.83	0.52	0.64	269
267	0.45	0.12	0.19	312
268	0.75	0.40	0.52	294
269	0.34	0.05	0.09	285
270	0.56	0.33	0.42	279
271	0.50	0.28	0.36	269
272	0.59	0.38	0.46	277
273	0.69	0.31	0.43	272
274	0.36	0.01	0.03	285
275	0.94	0.69	0.80	295
276	0.46	0.19	0.27	283
277	0.65	0.29	0.40	250
278	0.57	0.20	0.30	281
279	0.86	0.58	0.69	270
280	0.62	0.35	0.44	272
281	0.32	0.07	0.11	278
282	0.00	0.00	0.00	264
283	0.85	0.59	0.70	281
284	0.78	0.53	0.63	261
285	0.33	0.09	0.14	283
286	0.00	0.00	0.00	275
287	0.29	0.03	0.05	274
288	0.37	0.04	0.06	284
289	0.00	0.00	0.00	260
290	0.54	0.24	0.34	245
291	0.07	0.00	0.01	267
292	0.33	0.07	0.11	263
293	0.30	0.09	0.14	268
294	0.33	0.11	0.16	270

295	0.48	0.06	0.10	261
296	0.84	0.59	0.69	240
297	0.43	0.22	0.29	250
298	0.81	0.51	0.63	245
299	0.11	0.01	0.01	283
300	0.51	0.21	0.30	236
301	0.78	0.51	0.62	267
302	0.19	0.02	0.04	243
303	0.26	0.04	0.06	276
304	0.89	0.71	0.79	280
305	0.37	0.14	0.20	249
306	0.24	0.02	0.04	258
307	0.00	0.00	0.00	262
308	0.53	0.20	0.29	248
309	0.58	0.25	0.35	244
310	0.33	0.06	0.09	254
311	0.41	0.10	0.16	263
312	0.52	0.25	0.33	232
313	0.75	0.55	0.63	235
314	0.61	0.11	0.19	248
315	0.49	0.16	0.25	263
316	0.33	0.08	0.12	264
317	0.61	0.06	0.12	216
318	0.05	0.00	0.01	230
319	0.53	0.27	0.36	230
320	0.00	0.00	0.00	239
321	0.45	0.08	0.13	265
322	0.69	0.32	0.44	253
323	0.23	0.04	0.06	238
324	0.72	0.37	0.49	232
325	0.22	0.05	0.08	239
326	0.49	0.18	0.26	261
327	0.64	0.14	0.23	261
328	0.67	0.47	0.55	231
329	0.46	0.13	0.20	264
330	0.18	0.02	0.03	242
331	0.80	0.37	0.50	231
332	0.63	0.28	0.39	234
333	0.50	0.32	0.39	212
334	0.26	0.05	0.09	221
335	0.15	0.03	0.05	242
336	0.57	0.30	0.40	211
337	0.20	0.01	0.03	212
338	0.00	0.00	0.00	222
339	0.22	0.02	0.04	227
340	0.66	0.30	0.41	216
341	0.57	0.26	0.36	231
342	0.45	0.22	0.29	233

343	0.17	0.03	0.04	232
344	0.28	0.02	0.04	209
345	0.37	0.11	0.17	216
346	0.27	0.09	0.13	222
347	0.48	0.19	0.28	243
348	0.51	0.26	0.35	222
349	0.57	0.12	0.20	228
350	0.44	0.12	0.18	205
351	0.58	0.30	0.39	177
352	0.77	0.39	0.52	234
353	0.96	0.57	0.71	230
354	0.47	0.21	0.29	195
355	0.90	0.42	0.57	209
356	0.06	0.00	0.01	205
357	0.50	0.11	0.18	211
358	0.43	0.16	0.23	230
359	0.27	0.08	0.12	211
360	0.39	0.09	0.14	221
361	0.24	0.04	0.08	200
362	0.82	0.15	0.25	219
363	0.36	0.07	0.12	222
364	0.62	0.27	0.38	213
365	0.94	0.36	0.52	199
366	0.80	0.37	0.51	200
367	0.76	0.29	0.42	199
368	0.57	0.26	0.36	212
369	0.93	0.71	0.80	214
370	0.10	0.02	0.03	197
371	0.20	0.03	0.05	212
372	0.41	0.14	0.21	210
373	0.43	0.03	0.05	211
374	0.41	0.15	0.22	213
375	0.00	0.00	0.00	216
376	0.87	0.53	0.66	195
377	0.95	0.67	0.79	187
378	0.15	0.03	0.04	191
379	0.17	0.02	0.04	178
380	0.79	0.48	0.60	193
381	0.13	0.02	0.04	187
382	0.67	0.03	0.06	193
383	0.17	0.04	0.06	204
384	0.28	0.15	0.19	193
385	0.12	0.02	0.04	207
386	0.84	0.45	0.59	211
387	0.06	0.00	0.01	210
388	0.31	0.04	0.06	223
389	0.24	0.09	0.13	203
390	0.72	0.24	0.36	199

391	0.40	0.08	0.13	200
392	0.22	0.05	0.09	183
393	0.62	0.31	0.41	189
394	0.96	0.66	0.78	194
395	0.53	0.18	0.27	183
396	0.43	0.21	0.28	189
397	0.71	0.34	0.46	191
398	0.34	0.06	0.11	206
399	0.33	0.01	0.03	221
400	0.28	0.04	0.07	196
401	0.28	0.09	0.14	179
402	0.28	0.08	0.12	187
403	0.51	0.22	0.31	203
404	0.46	0.12	0.19	205
405	0.35	0.08	0.13	218
406	0.19	0.04	0.06	196
407	0.72	0.35	0.47	206
408	0.31	0.06	0.10	203
409	0.70	0.43	0.53	187
410	0.85	0.54	0.66	208
411	0.83	0.45	0.58	193
412	0.33	0.02	0.03	192
413	0.66	0.36	0.46	182
414	0.45	0.19	0.27	175
415	0.64	0.49	0.55	181
416	0.00	0.00	0.00	202
417	0.92	0.44	0.60	202
418	0.17	0.01	0.02	195
419	0.78	0.25	0.38	177
420	0.26	0.07	0.11	168
421	0.80	0.45	0.58	187
422	0.92	0.46	0.62	209
423	0.66	0.16	0.26	177
424	0.35	0.06	0.10	182
425	0.52	0.14	0.23	187
426	0.22	0.04	0.07	185
427	0.43	0.13	0.20	185
428	0.42	0.18	0.25	185
429	0.92	0.46	0.61	175
430	0.90	0.49	0.64	190
431	0.31	0.03	0.05	185
432	0.71	0.03	0.05	189
433	0.60	0.20	0.30	184
434	0.79	0.36	0.49	200
435	0.20	0.01	0.01	167
436	0.21	0.01	0.03	209
437	0.50	0.07	0.12	200
438	0.29	0.09	0.14	169

439	0.44	0.15	0.23	170
440	0.25	0.04	0.07	182
441	0.62	0.34	0.44	156
442	0.20	0.02	0.03	170
443	0.00	0.00	0.00	189
444	0.00	0.00	0.00	172
445	0.33	0.11	0.16	180
446	0.21	0.06	0.10	175
447	0.48	0.12	0.19	187
448	0.00	0.00	0.00	170
449	0.41	0.24	0.30	170
450	0.35	0.10	0.16	176
451	0.62	0.15	0.24	194
452	0.61	0.31	0.41	175
453	0.19	0.04	0.07	187
454	0.11	0.01	0.01	181
455	0.62	0.14	0.23	177
456	0.50	0.18	0.26	170
457	0.24	0.03	0.05	182
458	0.68	0.37	0.48	172
459	0.00	0.00	0.00	190
460	0.43	0.16	0.23	183
461	0.94	0.63	0.75	182
462	0.35	0.16	0.22	173
463	0.91	0.69	0.79	171
464	0.58	0.27	0.37	173
465	0.77	0.41	0.53	184
466	0.72	0.22	0.34	175
467	0.43	0.19	0.26	162
468	0.12	0.01	0.02	176
469	0.91	0.46	0.61	177
470	0.52	0.07	0.13	167
471	0.27	0.06	0.10	192
472	0.50	0.32	0.39	168
473	0.32	0.05	0.09	188
474	0.31	0.05	0.08	163
475	0.44	0.17	0.24	160
476	0.89	0.56	0.69	180
477	0.92	0.46	0.61	182
478	0.49	0.27	0.35	171
479	0.57	0.18	0.27	174
480	0.96	0.52	0.68	162
481	0.21	0.04	0.06	169
482	0.33	0.03	0.06	157
483	0.77	0.48	0.59	200
484	0.58	0.21	0.31	177
485	0.51	0.26	0.34	175
486	0.64	0.51	0.57	185

487	0.96	0.52	0.67	167
488	0.00	0.00	0.00	192
489	0.30	0.09	0.14	176
490	0.00	0.00	0.00	167
491	0.33	0.01	0.01	177
492	0.47	0.26	0.33	160
493	0.46	0.22	0.30	159
494	0.15	0.03	0.04	159
495	0.31	0.10	0.15	162
496	0.82	0.46	0.59	167
497	0.17	0.02	0.03	168
498	0.40	0.12	0.19	154
499	0.00	0.00	0.00	184
500	0.14	0.03	0.05	167
501	0.41	0.20	0.27	153
502	0.78	0.55	0.65	143
503	0.22	0.07	0.10	177
504	0.69	0.32	0.44	177
505	0.90	0.50	0.64	152
506	0.80	0.40	0.54	179
507	0.60	0.12	0.20	171
508	0.61	0.28	0.39	151
509	0.51	0.23	0.32	162
510	0.63	0.24	0.35	158
511	0.18	0.03	0.05	164
512	0.00	0.00	0.00	149
513	0.78	0.60	0.68	174
514	0.51	0.15	0.23	172
515	0.34	0.14	0.20	144
516	0.57	0.15	0.23	164
517	0.88	0.67	0.76	152
518	0.60	0.02	0.03	175
519	0.29	0.04	0.06	168
520	0.52	0.11	0.18	145
521	0.89	0.38	0.53	165
522	0.91	0.55	0.69	151
523	0.93	0.57	0.71	171
524	0.89	0.53	0.66	160
525	0.59	0.41	0.49	139
526	0.57	0.19	0.29	165
527	0.57	0.22	0.31	148
528	0.64	0.21	0.32	178
529	0.31	0.06	0.10	152
530	0.11	0.01	0.01	143
531	0.57	0.20	0.30	174
532	0.63	0.20	0.30	135
533	0.35	0.05	0.09	179
534	0.26	0.04	0.08	135

535	0.29	0.09	0.14	157
536	0.88	0.53	0.66	163
537	0.79	0.39	0.53	127
538	0.34	0.13	0.19	130
539	0.55	0.20	0.29	155
540	0.43	0.18	0.25	165
541	0.35	0.11	0.16	139
542	0.38	0.05	0.09	159
543	0.44	0.18	0.25	140
544	0.76	0.17	0.28	143
545	0.44	0.12	0.19	147
546	0.47	0.18	0.26	153
547	0.76	0.28	0.41	165
548	0.35	0.10	0.16	149
549	0.62	0.26	0.37	123
550	0.82	0.06	0.11	148
551	0.68	0.41	0.51	145
552	0.50	0.04	0.07	157
553	0.46	0.23	0.31	151
554	0.50	0.01	0.01	152
555	0.43	0.17	0.24	147
556	0.72	0.35	0.47	143
557	0.47	0.20	0.28	139
558	0.92	0.54	0.68	165
559	0.37	0.10	0.16	147
560	0.27	0.13	0.17	139
561	0.29	0.08	0.12	152
562	0.45	0.26	0.33	132
563	0.41	0.17	0.24	150
564	0.30	0.08	0.13	165
565	0.73	0.38	0.50	147
566	0.27	0.05	0.08	151
567	0.52	0.24	0.33	153
568	0.48	0.19	0.27	148
569	0.17	0.04	0.06	142
570	0.11	0.02	0.04	140
571	0.07	0.01	0.01	149
572	1.00	0.02	0.04	146
573	0.51	0.29	0.37	135
574	0.73	0.24	0.36	137
575	0.50	0.11	0.18	142
576	0.24	0.10	0.14	145
577	0.82	0.25	0.38	145
578	0.72	0.33	0.45	131
579	0.40	0.15	0.22	142
580	0.00	0.00	0.00	143
581	0.38	0.09	0.15	139
582	0.57	0.15	0.24	150

583	0.00	0.00	0.00	121
584	0.57	0.28	0.38	148
585	0.61	0.41	0.49	134
586	0.64	0.37	0.47	151
587	0.74	0.11	0.20	150
588	0.48	0.11	0.18	141
589	0.20	0.03	0.05	137
590	0.79	0.36	0.50	154
591	0.52	0.22	0.31	126
592	0.85	0.49	0.62	144
593	0.29	0.06	0.10	130
594	0.46	0.15	0.22	148
595	0.13	0.02	0.03	115
596	0.64	0.46	0.53	142
597	0.95	0.46	0.62	123
598	0.63	0.21	0.32	150
599	0.00	0.00	0.00	134
600	0.24	0.04	0.07	154
601	0.36	0.08	0.14	165
602	0.50	0.02	0.04	150
603	0.49	0.15	0.23	137
604	0.89	0.53	0.67	133
605	0.38	0.14	0.21	146
606	0.88	0.12	0.21	129
607	0.17	0.03	0.05	151
608	0.86	0.55	0.67	138
609	0.36	0.13	0.19	124
610	0.40	0.01	0.03	144
611	0.00	0.00	0.00	150
612	0.00	0.00	0.00	130
613	0.21	0.05	0.08	127
614	0.41	0.17	0.24	141
615	0.10	0.02	0.03	133
616	0.54	0.29	0.38	132
617	0.67	0.02	0.03	131
618	0.21	0.03	0.06	125
619	0.63	0.37	0.46	123
620	0.00	0.00	0.00	148
621	0.12	0.01	0.02	117
622	0.72	0.47	0.57	129
623	0.36	0.04	0.06	113
624	0.88	0.51	0.64	110
625	0.92	0.63	0.75	121
626	0.22	0.08	0.12	125
627	0.95	0.59	0.73	132
628	0.67	0.30	0.42	116
629	0.81	0.38	0.52	126
630	0.29	0.04	0.07	126

631	0.28	0.06	0.10	148
632	0.91	0.61	0.74	140
633	0.50	0.02	0.03	128
634	0.40	0.16	0.22	128
635	0.00	0.00	0.00	140
636	0.95	0.41	0.57	130
637	0.62	0.23	0.34	126
638	0.75	0.08	0.15	143
639	0.67	0.31	0.42	121
640	0.16	0.04	0.07	117
641	0.36	0.12	0.19	112
642	0.46	0.14	0.21	137
643	0.96	0.61	0.74	141
644	0.71	0.37	0.49	127
645	0.28	0.06	0.10	128
646	0.10	0.01	0.01	124
647	0.11	0.03	0.05	138
648	0.13	0.03	0.04	119
649	0.00	0.00	0.00	137
650	0.33	0.01	0.02	121
651	0.07	0.02	0.03	108
652	0.72	0.41	0.52	122
653	0.61	0.26	0.36	139
654	0.40	0.02	0.03	112
655	0.53	0.14	0.22	125
656	0.64	0.19	0.29	124
657	0.30	0.08	0.12	117
658	0.50	0.20	0.28	116
659	0.37	0.08	0.14	130
660	0.15	0.02	0.03	121
661	0.75	0.35	0.48	124
662	0.48	0.12	0.19	121
663	0.84	0.63	0.72	126
664	0.00	0.00	0.00	118
665	0.18	0.06	0.09	113
666	0.00	0.00	0.00	128
667	0.53	0.12	0.20	139
668	0.29	0.04	0.07	131
669	0.26	0.05	0.08	127
670	0.47	0.07	0.12	125
671	0.33	0.02	0.03	111
672	0.55	0.37	0.44	127
673	0.72	0.48	0.57	130
674	0.19	0.02	0.04	130
675	0.60	0.20	0.30	126
676	0.15	0.02	0.03	104
677	0.53	0.14	0.22	127
678	0.57	0.15	0.24	130

679	0.26	0.10	0.14	112
680	0.43	0.09	0.15	131
681	0.00	0.00	0.00	140
682	0.53	0.35	0.42	114
683	0.78	0.12	0.22	112
684	0.35	0.06	0.10	115
685	0.66	0.15	0.24	128
686	0.57	0.10	0.17	122
687	0.25	0.03	0.05	109
688	0.29	0.02	0.03	108
689	0.00	0.00	0.00	125
690	0.50	0.01	0.02	117
691	0.36	0.09	0.15	127
692	0.80	0.35	0.49	129
693	0.42	0.16	0.23	118
694	0.72	0.37	0.49	151
695	0.67	0.29	0.41	112
696	0.81	0.22	0.34	119
697	0.19	0.05	0.07	109
698	0.58	0.33	0.42	122
699	0.96	0.49	0.65	102
700	0.29	0.07	0.11	102
701	0.46	0.26	0.33	107
702	0.25	0.03	0.05	105
703	0.25	0.01	0.02	113
704	0.62	0.27	0.37	98
705	0.21	0.05	0.08	100
706	0.72	0.33	0.45	131
707	0.45	0.21	0.29	112
708	0.44	0.03	0.06	119
709	0.28	0.07	0.11	105
710	0.18	0.03	0.04	117
711	0.39	0.14	0.21	115
712	0.41	0.10	0.16	129
713	0.68	0.27	0.38	101
714	0.57	0.10	0.17	122
715	0.00	0.00	0.00	97
716	0.38	0.16	0.23	116
717	0.43	0.08	0.14	110
718	0.38	0.04	0.08	113
719	0.75	0.49	0.59	110
720	0.78	0.05	0.10	130
721	0.00	0.00	0.00	104
722	0.89	0.66	0.75	119
723	0.00	0.00	0.00	108
724	0.43	0.22	0.29	112
725	0.32	0.05	0.08	126
726	0.93	0.67	0.78	120

727	0.30	0.05	0.09	130
728	0.67	0.02	0.04	103
729	0.70	0.17	0.28	111
730	0.33	0.03	0.05	110
731	0.00	0.00	0.00	96
732	0.55	0.05	0.10	112
733	0.39	0.08	0.13	90
734	0.28	0.11	0.15	95
735	0.80	0.39	0.52	116
736	0.40	0.02	0.03	128
737	0.25	0.09	0.13	93
738	0.89	0.15	0.26	107
739	0.58	0.29	0.39	99
740	0.40	0.04	0.07	105
741	0.46	0.05	0.09	116
742	0.68	0.43	0.53	105
743	0.40	0.19	0.26	84
744	0.44	0.14	0.21	102
745	0.69	0.23	0.34	111
746	0.36	0.10	0.15	104
747	0.44	0.14	0.21	110
748	0.58	0.21	0.30	92
749	0.87	0.57	0.69	106
750	0.00	0.00	0.00	116
751	0.28	0.09	0.14	109
752	0.85	0.54	0.66	104
753	1.00	0.01	0.02	119
754	0.27	0.06	0.10	96
755	0.17	0.04	0.06	104
756	0.00	0.00	0.00	101
757	0.50	0.19	0.28	114
758	0.00	0.00	0.00	112
759	0.67	0.04	0.08	95
760	0.00	0.00	0.00	102
761	0.31	0.11	0.17	105
762	0.57	0.25	0.35	109
763	0.09	0.01	0.02	112
764	0.94	0.40	0.56	116
765	0.60	0.31	0.41	109
766	0.00	0.00	0.00	96
767	0.50	0.09	0.15	114
768	0.00	0.00	0.00	99
769	0.65	0.15	0.25	98
770	0.48	0.21	0.30	107
771	0.00	0.00	0.00	103
772	0.00	0.00	0.00	96
773	0.00	0.00	0.00	106
774	0.76	0.33	0.46	97

775	0.27	0.03	0.06	91
776	0.00	0.00	0.00	101
777	0.76	0.38	0.50	109
778	0.00	0.00	0.00	104
779	0.33	0.08	0.13	116
780	0.00	0.00	0.00	102
781	0.85	0.26	0.40	106
782	0.64	0.15	0.24	108
783	0.80	0.08	0.15	95
784	0.91	0.36	0.52	108
785	0.94	0.43	0.59	113
786	0.40	0.06	0.10	109
787	0.78	0.41	0.54	112
788	0.00	0.00	0.00	104
789	0.43	0.17	0.25	92
790	0.44	0.06	0.11	116
791	0.29	0.04	0.07	96
792	0.58	0.15	0.24	118
793	0.64	0.27	0.38	106
794	0.26	0.06	0.10	93
795	0.80	0.31	0.45	103
796	0.39	0.12	0.18	104
797	0.57	0.09	0.16	89
798	0.55	0.06	0.11	97
799	0.00	0.00	0.00	92
800	0.55	0.14	0.22	85
801	1.00	0.04	0.08	93
802	0.79	0.28	0.41	93
803	0.36	0.13	0.19	102
804	0.65	0.12	0.20	108
805	0.87	0.37	0.52	111
806	0.61	0.14	0.23	98
807	0.20	0.03	0.06	94
808	0.15	0.02	0.04	84
809	0.84	0.32	0.46	100
810	0.22	0.02	0.04	92
811	0.37	0.11	0.17	88
812	0.39	0.13	0.20	104
813	0.50	0.04	0.08	90
814	0.38	0.07	0.12	109
815	0.23	0.04	0.06	81
816	0.70	0.22	0.33	96
817	0.98	0.53	0.69	88
818	0.56	0.24	0.33	101
819	0.94	0.45	0.61	103
820	0.00	0.00	0.00	94
821	0.72	0.17	0.27	108
822	0.29	0.06	0.09	90

823	0.81	0.44	0.57	97
824	0.50	0.02	0.04	90
825	0.52	0.23	0.32	102
826	0.12	0.01	0.02	85
827	0.20	0.02	0.03	109
828	0.30	0.03	0.05	103
829	0.98	0.40	0.56	106
830	0.88	0.26	0.40	108
831	0.50	0.04	0.07	84
832	0.00	0.00	0.00	98
833	0.77	0.26	0.39	92
834	0.50	0.10	0.17	91
835	0.87	0.28	0.43	92
836	0.28	0.07	0.11	104
837	0.63	0.24	0.34	102
838	0.22	0.07	0.11	111
839	0.00	0.00	0.00	96
840	0.41	0.15	0.22	86
841	0.34	0.10	0.16	105
842	0.20	0.01	0.02	92
843	0.39	0.16	0.23	86
844	0.00	0.00	0.00	108
845	0.45	0.06	0.11	82
846	0.22	0.04	0.07	101
847	0.97	0.60	0.74	94
848	1.00	0.41	0.58	101
849	0.39	0.14	0.20	88
850	0.88	0.36	0.51	81
851	0.79	0.10	0.18	109
852	0.45	0.13	0.20	101
853	0.25	0.03	0.06	91
854	0.29	0.06	0.10	95
855	0.20	0.01	0.02	99
856	0.14	0.01	0.02	79
857	0.67	0.32	0.43	91
858	0.00	0.00	0.00	89
859	0.42	0.09	0.15	91
860	0.49	0.19	0.28	88
861	0.32	0.07	0.11	101
862	0.51	0.30	0.37	81
863	0.69	0.20	0.31	101
864	0.28	0.11	0.16	80
865	0.00	0.00	0.00	97
866	0.88	0.46	0.60	94
867	0.00	0.00	0.00	97
868	0.29	0.07	0.11	91
869	0.35	0.09	0.14	88
870	0.53	0.25	0.34	112

871	0.93	0.57	0.71	94
872	0.00	0.00	0.00	84
873	0.89	0.53	0.66	74
874	0.91	0.53	0.67	80
875	0.46	0.23	0.31	79
876	0.56	0.07	0.12	71
877	0.77	0.26	0.39	92
878	1.00	0.08	0.15	99
879	0.56	0.14	0.23	98
880	0.37	0.18	0.24	82
881	0.70	0.35	0.47	80
882	0.91	0.55	0.69	94
883	0.07	0.01	0.02	102
884	0.88	0.22	0.35	95
885	0.91	0.57	0.70	87
886	0.20	0.01	0.02	88
887	0.41	0.08	0.13	90
888	0.84	0.46	0.60	104
889	0.20	0.01	0.02	93
890	0.14	0.02	0.04	83
891	0.00	0.00	0.00	92
892	0.58	0.17	0.26	88
893	0.00	0.00	0.00	74
894	1.00	0.40	0.57	98
895	0.47	0.22	0.30	73
896	0.00	0.00	0.00	87
897	0.29	0.03	0.05	73
898	0.58	0.22	0.32	86
899	0.24	0.08	0.12	100
900	0.43	0.14	0.21	93
901	0.82	0.36	0.50	86
902	0.38	0.07	0.12	107
903	0.43	0.03	0.06	97
904	0.52	0.17	0.26	88
905	0.00	0.00	0.00	94
906	0.14	0.02	0.04	83
907	0.00	0.00	0.00	85
908	0.00	0.00	0.00	90
909	0.14	0.01	0.02	83
910	0.60	0.07	0.13	83
911	0.19	0.03	0.06	87
912	0.94	0.38	0.54	87
913	0.56	0.10	0.18	86
914	0.52	0.16	0.25	91
915	0.25	0.02	0.04	87
916	0.00	0.00	0.00	92
917	0.00	0.00	0.00	92
918	0.81	0.37	0.51	78

919	0.44	0.10	0.16	81
920	0.00	0.00	0.00	87
921	0.00	0.00	0.00	95
922	0.85	0.27	0.41	82
923	0.33	0.02	0.04	89
924	0.00	0.00	0.00	73
925	0.41	0.09	0.14	82
926	0.43	0.03	0.06	91
927	0.38	0.10	0.15	83
928	0.33	0.03	0.05	79
929	0.55	0.07	0.12	89
930	0.29	0.07	0.11	85
931	0.00	0.00	0.00	95
932	0.25	0.01	0.02	80
933	0.50	0.07	0.12	72
934	0.64	0.29	0.40	79
935	0.52	0.15	0.23	75
936	0.70	0.22	0.34	85
937	0.47	0.09	0.16	75
938	0.23	0.09	0.13	69
939	0.00	0.00	0.00	85
940	0.11	0.01	0.02	72
941	0.00	0.00	0.00	69
942	0.44	0.09	0.14	94
943	0.00	0.00	0.00	85
944	0.94	0.36	0.52	89
945	0.19	0.04	0.06	77
946	0.78	0.15	0.25	93
947	0.00	0.00	0.00	81
948	0.95	0.50	0.66	78
949	0.00	0.00	0.00	75
950	0.00	0.00	0.00	80
951	0.12	0.01	0.02	88
952	0.29	0.03	0.05	80
953	1.00	0.71	0.83	85
954	0.83	0.55	0.66	71
955	0.00	0.00	0.00	80
956	0.81	0.37	0.51	68
957	0.87	0.52	0.65	75
958	0.43	0.13	0.20	90
959	0.81	0.15	0.25	87
960	0.89	0.38	0.53	87
961	0.74	0.29	0.42	68
962	0.65	0.26	0.37	86
963	0.57	0.19	0.28	85
964	0.43	0.15	0.23	78
965	0.76	0.44	0.56	88
966	0.93	0.46	0.61	85

967	0.52	0.23	0.32	70
968	0.33	0.04	0.07	82
969	0.88	0.47	0.61	92
970	0.31	0.05	0.09	73
971	0.00	0.00	0.00	77
972	0.46	0.16	0.24	82
973	0.80	0.10	0.18	80
974	0.12	0.01	0.02	83
975	0.98	0.58	0.73	76
976	0.00	0.00	0.00	85
977	0.00	0.00	0.00	65
978	0.57	0.11	0.19	72
979	0.33	0.02	0.04	85
980	0.23	0.05	0.08	64
981	0.25	0.03	0.05	76
982	0.58	0.07	0.13	96
983	0.94	0.31	0.46	94
984	0.29	0.02	0.04	87
985	0.33	0.01	0.03	75
986	0.00	0.00	0.00	79
987	0.00	0.00	0.00	86
988	0.50	0.01	0.02	88
989	0.00	0.00	0.00	84
990	0.52	0.14	0.22	95
991	0.37	0.15	0.22	71
992	0.57	0.38	0.46	68
993	0.00	0.00	0.00	75
994	0.00	0.00	0.00	90
995	0.95	0.43	0.60	83
996	0.89	0.43	0.58	79
997	0.71	0.08	0.14	64
998	0.27	0.04	0.07	74
999	0.81	0.36	0.50	81
1000	0.00	0.00	0.00	74
1001	0.14	0.02	0.03	62
1002	0.67	0.25	0.37	71
1003	0.00	0.00	0.00	72
1004	0.50	0.08	0.14	75
1005	0.93	0.53	0.67	72
1006	0.52	0.15	0.23	81
1007	0.00	0.00	0.00	74
1008	0.17	0.01	0.03	72
1009	0.00	0.00	0.00	75
1010	0.47	0.16	0.24	91
1011	0.59	0.18	0.27	90
1012	0.62	0.25	0.36	80
1013	0.00	0.00	0.00	88
1014	0.80	0.06	0.11	71

1015	0.57	0.11	0.18	74
1016	0.88	0.22	0.35	68
1017	0.70	0.39	0.50	71
1018	0.65	0.21	0.32	80
1019	0.00	0.00	0.00	83
1020	0.46	0.08	0.14	74
1021	0.93	0.49	0.64	78
1022	0.86	0.32	0.47	77
1023	0.12	0.01	0.02	78
1024	0.68	0.31	0.43	67
1025	0.50	0.01	0.02	80
1026	0.69	0.23	0.35	77
1027	0.80	0.32	0.46	88
1028	0.24	0.06	0.09	70
1029	0.00	0.00	0.00	79
1030	0.33	0.07	0.12	67
1031	0.88	0.47	0.61	75
1032	0.56	0.28	0.38	64
1033	0.88	0.21	0.34	70
1034	0.17	0.06	0.09	69
1035	0.44	0.10	0.16	72
1036	0.30	0.04	0.07	79
1037	0.24	0.05	0.08	84
1038	0.00	0.00	0.00	87
1039	0.68	0.35	0.46	65
1040	0.72	0.36	0.48	73
1041	0.00	0.00	0.00	77
1042	0.27	0.05	0.09	77
1043	0.16	0.07	0.09	60
1044	0.00	0.00	0.00	73
1045	0.00	0.00	0.00	67
1046	0.43	0.04	0.07	83
1047	1.00	0.40	0.57	70
1048	1.00	0.02	0.03	65
1049	0.62	0.14	0.22	74
1050	0.50	0.02	0.03	62
1051	0.58	0.16	0.25	70
1052	0.00	0.00	0.00	69
1053	0.25	0.08	0.12	72
1054	0.44	0.15	0.23	72
1055	0.90	0.52	0.66	73
1056	0.74	0.34	0.46	92
1057	0.67	0.05	0.10	73
1058	0.31	0.12	0.17	68
1059	0.00	0.00	0.00	71
1060	0.33	0.10	0.16	69
1061	0.85	0.24	0.37	72
1062	0.44	0.29	0.35	66

1063	0.14	0.01	0.02	84
1064	0.00	0.00	0.00	78
1065	0.81	0.45	0.58	66
1066	0.21	0.04	0.07	69
1067	0.11	0.01	0.02	80
1068	1.00	0.01	0.03	71
1069	0.52	0.18	0.27	60
1070	0.20	0.01	0.02	77
1071	0.88	0.29	0.43	80
1072	0.25	0.06	0.10	80
1073	0.00	0.00	0.00	74
1074	0.21	0.04	0.07	69
1075	0.44	0.07	0.12	56
1076	0.32	0.13	0.18	63
1077	0.58	0.19	0.29	58
1078	0.00	0.00	0.00	63
1079	0.83	0.24	0.37	85
1080	0.52	0.15	0.24	78
1081	0.00	0.00	0.00	84
1082	0.74	0.42	0.54	73
1083	0.09	0.02	0.03	55
1084	0.51	0.26	0.34	70
1085	0.69	0.26	0.38	85
1086	0.00	0.00	0.00	68
1087	0.40	0.02	0.05	82
1088	0.00	0.00	0.00	67
1089	0.81	0.44	0.57	78
1090	0.70	0.11	0.19	64
1091	0.35	0.09	0.15	75
1092	0.38	0.16	0.23	61
1093	0.65	0.17	0.28	63
1094	0.00	0.00	0.00	77
1095	0.36	0.13	0.19	70
1096	0.86	0.34	0.48	71
1097	0.44	0.12	0.18	69
1098	0.58	0.22	0.32	63
1099	0.80	0.49	0.61	67
1100	0.57	0.06	0.11	68
1101	0.00	0.00	0.00	57
1102	0.90	0.54	0.67	69
1103	0.14	0.01	0.03	70
1104	0.40	0.05	0.09	75
1105	0.21	0.05	0.08	62
1106	0.25	0.01	0.03	72
1107	0.00	0.00	0.00	76
1108	0.00	0.00	0.00	72
1109	0.00	0.00	0.00	86
1110	0.85	0.43	0.57	82

1111	0.00	0.00	0.00	70
1112	0.50	0.01	0.03	72
1113	0.65	0.24	0.35	70
1114	0.20	0.02	0.03	57
1115	0.25	0.04	0.07	68
1116	0.00	0.00	0.00	64
1117	0.29	0.03	0.05	66
1118	0.50	0.11	0.18	81
1119	0.68	0.24	0.35	63
1120	0.15	0.06	0.09	62
1121	0.00	0.00	0.00	79
1122	0.80	0.21	0.34	56
1123	0.24	0.06	0.09	71
1124	0.00	0.00	0.00	78
1125	0.80	0.06	0.11	66
1126	0.00	0.00	0.00	62
1127	0.75	0.18	0.29	66
1128	0.00	0.00	0.00	70
1129	0.94	0.46	0.62	65
1130	0.85	0.37	0.51	63
1131	0.89	0.52	0.66	79
1132	0.38	0.07	0.12	67
1133	0.00	0.00	0.00	64
1134	0.20	0.03	0.05	67
1135	0.73	0.21	0.32	78
1136	0.44	0.07	0.13	54
1137	0.00	0.00	0.00	64
1138	0.39	0.09	0.15	76
1139	0.00	0.00	0.00	64
1140	0.00	0.00	0.00	67
1141	0.06	0.01	0.02	70
1142	0.44	0.06	0.11	66
1143	0.74	0.40	0.52	62
1144	0.00	0.00	0.00	67
1145	0.43	0.06	0.11	47
1146	0.35	0.09	0.14	69
1147	0.71	0.40	0.51	63
1148	0.37	0.10	0.16	70
1149	0.41	0.13	0.19	55
1150	0.57	0.33	0.42	49
1151	0.57	0.07	0.12	58
1152	0.00	0.00	0.00	65
1153	0.00	0.00	0.00	67
1154	0.00	0.00	0.00	66
1155	0.94	0.52	0.67	62
1156	0.62	0.07	0.12	72
1157	0.90	0.42	0.57	62
1158	0.00	0.00	0.00	60

1159	0.43	0.16	0.23	64
1160	0.30	0.05	0.09	59
1161	0.10	0.02	0.03	55
1162	0.51	0.29	0.37	63
1163	0.77	0.36	0.49	64
1164	0.00	0.00	0.00	54
1165	0.32	0.10	0.15	62
1166	0.00	0.00	0.00	73
1167	0.46	0.21	0.29	56
1168	0.33	0.03	0.06	60
1169	0.35	0.11	0.17	63
1170	0.80	0.05	0.10	73
1171	0.60	0.31	0.41	58
1172	0.29	0.03	0.06	59
1173	0.23	0.04	0.07	68
1174	0.45	0.14	0.22	63
1175	0.98	0.60	0.74	70
1176	0.87	0.42	0.57	62
1177	0.00	0.00	0.00	62
1178	0.00	0.00	0.00	45
1179	0.97	0.37	0.53	79
1180	0.70	0.12	0.21	58
1181	0.88	0.30	0.44	71
1182	0.12	0.02	0.03	56
1183	0.00	0.00	0.00	63
1184	0.00	0.00	0.00	72
1185	0.33	0.04	0.06	56
1186	0.82	0.19	0.30	75
1187	0.17	0.02	0.03	57
1188	0.45	0.08	0.14	60
1189	0.25	0.02	0.03	65
1190	0.50	0.01	0.03	68
1191	0.59	0.16	0.25	62
1192	0.00	0.00	0.00	68
1193	0.00	0.00	0.00	66
1194	0.40	0.04	0.06	57
1195	0.11	0.01	0.03	67
1196	0.88	0.10	0.18	69
1197	0.36	0.06	0.10	66
1198	0.40	0.03	0.06	62
1199	0.33	0.08	0.14	59
1200	0.92	0.21	0.34	57
1201	1.00	0.31	0.47	62
1202	0.87	0.47	0.61	58
1203	0.00	0.00	0.00	67
1204	0.63	0.35	0.45	74
1205	0.50	0.02	0.04	55
1206	0.55	0.09	0.16	65

1207	0.47	0.11	0.17	75
1208	0.63	0.20	0.30	61
1209	0.69	0.39	0.49	62
1210	0.14	0.02	0.03	59
1211	0.50	0.19	0.28	47
1212	0.00	0.00	0.00	59
1213	0.95	0.36	0.52	59
1214	1.00	0.03	0.05	74
1215	0.25	0.02	0.03	65
1216	0.00	0.00	0.00	60
1217	0.53	0.19	0.27	54
1218	0.00	0.00	0.00	62
1219	0.93	0.68	0.79	78
1220	0.85	0.57	0.68	72
1221	0.75	0.35	0.48	60
1222	0.43	0.14	0.21	63
1223	0.00	0.00	0.00	66
1224	0.56	0.14	0.23	69
1225	0.00	0.00	0.00	69
1226	0.80	0.18	0.29	68
1227	0.53	0.17	0.26	58
1228	0.00	0.00	0.00	51
1229	0.00	0.00	0.00	59
1230	0.00	0.00	0.00	75
1231	0.50	0.11	0.18	64
1232	0.00	0.00	0.00	66
1233	0.29	0.03	0.06	58
1234	0.00	0.00	0.00	63
1235	0.06	0.02	0.03	62
1236	0.00	0.00	0.00	57
1237	1.00	0.01	0.03	77
1238	0.81	0.40	0.54	52
1239	0.86	0.30	0.45	63
1240	0.90	0.40	0.55	48
1241	0.00	0.00	0.00	71
1242	0.79	0.18	0.29	62
1243	0.43	0.10	0.16	61
1244	0.00	0.00	0.00	53
1245	0.09	0.01	0.02	75
1246	0.38	0.05	0.10	55
1247	0.50	0.02	0.04	55
1248	0.00	0.00	0.00	49
1249	0.33	0.05	0.09	74
1250	0.97	0.47	0.64	59
1251	0.38	0.14	0.21	56
1252	0.33	0.10	0.15	63
1253	0.59	0.21	0.31	48
1254	0.95	0.60	0.73	62

1255	0.00	0.00	0.00	69
1256	0.30	0.05	0.08	65
1257	0.00	0.00	0.00	62
1258	0.39	0.14	0.20	51
1259	0.62	0.12	0.21	64
1260	0.00	0.00	0.00	64
1261	0.00	0.00	0.00	63
1262	0.93	0.22	0.36	58
1263	0.36	0.07	0.12	54
1264	0.00	0.00	0.00	62
1265	0.00	0.00	0.00	59
1266	0.90	0.46	0.60	57
1267	0.14	0.02	0.03	51
1268	0.25	0.04	0.07	46
1269	0.97	0.53	0.68	55
1270	0.88	0.10	0.18	69
1271	0.60	0.14	0.22	65
1272	0.38	0.08	0.14	60
1273	0.35	0.10	0.16	59
1274	0.25	0.05	0.08	62
1275	0.00	0.00	0.00	52
1276	0.40	0.07	0.12	57
1277	0.29	0.03	0.06	61
1278	0.70	0.11	0.19	62
1279	0.93	0.57	0.71	47
1280	0.25	0.03	0.06	63
1281	0.58	0.11	0.19	61
1282	0.60	0.18	0.28	50
1283	0.27	0.08	0.12	52
1284	0.68	0.23	0.35	56
1285	0.67	0.04	0.07	57
1286	0.71	0.10	0.18	49
1287	0.57	0.14	0.23	56
1288	0.57	0.27	0.36	49
1289	0.00	0.00	0.00	55
1290	0.00	0.00	0.00	68
1291	0.90	0.50	0.64	52
1292	0.29	0.03	0.05	73
1293	0.88	0.43	0.58	67
1294	0.00	0.00	0.00	54
1295	0.25	0.06	0.10	34
1296	1.00	0.34	0.51	56
1297	0.00	0.00	0.00	66
1298	1.00	0.03	0.06	68
1299	0.57	0.06	0.11	64
1300	0.91	0.50	0.65	64
1301	0.00	0.00	0.00	48
1302	0.00	0.00	0.00	63

1303	0.00	0.00	0.00	62
1304	0.50	0.02	0.04	54
1305	0.23	0.10	0.14	51
1306	0.22	0.07	0.11	55
1307	0.00	0.00	0.00	53
1308	0.61	0.31	0.41	54
1309	0.67	0.16	0.26	61
1310	0.00	0.00	0.00	42
1311	0.25	0.02	0.03	55
1312	0.00	0.00	0.00	64
1313	0.00	0.00	0.00	58
1314	0.90	0.36	0.51	50
1315	0.00	0.00	0.00	57
1316	0.59	0.22	0.32	46
1317	1.00	0.05	0.09	42
1318	0.50	0.22	0.30	74
1319	0.00	0.00	0.00	55
1320	0.00	0.00	0.00	59
1321	1.00	0.02	0.04	56
1322	0.00	0.00	0.00	61
1323	0.00	0.00	0.00	43
1324	0.47	0.18	0.26	45
1325	0.62	0.09	0.16	56
1326	0.72	0.35	0.47	52
1327	0.52	0.20	0.29	56
1328	0.00	0.00	0.00	56
1329	0.56	0.10	0.17	51
1330	0.00	0.00	0.00	54
1331	0.50	0.12	0.19	51
1332	0.00	0.00	0.00	48
1333	0.00	0.00	0.00	51
1334	0.00	0.00	0.00	38
1335	0.91	0.42	0.58	50
1336	0.00	0.00	0.00	48
1337	0.38	0.10	0.15	52
1338	0.58	0.21	0.31	52
1339	0.25	0.04	0.06	56
1340	0.50	0.04	0.07	52
1341	1.00	0.02	0.03	58
1342	0.00	0.00	0.00	56
1343	0.33	0.03	0.06	62
1344	0.93	0.32	0.47	44
1345	0.38	0.06	0.10	53
1346	0.20	0.02	0.03	53
1347	0.00	0.00	0.00	52
1348	0.50	0.10	0.17	58
1349	0.64	0.36	0.46	50
1350	0.00	0.00	0.00	62

1351	0.96	0.39	0.55	59
1352	0.00	0.00	0.00	57
1353	0.63	0.24	0.35	50
1354	0.67	0.11	0.19	55
1355	0.00	0.00	0.00	55
1356	0.17	0.02	0.03	56
1357	0.16	0.08	0.11	38
1358	0.20	0.04	0.06	53
1359	1.00	0.23	0.37	44
1360	1.00	0.23	0.38	56
1361	0.25	0.04	0.06	56
1362	1.00	0.33	0.49	46
1363	0.73	0.22	0.34	49
1364	0.00	0.00	0.00	66
1365	0.33	0.05	0.09	60
1366	0.86	0.11	0.19	56
1367	0.00	0.00	0.00	63
1368	0.53	0.15	0.23	67
1369	1.00	0.44	0.61	59
1370	0.94	0.33	0.48	49
1371	0.76	0.25	0.38	51
1372	0.20	0.02	0.04	50
1373	0.93	0.40	0.56	63
1374	0.20	0.02	0.03	55
1375	0.00	0.00	0.00	60
1376	0.52	0.18	0.27	60
1377	0.00	0.00	0.00	42
1378	0.94	0.30	0.45	54
1379	0.00	0.00	0.00	50
1380	0.00	0.00	0.00	45
1381	0.60	0.06	0.12	47
1382	0.11	0.02	0.03	54
1383	0.33	0.04	0.08	45
1384	0.00	0.00	0.00	52
1385	0.73	0.23	0.35	48
1386	0.60	0.06	0.11	50
1387	0.17	0.02	0.04	47
1388	0.75	0.16	0.26	57
1389	0.00	0.00	0.00	49
1390	0.55	0.27	0.36	44
1391	0.00	0.00	0.00	58
1392	0.77	0.19	0.30	54
1393	0.38	0.12	0.18	51
1394	0.50	0.02	0.04	51
1395	0.83	0.21	0.33	48
1396	0.67	0.13	0.22	61
1397	1.00	0.02	0.03	61
1398	0.62	0.15	0.24	55

1399	0.74	0.25	0.37	57
1400	0.50	0.06	0.11	49
1401	0.50	0.04	0.07	56
1402	0.54	0.13	0.22	52
1403	0.75	0.12	0.21	49
1404	0.92	0.80	0.86	41
1405	0.75	0.32	0.44	57
1406	0.33	0.02	0.04	54
1407	0.70	0.55	0.62	47
1408	0.38	0.07	0.12	41
1409	1.00	0.39	0.56	49
1410	1.00	0.44	0.61	48
1411	0.17	0.02	0.03	55
1412	0.73	0.13	0.23	60
1413	1.00	0.01	0.03	67
1414	0.00	0.00	0.00	50
1415	0.00	0.00	0.00	53
1416	0.40	0.10	0.16	59
1417	0.53	0.14	0.22	66
1418	0.67	0.04	0.08	50
1419	0.80	0.11	0.20	36
1420	0.30	0.06	0.11	47
1421	0.00	0.00	0.00	46
1422	0.38	0.10	0.16	51
1423	0.82	0.18	0.30	49
1424	0.50	0.07	0.12	56
1425	0.00	0.00	0.00	51
1426	0.67	0.04	0.07	53
1427	0.30	0.06	0.11	47
1428	0.00	0.00	0.00	39
1429	0.97	0.56	0.71	50
1430	0.86	0.20	0.33	59
1431	0.00	0.00	0.00	67
1432	0.00	0.00	0.00	53
1433	0.38	0.08	0.14	72
1434	0.62	0.10	0.17	51
1435	0.54	0.12	0.20	56
1436	0.67	0.11	0.18	56
1437	0.57	0.16	0.25	51
1438	0.00	0.00	0.00	46
1439	0.67	0.04	0.07	52
1440	0.00	0.00	0.00	41
1441	1.00	0.04	0.08	47
1442	1.00	0.02	0.04	45
1443	0.10	0.02	0.03	54
1444	0.15	0.04	0.06	52
1445	0.00	0.00	0.00	52
1446	0.61	0.25	0.35	44

1447	1.00	0.17	0.29	47
1448	0.00	0.00	0.00	48
1449	0.33	0.02	0.03	56
1450	0.00	0.00	0.00	54
1451	0.12	0.02	0.03	65
1452	0.50	0.07	0.13	55
1453	0.29	0.07	0.11	61
1454	0.00	0.00	0.00	62
1455	0.65	0.22	0.33	49
1456	0.20	0.02	0.03	53
1457	0.62	0.31	0.41	42
1458	0.75	0.05	0.10	59
1459	0.00	0.00	0.00	49
1460	0.71	0.10	0.18	50
1461	0.00	0.00	0.00	45
1462	0.42	0.11	0.17	47
1463	0.71	0.33	0.45	45
1464	1.00	0.04	0.08	50
1465	0.33	0.05	0.08	62
1466	0.00	0.00	0.00	51
1467	0.33	0.02	0.03	62
1468	0.93	0.48	0.63	54
1469	0.50	0.11	0.17	38
1470	0.81	0.26	0.40	65
1471	1.00	0.29	0.45	52
1472	0.50	0.09	0.15	44
1473	0.17	0.04	0.06	50
1474	0.00	0.00	0.00	56
1475	0.00	0.00	0.00	58
1476	0.12	0.02	0.03	58
1477	0.00	0.00	0.00	39
1478	0.96	0.48	0.64	50
1479	0.00	0.00	0.00	49
1480	0.00	0.00	0.00	41
1481	0.83	0.33	0.47	57
1482	0.00	0.00	0.00	49
1483	0.00	0.00	0.00	49
1484	1.00	0.10	0.18	59
1485	0.93	0.28	0.43	47
1486	0.50	0.02	0.04	53
1487	0.00	0.00	0.00	42
1488	0.00	0.00	0.00	47
1489	0.33	0.02	0.04	52
1490	0.72	0.30	0.42	44
1491	0.00	0.00	0.00	47
1492	0.81	0.25	0.39	51
1493	0.00	0.00	0.00	39
1494	0.00	0.00	0.00	38

1495	0.40	0.12	0.19	49
1496	0.62	0.16	0.26	49
1497	0.00	0.00	0.00	51
1498	1.00	0.04	0.07	52
1499	0.50	0.06	0.11	48
1500	0.00	0.00	0.00	51
1501	0.25	0.02	0.03	56
1502	0.00	0.00	0.00	48
1503	0.82	0.48	0.61	58
1504	0.50	0.02	0.04	44
1505	0.00	0.00	0.00	45
1506	0.20	0.02	0.04	44
1507	0.00	0.00	0.00	55
1508	0.33	0.04	0.08	45
1509	0.62	0.17	0.27	46
1510	0.00	0.00	0.00	46
1511	0.00	0.00	0.00	43
1512	0.89	0.19	0.31	42
1513	0.00	0.00	0.00	44
1514	0.58	0.33	0.42	45
1515	1.00	0.48	0.65	42
1516	1.00	0.36	0.53	42
1517	0.22	0.10	0.14	49
1518	1.00	0.18	0.30	51
1519	0.50	0.02	0.04	47
1520	0.00	0.00	0.00	48
1521	0.00	0.00	0.00	54
1522	0.22	0.05	0.09	38
1523	0.00	0.00	0.00	44
1524	0.67	0.04	0.07	55
1525	0.00	0.00	0.00	47
1526	0.00	0.00	0.00	55
1527	0.00	0.00	0.00	48
1528	0.67	0.04	0.07	54
1529	0.67	0.06	0.12	63
1530	0.77	0.25	0.38	40
1531	0.00	0.00	0.00	40
1532	0.22	0.04	0.07	48
1533	0.00	0.00	0.00	49
1534	0.00	0.00	0.00	45
1535	1.00	0.19	0.32	42
1536	1.00	0.06	0.11	54
1537	0.64	0.12	0.21	56
1538	0.50	0.03	0.05	38
1539	0.00	0.00	0.00	47
1540	0.44	0.10	0.16	40
1541	0.82	0.20	0.32	46
1542	1.00	0.15	0.26	46

1543	0.25	0.02	0.04	42
1544	0.70	0.33	0.45	48
1545	1.00	0.02	0.05	41
1546	0.00	0.00	0.00	35
1547	0.00	0.00	0.00	45
1548	0.20	0.04	0.06	55
1549	0.88	0.30	0.44	47
1550	1.00	0.12	0.22	48
1551	0.84	0.68	0.75	40
1552	0.67	0.04	0.07	51
1553	0.75	0.07	0.12	44
1554	0.91	0.20	0.32	51
1555	0.00	0.00	0.00	59
1556	0.50	0.18	0.27	60
1557	1.00	0.07	0.12	46
1558	0.67	0.05	0.09	43
1559	0.00	0.00	0.00	52
1560	0.67	0.09	0.16	44
1561	0.95	0.50	0.66	38
1562	0.40	0.10	0.15	42
1563	0.30	0.06	0.10	49
1564	1.00	0.15	0.25	48
1565	1.00	0.38	0.56	52
1566	0.97	0.63	0.76	46
1567	0.00	0.00	0.00	46
1568	0.81	0.44	0.57	39
1569	0.57	0.09	0.15	47
1570	0.60	0.12	0.21	48
1571	0.00	0.00	0.00	47
1572	0.00	0.00	0.00	52
1573	0.00	0.00	0.00	31
1574	0.95	0.38	0.55	55
1575	0.14	0.02	0.04	49
1576	1.00	0.43	0.61	46
1577	0.25	0.02	0.03	55
1578	0.00	0.00	0.00	42
1579	0.89	0.20	0.32	41
1580	0.00	0.00	0.00	47
1581	0.40	0.08	0.13	50
1582	0.00	0.00	0.00	47
1583	0.50	0.11	0.18	54
1584	0.50	0.04	0.08	49
1585	0.25	0.06	0.09	35
1586	0.00	0.00	0.00	43
1587	0.64	0.13	0.22	53
1588	0.00	0.00	0.00	49
1589	0.00	0.00	0.00	44
1590	0.50	0.05	0.09	39

1591	0.00	0.00	0.00	36
1592	0.00	0.00	0.00	46
1593	0.75	0.22	0.34	55
1594	0.91	0.21	0.34	47
1595	1.00	0.22	0.35	51
1596	0.00	0.00	0.00	42
1597	0.00	0.00	0.00	50
1598	0.53	0.20	0.29	40
1599	0.00	0.00	0.00	38
1600	0.00	0.00	0.00	47
1601	0.88	0.38	0.53	37
1602	0.25	0.02	0.03	62
1603	0.00	0.00	0.00	43
1604	0.00	0.00	0.00	66
1605	0.33	0.03	0.06	33
1606	0.00	0.00	0.00	35
1607	1.00	0.29	0.44	42
1608	0.96	0.57	0.71	44
1609	0.67	0.05	0.09	40
1610	0.91	0.46	0.61	46
1611	0.33	0.04	0.07	55
1612	0.88	0.35	0.50	43
1613	0.00	0.00	0.00	51
1614	0.69	0.24	0.35	38
1615	0.00	0.00	0.00	47
1616	0.45	0.10	0.16	51
1617	0.00	0.00	0.00	52
1618	0.25	0.02	0.04	43
1619	1.00	0.03	0.05	37
1620	0.00	0.00	0.00	50
1621	0.00	0.00	0.00	44
1622	0.56	0.12	0.20	41
1623	0.50	0.13	0.21	46
1624	1.00	0.05	0.09	42
1625	0.94	0.33	0.49	48
1626	0.20	0.02	0.04	51
1627	0.00	0.00	0.00	37
1628	0.20	0.04	0.07	48
1629	0.00	0.00	0.00	43
1630	0.00	0.00	0.00	50
1631	0.00	0.00	0.00	41
1632	0.29	0.04	0.08	45
1633	0.90	0.40	0.55	45
1634	0.43	0.11	0.17	56
1635	0.71	0.27	0.39	44
1636	1.00	0.33	0.50	39
1637	0.74	0.27	0.40	51
1638	0.00	0.00	0.00	31

1639	0.00	0.00	0.00	53
1640	1.00	0.19	0.31	59
1641	0.20	0.03	0.05	35
1642	0.38	0.10	0.15	52
1643	0.00	0.00	0.00	32
1644	0.00	0.00	0.00	45
1645	0.00	0.00	0.00	50
1646	0.36	0.08	0.13	52
1647	0.53	0.26	0.34	39
1648	0.25	0.02	0.03	56
1649	0.75	0.32	0.45	37
1650	0.30	0.07	0.12	42
1651	0.62	0.09	0.16	55
1652	0.89	0.47	0.62	34
1653	0.83	0.12	0.22	40
1654	0.00	0.00	0.00	45
1655	0.00	0.00	0.00	56
1656	0.00	0.00	0.00	50
1657	0.00	0.00	0.00	46
1658	0.84	0.37	0.52	43
1659	0.88	0.45	0.59	49
1660	0.80	0.23	0.36	52
1661	1.00	0.02	0.04	54
1662	0.00	0.00	0.00	43
1663	0.00	0.00	0.00	59
1664	0.00	0.00	0.00	45
1665	0.00	0.00	0.00	51
1666	0.00	0.00	0.00	47
1667	0.17	0.02	0.04	50
1668	0.86	0.30	0.44	40
1669	0.25	0.03	0.05	38
1670	1.00	0.14	0.24	37
1671	0.50	0.02	0.04	51
1672	0.86	0.51	0.64	47
1673	0.86	0.12	0.21	49
1674	0.25	0.02	0.04	45
1675	0.00	0.00	0.00	46
1676	0.00	0.00	0.00	45
1677	0.38	0.07	0.11	45
1678	0.00	0.00	0.00	43
1679	1.00	0.02	0.04	52
1680	0.60	0.07	0.13	41
1681	0.00	0.00	0.00	41
1682	0.00	0.00	0.00	35
1683	0.67	0.05	0.09	41
1684	0.50	0.11	0.19	35
1685	1.00	0.02	0.04	53
1686	0.00	0.00	0.00	43

1687	0.00	0.00	0.00	39
1688	0.00	0.00	0.00	38
1689	0.50	0.18	0.26	51
1690	0.50	0.06	0.11	47
1691	0.00	0.00	0.00	30
1692	0.64	0.23	0.34	30
1693	0.00	0.00	0.00	47
1694	0.00	0.00	0.00	51
1695	0.00	0.00	0.00	43
1696	0.86	0.30	0.44	40
1697	0.00	0.00	0.00	33
1698	0.00	0.00	0.00	45
1699	0.00	0.00	0.00	42
1700	1.00	0.42	0.59	45
1701	0.83	0.38	0.53	39
1702	0.00	0.00	0.00	56
1703	1.00	0.36	0.53	44
1704	0.83	0.34	0.48	44
1705	1.00	0.40	0.57	40
1706	1.00	0.23	0.37	35
1707	0.00	0.00	0.00	32
1708	1.00	0.27	0.42	45
1709	0.00	0.00	0.00	37
1710	0.00	0.00	0.00	47
1711	0.25	0.07	0.11	30
1712	0.00	0.00	0.00	38
1713	0.00	0.00	0.00	39
1714	0.73	0.31	0.43	36
1715	0.00	0.00	0.00	38
1716	0.20	0.02	0.03	55
1717	0.60	0.07	0.13	42
1718	0.55	0.24	0.33	46
1719	0.54	0.14	0.22	51
1720	0.27	0.11	0.16	35
1721	0.85	0.47	0.61	36
1722	0.89	0.42	0.57	38
1723	0.92	0.30	0.45	40
1724	0.67	0.04	0.07	53
1725	0.00	0.00	0.00	27
1726	0.20	0.02	0.04	48
1727	0.83	0.50	0.62	38
1728	0.18	0.05	0.08	38
1729	0.86	0.11	0.19	57
1730	0.85	0.47	0.60	47
1731	0.00	0.00	0.00	48
1732	0.00	0.00	0.00	41
1733	0.15	0.06	0.09	33
1734	0.33	0.05	0.09	37

1735	0.50	0.04	0.08	45
1736	0.95	0.41	0.57	44
1737	0.80	0.26	0.39	47
1738	1.00	0.38	0.55	48
1739	0.25	0.02	0.04	48
1740	0.00	0.00	0.00	51
1741	0.91	0.24	0.38	42
1742	0.93	0.29	0.44	45
1743	1.00	0.14	0.24	43
1744	0.00	0.00	0.00	50
1745	1.00	0.25	0.40	40
1746	0.67	0.16	0.26	49
1747	0.00	0.00	0.00	37
1748	0.83	0.42	0.56	36
1749	0.40	0.05	0.09	41
1750	0.00	0.00	0.00	41
1751	0.91	0.29	0.44	34
1752	0.00	0.00	0.00	37
1753	0.80	0.20	0.31	41
1754	0.00	0.00	0.00	46
1755	0.00	0.00	0.00	35
1756	0.59	0.22	0.32	46
1757	0.00	0.00	0.00	44
1758	0.50	0.05	0.09	43
1759	0.17	0.03	0.06	30
1760	0.00	0.00	0.00	46
1761	0.00	0.00	0.00	39
1762	0.00	0.00	0.00	41
1763	0.00	0.00	0.00	47
1764	0.86	0.18	0.29	34
1765	0.00	0.00	0.00	32
1766	0.71	0.29	0.41	42
1767	0.90	0.24	0.38	38
1768	0.00	0.00	0.00	35
1769	0.57	0.12	0.20	33
1770	0.67	0.05	0.10	39
1771	0.00	0.00	0.00	37
1772	0.54	0.15	0.23	48
1773	1.00	0.33	0.49	46
1774	0.67	0.14	0.23	44
1775	0.50	0.02	0.03	63
1776	0.80	0.10	0.18	40
1777	1.00	0.03	0.05	39
1778	0.50	0.08	0.14	38
1779	0.00	0.00	0.00	44
1780	0.92	0.55	0.69	44
1781	0.67	0.05	0.09	40
1782	0.33	0.05	0.08	43

1783	0.00	0.00	0.00	39
1784	0.44	0.09	0.15	44
1785	0.71	0.13	0.22	38
1786	0.00	0.00	0.00	39
1787	1.00	0.05	0.09	44
1788	0.00	0.00	0.00	46
1789	0.70	0.17	0.28	40
1790	0.75	0.27	0.39	45
1791	0.00	0.00	0.00	39
1792	0.20	0.05	0.08	41
1793	0.71	0.21	0.33	47
1794	0.38	0.07	0.12	43
1795	0.76	0.38	0.51	34
1796	0.72	0.40	0.51	45
1797	1.00	0.19	0.32	31
1798	0.25	0.06	0.09	36
1799	0.68	0.27	0.39	55
1800	0.00	0.00	0.00	30
1801	0.00	0.00	0.00	35
1802	1.00	0.23	0.37	48
1803	0.12	0.03	0.04	38
1804	0.00	0.00	0.00	35
1805	0.00	0.00	0.00	32
1806	0.71	0.27	0.39	37
1807	1.00	0.19	0.32	37
1808	0.00	0.00	0.00	36
1809	0.00	0.00	0.00	42
1810	0.00	0.00	0.00	42
1811	0.00	0.00	0.00	35
1812	0.57	0.10	0.17	39
1813	0.71	0.28	0.40	36
1814	0.43	0.06	0.11	48
1815	1.00	0.44	0.62	45
1816	0.75	0.26	0.39	34
1817	0.67	0.19	0.29	32
1818	1.00	0.27	0.43	44
1819	0.00	0.00	0.00	46
1820	0.00	0.00	0.00	40
1821	0.00	0.00	0.00	37
1822	0.00	0.00	0.00	35
1823	0.00	0.00	0.00	33
1824	0.00	0.00	0.00	38
1825	1.00	0.05	0.10	38
1826	0.73	0.18	0.29	45
1827	0.00	0.00	0.00	36
1828	0.00	0.00	0.00	45
1829	0.96	0.68	0.80	38
1830	0.17	0.03	0.05	35

1831	0.75	0.26	0.39	34
1832	0.50	0.03	0.06	33
1833	0.60	0.13	0.21	23
1834	0.50	0.02	0.04	44
1835	0.00	0.00	0.00	50
1836	1.00	0.05	0.09	44
1837	0.86	0.26	0.40	46
1838	0.00	0.00	0.00	33
1839	0.60	0.20	0.30	45
1840	0.00	0.00	0.00	37
1841	1.00	0.03	0.05	39
1842	0.00	0.00	0.00	40
1843	0.00	0.00	0.00	41
1844	0.33	0.05	0.08	43
1845	0.00	0.00	0.00	36
1846	0.00	0.00	0.00	38
1847	0.00	0.00	0.00	33
1848	0.00	0.00	0.00	37
1849	1.00	0.12	0.21	34
1850	0.00	0.00	0.00	42
1851	0.60	0.41	0.48	37
1852	0.80	0.11	0.19	37
1853	0.91	0.24	0.38	41
1854	1.00	0.45	0.62	40
1855	0.00	0.00	0.00	40
1856	0.00	0.00	0.00	39
1857	0.00	0.00	0.00	30
1858	0.33	0.02	0.04	49
1859	0.67	0.28	0.39	29
1860	0.00	0.00	0.00	45
1861	0.25	0.05	0.08	40
1862	0.90	0.23	0.37	39
1863	0.00	0.00	0.00	37
1864	0.81	0.35	0.49	37
1865	0.91	0.28	0.43	36
1866	0.00	0.00	0.00	39
1867	0.38	0.07	0.12	42
1868	0.73	0.25	0.37	44
1869	0.00	0.00	0.00	39
1870	0.00	0.00	0.00	46
1871	0.00	0.00	0.00	43
1872	0.14	0.03	0.05	34
1873	0.40	0.04	0.08	47
1874	0.57	0.10	0.17	39
1875	0.33	0.03	0.05	36
1876	0.56	0.14	0.22	37
1877	0.00	0.00	0.00	47
1878	0.50	0.06	0.11	48

1879	0.67	0.19	0.29	32
1880	0.87	0.28	0.43	46
1881	0.17	0.03	0.05	38
1882	0.00	0.00	0.00	36
1883	0.00	0.00	0.00	40
1884	0.38	0.09	0.14	34
1885	0.00	0.00	0.00	41
1886	0.00	0.00	0.00	42
1887	0.00	0.00	0.00	38
1888	1.00	0.02	0.04	49
1889	1.00	0.42	0.59	36
1890	0.70	0.19	0.30	36
1891	0.67	0.23	0.34	44
1892	0.33	0.04	0.07	24
1893	0.00	0.00	0.00	36
1894	1.00	0.39	0.56	46
1895	0.00	0.00	0.00	33
1896	1.00	0.12	0.21	42
1897	0.00	0.00	0.00	35
1898	0.00	0.00	0.00	31
1899	0.71	0.33	0.45	36
1900	0.00	0.00	0.00	30
1901	0.62	0.10	0.18	49
1902	0.67	0.12	0.20	34
1903	1.00	0.07	0.14	40
1904	0.00	0.00	0.00	42
1905	0.00	0.00	0.00	44
1906	0.84	0.34	0.48	47
1907	0.00	0.00	0.00	46
1908	0.57	0.33	0.42	36
1909	1.00	0.06	0.11	35
1910	0.00	0.00	0.00	46
1911	0.00	0.00	0.00	39
1912	0.85	0.29	0.43	38
1913	0.00	0.00	0.00	38
1914	0.73	0.19	0.30	43
1915	0.84	0.52	0.64	31
1916	0.33	0.08	0.12	39
1917	0.00	0.00	0.00	38
1918	0.75	0.20	0.32	45
1919	0.58	0.19	0.29	37
1920	0.00	0.00	0.00	29
1921	0.00	0.00	0.00	31
1922	0.61	0.34	0.44	41
1923	0.17	0.02	0.03	54
1924	0.80	0.12	0.22	32
1925	0.00	0.00	0.00	32
1926	0.00	0.00	0.00	38

1927	0.94	0.38	0.54	42
1928	0.00	0.00	0.00	41
1929	0.00	0.00	0.00	47
1930	1.00	0.40	0.57	30
1931	1.00	0.05	0.09	41
1932	0.00	0.00	0.00	40
1933	0.62	0.19	0.29	43
1934	0.00	0.00	0.00	42
1935	0.33	0.06	0.10	36
1936	0.57	0.29	0.38	42
1937	1.00	0.03	0.05	36
1938	0.94	0.50	0.65	32
1939	1.00	0.12	0.21	50
1940	0.33	0.03	0.05	35
1941	0.00	0.00	0.00	41
1942	0.80	0.20	0.32	40
1943	0.00	0.00	0.00	38
1944	0.84	0.47	0.60	34
1945	0.00	0.00	0.00	42
1946	0.90	0.32	0.47	28
1947	0.00	0.00	0.00	37
1948	0.00	0.00	0.00	32
1949	0.00	0.00	0.00	32
1950	0.69	0.35	0.46	26
1951	0.00	0.00	0.00	49
1952	0.00	0.00	0.00	32
1953	0.50	0.03	0.06	31
1954	0.71	0.12	0.21	40
1955	0.00	0.00	0.00	47
1956	1.00	0.07	0.13	43
1957	0.00	0.00	0.00	38
1958	0.77	0.26	0.39	38
1959	0.00	0.00	0.00	34
1960	0.32	0.21	0.25	39
1961	1.00	0.03	0.06	34
1962	0.20	0.02	0.04	42
1963	0.60	0.09	0.16	32
1964	0.00	0.00	0.00	41
1965	0.33	0.02	0.04	42
1966	0.00	0.00	0.00	37
1967	0.00	0.00	0.00	41
1968	0.86	0.60	0.71	30
1969	0.50	0.24	0.32	25
1970	0.50	0.15	0.23	40
1971	0.00	0.00	0.00	43
1972	0.00	0.00	0.00	42
1973	0.00	0.00	0.00	32
1974	0.00	0.00	0.00	33

1975	1.00	0.21	0.35	28
1976	0.00	0.00	0.00	35
1977	0.92	0.22	0.36	49
1978	1.00	0.33	0.49	49
1979	0.00	0.00	0.00	34
1980	0.00	0.00	0.00	28
1981	1.00	0.24	0.38	34
1982	0.00	0.00	0.00	30
1983	0.50	0.03	0.05	40
1984	0.00	0.00	0.00	38
1985	0.00	0.00	0.00	42
1986	0.00	0.00	0.00	32
1987	0.00	0.00	0.00	37
1988	0.25	0.03	0.05	34
1989	0.75	0.15	0.24	41
1990	0.00	0.00	0.00	34
1991	0.00	0.00	0.00	34
1992	0.00	0.00	0.00	30
1993	0.67	0.17	0.27	36
1994	0.83	0.16	0.26	32
1995	0.00	0.00	0.00	38
1996	0.00	0.00	0.00	32
1997	0.00	0.00	0.00	39
1998	0.00	0.00	0.00	32
1999	0.73	0.18	0.29	44
2000	0.50	0.02	0.05	41
2001	1.00	0.24	0.39	37
2002	0.30	0.08	0.12	38
2003	0.00	0.00	0.00	31
2004	0.00	0.00	0.00	35
2005	0.80	0.24	0.36	34
2006	0.80	0.24	0.36	34
2007	1.00	0.06	0.12	31
2008	0.00	0.00	0.00	40
2009	1.00	0.25	0.40	40
2010	0.40	0.05	0.09	39
2011	0.62	0.14	0.22	37
2012	0.00	0.00	0.00	35
2013	0.00	0.00	0.00	27
2014	0.00	0.00	0.00	38
2015	0.00	0.00	0.00	34
2016	0.00	0.00	0.00	33
2017	0.00	0.00	0.00	31
2018	1.00	0.06	0.11	34
2019	0.00	0.00	0.00	40
2020	0.00	0.00	0.00	29
2021	0.00	0.00	0.00	34
2022	0.00	0.00	0.00	37

2023	0.54	0.23	0.33	30
2024	0.00	0.00	0.00	34
2025	0.00	0.00	0.00	36
2026	0.92	0.22	0.36	49
2027	0.00	0.00	0.00	22
2028	0.94	0.38	0.55	39
2029	0.00	0.00	0.00	36
2030	1.00	0.49	0.65	37
2031	0.90	0.28	0.43	32
2032	1.00	0.17	0.29	41
2033	0.00	0.00	0.00	28
2034	0.30	0.08	0.12	38
2035	0.00	0.00	0.00	26
2036	0.00	0.00	0.00	33
2037	0.00	0.00	0.00	32
2038	0.80	0.22	0.34	37
2039	0.00	0.00	0.00	32
2040	0.55	0.15	0.24	40
2041	0.40	0.07	0.12	29
2042	0.00	0.00	0.00	30
2043	0.00	0.00	0.00	33
2044	0.00	0.00	0.00	35
2045	0.50	0.18	0.26	34
2046	0.50	0.03	0.06	31
2047	0.50	0.06	0.11	32
2048	0.00	0.00	0.00	36
2049	1.00	0.02	0.05	43
2050	0.00	0.00	0.00	27
2051	0.50	0.10	0.16	31
2052	0.00	0.00	0.00	34
2053	0.00	0.00	0.00	32
2054	0.71	0.11	0.19	45
2055	0.00	0.00	0.00	39
2056	0.95	0.58	0.72	33
2057	0.40	0.05	0.09	38
2058	0.25	0.03	0.05	33
2059	0.00	0.00	0.00	44
2060	1.00	0.46	0.63	35
2061	0.40	0.10	0.16	40
2062	0.00	0.00	0.00	31
2063	1.00	0.44	0.61	32
2064	0.00	0.00	0.00	45
2065	0.93	0.40	0.56	35
2066	0.00	0.00	0.00	37
2067	0.40	0.06	0.10	35
2068	0.00	0.00	0.00	43
2069	0.00	0.00	0.00	26
2070	0.00	0.00	0.00	40

2071	1.00	0.46	0.63	37
2072	0.00	0.00	0.00	31
2073	0.40	0.11	0.18	35
2074	0.00	0.00	0.00	35
2075	0.00	0.00	0.00	31
2076	0.00	0.00	0.00	30
2077	0.83	0.18	0.29	28
2078	0.00	0.00	0.00	37
2079	0.00	0.00	0.00	38
2080	0.00	0.00	0.00	28
2081	0.00	0.00	0.00	28
2082	0.00	0.00	0.00	33
2083	1.00	0.11	0.19	28
2084	1.00	0.26	0.41	23
2085	0.84	0.46	0.59	35
2086	0.60	0.08	0.14	39
2087	0.00	0.00	0.00	31
2088	0.00	0.00	0.00	25
2089	0.77	0.46	0.58	37
2090	0.00	0.00	0.00	34
2091	0.00	0.00	0.00	34
2092	0.00	0.00	0.00	38
2093	0.00	0.00	0.00	36
2094	0.29	0.06	0.10	33
2095	0.40	0.05	0.09	40
2096	0.67	0.11	0.18	38
2097	0.33	0.04	0.07	25
2098	0.00	0.00	0.00	33
2099	1.00	0.19	0.32	42
2100	0.00	0.00	0.00	29
2101	0.00	0.00	0.00	29
2102	0.50	0.06	0.10	35
2103	0.67	0.10	0.17	40
2104	0.00	0.00	0.00	42
2105	0.00	0.00	0.00	36
2106	0.00	0.00	0.00	33
2107	0.00	0.00	0.00	33
2108	0.00	0.00	0.00	34
2109	0.00	0.00	0.00	42
2110	0.00	0.00	0.00	28
2111	0.40	0.05	0.09	40
2112	1.00	0.04	0.08	24
2113	0.00	0.00	0.00	36
2114	0.43	0.09	0.15	33
2115	0.00	0.00	0.00	32
2116	0.67	0.15	0.24	27
2117	0.00	0.00	0.00	30
2118	0.79	0.38	0.51	29

2119	0.50	0.07	0.12	28
2120	0.94	0.46	0.62	35
2121	0.00	0.00	0.00	35
2122	0.00	0.00	0.00	37
2123	0.00	0.00	0.00	35
2124	0.40	0.06	0.10	35
2125	0.00	0.00	0.00	37
2126	0.00	0.00	0.00	35
2127	0.40	0.06	0.11	32
2128	0.36	0.13	0.20	30
2129	0.00	0.00	0.00	32
2130	0.00	0.00	0.00	41
2131	1.00	0.04	0.07	26
2132	0.00	0.00	0.00	34
2133	0.00	0.00	0.00	29
2134	0.00	0.00	0.00	36
2135	0.00	0.00	0.00	29
2136	0.00	0.00	0.00	35
2137	0.83	0.37	0.51	27
2138	0.00	0.00	0.00	35
2139	0.85	0.37	0.51	30
2140	0.00	0.00	0.00	33
2141	0.67	0.05	0.10	38
2142	0.00	0.00	0.00	37
2143	1.00	0.10	0.18	31
2144	0.71	0.14	0.24	35
2145	1.00	0.37	0.54	38
2146	1.00	0.17	0.29	35
2147	0.38	0.15	0.22	33
2148	0.00	0.00	0.00	32
2149	0.67	0.05	0.10	37
2150	0.00	0.00	0.00	41
2151	0.00	0.00	0.00	39
2152	0.00	0.00	0.00	36
2153	0.00	0.00	0.00	31
2154	0.00	0.00	0.00	30
2155	1.00	0.42	0.59	26
2156	0.00	0.00	0.00	32
2157	0.00	0.00	0.00	38
2158	0.00	0.00	0.00	33
2159	0.00	0.00	0.00	32
2160	0.33	0.03	0.06	32
2161	0.00	0.00	0.00	34
2162	0.50	0.22	0.31	27
2163	0.00	0.00	0.00	37
2164	1.00	0.03	0.06	30
2165	0.00	0.00	0.00	35
2166	0.56	0.21	0.30	24

2167	0.00	0.00	0.00	37
2168	0.87	0.50	0.63	26
2169	0.00	0.00	0.00	27
2170	0.00	0.00	0.00	39
2171	0.00	0.00	0.00	25
2172	0.00	0.00	0.00	33
2173	0.00	0.00	0.00	39
2174	0.94	0.43	0.59	35
2175	1.00	0.33	0.50	30
2176	0.00	0.00	0.00	36
2177	0.33	0.04	0.06	28
2178	0.00	0.00	0.00	34
2179	0.00	0.00	0.00	35
2180	0.00	0.00	0.00	23
2181	0.00	0.00	0.00	34
2182	0.00	0.00	0.00	27
2183	1.00	0.08	0.15	25
2184	0.00	0.00	0.00	33
2185	1.00	0.15	0.26	33
2186	0.33	0.16	0.21	19
2187	0.00	0.00	0.00	38
2188	0.00	0.00	0.00	20
2189	0.00	0.00	0.00	32
2190	0.33	0.06	0.11	31
2191	0.67	0.12	0.21	33
2192	0.00	0.00	0.00	28
2193	1.00	0.06	0.11	36
2194	0.00	0.00	0.00	35
2195	0.00	0.00	0.00	26
2196	0.00	0.00	0.00	32
2197	0.00	0.00	0.00	34
2198	1.00	0.03	0.06	33
2199	0.00	0.00	0.00	27
2200	0.60	0.10	0.17	31
2201	0.00	0.00	0.00	22
2202	0.00	0.00	0.00	28
2203	0.75	0.19	0.30	32
2204	0.00	0.00	0.00	34
2205	0.00	0.00	0.00	27
2206	1.00	0.11	0.21	35
2207	0.00	0.00	0.00	32
2208	1.00	0.03	0.06	31
2209	0.00	0.00	0.00	34
2210	0.00	0.00	0.00	31
2211	0.00	0.00	0.00	38
2212	1.00	0.03	0.07	29
2213	1.00	0.08	0.15	24
2214	0.00	0.00	0.00	26

2215	0.60	0.08	0.14	39
2216	0.50	0.11	0.18	28
2217	0.00	0.00	0.00	29
2218	0.00	0.00	0.00	39
2219	0.00	0.00	0.00	26
2220	0.00	0.00	0.00	29
2221	1.00	0.41	0.58	22
2222	0.00	0.00	0.00	28
2223	1.00	0.08	0.15	37
2224	0.00	0.00	0.00	31
2225	0.20	0.03	0.04	40
2226	1.00	0.18	0.31	33
2227	0.00	0.00	0.00	41
2228	0.00	0.00	0.00	33
2229	0.00	0.00	0.00	29
2230	0.00	0.00	0.00	34
2231	0.00	0.00	0.00	28
2232	0.86	0.23	0.36	26
2233	0.00	0.00	0.00	27
2234	1.00	0.23	0.38	26
2235	1.00	0.39	0.57	33
2236	0.00	0.00	0.00	33
2237	0.64	0.19	0.30	36
2238	1.00	0.16	0.27	38
2239	0.00	0.00	0.00	27
2240	0.93	0.37	0.53	35
2241	0.00	0.00	0.00	41
2242	0.50	0.03	0.06	30
2243	0.00	0.00	0.00	29
2244	0.00	0.00	0.00	37
2245	0.50	0.15	0.24	39
2246	0.00	0.00	0.00	29
2247	0.00	0.00	0.00	30
2248	0.00	0.00	0.00	37
2249	0.00	0.00	0.00	33
2250	0.50	0.04	0.07	27
2251	0.00	0.00	0.00	31
2252	0.00	0.00	0.00	27
2253	0.00	0.00	0.00	32
2254	0.73	0.23	0.35	35
2255	0.00	0.00	0.00	37
2256	0.00	0.00	0.00	33
2257	0.82	0.45	0.58	20
2258	0.00	0.00	0.00	28
2259	0.43	0.13	0.20	23
2260	0.00	0.00	0.00	31
2261	1.00	0.10	0.19	29
2262	0.60	0.12	0.19	26

2263	0.00	0.00	0.00	32
2264	0.00	0.00	0.00	35
2265	0.00	0.00	0.00	33
2266	0.67	0.23	0.34	35
2267	0.00	0.00	0.00	30
2268	0.50	0.05	0.08	22
2269	0.00	0.00	0.00	31
2270	0.00	0.00	0.00	32
2271	0.00	0.00	0.00	28
2272	0.83	0.19	0.31	26
2273	0.00	0.00	0.00	27
2274	0.00	0.00	0.00	33
2275	0.00	0.00	0.00	33
2276	0.50	0.09	0.15	22
2277	0.00	0.00	0.00	33
2278	0.00	0.00	0.00	36
2279	1.00	0.32	0.49	34
2280	0.00	0.00	0.00	24
2281	0.00	0.00	0.00	26
2282	0.40	0.09	0.15	22
2283	0.20	0.04	0.06	28
2284	0.00	0.00	0.00	43
2285	0.00	0.00	0.00	31
2286	0.00	0.00	0.00	30
2287	0.00	0.00	0.00	32
2288	0.00	0.00	0.00	28
2289	0.88	0.19	0.31	37
2290	0.00	0.00	0.00	23
2291	0.00	0.00	0.00	33
2292	0.50	0.03	0.06	33
2293	0.00	0.00	0.00	29
2294	0.00	0.00	0.00	28
2295	0.00	0.00	0.00	29
2296	0.00	0.00	0.00	24
2297	0.00	0.00	0.00	28
2298	1.00	0.15	0.27	26
2299	0.00	0.00	0.00	28
2300	1.00	0.10	0.18	31
2301	0.00	0.00	0.00	28
2302	0.00	0.00	0.00	34
2303	0.50	0.04	0.07	27
2304	0.00	0.00	0.00	31
2305	0.00	0.00	0.00	38
2306	0.00	0.00	0.00	37
2307	0.83	0.36	0.50	28
2308	1.00	0.04	0.07	28
2309	0.00	0.00	0.00	26
2310	1.00	0.21	0.35	28

2311	0.00	0.00	0.00	29
2312	1.00	0.11	0.19	38
2313	0.50	0.04	0.07	25
2314	1.00	0.05	0.09	22
2315	0.00	0.00	0.00	33
2316	0.00	0.00	0.00	30
2317	0.00	0.00	0.00	37
2318	0.00	0.00	0.00	26
2319	0.20	0.05	0.08	21
2320	0.00	0.00	0.00	29
2321	0.00	0.00	0.00	23
2322	0.00	0.00	0.00	33
2323	0.00	0.00	0.00	29
2324	0.00	0.00	0.00	29
2325	0.40	0.10	0.15	21
2326	0.00	0.00	0.00	36
2327	0.00	0.00	0.00	34
2328	0.00	0.00	0.00	25
2329	1.00	0.07	0.13	28
2330	0.00	0.00	0.00	30
2331	0.79	0.38	0.51	29
2332	0.00	0.00	0.00	32
2333	0.00	0.00	0.00	34
2334	0.50	0.03	0.06	30
2335	0.00	0.00	0.00	29
2336	1.00	0.03	0.06	30
2337	0.00	0.00	0.00	26
2338	0.92	0.40	0.56	30
2339	0.00	0.00	0.00	35
2340	0.00	0.00	0.00	26
2341	0.00	0.00	0.00	33
2342	1.00	0.15	0.27	39
2343	0.80	0.15	0.26	26
2344	0.00	0.00	0.00	39
2345	0.00	0.00	0.00	36
2346	0.00	0.00	0.00	37
2347	0.00	0.00	0.00	18
2348	0.60	0.10	0.17	31
2349	0.50	0.05	0.09	20
2350	0.00	0.00	0.00	32
2351	0.00	0.00	0.00	32
2352	0.00	0.00	0.00	28
2353	0.00	0.00	0.00	22
2354	0.92	0.33	0.49	36
2355	0.67	0.06	0.11	33
2356	0.00	0.00	0.00	31
2357	0.60	0.09	0.16	32
2358	0.12	0.05	0.07	19

2359	0.00	0.00	0.00	29
2360	0.00	0.00	0.00	27
2361	0.00	0.00	0.00	25
2362	1.00	0.04	0.08	24
2363	0.00	0.00	0.00	35
2364	0.00	0.00	0.00	32
2365	0.00	0.00	0.00	39
2366	0.00	0.00	0.00	32
2367	0.00	0.00	0.00	31
2368	0.00	0.00	0.00	32
2369	0.00	0.00	0.00	29
2370	0.00	0.00	0.00	32
2371	0.00	0.00	0.00	31
2372	0.00	0.00	0.00	32
2373	0.67	0.06	0.12	31
2374	0.00	0.00	0.00	30
2375	0.00	0.00	0.00	20
2376	0.83	0.18	0.29	28
2377	0.00	0.00	0.00	35
2378	0.00	0.00	0.00	24
2379	1.00	0.04	0.08	23
2380	0.00	0.00	0.00	31
2381	0.67	0.05	0.10	38
2382	0.00	0.00	0.00	26
2383	0.00	0.00	0.00	33
2384	0.00	0.00	0.00	36
2385	0.00	0.00	0.00	24
2386	0.54	0.33	0.41	21
2387	0.00	0.00	0.00	28
2388	0.00	0.00	0.00	22
2389	1.00	0.18	0.30	28
2390	0.88	0.20	0.33	35
2391	0.00	0.00	0.00	23
2392	0.00	0.00	0.00	27
2393	0.00	0.00	0.00	24
2394	1.00	0.43	0.61	23
2395	0.00	0.00	0.00	24
2396	1.00	0.03	0.06	31
2397	0.00	0.00	0.00	28
2398	0.00	0.00	0.00	35
2399	0.40	0.08	0.13	25
2400	0.00	0.00	0.00	33
2401	0.00	0.00	0.00	22
2402	0.25	0.03	0.05	36
2403	0.00	0.00	0.00	29
2404	0.50	0.08	0.13	26
2405	0.00	0.00	0.00	26
2406	0.58	0.42	0.49	26

2407	1.00	0.04	0.07	26
2408	1.00	0.03	0.06	32
2409	0.00	0.00	0.00	29
2410	0.00	0.00	0.00	26
2411	0.00	0.00	0.00	30
2412	0.00	0.00	0.00	30
2413	0.00	0.00	0.00	29
2414	0.00	0.00	0.00	33
2415	0.00	0.00	0.00	22
2416	0.00	0.00	0.00	27
2417	0.50	0.09	0.15	22
2418	0.00	0.00	0.00	33
2419	1.00	0.03	0.07	29
2420	0.00	0.00	0.00	38
2421	0.00	0.00	0.00	28
2422	0.00	0.00	0.00	25
2423	0.78	0.32	0.45	22
2424	0.50	0.03	0.05	35
2425	1.00	0.11	0.19	28
2426	0.50	0.03	0.06	34
2427	0.00	0.00	0.00	23
2428	0.00	0.00	0.00	30
2429	0.00	0.00	0.00	21
2430	0.00	0.00	0.00	26
2431	0.50	0.04	0.08	23
2432	0.00	0.00	0.00	33
2433	0.00	0.00	0.00	26
2434	0.78	0.48	0.60	29
2435	0.00	0.00	0.00	29
2436	0.00	0.00	0.00	29
2437	0.00	0.00	0.00	27
2438	0.00	0.00	0.00	26
2439	0.00	0.00	0.00	27
2440	0.00	0.00	0.00	28
2441	1.00	0.33	0.50	30
2442	0.00	0.00	0.00	26
2443	0.00	0.00	0.00	27
2444	0.00	0.00	0.00	30
2445	1.00	0.42	0.59	24
2446	0.00	0.00	0.00	21
2447	0.80	0.13	0.22	31
2448	1.00	0.04	0.08	23
2449	0.00	0.00	0.00	34
2450	0.00	0.00	0.00	33
2451	0.00	0.00	0.00	27
2452	1.00	0.07	0.13	29
2453	0.75	0.10	0.18	29
2454	0.00	0.00	0.00	28

2455	0.17	0.04	0.06	27
2456	0.00	0.00	0.00	25
2457	0.00	0.00	0.00	26
2458	0.71	0.16	0.26	31
2459	0.00	0.00	0.00	31
2460	0.00	0.00	0.00	30
2461	1.00	0.18	0.30	28
2462	0.67	0.07	0.12	30
2463	0.00	0.00	0.00	33
2464	0.00	0.00	0.00	29
2465	0.00	0.00	0.00	19
2466	0.00	0.00	0.00	25
2467	0.00	0.00	0.00	32
2468	0.00	0.00	0.00	29
2469	0.00	0.00	0.00	23
2470	0.92	0.41	0.56	27
2471	0.00	0.00	0.00	19
2472	0.00	0.00	0.00	25
2473	0.00	0.00	0.00	31
2474	0.00	0.00	0.00	27
2475	0.00	0.00	0.00	25
2476	0.92	0.37	0.52	30
2477	0.00	0.00	0.00	32
2478	0.67	0.07	0.13	28
2479	0.00	0.00	0.00	32
2480	0.00	0.00	0.00	36
2481	0.00	0.00	0.00	30
2482	0.00	0.00	0.00	23
2483	0.00	0.00	0.00	29
2484	0.62	0.22	0.32	23
2485	0.00	0.00	0.00	20
2486	0.00	0.00	0.00	24
2487	0.00	0.00	0.00	26
2488	0.00	0.00	0.00	27
2489	1.00	0.03	0.06	32
2490	0.00	0.00	0.00	32
2491	0.00	0.00	0.00	24
2492	0.50	0.19	0.27	27
2493	0.00	0.00	0.00	26
2494	0.00	0.00	0.00	24
2495	0.00	0.00	0.00	28
2496	0.00	0.00	0.00	20
2497	0.50	0.03	0.06	29
2498	1.00	0.18	0.30	34
2499	0.92	0.44	0.59	25
2500	0.00	0.00	0.00	30
2501	0.00	0.00	0.00	27
2502	0.50	0.14	0.22	28

2503	0.00	0.00	0.00	22
2504	0.00	0.00	0.00	26
2505	0.00	0.00	0.00	28
2506	0.33	0.04	0.08	23
2507	0.00	0.00	0.00	17
2508	0.00	0.00	0.00	25
2509	0.00	0.00	0.00	34
2510	0.00	0.00	0.00	24
2511	0.40	0.11	0.17	19
2512	0.00	0.00	0.00	27
2513	0.00	0.00	0.00	30
2514	0.75	0.12	0.21	24
2515	0.00	0.00	0.00	26
2516	0.00	0.00	0.00	18
2517	0.00	0.00	0.00	36
2518	1.00	0.03	0.06	30
2519	0.00	0.00	0.00	31
2520	0.00	0.00	0.00	33
2521	1.00	0.33	0.50	21
2522	0.00	0.00	0.00	12
2523	0.00	0.00	0.00	27
2524	0.89	0.35	0.50	23
2525	0.00	0.00	0.00	31
2526	0.00	0.00	0.00	35
2527	0.00	0.00	0.00	30
2528	0.00	0.00	0.00	24
2529	0.87	0.33	0.47	40
2530	0.25	0.03	0.05	33
2531	0.00	0.00	0.00	17
2532	0.00	0.00	0.00	29
2533	0.00	0.00	0.00	24
2534	1.00	0.07	0.13	28
2535	0.00	0.00	0.00	26
2536	0.00	0.00	0.00	26
2537	0.00	0.00	0.00	31
2538	0.00	0.00	0.00	28
2539	0.00	0.00	0.00	18
2540	0.67	0.20	0.31	30
2541	1.00	0.07	0.13	29
2542	0.00	0.00	0.00	23
2543	0.75	0.09	0.17	32
2544	1.00	0.19	0.31	27
2545	1.00	0.08	0.15	38
2546	1.00	0.04	0.07	26
2547	0.00	0.00	0.00	31
2548	0.00	0.00	0.00	27
2549	0.00	0.00	0.00	31
2550	0.67	0.08	0.14	26

2551	0.45	0.24	0.31	21
2552	0.00	0.00	0.00	28
2553	0.00	0.00	0.00	31
2554	0.67	0.11	0.18	19
2555	1.00	0.17	0.30	23
2556	0.60	0.39	0.47	23
2557	0.00	0.00	0.00	19
2558	0.00	0.00	0.00	23
2559	0.00	0.00	0.00	26
2560	0.00	0.00	0.00	20
2561	0.14	0.06	0.08	17
2562	1.00	0.10	0.18	20
2563	0.80	0.16	0.27	25
2564	0.00	0.00	0.00	21
2565	0.00	0.00	0.00	28
2566	0.00	0.00	0.00	26
2567	0.00	0.00	0.00	30
2568	0.00	0.00	0.00	37
2569	0.75	0.27	0.40	22
2570	1.00	0.12	0.22	24
2571	0.00	0.00	0.00	20
2572	0.00	0.00	0.00	26
2573	1.00	0.07	0.12	30
2574	0.00	0.00	0.00	29
2575	0.00	0.00	0.00	28
2576	0.00	0.00	0.00	22
2577	0.00	0.00	0.00	25
2578	0.00	0.00	0.00	24
2579	0.00	0.00	0.00	29
2580	0.00	0.00	0.00	27
2581	0.00	0.00	0.00	29
2582	0.00	0.00	0.00	21
2583	1.00	0.13	0.23	23
2584	0.00	0.00	0.00	27
2585	0.86	0.70	0.78	27
2586	0.00	0.00	0.00	25
2587	1.00	0.21	0.34	29
2588	0.00	0.00	0.00	20
2589	0.00	0.00	0.00	28
2590	0.00	0.00	0.00	28
2591	0.00	0.00	0.00	29
2592	1.00	0.05	0.10	20
2593	0.00	0.00	0.00	31
2594	0.00	0.00	0.00	19
2595	0.00	0.00	0.00	31
2596	0.00	0.00	0.00	28
2597	0.67	0.06	0.11	32
2598	0.60	0.10	0.18	29

2599	0.00	0.00	0.00	20
2600	0.00	0.00	0.00	18
2601	0.00	0.00	0.00	14
2602	0.00	0.00	0.00	29
2603	0.25	0.04	0.07	26
2604	0.00	0.00	0.00	25
2605	0.00	0.00	0.00	23
2606	1.00	0.05	0.09	22
2607	0.00	0.00	0.00	25
2608	1.00	0.04	0.08	25
2609	0.00	0.00	0.00	30
2610	0.00	0.00	0.00	26
2611	0.00	0.00	0.00	26
2612	0.00	0.00	0.00	30
2613	0.00	0.00	0.00	28
2614	0.00	0.00	0.00	28
2615	0.00	0.00	0.00	32
2616	0.00	0.00	0.00	23
2617	0.00	0.00	0.00	21
2618	0.00	0.00	0.00	26
2619	0.00	0.00	0.00	29
2620	0.86	0.32	0.46	19
2621	0.00	0.00	0.00	28
2622	0.00	0.00	0.00	23
2623	0.00	0.00	0.00	26
2624	0.00	0.00	0.00	24
2625	0.00	0.00	0.00	24
2626	0.00	0.00	0.00	30
2627	0.00	0.00	0.00	28
2628	0.83	0.29	0.43	17
2629	0.00	0.00	0.00	31
2630	0.00	0.00	0.00	30
2631	0.00	0.00	0.00	33
2632	0.00	0.00	0.00	31
2633	0.86	0.16	0.27	37
2634	0.00	0.00	0.00	21
2635	0.00	0.00	0.00	30
2636	0.00	0.00	0.00	22
2637	0.00	0.00	0.00	24
2638	0.00	0.00	0.00	29
2639	0.00	0.00	0.00	29
2640	0.00	0.00	0.00	20
2641	0.00	0.00	0.00	27
2642	0.00	0.00	0.00	28
2643	0.00	0.00	0.00	29
2644	0.89	0.31	0.46	26
2645	0.00	0.00	0.00	22
2646	0.00	0.00	0.00	20

2647	0.67	0.07	0.13	27
2648	0.00	0.00	0.00	30
2649	0.00	0.00	0.00	19
2650	0.00	0.00	0.00	15
2651	0.00	0.00	0.00	32
2652	0.00	0.00	0.00	19
2653	0.00	0.00	0.00	28
2654	1.00	0.35	0.52	23
2655	0.00	0.00	0.00	27
2656	0.00	0.00	0.00	26
2657	0.00	0.00	0.00	31
2658	0.00	0.00	0.00	21
2659	0.50	0.04	0.07	28
2660	0.00	0.00	0.00	24
2661	0.00	0.00	0.00	18
2662	0.83	0.19	0.31	26
2663	0.00	0.00	0.00	26
2664	0.00	0.00	0.00	28
2665	0.00	0.00	0.00	22
2666	0.67	0.07	0.13	28
2667	0.00	0.00	0.00	31
2668	0.00	0.00	0.00	18
2669	0.00	0.00	0.00	32
2670	0.00	0.00	0.00	24
2671	0.00	0.00	0.00	22
2672	0.00	0.00	0.00	23
2673	0.93	0.56	0.70	25
2674	0.50	0.04	0.07	26
2675	1.00	0.13	0.23	23
2676	0.00	0.00	0.00	23
2677	0.00	0.00	0.00	24
2678	0.00	0.00	0.00	26
2679	0.00	0.00	0.00	19
2680	0.00	0.00	0.00	19
2681	0.00	0.00	0.00	21
2682	0.89	0.27	0.41	30
2683	0.00	0.00	0.00	28
2684	0.00	0.00	0.00	26
2685	0.00	0.00	0.00	23
2686	0.50	0.11	0.18	28
2687	0.00	0.00	0.00	21
2688	0.00	0.00	0.00	32
2689	0.00	0.00	0.00	27
2690	1.00	0.17	0.30	23
2691	0.00	0.00	0.00	23
2692	0.00	0.00	0.00	24
2693	0.00	0.00	0.00	24
2694	0.00	0.00	0.00	20

2695	0.00	0.00	0.00	29
2696	0.00	0.00	0.00	20
2697	0.80	0.15	0.26	26
2698	0.00	0.00	0.00	30
2699	0.00	0.00	0.00	20
2700	0.00	0.00	0.00	25
2701	1.00	0.04	0.08	23
2702	0.00	0.00	0.00	24
2703	0.40	0.08	0.14	24
2704	0.00	0.00	0.00	29
2705	0.00	0.00	0.00	36
2706	0.20	0.03	0.06	29
2707	0.00	0.00	0.00	25
2708	0.00	0.00	0.00	21
2709	0.67	0.07	0.13	28
2710	0.00	0.00	0.00	14
2711	0.00	0.00	0.00	28
2712	0.00	0.00	0.00	21
2713	0.00	0.00	0.00	33
2714	0.00	0.00	0.00	21
2715	0.50	0.04	0.08	23
2716	0.00	0.00	0.00	26
2717	0.00	0.00	0.00	22
2718	0.50	0.07	0.12	30
2719	0.00	0.00	0.00	25
2720	0.00	0.00	0.00	25
2721	0.00	0.00	0.00	23
2722	0.00	0.00	0.00	20
2723	0.00	0.00	0.00	29
2724	0.00	0.00	0.00	20
2725	0.78	0.33	0.47	21
2726	0.00	0.00	0.00	25
2727	0.00	0.00	0.00	27
2728	0.00	0.00	0.00	24
2729	1.00	0.33	0.50	15
2730	0.00	0.00	0.00	26
2731	0.00	0.00	0.00	28
2732	0.00	0.00	0.00	30
2733	0.00	0.00	0.00	35
2734	0.80	0.17	0.28	24
2735	0.00	0.00	0.00	17
2736	0.50	0.19	0.28	26
2737	0.00	0.00	0.00	22
2738	0.00	0.00	0.00	33
2739	0.00	0.00	0.00	29
2740	0.00	0.00	0.00	28
2741	1.00	0.33	0.50	27
2742	1.00	0.52	0.69	23

2743	0.00	0.00	0.00	23
2744	0.00	0.00	0.00	20
2745	0.00	0.00	0.00	28
2746	0.00	0.00	0.00	25
2747	0.00	0.00	0.00	22
2748	0.00	0.00	0.00	24
2749	0.00	0.00	0.00	28
2750	1.00	0.10	0.19	29
2751	0.00	0.00	0.00	25
2752	0.00	0.00	0.00	23
2753	0.00	0.00	0.00	30
2754	0.00	0.00	0.00	20
2755	0.00	0.00	0.00	23
2756	0.00	0.00	0.00	26
2757	1.00	0.06	0.11	18
2758	0.80	0.22	0.35	18
2759	0.00	0.00	0.00	23
2760	0.00	0.00	0.00	30
2761	0.00	0.00	0.00	18
2762	0.00	0.00	0.00	21
2763	0.00	0.00	0.00	20
2764	0.00	0.00	0.00	17
2765	0.00	0.00	0.00	28
2766	1.00	0.06	0.11	18
2767	0.00	0.00	0.00	24
2768	1.00	0.25	0.40	24
2769	0.00	0.00	0.00	23
2770	0.00	0.00	0.00	19
2771	0.00	0.00	0.00	23
2772	1.00	0.11	0.19	19
2773	0.00	0.00	0.00	19
2774	1.00	0.24	0.38	21
2775	0.00	0.00	0.00	19
2776	0.00	0.00	0.00	23
2777	0.00	0.00	0.00	29
2778	0.00	0.00	0.00	21
2779	0.00	0.00	0.00	20
2780	0.00	0.00	0.00	23
2781	0.00	0.00	0.00	26
2782	0.00	0.00	0.00	31
2783	0.00	0.00	0.00	24
2784	0.00	0.00	0.00	23
2785	0.00	0.00	0.00	17
2786	0.00	0.00	0.00	26
2787	0.00	0.00	0.00	27
2788	0.71	0.20	0.31	25
2789	0.00	0.00	0.00	21
2790	0.00	0.00	0.00	23

2791	0.00	0.00	0.00	29
2792	0.00	0.00	0.00	35
2793	0.00	0.00	0.00	18
2794	0.00	0.00	0.00	17
2795	0.00	0.00	0.00	21
2796	0.00	0.00	0.00	19
2797	1.00	0.05	0.09	21
2798	0.00	0.00	0.00	17
2799	0.00	0.00	0.00	22
2800	1.00	0.04	0.08	24
2801	0.50	0.11	0.17	19
2802	0.00	0.00	0.00	23
2803	0.00	0.00	0.00	17
2804	0.00	0.00	0.00	23
2805	0.00	0.00	0.00	22
2806	0.00	0.00	0.00	24
2807	0.00	0.00	0.00	18
2808	1.00	0.04	0.08	24
2809	1.00	0.04	0.08	24
2810	0.00	0.00	0.00	20
2811	0.00	0.00	0.00	20
2812	0.00	0.00	0.00	23
2813	0.00	0.00	0.00	24
2814	0.00	0.00	0.00	17
2815	0.00	0.00	0.00	26
2816	0.00	0.00	0.00	16
2817	0.00	0.00	0.00	23
2818	0.00	0.00	0.00	26
2819	0.25	0.07	0.11	14
2820	0.00	0.00	0.00	22
2821	1.00	0.10	0.17	21
2822	0.00	0.00	0.00	24
2823	0.00	0.00	0.00	18
2824	0.00	0.00	0.00	26
2825	0.00	0.00	0.00	18
2826	0.75	0.15	0.25	20
2827	0.00	0.00	0.00	17
2828	0.00	0.00	0.00	25
2829	1.00	0.04	0.07	28
2830	0.00	0.00	0.00	19
2831	0.00	0.00	0.00	25
2832	0.00	0.00	0.00	20
2833	0.00	0.00	0.00	21
2834	0.00	0.00	0.00	25
2835	1.00	0.17	0.29	18
2836	0.00	0.00	0.00	26
2837	0.00	0.00	0.00	31
2838	1.00	0.08	0.15	24

2839	0.00	0.00	0.00	21
2840	0.00	0.00	0.00	20
2841	0.00	0.00	0.00	28
2842	1.00	0.23	0.37	35
2843	1.00	0.16	0.27	19
2844	0.00	0.00	0.00	24
2845	0.00	0.00	0.00	21
2846	1.00	0.08	0.15	25
2847	0.00	0.00	0.00	23
2848	0.00	0.00	0.00	26
2849	0.00	0.00	0.00	30
2850	0.00	0.00	0.00	31
2851	1.00	0.16	0.27	19
2852	0.00	0.00	0.00	29
2853	0.00	0.00	0.00	27
2854	0.00	0.00	0.00	22
2855	0.00	0.00	0.00	27
2856	0.00	0.00	0.00	18
2857	0.00	0.00	0.00	18
2858	0.00	0.00	0.00	22
2859	0.00	0.00	0.00	19
2860	0.00	0.00	0.00	22
2861	0.00	0.00	0.00	21
2862	0.00	0.00	0.00	23
2863	0.00	0.00	0.00	24
2864	0.00	0.00	0.00	28
2865	0.00	0.00	0.00	18
2866	0.67	0.27	0.39	22
2867	0.00	0.00	0.00	28
2868	0.00	0.00	0.00	27
2869	0.00	0.00	0.00	24
2870	0.00	0.00	0.00	21
2871	0.00	0.00	0.00	22
2872	0.00	0.00	0.00	21
2873	0.00	0.00	0.00	26
2874	0.00	0.00	0.00	25
2875	1.00	0.05	0.09	21
2876	0.00	0.00	0.00	25
2877	0.00	0.00	0.00	22
2878	0.80	0.19	0.31	21
2879	1.00	0.11	0.20	27
2880	1.00	0.04	0.08	24
2881	0.00	0.00	0.00	26
2882	0.00	0.00	0.00	29
2883	0.00	0.00	0.00	26
2884	0.00	0.00	0.00	25
2885	0.33	0.05	0.09	19
2886	0.83	0.26	0.40	19

2887	0.00	0.00	0.00	18
2888	0.00	0.00	0.00	22
2889	0.00	0.00	0.00	20
2890	0.00	0.00	0.00	28
2891	0.00	0.00	0.00	34
2892	0.00	0.00	0.00	18
2893	0.00	0.00	0.00	26
2894	0.00	0.00	0.00	19
2895	0.00	0.00	0.00	26
2896	0.00	0.00	0.00	17
2897	0.00	0.00	0.00	25
2898	0.00	0.00	0.00	19
2899	0.00	0.00	0.00	19
2900	0.00	0.00	0.00	28
2901	0.00	0.00	0.00	27
2902	0.00	0.00	0.00	19
2903	0.00	0.00	0.00	26
2904	0.00	0.00	0.00	21
2905	1.00	0.16	0.27	19
2906	0.00	0.00	0.00	19
2907	1.00	0.20	0.33	20
2908	0.00	0.00	0.00	19
2909	0.00	0.00	0.00	23
2910	0.00	0.00	0.00	20
2911	0.00	0.00	0.00	24
2912	1.00	0.05	0.09	22
2913	0.00	0.00	0.00	21
2914	0.00	0.00	0.00	28
2915	0.00	0.00	0.00	20
2916	0.00	0.00	0.00	24
2917	0.00	0.00	0.00	23
2918	1.00	0.04	0.08	25
2919	0.00	0.00	0.00	18
2920	1.00	0.14	0.25	21
2921	0.00	0.00	0.00	28
2922	0.00	0.00	0.00	17
2923	0.00	0.00	0.00	17
2924	0.00	0.00	0.00	25
2925	0.00	0.00	0.00	18
2926	0.00	0.00	0.00	20
2927	0.00	0.00	0.00	22
2928	1.00	0.05	0.09	21
2929	0.00	0.00	0.00	15
2930	0.00	0.00	0.00	21
2931	0.00	0.00	0.00	25
2932	0.00	0.00	0.00	21
2933	0.00	0.00	0.00	12
2934	0.00	0.00	0.00	29

2935	0.00	0.00	0.00	29
2936	0.00	0.00	0.00	20
2937	0.67	0.09	0.16	22
2938	0.00	0.00	0.00	24
2939	1.00	0.16	0.28	31
2940	0.00	0.00	0.00	23
2941	0.00	0.00	0.00	24
2942	0.00	0.00	0.00	23
2943	0.00	0.00	0.00	22
2944	0.00	0.00	0.00	17
2945	0.00	0.00	0.00	22
2946	0.00	0.00	0.00	17
2947	0.00	0.00	0.00	27
2948	0.00	0.00	0.00	18
2949	0.00	0.00	0.00	23
2950	0.00	0.00	0.00	22
2951	0.80	0.21	0.33	19
2952	0.00	0.00	0.00	15
2953	1.00	0.16	0.27	19
2954	0.00	0.00	0.00	19
2955	0.00	0.00	0.00	17
2956	0.00	0.00	0.00	20
2957	1.00	0.06	0.12	16
2958	0.00	0.00	0.00	17
2959	0.00	0.00	0.00	24
2960	0.00	0.00	0.00	23
2961	0.00	0.00	0.00	28
2962	0.50	0.05	0.10	19
2963	0.00	0.00	0.00	17
2964	0.00	0.00	0.00	25
2965	0.00	0.00	0.00	24
2966	0.00	0.00	0.00	18
2967	0.00	0.00	0.00	22
2968	0.00	0.00	0.00	17
2969	0.00	0.00	0.00	16
2970	0.00	0.00	0.00	24
2971	0.00	0.00	0.00	25
2972	0.00	0.00	0.00	18
2973	0.00	0.00	0.00	24
2974	0.00	0.00	0.00	19
2975	0.00	0.00	0.00	27
2976	0.00	0.00	0.00	21
2977	0.67	0.09	0.15	23
2978	0.00	0.00	0.00	26
2979	0.00	0.00	0.00	22
2980	0.00	0.00	0.00	24
2981	0.00	0.00	0.00	19
2982	1.00	0.05	0.09	21

2983	0.00	0.00	0.00	23
2984	0.00	0.00	0.00	24
2985	1.00	0.09	0.16	23
2986	1.00	0.09	0.16	23
2987	0.00	0.00	0.00	25
2988	1.00	0.17	0.29	24
2989	0.00	0.00	0.00	17
2990	0.00	0.00	0.00	23
2991	0.00	0.00	0.00	27
2992	0.00	0.00	0.00	18
2993	1.00	0.21	0.35	19
2994	0.00	0.00	0.00	27
2995	0.40	0.08	0.13	25
2996	0.00	0.00	0.00	21
2997	0.00	0.00	0.00	16
2998	0.00	0.00	0.00	28
2999	0.00	0.00	0.00	25
3000	0.00	0.00	0.00	16
3001	0.00	0.00	0.00	23
3002	0.00	0.00	0.00	20
3003	0.00	0.00	0.00	28
3004	0.00	0.00	0.00	14
3005	1.00	0.05	0.09	21
3006	0.00	0.00	0.00	19
3007	0.00	0.00	0.00	26
3008	0.00	0.00	0.00	27
3009	0.50	0.04	0.07	26
3010	0.00	0.00	0.00	20
3011	0.00	0.00	0.00	21
3012	0.00	0.00	0.00	21
3013	0.00	0.00	0.00	15
3014	0.00	0.00	0.00	27
3015	0.67	0.11	0.18	19
3016	1.00	0.05	0.10	19
3017	0.00	0.00	0.00	20
3018	0.00	0.00	0.00	19
3019	1.00	0.06	0.12	16
3020	0.00	0.00	0.00	15
3021	0.50	0.06	0.10	18
3022	0.00	0.00	0.00	18
3023	0.00	0.00	0.00	21
3024	1.00	0.27	0.42	26
3025	0.00	0.00	0.00	18
3026	0.50	0.04	0.08	23
3027	0.00	0.00	0.00	28
3028	0.83	0.24	0.37	21
3029	0.75	0.14	0.23	22
3030	0.00	0.00	0.00	21

3031	0.00	0.00	0.00	19
3032	0.00	0.00	0.00	23
3033	0.00	0.00	0.00	21
3034	0.00	0.00	0.00	17
3035	0.00	0.00	0.00	20
3036	0.67	0.10	0.17	21
3037	0.00	0.00	0.00	26
3038	0.00	0.00	0.00	27
3039	0.00	0.00	0.00	21
3040	0.00	0.00	0.00	19
3041	0.00	0.00	0.00	20
3042	0.00	0.00	0.00	24
3043	0.00	0.00	0.00	28
3044	0.00	0.00	0.00	18
3045	0.00	0.00	0.00	26
3046	0.00	0.00	0.00	26
3047	0.00	0.00	0.00	23
3048	0.00	0.00	0.00	18
3049	0.00	0.00	0.00	23
3050	1.00	0.18	0.30	17
3051	0.50	0.04	0.07	26
3052	0.00	0.00	0.00	32
3053	0.00	0.00	0.00	24
3054	0.00	0.00	0.00	16
3055	0.00	0.00	0.00	21
3056	0.00	0.00	0.00	23
3057	0.00	0.00	0.00	28
3058	0.00	0.00	0.00	13
3059	0.00	0.00	0.00	17
3060	0.00	0.00	0.00	15
3061	0.00	0.00	0.00	19
3062	0.00	0.00	0.00	18
3063	0.00	0.00	0.00	18
3064	0.00	0.00	0.00	22
3065	0.00	0.00	0.00	16
3066	0.00	0.00	0.00	18
3067	0.00	0.00	0.00	18
3068	0.00	0.00	0.00	22
3069	0.00	0.00	0.00	27
3070	0.00	0.00	0.00	23
3071	0.00	0.00	0.00	16
3072	0.00	0.00	0.00	24
3073	1.00	0.50	0.67	20
3074	0.00	0.00	0.00	22
3075	1.00	0.04	0.08	25
3076	0.00	0.00	0.00	18
3077	0.00	0.00	0.00	21
3078	0.00	0.00	0.00	18

3079	0.00	0.00	0.00	15
3080	1.00	0.07	0.12	15
3081	0.00	0.00	0.00	20
3082	0.00	0.00	0.00	23
3083	0.00	0.00	0.00	17
3084	0.00	0.00	0.00	16
3085	0.00	0.00	0.00	25
3086	0.00	0.00	0.00	13
3087	0.00	0.00	0.00	24
3088	0.00	0.00	0.00	22
3089	0.00	0.00	0.00	25
3090	0.00	0.00	0.00	21
3091	0.00	0.00	0.00	15
3092	0.00	0.00	0.00	19
3093	0.00	0.00	0.00	21
3094	0.00	0.00	0.00	22
3095	0.00	0.00	0.00	22
3096	0.00	0.00	0.00	26
3097	0.00	0.00	0.00	23
3098	0.00	0.00	0.00	22
3099	0.00	0.00	0.00	17
3100	1.00	0.22	0.36	18
3101	0.00	0.00	0.00	19
3102	0.00	0.00	0.00	15
3103	0.00	0.00	0.00	17
3104	0.00	0.00	0.00	20
3105	0.00	0.00	0.00	16
3106	0.00	0.00	0.00	14
3107	0.00	0.00	0.00	22
3108	0.00	0.00	0.00	24
3109	0.00	0.00	0.00	20
3110	0.00	0.00	0.00	19
3111	0.00	0.00	0.00	23
3112	0.00	0.00	0.00	21
3113	0.00	0.00	0.00	19
3114	0.00	0.00	0.00	18
3115	0.00	0.00	0.00	22
3116	0.00	0.00	0.00	19
3117	0.00	0.00	0.00	20
3118	0.00	0.00	0.00	18
3119	0.00	0.00	0.00	23
3120	0.00	0.00	0.00	18
3121	0.00	0.00	0.00	19
3122	1.00	0.19	0.32	16
3123	0.00	0.00	0.00	20
3124	0.50	0.05	0.08	22
3125	0.17	0.07	0.10	14
3126	0.00	0.00	0.00	16

3127	0.00	0.00	0.00	18
3128	0.00	0.00	0.00	33
3129	0.00	0.00	0.00	19
3130	0.00	0.00	0.00	28
3131	0.00	0.00	0.00	22
3132	0.00	0.00	0.00	20
3133	0.25	0.06	0.10	17
3134	0.00	0.00	0.00	19
3135	0.00	0.00	0.00	20
3136	0.00	0.00	0.00	20
3137	0.00	0.00	0.00	21
3138	0.00	0.00	0.00	21
3139	0.00	0.00	0.00	22
3140	0.00	0.00	0.00	18
3141	0.00	0.00	0.00	15
3142	0.00	0.00	0.00	20
3143	0.00	0.00	0.00	17
3144	0.00	0.00	0.00	23
3145	0.00	0.00	0.00	19
3146	0.00	0.00	0.00	17
3147	1.00	0.31	0.48	16
3148	0.80	0.50	0.62	16
3149	0.00	0.00	0.00	23
3150	0.00	0.00	0.00	25
3151	0.00	0.00	0.00	25
3152	0.00	0.00	0.00	26
3153	0.00	0.00	0.00	27
3154	0.00	0.00	0.00	20
3155	1.00	0.33	0.50	18
3156	0.00	0.00	0.00	17
3157	0.75	0.21	0.33	14
3158	0.00	0.00	0.00	23
3159	0.00	0.00	0.00	19
3160	0.50	0.05	0.09	20
3161	0.00	0.00	0.00	18
3162	0.00	0.00	0.00	19
3163	0.00	0.00	0.00	21
3164	0.00	0.00	0.00	16
3165	0.00	0.00	0.00	22
3166	0.00	0.00	0.00	19
3167	0.00	0.00	0.00	21
3168	0.00	0.00	0.00	27
3169	0.00	0.00	0.00	21
3170	0.00	0.00	0.00	23
3171	0.00	0.00	0.00	15
3172	0.00	0.00	0.00	24
3173	0.00	0.00	0.00	18
3174	0.00	0.00	0.00	21

3175	0.00	0.00	0.00	14
3176	0.00	0.00	0.00	19
3177	0.00	0.00	0.00	22
3178	0.00	0.00	0.00	20
3179	0.00	0.00	0.00	18
3180	0.00	0.00	0.00	20
3181	0.00	0.00	0.00	27
3182	0.00	0.00	0.00	23
3183	0.00	0.00	0.00	13
3184	0.00	0.00	0.00	22
3185	0.00	0.00	0.00	20
3186	0.00	0.00	0.00	28
3187	0.00	0.00	0.00	19
3188	0.00	0.00	0.00	23
3189	0.00	0.00	0.00	25
3190	0.00	0.00	0.00	21
3191	0.00	0.00	0.00	20
3192	0.00	0.00	0.00	22
3193	0.00	0.00	0.00	21
3194	0.00	0.00	0.00	16
3195	0.00	0.00	0.00	21
3196	0.00	0.00	0.00	21
3197	1.00	0.05	0.10	20
3198	0.00	0.00	0.00	18
3199	0.00	0.00	0.00	23
3200	0.33	0.05	0.09	19
3201	1.00	0.06	0.11	18
3202	0.00	0.00	0.00	25
3203	0.00	0.00	0.00	21
3204	1.00	0.07	0.12	15
3205	0.00	0.00	0.00	18
3206	0.00	0.00	0.00	23
3207	0.00	0.00	0.00	15
3208	0.00	0.00	0.00	20
3209	0.00	0.00	0.00	21
3210	0.00	0.00	0.00	20
3211	0.00	0.00	0.00	22
3212	0.00	0.00	0.00	21
3213	0.00	0.00	0.00	22
3214	0.00	0.00	0.00	25
3215	0.00	0.00	0.00	16
3216	0.00	0.00	0.00	7
3217	1.00	0.18	0.30	17
3218	0.00	0.00	0.00	26
3219	0.00	0.00	0.00	19
3220	0.00	0.00	0.00	29
3221	0.00	0.00	0.00	25
3222	0.00	0.00	0.00	14

3223	1.00	0.12	0.21	17
3224	0.00	0.00	0.00	23
3225	0.00	0.00	0.00	22
3226	0.00	0.00	0.00	20
3227	0.00	0.00	0.00	24
3228	0.00	0.00	0.00	17
3229	0.00	0.00	0.00	31
3230	0.00	0.00	0.00	21
3231	0.00	0.00	0.00	22
3232	0.00	0.00	0.00	15
3233	0.00	0.00	0.00	21
3234	0.00	0.00	0.00	23
3235	0.00	0.00	0.00	21
3236	0.00	0.00	0.00	14
3237	0.00	0.00	0.00	21
3238	0.00	0.00	0.00	17
3239	0.00	0.00	0.00	22
3240	0.00	0.00	0.00	22
3241	0.00	0.00	0.00	15
3242	0.00	0.00	0.00	21
3243	0.00	0.00	0.00	15
3244	0.00	0.00	0.00	29
3245	0.00	0.00	0.00	17
3246	0.00	0.00	0.00	22
3247	0.00	0.00	0.00	25
3248	0.00	0.00	0.00	20
3249	0.00	0.00	0.00	22
3250	0.00	0.00	0.00	24
3251	0.00	0.00	0.00	19
3252	0.00	0.00	0.00	17
3253	0.00	0.00	0.00	16
3254	0.00	0.00	0.00	25
3255	0.00	0.00	0.00	15
3256	0.00	0.00	0.00	17
3257	0.00	0.00	0.00	15
3258	0.00	0.00	0.00	21
3259	0.00	0.00	0.00	14
3260	0.00	0.00	0.00	18
3261	0.00	0.00	0.00	24
3262	0.00	0.00	0.00	20
3263	0.00	0.00	0.00	16
3264	1.00	0.05	0.10	19
3265	0.00	0.00	0.00	21
3266	0.00	0.00	0.00	20
3267	0.00	0.00	0.00	22
3268	0.00	0.00	0.00	13
3269	0.00	0.00	0.00	18
3270	0.00	0.00	0.00	15

3271	0.00	0.00	0.00	19
3272	0.00	0.00	0.00	25
3273	0.00	0.00	0.00	18
3274	0.00	0.00	0.00	22
3275	0.00	0.00	0.00	23
3276	0.00	0.00	0.00	17
3277	0.00	0.00	0.00	20
3278	0.00	0.00	0.00	22
3279	0.00	0.00	0.00	21
3280	0.00	0.00	0.00	19
3281	0.00	0.00	0.00	18
3282	0.00	0.00	0.00	20
3283	0.00	0.00	0.00	15
3284	0.00	0.00	0.00	17
3285	0.00	0.00	0.00	20
3286	0.00	0.00	0.00	11
3287	0.00	0.00	0.00	16
3288	0.00	0.00	0.00	14
3289	0.00	0.00	0.00	27
3290	0.00	0.00	0.00	26
3291	0.00	0.00	0.00	24
3292	0.00	0.00	0.00	19
3293	0.00	0.00	0.00	15
3294	1.00	0.05	0.09	22
3295	0.00	0.00	0.00	19
3296	0.00	0.00	0.00	26
3297	0.00	0.00	0.00	22
3298	0.00	0.00	0.00	16
3299	0.00	0.00	0.00	19
3300	0.00	0.00	0.00	16
3301	1.00	0.05	0.10	19
3302	1.00	0.06	0.11	17
3303	0.00	0.00	0.00	17
3304	0.00	0.00	0.00	16
3305	0.00	0.00	0.00	26
3306	0.00	0.00	0.00	16
3307	0.00	0.00	0.00	21
3308	0.00	0.00	0.00	15
3309	0.00	0.00	0.00	14
3310	0.00	0.00	0.00	16
3311	0.00	0.00	0.00	26
3312	0.00	0.00	0.00	21
3313	0.00	0.00	0.00	17
3314	0.00	0.00	0.00	20
3315	0.00	0.00	0.00	18
3316	0.00	0.00	0.00	20
3317	0.00	0.00	0.00	20
3318	0.00	0.00	0.00	19

3319	0.00	0.00	0.00	11
3320	0.00	0.00	0.00	17
3321	0.00	0.00	0.00	21
3322	0.00	0.00	0.00	20
3323	0.00	0.00	0.00	19
3324	1.00	0.12	0.21	17
3325	0.00	0.00	0.00	13
3326	0.00	0.00	0.00	18
3327	0.00	0.00	0.00	15
3328	1.00	0.04	0.08	24
3329	0.00	0.00	0.00	23
3330	1.00	0.25	0.40	12
3331	0.33	0.06	0.11	16
3332	0.00	0.00	0.00	19
3333	0.00	0.00	0.00	23
3334	0.00	0.00	0.00	21
3335	0.00	0.00	0.00	12
3336	0.00	0.00	0.00	16
3337	0.00	0.00	0.00	8
3338	0.00	0.00	0.00	21
3339	0.00	0.00	0.00	22
3340	0.00	0.00	0.00	23
3341	0.00	0.00	0.00	14
3342	0.00	0.00	0.00	26
3343	0.00	0.00	0.00	19
3344	0.00	0.00	0.00	10
3345	0.00	0.00	0.00	22
3346	0.00	0.00	0.00	19
3347	0.00	0.00	0.00	21
3348	0.00	0.00	0.00	17
3349	0.00	0.00	0.00	20
3350	0.00	0.00	0.00	21
3351	0.00	0.00	0.00	21
3352	0.00	0.00	0.00	16
3353	0.00	0.00	0.00	19
3354	0.00	0.00	0.00	15
3355	0.00	0.00	0.00	19
3356	0.00	0.00	0.00	14
3357	0.00	0.00	0.00	17
3358	0.00	0.00	0.00	19
3359	0.00	0.00	0.00	17
3360	0.00	0.00	0.00	11
3361	0.00	0.00	0.00	20
3362	0.00	0.00	0.00	18
3363	0.00	0.00	0.00	23
3364	0.00	0.00	0.00	19
3365	0.00	0.00	0.00	15
3366	0.00	0.00	0.00	28

3367	1.00	0.06	0.12	16
3368	0.00	0.00	0.00	12
3369	0.00	0.00	0.00	16
3370	0.00	0.00	0.00	18
3371	0.00	0.00	0.00	24
3372	0.00	0.00	0.00	22
3373	0.00	0.00	0.00	12
3374	0.00	0.00	0.00	23
3375	0.00	0.00	0.00	23
3376	0.00	0.00	0.00	22
3377	0.00	0.00	0.00	16
3378	0.00	0.00	0.00	16
3379	0.00	0.00	0.00	14
3380	0.00	0.00	0.00	21
3381	0.00	0.00	0.00	17
3382	0.00	0.00	0.00	19
3383	0.00	0.00	0.00	16
3384	0.00	0.00	0.00	18
3385	0.00	0.00	0.00	10
3386	0.00	0.00	0.00	28
3387	0.00	0.00	0.00	18
3388	0.00	0.00	0.00	16
3389	1.00	0.06	0.12	16
3390	0.00	0.00	0.00	8
3391	0.00	0.00	0.00	24
3392	0.00	0.00	0.00	17
3393	0.00	0.00	0.00	15
3394	1.00	0.25	0.40	20
3395	0.00	0.00	0.00	23
3396	0.00	0.00	0.00	14
3397	0.00	0.00	0.00	13
3398	0.00	0.00	0.00	19
3399	0.00	0.00	0.00	21
3400	0.00	0.00	0.00	18
3401	0.00	0.00	0.00	22
3402	0.00	0.00	0.00	15
3403	0.00	0.00	0.00	15
3404	0.33	0.10	0.15	10
3405	0.00	0.00	0.00	19
3406	0.00	0.00	0.00	25
3407	0.00	0.00	0.00	19
3408	0.00	0.00	0.00	16
3409	0.00	0.00	0.00	19
3410	0.00	0.00	0.00	21
3411	0.00	0.00	0.00	16
3412	0.00	0.00	0.00	16
3413	0.00	0.00	0.00	12
3414	0.00	0.00	0.00	16

3415	0.00	0.00	0.00	19
3416	0.00	0.00	0.00	19
3417	0.00	0.00	0.00	19
3418	0.00	0.00	0.00	8
3419	0.00	0.00	0.00	20
3420	0.00	0.00	0.00	23
3421	0.00	0.00	0.00	12
3422	0.00	0.00	0.00	22
3423	0.00	0.00	0.00	20
3424	0.00	0.00	0.00	21
3425	0.00	0.00	0.00	16
3426	0.00	0.00	0.00	21
3427	0.00	0.00	0.00	17
3428	0.00	0.00	0.00	12
3429	0.00	0.00	0.00	15
3430	0.00	0.00	0.00	22
3431	0.00	0.00	0.00	16
3432	0.00	0.00	0.00	15
3433	0.00	0.00	0.00	16
3434	0.00	0.00	0.00	16
3435	0.00	0.00	0.00	21
3436	0.00	0.00	0.00	16
3437	0.00	0.00	0.00	14
3438	0.00	0.00	0.00	19
3439	0.00	0.00	0.00	12
3440	0.00	0.00	0.00	17
3441	0.00	0.00	0.00	16
3442	0.00	0.00	0.00	16
3443	0.00	0.00	0.00	15
3444	0.00	0.00	0.00	14
3445	0.00	0.00	0.00	21
3446	0.00	0.00	0.00	20
3447	0.00	0.00	0.00	23
3448	0.00	0.00	0.00	13
3449	0.00	0.00	0.00	19
3450	0.00	0.00	0.00	20
3451	0.00	0.00	0.00	11
3452	0.00	0.00	0.00	13
3453	0.00	0.00	0.00	21
3454	0.00	0.00	0.00	20
3455	0.00	0.00	0.00	11
3456	0.00	0.00	0.00	20
3457	0.00	0.00	0.00	16
3458	0.00	0.00	0.00	19
3459	0.00	0.00	0.00	14
3460	0.00	0.00	0.00	20
3461	0.00	0.00	0.00	19
3462	0.00	0.00	0.00	21

3463	0.00	0.00	0.00	20
3464	0.00	0.00	0.00	14
3465	0.00	0.00	0.00	13
3466	0.00	0.00	0.00	20
3467	0.00	0.00	0.00	22
3468	0.00	0.00	0.00	18
3469	0.00	0.00	0.00	14
3470	0.00	0.00	0.00	18
3471	0.00	0.00	0.00	17
3472	0.00	0.00	0.00	18
3473	0.00	0.00	0.00	15
3474	0.00	0.00	0.00	20
3475	1.00	0.16	0.27	19
3476	0.00	0.00	0.00	15
3477	0.00	0.00	0.00	11
3478	0.00	0.00	0.00	19
3479	0.00	0.00	0.00	16
3480	0.00	0.00	0.00	18
3481	0.00	0.00	0.00	14
3482	0.00	0.00	0.00	14
3483	0.00	0.00	0.00	20
3484	0.67	0.12	0.20	17
3485	0.00	0.00	0.00	16
3486	0.00	0.00	0.00	15
3487	0.00	0.00	0.00	21
3488	0.00	0.00	0.00	15
3489	0.00	0.00	0.00	21
3490	0.00	0.00	0.00	21
3491	0.00	0.00	0.00	19
3492	0.00	0.00	0.00	23
3493	1.00	0.12	0.21	17
3494	0.00	0.00	0.00	21
3495	0.00	0.00	0.00	11
3496	0.00	0.00	0.00	14
3497	0.00	0.00	0.00	15
3498	0.00	0.00	0.00	17
3499	0.00	0.00	0.00	19
3500	0.00	0.00	0.00	15
3501	0.00	0.00	0.00	20
3502	0.00	0.00	0.00	15
3503	0.00	0.00	0.00	19
3504	0.00	0.00	0.00	23
3505	0.50	0.06	0.11	16
3506	0.00	0.00	0.00	17
3507	0.00	0.00	0.00	20
3508	0.00	0.00	0.00	11
3509	0.00	0.00	0.00	20
3510	0.00	0.00	0.00	15

3511	0.00	0.00	0.00	14
3512	0.00	0.00	0.00	14
3513	0.00	0.00	0.00	17
3514	0.00	0.00	0.00	20
3515	0.00	0.00	0.00	19
3516	0.00	0.00	0.00	18
3517	0.00	0.00	0.00	16
3518	0.00	0.00	0.00	15
3519	0.00	0.00	0.00	19
3520	0.00	0.00	0.00	17
3521	0.00	0.00	0.00	15
3522	0.00	0.00	0.00	23
3523	0.00	0.00	0.00	17
3524	0.00	0.00	0.00	21
3525	0.00	0.00	0.00	17
3526	0.00	0.00	0.00	12
3527	0.00	0.00	0.00	20
3528	0.00	0.00	0.00	25
3529	0.00	0.00	0.00	19
3530	0.00	0.00	0.00	9
3531	0.00	0.00	0.00	18
3532	0.00	0.00	0.00	17
3533	0.00	0.00	0.00	13
3534	0.00	0.00	0.00	19
3535	0.00	0.00	0.00	12
3536	0.00	0.00	0.00	20
3537	0.00	0.00	0.00	22
3538	0.00	0.00	0.00	12
3539	1.00	0.06	0.12	16
3540	0.00	0.00	0.00	14
3541	0.60	0.20	0.30	15
3542	0.00	0.00	0.00	17
3543	0.00	0.00	0.00	17
3544	0.00	0.00	0.00	17
3545	0.00	0.00	0.00	14
3546	0.00	0.00	0.00	14
3547	0.00	0.00	0.00	18
3548	0.00	0.00	0.00	21
3549	0.00	0.00	0.00	11
3550	0.00	0.00	0.00	13
3551	0.00	0.00	0.00	17
3552	0.00	0.00	0.00	12
3553	0.00	0.00	0.00	13
3554	0.00	0.00	0.00	16
3555	0.00	0.00	0.00	24
3556	0.00	0.00	0.00	8
3557	0.00	0.00	0.00	15
3558	0.00	0.00	0.00	13

3559	0.00	0.00	0.00	22
3560	0.00	0.00	0.00	15
3561	0.00	0.00	0.00	19
3562	0.00	0.00	0.00	16
3563	0.00	0.00	0.00	21
3564	0.00	0.00	0.00	19
3565	0.00	0.00	0.00	19
3566	0.00	0.00	0.00	16
3567	0.00	0.00	0.00	13
3568	0.00	0.00	0.00	20
3569	0.00	0.00	0.00	13
3570	0.00	0.00	0.00	16
3571	1.00	0.04	0.08	25
3572	0.00	0.00	0.00	18
3573	0.00	0.00	0.00	11
3574	0.00	0.00	0.00	19
3575	0.00	0.00	0.00	23
3576	0.00	0.00	0.00	12
3577	0.00	0.00	0.00	21
3578	0.00	0.00	0.00	16
3579	0.00	0.00	0.00	21
3580	0.00	0.00	0.00	17
3581	0.00	0.00	0.00	21
3582	0.00	0.00	0.00	13
3583	0.00	0.00	0.00	24
3584	0.00	0.00	0.00	18
3585	0.00	0.00	0.00	13
3586	0.00	0.00	0.00	14
3587	0.00	0.00	0.00	22
3588	0.00	0.00	0.00	14
3589	0.00	0.00	0.00	18
3590	0.00	0.00	0.00	23
3591	0.00	0.00	0.00	18
3592	0.00	0.00	0.00	11
3593	0.00	0.00	0.00	16
3594	1.00	0.25	0.40	12
3595	0.00	0.00	0.00	21
3596	0.00	0.00	0.00	17
3597	0.00	0.00	0.00	19
3598	0.00	0.00	0.00	13
3599	0.00	0.00	0.00	18
3600	0.00	0.00	0.00	17
3601	0.00	0.00	0.00	18
3602	1.00	0.08	0.14	13
3603	0.00	0.00	0.00	12
3604	0.00	0.00	0.00	18
3605	0.00	0.00	0.00	16
3606	0.00	0.00	0.00	15

3607	0.00	0.00	0.00	22
3608	0.00	0.00	0.00	21
3609	0.00	0.00	0.00	20
3610	0.00	0.00	0.00	17
3611	0.00	0.00	0.00	19
3612	0.00	0.00	0.00	13
3613	0.00	0.00	0.00	12
3614	0.00	0.00	0.00	18
3615	0.00	0.00	0.00	7
3616	0.00	0.00	0.00	23
3617	0.00	0.00	0.00	14
3618	0.00	0.00	0.00	21
3619	0.00	0.00	0.00	18
3620	0.00	0.00	0.00	20
3621	0.00	0.00	0.00	15
3622	0.00	0.00	0.00	17
3623	0.00	0.00	0.00	16
3624	0.00	0.00	0.00	18
3625	0.00	0.00	0.00	21
3626	1.00	0.25	0.40	12
3627	0.00	0.00	0.00	18
3628	0.50	0.07	0.12	14
3629	0.00	0.00	0.00	13
3630	0.00	0.00	0.00	10
3631	0.00	0.00	0.00	17
3632	0.00	0.00	0.00	8
3633	0.00	0.00	0.00	16
3634	0.00	0.00	0.00	19
3635	0.00	0.00	0.00	14
3636	0.00	0.00	0.00	13
3637	0.00	0.00	0.00	18
3638	0.00	0.00	0.00	23
3639	0.00	0.00	0.00	20
3640	0.00	0.00	0.00	17
3641	0.00	0.00	0.00	20
3642	0.50	0.09	0.15	11
3643	0.00	0.00	0.00	13
3644	0.00	0.00	0.00	19
3645	0.00	0.00	0.00	11
3646	0.33	0.08	0.12	13
3647	0.00	0.00	0.00	13
3648	0.00	0.00	0.00	19
3649	0.00	0.00	0.00	19
3650	0.00	0.00	0.00	12
3651	0.00	0.00	0.00	18
3652	0.00	0.00	0.00	18
3653	0.00	0.00	0.00	12
3654	0.00	0.00	0.00	20

3655	0.00	0.00	0.00	22
3656	0.00	0.00	0.00	19
3657	0.00	0.00	0.00	10
3658	0.00	0.00	0.00	15
3659	0.00	0.00	0.00	11
3660	0.00	0.00	0.00	15
3661	0.00	0.00	0.00	18
3662	0.00	0.00	0.00	18
3663	0.00	0.00	0.00	19
3664	0.00	0.00	0.00	12
3665	1.00	0.04	0.08	24
3666	0.00	0.00	0.00	18
3667	0.00	0.00	0.00	16
3668	0.00	0.00	0.00	12
3669	0.00	0.00	0.00	22
3670	0.00	0.00	0.00	19
3671	0.00	0.00	0.00	19
3672	0.00	0.00	0.00	19
3673	0.00	0.00	0.00	14
3674	0.00	0.00	0.00	18
3675	0.00	0.00	0.00	16
3676	0.00	0.00	0.00	12
3677	0.00	0.00	0.00	17
3678	0.00	0.00	0.00	20
3679	0.00	0.00	0.00	21
3680	0.00	0.00	0.00	22
3681	0.00	0.00	0.00	15
3682	0.00	0.00	0.00	17
3683	0.00	0.00	0.00	19
3684	0.00	0.00	0.00	13
3685	0.00	0.00	0.00	17
3686	0.00	0.00	0.00	18
3687	0.00	0.00	0.00	26
3688	0.00	0.00	0.00	20
3689	1.00	0.10	0.18	20
3690	0.00	0.00	0.00	22
3691	0.00	0.00	0.00	18
3692	0.00	0.00	0.00	15
3693	0.00	0.00	0.00	15
3694	0.40	0.14	0.21	14
3695	0.00	0.00	0.00	19
3696	0.00	0.00	0.00	13
3697	0.00	0.00	0.00	13
3698	0.00	0.00	0.00	16
3699	0.00	0.00	0.00	17
3700	0.00	0.00	0.00	19
3701	0.00	0.00	0.00	15
3702	0.00	0.00	0.00	23

3703	0.00	0.00	0.00	19
3704	0.00	0.00	0.00	12
3705	0.00	0.00	0.00	21
3706	0.00	0.00	0.00	17
3707	0.00	0.00	0.00	19
3708	0.00	0.00	0.00	19
3709	0.00	0.00	0.00	13
3710	0.00	0.00	0.00	13
3711	0.00	0.00	0.00	11
3712	0.00	0.00	0.00	18
3713	0.00	0.00	0.00	17
3714	0.00	0.00	0.00	18
3715	0.00	0.00	0.00	13
3716	0.00	0.00	0.00	21
3717	0.00	0.00	0.00	17
3718	0.00	0.00	0.00	13
3719	0.00	0.00	0.00	18
3720	0.00	0.00	0.00	11
3721	0.00	0.00	0.00	15
3722	0.00	0.00	0.00	12
3723	0.00	0.00	0.00	19
3724	0.00	0.00	0.00	12
3725	0.00	0.00	0.00	14
3726	0.00	0.00	0.00	16
3727	0.00	0.00	0.00	14
3728	0.00	0.00	0.00	19
3729	0.00	0.00	0.00	15
3730	0.00	0.00	0.00	12
3731	0.00	0.00	0.00	16
3732	0.00	0.00	0.00	17
3733	0.00	0.00	0.00	17
3734	0.00	0.00	0.00	16
3735	0.00	0.00	0.00	18
3736	0.00	0.00	0.00	15
3737	0.00	0.00	0.00	15
3738	0.00	0.00	0.00	15
3739	0.00	0.00	0.00	19
3740	0.00	0.00	0.00	16
3741	0.00	0.00	0.00	20
3742	0.00	0.00	0.00	15
3743	0.00	0.00	0.00	13
3744	1.00	0.15	0.27	13
3745	0.00	0.00	0.00	15
3746	0.00	0.00	0.00	16
3747	0.00	0.00	0.00	19
3748	0.00	0.00	0.00	11
3749	0.00	0.00	0.00	20
3750	0.00	0.00	0.00	17

3751	0.00	0.00	0.00	11
3752	0.00	0.00	0.00	13
3753	0.00	0.00	0.00	18
3754	0.00	0.00	0.00	17
3755	0.00	0.00	0.00	20
3756	0.00	0.00	0.00	16
3757	0.00	0.00	0.00	14
3758	0.00	0.00	0.00	14
3759	0.00	0.00	0.00	22
3760	0.00	0.00	0.00	15
3761	0.00	0.00	0.00	17
3762	0.00	0.00	0.00	17
3763	0.00	0.00	0.00	15
3764	1.00	0.21	0.35	19
3765	0.00	0.00	0.00	17
3766	0.00	0.00	0.00	7
3767	0.00	0.00	0.00	15
3768	0.00	0.00	0.00	12
3769	0.00	0.00	0.00	14
3770	0.00	0.00	0.00	15
3771	0.00	0.00	0.00	16
3772	0.00	0.00	0.00	15
3773	0.00	0.00	0.00	16
3774	0.00	0.00	0.00	17
3775	0.00	0.00	0.00	16
3776	0.00	0.00	0.00	11
3777	0.00	0.00	0.00	19
3778	0.00	0.00	0.00	22
3779	0.00	0.00	0.00	9
3780	1.00	0.15	0.27	13
3781	0.00	0.00	0.00	12
3782	0.00	0.00	0.00	23
3783	0.00	0.00	0.00	13
3784	0.00	0.00	0.00	15
3785	0.00	0.00	0.00	19
3786	0.00	0.00	0.00	17
3787	0.00	0.00	0.00	13
3788	0.00	0.00	0.00	18
3789	1.00	0.06	0.11	17
3790	0.00	0.00	0.00	14
3791	0.00	0.00	0.00	13
3792	0.00	0.00	0.00	18
3793	0.00	0.00	0.00	12
3794	0.00	0.00	0.00	22
3795	0.00	0.00	0.00	14
3796	0.00	0.00	0.00	23
3797	0.00	0.00	0.00	8
3798	0.00	0.00	0.00	23

3799	0.00	0.00	0.00	9
3800	0.00	0.00	0.00	17
3801	0.00	0.00	0.00	17
3802	0.00	0.00	0.00	14
3803	0.00	0.00	0.00	21
3804	0.00	0.00	0.00	15
3805	0.00	0.00	0.00	13
3806	0.00	0.00	0.00	13
3807	0.00	0.00	0.00	10
3808	0.00	0.00	0.00	14
3809	0.00	0.00	0.00	17
3810	0.00	0.00	0.00	21
3811	0.00	0.00	0.00	14
3812	0.00	0.00	0.00	18
3813	0.00	0.00	0.00	19
3814	0.00	0.00	0.00	16
3815	0.00	0.00	0.00	14
3816	0.00	0.00	0.00	14
3817	0.00	0.00	0.00	14
3818	0.00	0.00	0.00	15
3819	0.00	0.00	0.00	18
3820	0.00	0.00	0.00	16
3821	0.00	0.00	0.00	19
3822	0.00	0.00	0.00	21
3823	0.00	0.00	0.00	16
3824	0.00	0.00	0.00	17
3825	0.00	0.00	0.00	16
3826	0.00	0.00	0.00	20
3827	0.00	0.00	0.00	17
3828	0.00	0.00	0.00	17
3829	0.00	0.00	0.00	16
3830	0.00	0.00	0.00	19
3831	0.00	0.00	0.00	15
3832	0.00	0.00	0.00	20
3833	0.00	0.00	0.00	16
3834	0.00	0.00	0.00	13
3835	0.00	0.00	0.00	14
3836	0.00	0.00	0.00	12
3837	0.00	0.00	0.00	14
3838	0.00	0.00	0.00	9
3839	0.00	0.00	0.00	13
3840	0.00	0.00	0.00	14
3841	0.00	0.00	0.00	19
3842	0.00	0.00	0.00	19
3843	0.00	0.00	0.00	16
3844	0.00	0.00	0.00	13
3845	0.00	0.00	0.00	21
3846	0.00	0.00	0.00	7

3847	0.00	0.00	0.00	16
3848	0.00	0.00	0.00	10
3849	0.00	0.00	0.00	19
3850	0.00	0.00	0.00	18
3851	0.00	0.00	0.00	11
3852	0.00	0.00	0.00	17
3853	0.00	0.00	0.00	13
3854	0.00	0.00	0.00	20
3855	0.00	0.00	0.00	20
3856	0.00	0.00	0.00	10
3857	0.00	0.00	0.00	20
3858	0.00	0.00	0.00	22
3859	0.00	0.00	0.00	13
3860	0.00	0.00	0.00	19
3861	0.00	0.00	0.00	16
3862	0.00	0.00	0.00	18
3863	0.00	0.00	0.00	10
3864	1.00	0.15	0.27	13
3865	0.00	0.00	0.00	15
3866	0.00	0.00	0.00	13
3867	0.00	0.00	0.00	18
3868	0.00	0.00	0.00	13
3869	0.00	0.00	0.00	17
3870	0.00	0.00	0.00	14
3871	0.00	0.00	0.00	11
3872	0.00	0.00	0.00	10
3873	0.00	0.00	0.00	17
3874	0.00	0.00	0.00	9
3875	0.00	0.00	0.00	13
3876	0.00	0.00	0.00	12
3877	0.00	0.00	0.00	13
3878	0.00	0.00	0.00	16
3879	0.00	0.00	0.00	17
3880	0.00	0.00	0.00	11
3881	0.00	0.00	0.00	17
3882	0.00	0.00	0.00	13
3883	0.00	0.00	0.00	11
3884	0.00	0.00	0.00	15
3885	0.00	0.00	0.00	17
3886	0.00	0.00	0.00	14
3887	1.00	0.20	0.33	10
3888	0.00	0.00	0.00	16
3889	0.00	0.00	0.00	13
3890	0.00	0.00	0.00	14
3891	0.00	0.00	0.00	15
3892	0.00	0.00	0.00	19
3893	0.00	0.00	0.00	9
3894	0.00	0.00	0.00	16

3895	0.00	0.00	0.00	18
3896	0.00	0.00	0.00	17
3897	0.00	0.00	0.00	18
3898	0.00	0.00	0.00	10
3899	0.00	0.00	0.00	14
3900	0.00	0.00	0.00	22
3901	0.00	0.00	0.00	23
3902	0.00	0.00	0.00	11
3903	0.00	0.00	0.00	10
3904	0.00	0.00	0.00	7
3905	0.00	0.00	0.00	19
3906	1.00	0.13	0.24	15
3907	0.00	0.00	0.00	9
3908	0.00	0.00	0.00	12
3909	0.00	0.00	0.00	17
3910	0.00	0.00	0.00	11
3911	0.00	0.00	0.00	14
3912	0.00	0.00	0.00	18
3913	0.00	0.00	0.00	12
3914	0.00	0.00	0.00	15
3915	0.00	0.00	0.00	12
3916	0.00	0.00	0.00	14
3917	0.00	0.00	0.00	12
3918	0.00	0.00	0.00	11
3919	0.00	0.00	0.00	12
3920	0.00	0.00	0.00	24
3921	0.00	0.00	0.00	13
3922	0.00	0.00	0.00	15
3923	1.00	0.07	0.12	15
3924	0.00	0.00	0.00	10
3925	0.00	0.00	0.00	20
3926	0.00	0.00	0.00	15
3927	0.00	0.00	0.00	20
3928	0.00	0.00	0.00	11
3929	0.00	0.00	0.00	15
3930	0.00	0.00	0.00	8
3931	0.00	0.00	0.00	16
3932	0.00	0.00	0.00	15
3933	0.00	0.00	0.00	15
3934	0.00	0.00	0.00	17
3935	0.00	0.00	0.00	10
3936	0.00	0.00	0.00	21
3937	0.00	0.00	0.00	14
3938	0.00	0.00	0.00	19
3939	0.00	0.00	0.00	17
3940	0.00	0.00	0.00	19
3941	0.00	0.00	0.00	13
3942	0.00	0.00	0.00	12

3943	0.00	0.00	0.00	18
3944	0.00	0.00	0.00	17
3945	0.00	0.00	0.00	17
3946	0.00	0.00	0.00	12
3947	0.00	0.00	0.00	15
3948	0.00	0.00	0.00	14
3949	0.00	0.00	0.00	17
3950	0.00	0.00	0.00	14
3951	0.00	0.00	0.00	15
3952	0.00	0.00	0.00	17
3953	0.00	0.00	0.00	11
3954	0.00	0.00	0.00	14
3955	0.00	0.00	0.00	15
3956	0.00	0.00	0.00	17
3957	0.00	0.00	0.00	9
3958	0.00	0.00	0.00	20
3959	1.00	0.33	0.50	9
3960	0.00	0.00	0.00	13
3961	0.00	0.00	0.00	18
3962	0.00	0.00	0.00	14
3963	0.00	0.00	0.00	15
3964	0.00	0.00	0.00	13
3965	0.00	0.00	0.00	16
3966	0.00	0.00	0.00	15
3967	0.00	0.00	0.00	15
3968	0.00	0.00	0.00	17
3969	0.00	0.00	0.00	20
3970	0.00	0.00	0.00	16
3971	0.00	0.00	0.00	19
3972	1.00	0.12	0.22	16
3973	0.00	0.00	0.00	15
3974	0.00	0.00	0.00	8
3975	0.00	0.00	0.00	16
3976	0.00	0.00	0.00	15
3977	0.00	0.00	0.00	14
3978	0.00	0.00	0.00	16
3979	0.00	0.00	0.00	13
3980	0.00	0.00	0.00	28
3981	0.00	0.00	0.00	16
3982	0.00	0.00	0.00	12
3983	0.00	0.00	0.00	13
3984	0.00	0.00	0.00	12
3985	0.00	0.00	0.00	15
3986	0.00	0.00	0.00	10
3987	0.00	0.00	0.00	20
3988	0.00	0.00	0.00	17
3989	0.00	0.00	0.00	14
3990	0.00	0.00	0.00	11

3991	0.00	0.00	0.00	14
3992	0.00	0.00	0.00	13
3993	1.00	0.23	0.38	13
3994	0.00	0.00	0.00	18
3995	0.00	0.00	0.00	13
3996	0.00	0.00	0.00	13
3997	0.00	0.00	0.00	19
3998	0.00	0.00	0.00	10
3999	1.00	0.13	0.24	15
4000	0.00	0.00	0.00	20
4001	0.00	0.00	0.00	16
4002	0.00	0.00	0.00	11
4003	0.00	0.00	0.00	14
4004	0.00	0.00	0.00	15
4005	0.00	0.00	0.00	21
4006	0.00	0.00	0.00	12
4007	0.00	0.00	0.00	15
4008	0.00	0.00	0.00	9
4009	0.50	0.06	0.11	16
4010	0.00	0.00	0.00	12
4011	0.00	0.00	0.00	16
4012	0.00	0.00	0.00	19
4013	0.00	0.00	0.00	13
4014	0.00	0.00	0.00	13
4015	0.00	0.00	0.00	13
4016	0.00	0.00	0.00	16
4017	0.00	0.00	0.00	17
4018	0.00	0.00	0.00	10
4019	0.00	0.00	0.00	12
4020	0.00	0.00	0.00	13
4021	0.00	0.00	0.00	17
4022	0.00	0.00	0.00	16
4023	0.00	0.00	0.00	14
4024	0.00	0.00	0.00	11
4025	0.00	0.00	0.00	8
4026	0.00	0.00	0.00	8
4027	0.00	0.00	0.00	18
4028	0.00	0.00	0.00	13
4029	0.00	0.00	0.00	11
4030	0.00	0.00	0.00	19
4031	0.00	0.00	0.00	9
4032	0.00	0.00	0.00	12
4033	0.00	0.00	0.00	14
4034	0.00	0.00	0.00	17
4035	0.00	0.00	0.00	10
4036	0.00	0.00	0.00	12
4037	0.00	0.00	0.00	13
4038	0.00	0.00	0.00	13

4039	0.00	0.00	0.00	13
4040	0.00	0.00	0.00	12
4041	0.00	0.00	0.00	17
4042	0.00	0.00	0.00	10
4043	0.00	0.00	0.00	15
4044	0.00	0.00	0.00	13
4045	0.00	0.00	0.00	20
4046	0.00	0.00	0.00	16
4047	0.00	0.00	0.00	12
4048	0.00	0.00	0.00	16
4049	0.00	0.00	0.00	14
4050	0.00	0.00	0.00	15
4051	0.00	0.00	0.00	20
4052	0.00	0.00	0.00	10
4053	0.00	0.00	0.00	14
4054	0.00	0.00	0.00	14
4055	0.00	0.00	0.00	5
4056	0.00	0.00	0.00	15
4057	1.00	0.07	0.12	15
4058	0.00	0.00	0.00	17
4059	0.00	0.00	0.00	13
4060	0.00	0.00	0.00	14
4061	0.00	0.00	0.00	10
4062	0.00	0.00	0.00	15
4063	0.00	0.00	0.00	15
4064	0.00	0.00	0.00	17
4065	0.00	0.00	0.00	17
4066	0.00	0.00	0.00	14
4067	0.00	0.00	0.00	15
4068	0.00	0.00	0.00	21
4069	0.00	0.00	0.00	9
4070	0.00	0.00	0.00	9
4071	0.00	0.00	0.00	21
4072	0.00	0.00	0.00	18
4073	0.00	0.00	0.00	9
4074	0.00	0.00	0.00	12
4075	0.00	0.00	0.00	20
4076	0.00	0.00	0.00	15
4077	0.00	0.00	0.00	15
4078	0.00	0.00	0.00	9
4079	0.00	0.00	0.00	15
4080	0.00	0.00	0.00	19
4081	0.00	0.00	0.00	10
4082	0.00	0.00	0.00	11
4083	0.00	0.00	0.00	12
4084	0.00	0.00	0.00	14
4085	0.00	0.00	0.00	9
4086	0.00	0.00	0.00	9

4087	0.00	0.00	0.00	9
4088	0.00	0.00	0.00	18
4089	0.00	0.00	0.00	14
4090	0.00	0.00	0.00	18
4091	0.00	0.00	0.00	14
4092	0.00	0.00	0.00	13
4093	0.00	0.00	0.00	16
4094	0.00	0.00	0.00	14
4095	0.00	0.00	0.00	19
4096	0.00	0.00	0.00	15
4097	0.00	0.00	0.00	14
4098	0.00	0.00	0.00	16
4099	0.00	0.00	0.00	21
4100	0.00	0.00	0.00	18
4101	0.00	0.00	0.00	15
4102	0.00	0.00	0.00	15
4103	0.00	0.00	0.00	17
4104	0.00	0.00	0.00	13
4105	0.00	0.00	0.00	15
4106	0.00	0.00	0.00	14
4107	0.00	0.00	0.00	13
4108	0.00	0.00	0.00	15
4109	0.00	0.00	0.00	15
4110	0.00	0.00	0.00	13
4111	0.00	0.00	0.00	16
4112	0.00	0.00	0.00	13
4113	0.00	0.00	0.00	12
4114	0.00	0.00	0.00	13
4115	0.00	0.00	0.00	11
4116	0.00	0.00	0.00	15
4117	0.00	0.00	0.00	12
4118	0.00	0.00	0.00	12
4119	0.00	0.00	0.00	18
4120	1.00	0.09	0.17	11
4121	0.00	0.00	0.00	9
4122	0.00	0.00	0.00	12
4123	0.00	0.00	0.00	11
4124	0.00	0.00	0.00	9
4125	0.00	0.00	0.00	9
4126	0.00	0.00	0.00	15
4127	0.00	0.00	0.00	16
4128	0.00	0.00	0.00	13
4129	0.00	0.00	0.00	11
4130	0.00	0.00	0.00	7
4131	0.00	0.00	0.00	12
4132	0.00	0.00	0.00	15
4133	1.00	0.08	0.15	12
4134	0.00	0.00	0.00	16

4135	0.00	0.00	0.00	16
4136	0.00	0.00	0.00	11
4137	0.00	0.00	0.00	12
4138	0.00	0.00	0.00	12
4139	0.00	0.00	0.00	21
4140	0.00	0.00	0.00	13
4141	0.00	0.00	0.00	7
4142	0.00	0.00	0.00	12
4143	0.00	0.00	0.00	19
4144	0.00	0.00	0.00	10
4145	0.00	0.00	0.00	13
4146	0.00	0.00	0.00	18
4147	0.00	0.00	0.00	14
4148	0.00	0.00	0.00	11
4149	0.00	0.00	0.00	7
4150	0.00	0.00	0.00	10
4151	0.00	0.00	0.00	18
4152	0.00	0.00	0.00	14
4153	0.00	0.00	0.00	16
4154	0.00	0.00	0.00	12
4155	0.00	0.00	0.00	10
4156	0.00	0.00	0.00	15
4157	0.00	0.00	0.00	16
4158	0.00	0.00	0.00	19
4159	0.00	0.00	0.00	10
4160	0.00	0.00	0.00	17
4161	0.00	0.00	0.00	18
4162	0.00	0.00	0.00	12
4163	0.00	0.00	0.00	11
4164	0.00	0.00	0.00	8
4165	0.00	0.00	0.00	17
4166	0.00	0.00	0.00	17
4167	0.00	0.00	0.00	8
4168	0.00	0.00	0.00	12
4169	0.00	0.00	0.00	19
4170	0.00	0.00	0.00	15
4171	0.00	0.00	0.00	10
4172	0.00	0.00	0.00	17
4173	0.00	0.00	0.00	12
4174	0.00	0.00	0.00	14
4175	0.00	0.00	0.00	18
4176	0.00	0.00	0.00	8
4177	0.00	0.00	0.00	20
4178	0.00	0.00	0.00	15
4179	0.00	0.00	0.00	16
4180	0.00	0.00	0.00	12
4181	0.00	0.00	0.00	18
4182	0.00	0.00	0.00	8

4183	0.00	0.00	0.00	18
4184	0.00	0.00	0.00	16
4185	0.00	0.00	0.00	12
4186	0.00	0.00	0.00	16
4187	0.00	0.00	0.00	14
4188	0.00	0.00	0.00	17
4189	0.00	0.00	0.00	13
4190	0.00	0.00	0.00	11
4191	0.00	0.00	0.00	14
4192	0.00	0.00	0.00	11
4193	0.00	0.00	0.00	11
4194	0.00	0.00	0.00	17
4195	0.00	0.00	0.00	6
4196	0.00	0.00	0.00	17
4197	0.00	0.00	0.00	13
4198	0.00	0.00	0.00	12
4199	0.00	0.00	0.00	9
4200	0.00	0.00	0.00	12
4201	0.00	0.00	0.00	13
4202	0.00	0.00	0.00	13
4203	0.00	0.00	0.00	15
4204	0.00	0.00	0.00	15
4205	0.00	0.00	0.00	11
4206	0.00	0.00	0.00	14
4207	0.00	0.00	0.00	9
4208	0.00	0.00	0.00	15
4209	0.00	0.00	0.00	14
4210	0.00	0.00	0.00	11
4211	0.00	0.00	0.00	12
4212	0.00	0.00	0.00	12
4213	0.00	0.00	0.00	14
4214	0.00	0.00	0.00	9
4215	0.00	0.00	0.00	7
4216	0.00	0.00	0.00	12
4217	0.00	0.00	0.00	11
4218	0.00	0.00	0.00	13
4219	1.00	0.09	0.17	11
4220	1.00	0.07	0.13	14
4221	0.00	0.00	0.00	11
4222	1.00	0.08	0.14	13
4223	0.00	0.00	0.00	4
4224	0.00	0.00	0.00	12
4225	0.00	0.00	0.00	13
4226	0.00	0.00	0.00	7
4227	0.00	0.00	0.00	14
4228	0.00	0.00	0.00	9
4229	0.00	0.00	0.00	14
4230	0.00	0.00	0.00	11

4231	0.00	0.00	0.00	13
4232	0.00	0.00	0.00	16
4233	0.00	0.00	0.00	20
4234	0.00	0.00	0.00	12
4235	0.00	0.00	0.00	12
4236	0.00	0.00	0.00	13
4237	0.00	0.00	0.00	11
4238	0.00	0.00	0.00	15
4239	0.00	0.00	0.00	10
4240	0.00	0.00	0.00	11
4241	0.00	0.00	0.00	17
4242	0.00	0.00	0.00	16
4243	0.00	0.00	0.00	17
4244	0.00	0.00	0.00	12
4245	0.00	0.00	0.00	16
4246	0.00	0.00	0.00	10
4247	0.00	0.00	0.00	19
4248	0.00	0.00	0.00	9
4249	0.00	0.00	0.00	15
4250	0.00	0.00	0.00	18
4251	0.00	0.00	0.00	11
4252	0.00	0.00	0.00	9
4253	0.00	0.00	0.00	16
4254	0.00	0.00	0.00	13
4255	0.00	0.00	0.00	7
4256	0.00	0.00	0.00	11
4257	0.00	0.00	0.00	17
4258	0.00	0.00	0.00	12
4259	0.00	0.00	0.00	12
4260	0.00	0.00	0.00	17
4261	0.00	0.00	0.00	12
4262	0.00	0.00	0.00	10
4263	0.00	0.00	0.00	21
4264	0.00	0.00	0.00	16
4265	0.00	0.00	0.00	13
4266	0.00	0.00	0.00	13
4267	0.00	0.00	0.00	12
4268	0.00	0.00	0.00	14
4269	0.00	0.00	0.00	16
4270	0.00	0.00	0.00	12
4271	0.00	0.00	0.00	10
4272	0.00	0.00	0.00	15
4273	0.00	0.00	0.00	9
4274	0.00	0.00	0.00	17
4275	0.00	0.00	0.00	16
4276	0.00	0.00	0.00	8
4277	0.00	0.00	0.00	14
4278	0.00	0.00	0.00	18

4279	0.00	0.00	0.00	17
4280	0.00	0.00	0.00	12
4281	0.00	0.00	0.00	4
4282	0.00	0.00	0.00	17
4283	0.00	0.00	0.00	14
4284	0.00	0.00	0.00	15
4285	0.00	0.00	0.00	22
4286	0.00	0.00	0.00	18
4287	0.00	0.00	0.00	9
4288	0.00	0.00	0.00	14
4289	0.00	0.00	0.00	9
4290	0.00	0.00	0.00	12
4291	0.00	0.00	0.00	11
4292	1.00	0.06	0.11	17
4293	0.00	0.00	0.00	8
4294	0.00	0.00	0.00	8
4295	0.00	0.00	0.00	9
4296	0.00	0.00	0.00	9
4297	0.00	0.00	0.00	19
4298	0.00	0.00	0.00	11
4299	0.00	0.00	0.00	6
4300	0.00	0.00	0.00	13
4301	0.00	0.00	0.00	14
4302	0.00	0.00	0.00	14
4303	0.00	0.00	0.00	15
4304	0.00	0.00	0.00	4
4305	0.00	0.00	0.00	13
4306	0.00	0.00	0.00	12
4307	0.00	0.00	0.00	7
4308	0.00	0.00	0.00	19
4309	0.00	0.00	0.00	12
4310	0.00	0.00	0.00	15
4311	0.00	0.00	0.00	13
4312	0.00	0.00	0.00	20
4313	0.00	0.00	0.00	10
4314	0.00	0.00	0.00	10
4315	0.00	0.00	0.00	12
4316	0.00	0.00	0.00	11
4317	0.00	0.00	0.00	11
4318	0.00	0.00	0.00	13
4319	0.00	0.00	0.00	11
4320	0.00	0.00	0.00	10
4321	0.00	0.00	0.00	13
4322	0.00	0.00	0.00	10
4323	0.00	0.00	0.00	14
4324	0.00	0.00	0.00	13
4325	0.00	0.00	0.00	8
4326	0.00	0.00	0.00	13

4327	0.00	0.00	0.00	15
4328	0.00	0.00	0.00	15
4329	0.00	0.00	0.00	15
4330	0.00	0.00	0.00	13
4331	0.00	0.00	0.00	9
4332	0.00	0.00	0.00	12
4333	0.00	0.00	0.00	13
4334	0.00	0.00	0.00	12
4335	0.00	0.00	0.00	16
4336	0.00	0.00	0.00	14
4337	0.00	0.00	0.00	11
4338	0.00	0.00	0.00	11
4339	0.00	0.00	0.00	18
4340	0.00	0.00	0.00	12
4341	0.00	0.00	0.00	13
4342	0.00	0.00	0.00	6
4343	0.00	0.00	0.00	16
4344	0.00	0.00	0.00	14
4345	0.00	0.00	0.00	15
4346	0.00	0.00	0.00	10
4347	0.00	0.00	0.00	14
4348	0.00	0.00	0.00	12
4349	0.00	0.00	0.00	14
4350	0.00	0.00	0.00	17
4351	0.00	0.00	0.00	16
4352	0.00	0.00	0.00	11
4353	0.00	0.00	0.00	9
4354	0.00	0.00	0.00	17
4355	0.00	0.00	0.00	23
4356	0.00	0.00	0.00	6
4357	0.00	0.00	0.00	10
4358	0.00	0.00	0.00	9
4359	0.00	0.00	0.00	10
4360	0.00	0.00	0.00	17
4361	0.00	0.00	0.00	5
4362	0.00	0.00	0.00	13
4363	0.00	0.00	0.00	11
4364	0.00	0.00	0.00	17
4365	0.00	0.00	0.00	14
4366	0.00	0.00	0.00	13
4367	0.00	0.00	0.00	10
4368	0.75	0.17	0.27	18
4369	0.00	0.00	0.00	7
4370	0.00	0.00	0.00	12
4371	0.00	0.00	0.00	14
4372	0.00	0.00	0.00	6
4373	0.00	0.00	0.00	8
4374	0.00	0.00	0.00	16

4375	0.00	0.00	0.00	11
4376	0.00	0.00	0.00	18
4377	0.00	0.00	0.00	9
4378	0.00	0.00	0.00	14
4379	0.00	0.00	0.00	8
4380	0.00	0.00	0.00	9
4381	0.00	0.00	0.00	10
4382	0.00	0.00	0.00	16
4383	0.00	0.00	0.00	13
4384	0.00	0.00	0.00	9
4385	0.00	0.00	0.00	12
4386	0.00	0.00	0.00	14
4387	0.00	0.00	0.00	11
4388	0.00	0.00	0.00	8
4389	0.00	0.00	0.00	12
4390	0.00	0.00	0.00	8
4391	0.00	0.00	0.00	16
4392	0.00	0.00	0.00	7
4393	0.00	0.00	0.00	8
4394	0.00	0.00	0.00	11
4395	0.00	0.00	0.00	9
4396	0.00	0.00	0.00	11
4397	0.00	0.00	0.00	13
4398	0.00	0.00	0.00	17
4399	0.00	0.00	0.00	10
4400	0.00	0.00	0.00	17
4401	0.00	0.00	0.00	8
4402	0.33	0.08	0.13	12
4403	0.00	0.00	0.00	14
4404	0.00	0.00	0.00	14
4405	0.00	0.00	0.00	10
4406	0.00	0.00	0.00	14
4407	0.00	0.00	0.00	13
4408	0.00	0.00	0.00	13
4409	0.00	0.00	0.00	11
4410	0.00	0.00	0.00	16
4411	0.00	0.00	0.00	12
4412	0.00	0.00	0.00	10
4413	0.00	0.00	0.00	16
4414	0.00	0.00	0.00	14
4415	0.00	0.00	0.00	11
4416	0.00	0.00	0.00	14
4417	0.00	0.00	0.00	13
4418	0.00	0.00	0.00	8
4419	0.00	0.00	0.00	12
4420	0.00	0.00	0.00	13
4421	0.00	0.00	0.00	15
4422	0.00	0.00	0.00	14

4423	0.00	0.00	0.00	15
4424	0.00	0.00	0.00	9
4425	0.00	0.00	0.00	10
4426	0.00	0.00	0.00	17
4427	0.00	0.00	0.00	12
4428	0.00	0.00	0.00	12
4429	0.00	0.00	0.00	13
4430	0.00	0.00	0.00	10
4431	0.00	0.00	0.00	10
4432	0.00	0.00	0.00	10
4433	0.00	0.00	0.00	15
4434	0.00	0.00	0.00	13
4435	0.00	0.00	0.00	21
4436	0.00	0.00	0.00	17
4437	0.00	0.00	0.00	9
4438	0.00	0.00	0.00	11
4439	0.00	0.00	0.00	17
4440	0.00	0.00	0.00	14
4441	0.00	0.00	0.00	15
4442	0.00	0.00	0.00	8
4443	0.00	0.00	0.00	13
4444	0.00	0.00	0.00	10
4445	0.00	0.00	0.00	13
4446	0.00	0.00	0.00	10
4447	0.00	0.00	0.00	10
4448	0.00	0.00	0.00	7
4449	0.00	0.00	0.00	12
4450	0.00	0.00	0.00	8
4451	0.00	0.00	0.00	13
4452	0.00	0.00	0.00	15
4453	0.00	0.00	0.00	8
4454	0.00	0.00	0.00	4
4455	0.00	0.00	0.00	15
4456	0.00	0.00	0.00	9
4457	0.00	0.00	0.00	10
4458	0.00	0.00	0.00	13
4459	0.00	0.00	0.00	14
4460	0.00	0.00	0.00	10
4461	0.00	0.00	0.00	12
4462	0.00	0.00	0.00	10
4463	0.00	0.00	0.00	12
4464	0.00	0.00	0.00	9
4465	0.00	0.00	0.00	9
4466	0.00	0.00	0.00	12
4467	0.00	0.00	0.00	10
4468	0.00	0.00	0.00	11
4469	0.00	0.00	0.00	13
4470	0.00	0.00	0.00	18

4471	0.00	0.00	0.00	11
4472	0.00	0.00	0.00	16
4473	0.00	0.00	0.00	12
4474	0.00	0.00	0.00	10
4475	0.00	0.00	0.00	11
4476	0.00	0.00	0.00	13
4477	0.00	0.00	0.00	12
4478	0.00	0.00	0.00	11
4479	0.00	0.00	0.00	14
4480	0.00	0.00	0.00	10
4481	0.00	0.00	0.00	11
4482	0.00	0.00	0.00	13
4483	0.00	0.00	0.00	13
4484	0.00	0.00	0.00	15
4485	0.00	0.00	0.00	13
4486	0.00	0.00	0.00	14
4487	0.00	0.00	0.00	15
4488	0.00	0.00	0.00	14
4489	0.00	0.00	0.00	13
4490	0.00	0.00	0.00	18
4491	0.00	0.00	0.00	10
4492	0.00	0.00	0.00	12
4493	0.00	0.00	0.00	16
4494	0.00	0.00	0.00	8
4495	0.00	0.00	0.00	9
4496	0.00	0.00	0.00	8
4497	0.00	0.00	0.00	13
4498	0.00	0.00	0.00	18
4499	0.00	0.00	0.00	11
4500	0.00	0.00	0.00	8
4501	0.00	0.00	0.00	17
4502	0.00	0.00	0.00	9
4503	0.00	0.00	0.00	12
4504	0.00	0.00	0.00	7
4505	0.00	0.00	0.00	13
4506	0.00	0.00	0.00	13
4507	0.00	0.00	0.00	12
4508	0.00	0.00	0.00	13
4509	0.00	0.00	0.00	19
4510	0.00	0.00	0.00	12
4511	0.00	0.00	0.00	12
4512	0.00	0.00	0.00	13
4513	0.00	0.00	0.00	11
4514	0.00	0.00	0.00	8
4515	0.00	0.00	0.00	9
4516	0.00	0.00	0.00	10
4517	0.00	0.00	0.00	13
4518	0.00	0.00	0.00	9

4519	0.00	0.00	0.00	12
4520	0.00	0.00	0.00	12
4521	0.00	0.00	0.00	14
4522	0.00	0.00	0.00	6
4523	0.00	0.00	0.00	14
4524	0.00	0.00	0.00	13
4525	0.00	0.00	0.00	11
4526	0.00	0.00	0.00	14
4527	0.00	0.00	0.00	12
4528	0.00	0.00	0.00	12
4529	0.00	0.00	0.00	10
4530	0.00	0.00	0.00	15
4531	0.00	0.00	0.00	16
4532	0.00	0.00	0.00	12
4533	0.00	0.00	0.00	14
4534	0.00	0.00	0.00	13
4535	0.00	0.00	0.00	12
4536	0.00	0.00	0.00	11
4537	0.00	0.00	0.00	18
4538	0.00	0.00	0.00	7
4539	0.00	0.00	0.00	11
4540	0.00	0.00	0.00	11
4541	0.00	0.00	0.00	12
4542	0.00	0.00	0.00	13
4543	0.00	0.00	0.00	9
4544	0.00	0.00	0.00	12
4545	0.00	0.00	0.00	12
4546	0.00	0.00	0.00	12
4547	0.00	0.00	0.00	8
4548	0.00	0.00	0.00	12
4549	0.00	0.00	0.00	9
4550	0.00	0.00	0.00	8
4551	0.00	0.00	0.00	13
4552	0.00	0.00	0.00	10
4553	0.00	0.00	0.00	8
4554	0.00	0.00	0.00	10
4555	0.00	0.00	0.00	8
4556	0.00	0.00	0.00	5
4557	0.00	0.00	0.00	10
4558	0.00	0.00	0.00	9
4559	0.00	0.00	0.00	14
4560	0.00	0.00	0.00	16
4561	0.00	0.00	0.00	15
4562	0.00	0.00	0.00	11
4563	0.00	0.00	0.00	9
4564	0.00	0.00	0.00	13
4565	0.00	0.00	0.00	12
4566	0.00	0.00	0.00	8

4567	0.00	0.00	0.00	5
4568	0.00	0.00	0.00	7
4569	0.00	0.00	0.00	7
4570	0.00	0.00	0.00	10
4571	0.00	0.00	0.00	12
4572	0.00	0.00	0.00	14
4573	0.00	0.00	0.00	12
4574	0.00	0.00	0.00	8
4575	0.00	0.00	0.00	11
4576	0.00	0.00	0.00	10
4577	0.00	0.00	0.00	9
4578	0.00	0.00	0.00	14
4579	0.00	0.00	0.00	13
4580	0.00	0.00	0.00	14
4581	0.00	0.00	0.00	9
4582	0.00	0.00	0.00	15
4583	0.00	0.00	0.00	13
4584	0.00	0.00	0.00	7
4585	0.00	0.00	0.00	9
4586	0.00	0.00	0.00	15
4587	0.00	0.00	0.00	13
4588	0.00	0.00	0.00	11
4589	0.00	0.00	0.00	6
4590	0.00	0.00	0.00	6
4591	0.00	0.00	0.00	11
4592	0.00	0.00	0.00	12
4593	0.00	0.00	0.00	12
4594	0.00	0.00	0.00	10
4595	0.00	0.00	0.00	14
4596	0.00	0.00	0.00	11
4597	0.00	0.00	0.00	11
4598	0.00	0.00	0.00	9
4599	0.00	0.00	0.00	7
4600	0.00	0.00	0.00	11
4601	0.00	0.00	0.00	12
4602	0.00	0.00	0.00	9
4603	0.00	0.00	0.00	13
4604	0.00	0.00	0.00	15
4605	0.00	0.00	0.00	11
4606	0.00	0.00	0.00	9
4607	0.00	0.00	0.00	10
4608	0.00	0.00	0.00	6
4609	0.00	0.00	0.00	6
4610	0.00	0.00	0.00	12
4611	0.00	0.00	0.00	9
4612	0.00	0.00	0.00	13
4613	0.00	0.00	0.00	14
4614	0.00	0.00	0.00	8

4615	0.00	0.00	0.00	12
4616	0.00	0.00	0.00	13
4617	0.00	0.00	0.00	7
4618	0.00	0.00	0.00	11
4619	0.00	0.00	0.00	14
4620	0.00	0.00	0.00	11
4621	0.00	0.00	0.00	9
4622	0.00	0.00	0.00	6
4623	0.00	0.00	0.00	12
4624	0.00	0.00	0.00	11
4625	0.00	0.00	0.00	10
4626	0.00	0.00	0.00	9
4627	0.00	0.00	0.00	8
4628	0.00	0.00	0.00	11
4629	0.00	0.00	0.00	11
4630	0.00	0.00	0.00	13
4631	0.00	0.00	0.00	15
4632	0.00	0.00	0.00	11
4633	0.00	0.00	0.00	7
4634	0.00	0.00	0.00	11
4635	0.00	0.00	0.00	8
4636	0.00	0.00	0.00	7
4637	0.00	0.00	0.00	8
4638	0.00	0.00	0.00	9
4639	0.00	0.00	0.00	13
4640	0.00	0.00	0.00	12
4641	0.00	0.00	0.00	11
4642	0.00	0.00	0.00	8
4643	0.00	0.00	0.00	12
4644	0.00	0.00	0.00	9
4645	0.00	0.00	0.00	12
4646	0.00	0.00	0.00	10
4647	0.00	0.00	0.00	17
4648	0.00	0.00	0.00	10
4649	0.00	0.00	0.00	12
4650	0.00	0.00	0.00	13
4651	0.00	0.00	0.00	12
4652	0.00	0.00	0.00	11
4653	0.00	0.00	0.00	10
4654	0.00	0.00	0.00	11
4655	0.00	0.00	0.00	14
4656	0.00	0.00	0.00	10
4657	0.00	0.00	0.00	9
4658	0.00	0.00	0.00	9
4659	0.00	0.00	0.00	9
4660	0.00	0.00	0.00	13
4661	0.00	0.00	0.00	8
4662	0.00	0.00	0.00	12

4663	0.00	0.00	0.00	12
4664	0.00	0.00	0.00	14
4665	0.00	0.00	0.00	11
4666	0.00	0.00	0.00	9
4667	0.00	0.00	0.00	7
4668	0.00	0.00	0.00	8
4669	0.00	0.00	0.00	6
4670	0.00	0.00	0.00	12
4671	0.00	0.00	0.00	6
4672	0.00	0.00	0.00	14
4673	0.00	0.00	0.00	14
4674	0.00	0.00	0.00	13
4675	0.00	0.00	0.00	12
4676	0.00	0.00	0.00	13
4677	0.00	0.00	0.00	12
4678	0.00	0.00	0.00	11
4679	0.00	0.00	0.00	14
4680	0.00	0.00	0.00	7
4681	0.00	0.00	0.00	9
4682	0.00	0.00	0.00	15
4683	0.00	0.00	0.00	10
4684	0.00	0.00	0.00	7
4685	0.00	0.00	0.00	12
4686	0.00	0.00	0.00	9
4687	0.00	0.00	0.00	11
4688	0.00	0.00	0.00	10
4689	0.00	0.00	0.00	17
4690	0.00	0.00	0.00	11
4691	0.00	0.00	0.00	16
4692	0.00	0.00	0.00	12
4693	0.00	0.00	0.00	9
4694	0.00	0.00	0.00	16
4695	0.00	0.00	0.00	10
4696	0.00	0.00	0.00	13
4697	0.00	0.00	0.00	10
4698	0.00	0.00	0.00	13
4699	0.00	0.00	0.00	12
4700	0.00	0.00	0.00	16
4701	0.00	0.00	0.00	5
4702	0.00	0.00	0.00	10
4703	0.00	0.00	0.00	8
4704	0.00	0.00	0.00	17
4705	0.00	0.00	0.00	12
4706	0.00	0.00	0.00	5
4707	0.00	0.00	0.00	11
4708	0.00	0.00	0.00	13
4709	0.00	0.00	0.00	11
4710	0.00	0.00	0.00	10

4711	0.00	0.00	0.00	12
4712	0.00	0.00	0.00	9
4713	0.00	0.00	0.00	14
4714	0.00	0.00	0.00	14
4715	0.00	0.00	0.00	11
4716	0.00	0.00	0.00	10
4717	0.00	0.00	0.00	16
4718	0.00	0.00	0.00	15
4719	0.00	0.00	0.00	14
4720	0.00	0.00	0.00	10
4721	0.00	0.00	0.00	18
4722	0.00	0.00	0.00	9
4723	0.00	0.00	0.00	15
4724	0.00	0.00	0.00	10
4725	0.00	0.00	0.00	6
4726	0.00	0.00	0.00	8
4727	0.00	0.00	0.00	9
4728	0.00	0.00	0.00	12
4729	0.00	0.00	0.00	10
4730	0.00	0.00	0.00	16
4731	0.00	0.00	0.00	9
4732	0.00	0.00	0.00	10
4733	0.00	0.00	0.00	13
4734	0.00	0.00	0.00	14
4735	0.00	0.00	0.00	20
4736	0.00	0.00	0.00	9
4737	0.00	0.00	0.00	8
4738	0.00	0.00	0.00	16
4739	0.00	0.00	0.00	6
4740	0.00	0.00	0.00	10
4741	0.00	0.00	0.00	10
4742	0.00	0.00	0.00	10
4743	0.00	0.00	0.00	8
4744	0.00	0.00	0.00	9
4745	0.00	0.00	0.00	12
4746	0.00	0.00	0.00	11
4747	0.00	0.00	0.00	18
4748	0.00	0.00	0.00	7
4749	0.00	0.00	0.00	10
4750	0.00	0.00	0.00	12
4751	0.00	0.00	0.00	13
4752	0.00	0.00	0.00	9
4753	0.00	0.00	0.00	8
4754	0.00	0.00	0.00	10
4755	0.00	0.00	0.00	14
4756	0.00	0.00	0.00	17
4757	0.00	0.00	0.00	15
4758	0.00	0.00	0.00	11

4759	0.00	0.00	0.00	10
4760	0.00	0.00	0.00	10
4761	0.00	0.00	0.00	14
4762	0.00	0.00	0.00	13
4763	0.00	0.00	0.00	13
4764	0.00	0.00	0.00	12
4765	0.00	0.00	0.00	8
4766	0.00	0.00	0.00	7
4767	0.00	0.00	0.00	14
4768	0.00	0.00	0.00	10
4769	0.00	0.00	0.00	11
4770	0.00	0.00	0.00	12
4771	0.00	0.00	0.00	11
4772	0.00	0.00	0.00	11
4773	0.00	0.00	0.00	17
4774	0.00	0.00	0.00	5
4775	0.00	0.00	0.00	5
4776	0.00	0.00	0.00	12
4777	0.00	0.00	0.00	12
4778	0.00	0.00	0.00	10
4779	0.00	0.00	0.00	16
4780	0.00	0.00	0.00	10
4781	0.00	0.00	0.00	5
4782	0.00	0.00	0.00	11
4783	0.00	0.00	0.00	7
4784	0.00	0.00	0.00	13
4785	0.00	0.00	0.00	8
4786	0.00	0.00	0.00	15
4787	0.00	0.00	0.00	8
4788	0.00	0.00	0.00	7
4789	0.00	0.00	0.00	10
4790	0.00	0.00	0.00	12
4791	0.00	0.00	0.00	11
4792	0.00	0.00	0.00	10
4793	0.00	0.00	0.00	13
4794	0.00	0.00	0.00	18
4795	0.00	0.00	0.00	6
4796	0.00	0.00	0.00	11
4797	0.00	0.00	0.00	9
4798	0.00	0.00	0.00	11
4799	0.00	0.00	0.00	10
4800	0.00	0.00	0.00	14
4801	0.00	0.00	0.00	9
4802	0.00	0.00	0.00	11
4803	0.00	0.00	0.00	12
4804	0.00	0.00	0.00	19
4805	0.00	0.00	0.00	10
4806	0.00	0.00	0.00	12

4807	0.00	0.00	0.00	12
4808	0.00	0.00	0.00	14
4809	0.00	0.00	0.00	12
4810	0.00	0.00	0.00	7
4811	0.00	0.00	0.00	16
4812	0.00	0.00	0.00	10
4813	0.00	0.00	0.00	14
4814	0.00	0.00	0.00	10
4815	0.00	0.00	0.00	10
4816	0.00	0.00	0.00	12
4817	0.00	0.00	0.00	14
4818	0.00	0.00	0.00	9
4819	0.00	0.00	0.00	13
4820	0.00	0.00	0.00	15
4821	0.00	0.00	0.00	5
4822	0.00	0.00	0.00	12
4823	0.00	0.00	0.00	11
4824	0.00	0.00	0.00	18
4825	0.00	0.00	0.00	8
4826	0.00	0.00	0.00	7
4827	0.00	0.00	0.00	13
4828	0.00	0.00	0.00	16
4829	0.00	0.00	0.00	5
4830	0.00	0.00	0.00	9
4831	0.00	0.00	0.00	12
4832	0.00	0.00	0.00	12
4833	0.00	0.00	0.00	12
4834	0.00	0.00	0.00	16
4835	0.00	0.00	0.00	9
4836	0.00	0.00	0.00	8
4837	0.00	0.00	0.00	10
4838	0.00	0.00	0.00	12
4839	0.00	0.00	0.00	10
4840	0.00	0.00	0.00	8
4841	0.00	0.00	0.00	13
4842	0.00	0.00	0.00	8
4843	0.00	0.00	0.00	10
4844	0.00	0.00	0.00	6
4845	0.00	0.00	0.00	13
4846	0.00	0.00	0.00	15
4847	0.00	0.00	0.00	16
4848	0.00	0.00	0.00	12
4849	0.00	0.00	0.00	13
4850	0.00	0.00	0.00	16
4851	0.00	0.00	0.00	13
4852	0.00	0.00	0.00	11
4853	0.00	0.00	0.00	10
4854	0.00	0.00	0.00	10

4855	0.00	0.00	0.00	7
4856	0.00	0.00	0.00	9
4857	0.00	0.00	0.00	12
4858	0.00	0.00	0.00	9
4859	0.00	0.00	0.00	11
4860	0.00	0.00	0.00	11
4861	0.00	0.00	0.00	15
4862	0.00	0.00	0.00	10
4863	0.00	0.00	0.00	9
4864	0.00	0.00	0.00	6
4865	0.00	0.00	0.00	14
4866	0.00	0.00	0.00	7
4867	0.00	0.00	0.00	8
4868	0.00	0.00	0.00	14
4869	0.00	0.00	0.00	10
4870	0.00	0.00	0.00	11
4871	0.00	0.00	0.00	11
4872	0.00	0.00	0.00	13
4873	0.00	0.00	0.00	9
4874	0.00	0.00	0.00	8
4875	0.00	0.00	0.00	10
4876	0.00	0.00	0.00	8
4877	0.00	0.00	0.00	8
4878	0.00	0.00	0.00	14
4879	0.00	0.00	0.00	11
4880	0.00	0.00	0.00	5
4881	0.00	0.00	0.00	10
4882	0.00	0.00	0.00	9
4883	0.00	0.00	0.00	10
4884	0.00	0.00	0.00	15
4885	0.00	0.00	0.00	11
4886	0.00	0.00	0.00	18
4887	0.00	0.00	0.00	12
4888	0.00	0.00	0.00	13
4889	0.00	0.00	0.00	8
4890	0.00	0.00	0.00	4
4891	0.00	0.00	0.00	10
4892	0.00	0.00	0.00	14
4893	0.00	0.00	0.00	12
4894	0.00	0.00	0.00	9
4895	1.00	0.12	0.22	8
4896	0.00	0.00	0.00	11
4897	0.00	0.00	0.00	14
4898	0.00	0.00	0.00	12
4899	0.00	0.00	0.00	11
4900	0.00	0.00	0.00	12
4901	0.00	0.00	0.00	13
4902	0.00	0.00	0.00	12

4903	0.00	0.00	0.00	11
4904	0.00	0.00	0.00	10
4905	0.00	0.00	0.00	11
4906	0.00	0.00	0.00	8
4907	0.00	0.00	0.00	9
4908	0.00	0.00	0.00	7
4909	0.00	0.00	0.00	13
4910	0.00	0.00	0.00	10
4911	0.00	0.00	0.00	10
4912	0.00	0.00	0.00	9
4913	0.00	0.00	0.00	13
4914	0.00	0.00	0.00	14
4915	0.00	0.00	0.00	12
4916	0.00	0.00	0.00	6
4917	0.00	0.00	0.00	8
4918	0.00	0.00	0.00	6
4919	0.00	0.00	0.00	6
4920	0.00	0.00	0.00	15
4921	0.00	0.00	0.00	10
4922	0.00	0.00	0.00	12
4923	0.00	0.00	0.00	7
4924	0.00	0.00	0.00	16
4925	0.00	0.00	0.00	13
4926	0.00	0.00	0.00	10
4927	0.00	0.00	0.00	8
4928	0.00	0.00	0.00	10
4929	0.00	0.00	0.00	10
4930	0.00	0.00	0.00	12
4931	0.00	0.00	0.00	11
4932	0.00	0.00	0.00	10
4933	0.00	0.00	0.00	11
4934	0.00	0.00	0.00	7
4935	0.00	0.00	0.00	13
4936	0.00	0.00	0.00	10
4937	0.00	0.00	0.00	13
4938	0.00	0.00	0.00	17
4939	0.00	0.00	0.00	13
4940	0.00	0.00	0.00	15
4941	0.00	0.00	0.00	13
4942	0.00	0.00	0.00	15
4943	0.00	0.00	0.00	13
4944	0.00	0.00	0.00	10
4945	0.00	0.00	0.00	9
4946	0.00	0.00	0.00	13
4947	0.00	0.00	0.00	7
4948	0.00	0.00	0.00	10
4949	0.00	0.00	0.00	9
4950	0.00	0.00	0.00	13

4951	0.00	0.00	0.00	12
4952	0.00	0.00	0.00	8
4953	0.00	0.00	0.00	14
4954	0.00	0.00	0.00	11
4955	0.00	0.00	0.00	11
4956	0.00	0.00	0.00	11
4957	0.00	0.00	0.00	8
4958	0.00	0.00	0.00	8
4959	0.00	0.00	0.00	13
4960	0.00	0.00	0.00	9
4961	0.00	0.00	0.00	12
4962	0.00	0.00	0.00	8
4963	0.00	0.00	0.00	3
4964	0.00	0.00	0.00	8
4965	0.00	0.00	0.00	14
4966	0.00	0.00	0.00	9
4967	0.00	0.00	0.00	12
4968	0.00	0.00	0.00	8
4969	0.00	0.00	0.00	7
4970	0.00	0.00	0.00	11
4971	0.00	0.00	0.00	8
4972	0.00	0.00	0.00	13
4973	0.00	0.00	0.00	12
4974	0.00	0.00	0.00	9
4975	0.00	0.00	0.00	14
4976	0.00	0.00	0.00	12
4977	0.00	0.00	0.00	8
4978	0.00	0.00	0.00	16
4979	0.00	0.00	0.00	12
4980	0.00	0.00	0.00	6
4981	0.00	0.00	0.00	15
4982	0.00	0.00	0.00	4
4983	0.00	0.00	0.00	8
4984	0.00	0.00	0.00	9
4985	0.00	0.00	0.00	13
4986	0.00	0.00	0.00	14
4987	0.00	0.00	0.00	7
4988	0.00	0.00	0.00	12
4989	0.00	0.00	0.00	15
4990	0.00	0.00	0.00	9
4991	0.00	0.00	0.00	13
4992	0.00	0.00	0.00	10
4993	0.00	0.00	0.00	8
4994	0.00	0.00	0.00	10
4995	0.00	0.00	0.00	11
4996	0.00	0.00	0.00	10
4997	0.00	0.00	0.00	4
4998	0.00	0.00	0.00	13

4999	0.00	0.00	0.00	8
5000	0.00	0.00	0.00	11
5001	0.00	0.00	0.00	5
5002	0.00	0.00	0.00	9
5003	0.00	0.00	0.00	6
5004	0.00	0.00	0.00	10
5005	0.00	0.00	0.00	8
5006	0.00	0.00	0.00	15
5007	0.00	0.00	0.00	14
5008	1.00	0.12	0.22	8
5009	0.00	0.00	0.00	10
5010	0.00	0.00	0.00	11
5011	0.00	0.00	0.00	10
5012	0.00	0.00	0.00	11
5013	0.00	0.00	0.00	14
5014	0.00	0.00	0.00	8
5015	0.00	0.00	0.00	14
5016	0.00	0.00	0.00	14
5017	0.00	0.00	0.00	11
5018	0.00	0.00	0.00	9
5019	0.00	0.00	0.00	14
5020	0.00	0.00	0.00	10
5021	0.00	0.00	0.00	15
5022	0.00	0.00	0.00	11
5023	0.00	0.00	0.00	6
5024	0.00	0.00	0.00	14
5025	0.00	0.00	0.00	8
5026	0.00	0.00	0.00	14
5027	0.00	0.00	0.00	6
5028	0.00	0.00	0.00	13
5029	0.00	0.00	0.00	5
5030	0.00	0.00	0.00	15
5031	0.00	0.00	0.00	8
5032	0.00	0.00	0.00	12
5033	0.00	0.00	0.00	13
5034	0.00	0.00	0.00	8
5035	0.00	0.00	0.00	11
5036	0.00	0.00	0.00	11
5037	0.00	0.00	0.00	12
5038	0.00	0.00	0.00	12
5039	0.00	0.00	0.00	17
5040	0.00	0.00	0.00	8
5041	0.00	0.00	0.00	9
5042	0.00	0.00	0.00	9
5043	0.00	0.00	0.00	14
5044	0.00	0.00	0.00	11
5045	0.00	0.00	0.00	9
5046	0.00	0.00	0.00	10

5047	0.00	0.00	0.00	10
5048	0.00	0.00	0.00	7
5049	0.00	0.00	0.00	9
5050	0.00	0.00	0.00	5
5051	0.00	0.00	0.00	10
5052	0.00	0.00	0.00	10
5053	0.00	0.00	0.00	14
5054	0.00	0.00	0.00	13
5055	0.00	0.00	0.00	7
5056	0.00	0.00	0.00	15
5057	0.00	0.00	0.00	8
5058	0.00	0.00	0.00	11
5059	0.00	0.00	0.00	9
5060	0.00	0.00	0.00	13
5061	0.00	0.00	0.00	13
5062	0.00	0.00	0.00	7
5063	0.00	0.00	0.00	14
5064	0.00	0.00	0.00	8
5065	0.00	0.00	0.00	6
5066	0.00	0.00	0.00	7
5067	0.00	0.00	0.00	10
5068	0.00	0.00	0.00	12
5069	0.00	0.00	0.00	9
5070	0.00	0.00	0.00	11
5071	0.00	0.00	0.00	8
5072	0.00	0.00	0.00	4
5073	0.00	0.00	0.00	14
5074	0.00	0.00	0.00	11
5075	0.00	0.00	0.00	14
5076	0.00	0.00	0.00	7
5077	0.00	0.00	0.00	10
5078	0.00	0.00	0.00	11
5079	0.00	0.00	0.00	10
5080	0.00	0.00	0.00	13
5081	0.00	0.00	0.00	12
5082	0.00	0.00	0.00	8
5083	0.00	0.00	0.00	15
5084	0.00	0.00	0.00	15
5085	0.00	0.00	0.00	11
5086	0.00	0.00	0.00	12
5087	0.00	0.00	0.00	9
5088	0.00	0.00	0.00	4
5089	0.00	0.00	0.00	8
5090	0.00	0.00	0.00	11
5091	0.00	0.00	0.00	6
5092	0.00	0.00	0.00	9
5093	0.00	0.00	0.00	10
5094	0.00	0.00	0.00	18

5095	0.00	0.00	0.00	6
5096	0.00	0.00	0.00	12
5097	0.00	0.00	0.00	9
5098	0.00	0.00	0.00	11
5099	0.00	0.00	0.00	7
5100	0.00	0.00	0.00	12
5101	0.00	0.00	0.00	7
5102	0.00	0.00	0.00	5
5103	0.00	0.00	0.00	11
5104	0.00	0.00	0.00	13
5105	0.00	0.00	0.00	10
5106	0.00	0.00	0.00	12
5107	0.00	0.00	0.00	7
5108	0.00	0.00	0.00	14
5109	0.00	0.00	0.00	11
5110	0.00	0.00	0.00	8
5111	0.00	0.00	0.00	10
5112	0.00	0.00	0.00	10
5113	0.00	0.00	0.00	9
5114	0.00	0.00	0.00	13
5115	0.00	0.00	0.00	8
5116	0.00	0.00	0.00	10
5117	0.00	0.00	0.00	8
5118	0.00	0.00	0.00	12
5119	0.00	0.00	0.00	8
5120	0.00	0.00	0.00	7
5121	0.00	0.00	0.00	12
5122	0.00	0.00	0.00	9
5123	0.00	0.00	0.00	9
5124	0.00	0.00	0.00	8
5125	0.00	0.00	0.00	8
5126	0.00	0.00	0.00	8
5127	0.00	0.00	0.00	13
5128	0.00	0.00	0.00	8
5129	0.00	0.00	0.00	9
5130	0.00	0.00	0.00	8
5131	0.00	0.00	0.00	10
5132	0.00	0.00	0.00	11
5133	0.00	0.00	0.00	11
5134	0.00	0.00	0.00	6
5135	0.00	0.00	0.00	11
5136	0.00	0.00	0.00	11
5137	0.00	0.00	0.00	12
5138	0.00	0.00	0.00	8
5139	0.00	0.00	0.00	10
5140	0.00	0.00	0.00	10
5141	0.00	0.00	0.00	10
5142	0.00	0.00	0.00	10

5143	0.00	0.00	0.00	5
5144	0.00	0.00	0.00	13
5145	0.00	0.00	0.00	11
5146	0.00	0.00	0.00	12
5147	0.00	0.00	0.00	9
5148	0.00	0.00	0.00	12
5149	0.00	0.00	0.00	8
5150	0.00	0.00	0.00	11
5151	0.00	0.00	0.00	10
5152	0.00	0.00	0.00	12
5153	0.00	0.00	0.00	12
5154	0.00	0.00	0.00	10
5155	0.00	0.00	0.00	10
5156	0.00	0.00	0.00	9
5157	0.00	0.00	0.00	13
5158	0.00	0.00	0.00	10
5159	0.00	0.00	0.00	6
5160	0.00	0.00	0.00	10
5161	0.00	0.00	0.00	12
5162	0.00	0.00	0.00	8
5163	0.00	0.00	0.00	10
5164	0.00	0.00	0.00	9
5165	0.00	0.00	0.00	11
5166	0.00	0.00	0.00	8
5167	0.00	0.00	0.00	9
5168	0.00	0.00	0.00	9
5169	0.00	0.00	0.00	8
5170	0.00	0.00	0.00	12
5171	0.00	0.00	0.00	6
5172	0.00	0.00	0.00	13
5173	0.00	0.00	0.00	11
5174	0.00	0.00	0.00	7
5175	0.00	0.00	0.00	7
5176	0.00	0.00	0.00	15
5177	0.00	0.00	0.00	10
5178	0.00	0.00	0.00	9
5179	0.00	0.00	0.00	7
5180	0.00	0.00	0.00	7
5181	0.00	0.00	0.00	11
5182	0.00	0.00	0.00	5
5183	0.00	0.00	0.00	17
5184	0.00	0.00	0.00	4
5185	0.00	0.00	0.00	7
5186	0.00	0.00	0.00	7
5187	0.00	0.00	0.00	10
5188	0.00	0.00	0.00	11
5189	0.00	0.00	0.00	13
5190	1.00	0.10	0.18	10

5191	0.00	0.00	0.00	8
5192	0.00	0.00	0.00	14
5193	0.00	0.00	0.00	12
5194	0.00	0.00	0.00	18
5195	0.00	0.00	0.00	10
5196	0.00	0.00	0.00	8
5197	0.00	0.00	0.00	8
5198	0.00	0.00	0.00	8
5199	0.00	0.00	0.00	11
5200	0.00	0.00	0.00	14
5201	0.00	0.00	0.00	12
5202	0.00	0.00	0.00	14
5203	0.00	0.00	0.00	13
5204	0.00	0.00	0.00	8
5205	0.00	0.00	0.00	10
5206	0.00	0.00	0.00	16
5207	0.00	0.00	0.00	9
5208	0.00	0.00	0.00	6
5209	0.00	0.00	0.00	8
5210	0.00	0.00	0.00	11
5211	0.00	0.00	0.00	11
5212	0.00	0.00	0.00	14
5213	0.00	0.00	0.00	6
5214	0.00	0.00	0.00	8
5215	0.00	0.00	0.00	11
5216	0.00	0.00	0.00	11
5217	0.00	0.00	0.00	9
5218	0.00	0.00	0.00	9
5219	0.00	0.00	0.00	10
5220	0.00	0.00	0.00	10
5221	0.00	0.00	0.00	10
5222	0.00	0.00	0.00	8
5223	0.00	0.00	0.00	8
5224	0.00	0.00	0.00	7
5225	0.00	0.00	0.00	7
5226	0.00	0.00	0.00	8
5227	0.00	0.00	0.00	13
5228	0.00	0.00	0.00	7
5229	0.00	0.00	0.00	6
5230	0.00	0.00	0.00	7
5231	0.00	0.00	0.00	10
5232	0.00	0.00	0.00	7
5233	0.00	0.00	0.00	9
5234	0.00	0.00	0.00	5
5235	0.00	0.00	0.00	1
5236	0.00	0.00	0.00	16
5237	0.00	0.00	0.00	7
5238	0.00	0.00	0.00	10

5239	0.00	0.00	0.00	14
5240	0.00	0.00	0.00	8
5241	0.00	0.00	0.00	8
5242	0.00	0.00	0.00	8
5243	0.00	0.00	0.00	5
5244	0.00	0.00	0.00	11
5245	0.00	0.00	0.00	8
5246	0.00	0.00	0.00	11
5247	0.00	0.00	0.00	11
5248	0.00	0.00	0.00	10
5249	0.00	0.00	0.00	13
5250	0.00	0.00	0.00	10
5251	0.00	0.00	0.00	12
5252	0.00	0.00	0.00	11
5253	0.00	0.00	0.00	12
5254	0.00	0.00	0.00	12
5255	0.00	0.00	0.00	10
5256	0.00	0.00	0.00	12
5257	0.00	0.00	0.00	11
5258	0.00	0.00	0.00	10
5259	0.00	0.00	0.00	8
5260	0.00	0.00	0.00	11
5261	0.00	0.00	0.00	10
5262	0.00	0.00	0.00	9
5263	0.00	0.00	0.00	10
5264	0.00	0.00	0.00	12
5265	1.00	0.09	0.17	11
5266	0.00	0.00	0.00	8
5267	0.00	0.00	0.00	12
5268	0.00	0.00	0.00	7
5269	0.00	0.00	0.00	9
5270	0.00	0.00	0.00	11
5271	0.00	0.00	0.00	9
5272	0.00	0.00	0.00	11
5273	0.00	0.00	0.00	7
5274	0.00	0.00	0.00	11
5275	0.00	0.00	0.00	11
5276	0.00	0.00	0.00	9
5277	0.00	0.00	0.00	7
5278	0.00	0.00	0.00	7
5279	0.00	0.00	0.00	8
5280	0.00	0.00	0.00	5
5281	0.00	0.00	0.00	8
5282	0.00	0.00	0.00	8
5283	0.00	0.00	0.00	13
5284	0.00	0.00	0.00	11
5285	0.00	0.00	0.00	6
5286	0.00	0.00	0.00	13

5287	0.00	0.00	0.00	15
5288	0.00	0.00	0.00	7
5289	0.00	0.00	0.00	8
5290	0.00	0.00	0.00	6
5291	0.00	0.00	0.00	9
5292	0.00	0.00	0.00	6
5293	0.00	0.00	0.00	9
5294	0.00	0.00	0.00	13
5295	0.00	0.00	0.00	11
5296	0.00	0.00	0.00	10
5297	0.00	0.00	0.00	13
5298	0.00	0.00	0.00	14
5299	0.00	0.00	0.00	10
5300	0.00	0.00	0.00	14
5301	0.00	0.00	0.00	11
5302	0.00	0.00	0.00	6
5303	0.00	0.00	0.00	6
5304	0.00	0.00	0.00	7
5305	0.00	0.00	0.00	9
5306	0.00	0.00	0.00	6
5307	0.00	0.00	0.00	10
5308	0.00	0.00	0.00	11
5309	0.00	0.00	0.00	11
5310	0.00	0.00	0.00	14
5311	0.00	0.00	0.00	10
5312	0.00	0.00	0.00	11
5313	0.00	0.00	0.00	11
5314	0.00	0.00	0.00	11
5315	0.00	0.00	0.00	11
5316	0.00	0.00	0.00	2
5317	0.00	0.00	0.00	5
5318	0.00	0.00	0.00	11
5319	0.00	0.00	0.00	12
5320	0.00	0.00	0.00	7
5321	0.00	0.00	0.00	7
5322	0.00	0.00	0.00	9
5323	0.00	0.00	0.00	9
5324	0.00	0.00	0.00	8
5325	0.00	0.00	0.00	10
5326	0.00	0.00	0.00	3
5327	0.00	0.00	0.00	13
5328	0.00	0.00	0.00	13
5329	0.00	0.00	0.00	7
5330	0.00	0.00	0.00	8
5331	0.00	0.00	0.00	9
5332	0.00	0.00	0.00	8
5333	0.00	0.00	0.00	11
5334	0.00	0.00	0.00	11

5335	0.00	0.00	0.00	6
5336	0.00	0.00	0.00	6
5337	0.00	0.00	0.00	6
5338	0.00	0.00	0.00	11
5339	0.00	0.00	0.00	12
5340	0.00	0.00	0.00	9
5341	0.00	0.00	0.00	8
5342	0.00	0.00	0.00	8
5343	0.00	0.00	0.00	7
5344	0.00	0.00	0.00	5
5345	0.00	0.00	0.00	11
5346	0.00	0.00	0.00	13
5347	0.00	0.00	0.00	10
5348	0.00	0.00	0.00	11
5349	0.00	0.00	0.00	7
5350	0.00	0.00	0.00	10
5351	0.00	0.00	0.00	7
5352	0.00	0.00	0.00	7
5353	0.00	0.00	0.00	11
5354	0.00	0.00	0.00	12
5355	0.00	0.00	0.00	12
5356	0.00	0.00	0.00	10
5357	0.00	0.00	0.00	9
5358	0.00	0.00	0.00	8
5359	0.00	0.00	0.00	7
5360	0.00	0.00	0.00	10
5361	0.00	0.00	0.00	6
5362	0.00	0.00	0.00	6
5363	0.00	0.00	0.00	9
5364	0.00	0.00	0.00	9
5365	0.00	0.00	0.00	17
5366	0.00	0.00	0.00	8
5367	0.00	0.00	0.00	9
5368	0.00	0.00	0.00	8
5369	0.00	0.00	0.00	8
5370	0.00	0.00	0.00	18
5371	0.00	0.00	0.00	14
5372	0.00	0.00	0.00	10
5373	0.00	0.00	0.00	7
5374	0.00	0.00	0.00	6
5375	0.00	0.00	0.00	12
5376	0.00	0.00	0.00	13
5377	0.00	0.00	0.00	9
5378	0.00	0.00	0.00	10
5379	0.00	0.00	0.00	10
5380	0.00	0.00	0.00	9
5381	0.00	0.00	0.00	7
5382	0.00	0.00	0.00	10

5383	0.00	0.00	0.00	9
5384	0.00	0.00	0.00	12
5385	0.00	0.00	0.00	15
5386	0.00	0.00	0.00	7
5387	0.00	0.00	0.00	8
5388	0.00	0.00	0.00	4
5389	0.00	0.00	0.00	7
5390	0.00	0.00	0.00	8
5391	0.00	0.00	0.00	4
5392	0.00	0.00	0.00	10
5393	0.00	0.00	0.00	7
5394	0.00	0.00	0.00	8
5395	0.00	0.00	0.00	16
5396	0.00	0.00	0.00	13
5397	0.00	0.00	0.00	11
5398	0.00	0.00	0.00	5
5399	0.00	0.00	0.00	5
5400	0.00	0.00	0.00	12
5401	0.00	0.00	0.00	7
5402	0.00	0.00	0.00	5
5403	0.00	0.00	0.00	12
5404	0.00	0.00	0.00	5
5405	0.00	0.00	0.00	10
5406	0.00	0.00	0.00	7
5407	0.00	0.00	0.00	12
5408	0.00	0.00	0.00	9
5409	0.00	0.00	0.00	9
5410	0.00	0.00	0.00	8
5411	0.00	0.00	0.00	6
5412	0.00	0.00	0.00	8
5413	0.00	0.00	0.00	6
5414	0.00	0.00	0.00	8
5415	0.00	0.00	0.00	16
5416	0.00	0.00	0.00	9
5417	0.00	0.00	0.00	11
5418	0.00	0.00	0.00	9
5419	0.00	0.00	0.00	14
5420	0.00	0.00	0.00	6
5421	0.00	0.00	0.00	11
5422	0.00	0.00	0.00	12
5423	0.00	0.00	0.00	8
5424	0.00	0.00	0.00	13
5425	0.00	0.00	0.00	4
5426	0.00	0.00	0.00	10
5427	0.00	0.00	0.00	9
5428	0.00	0.00	0.00	12
5429	0.00	0.00	0.00	11
5430	0.00	0.00	0.00	9

5431	0.00	0.00	0.00	15
5432	0.00	0.00	0.00	12
5433	0.00	0.00	0.00	8
5434	0.00	0.00	0.00	6
5435	0.00	0.00	0.00	12
5436	0.00	0.00	0.00	11
5437	0.00	0.00	0.00	10
5438	0.00	0.00	0.00	7
5439	0.00	0.00	0.00	9
5440	0.00	0.00	0.00	12
5441	0.00	0.00	0.00	10
5442	0.00	0.00	0.00	7
5443	0.00	0.00	0.00	12
5444	0.00	0.00	0.00	7
5445	0.00	0.00	0.00	9
5446	0.00	0.00	0.00	7
5447	0.00	0.00	0.00	6
5448	0.00	0.00	0.00	12
5449	0.00	0.00	0.00	9
5450	0.00	0.00	0.00	10
5451	0.00	0.00	0.00	6
5452	0.00	0.00	0.00	11
5453	0.00	0.00	0.00	7
5454	0.00	0.00	0.00	9
5455	0.00	0.00	0.00	11
5456	0.00	0.00	0.00	7
5457	0.00	0.00	0.00	9
5458	0.00	0.00	0.00	8
5459	0.00	0.00	0.00	11
5460	0.00	0.00	0.00	7
5461	0.00	0.00	0.00	11
5462	0.00	0.00	0.00	10
5463	0.00	0.00	0.00	9
5464	0.00	0.00	0.00	9
5465	0.00	0.00	0.00	7
5466	0.00	0.00	0.00	9
5467	0.00	0.00	0.00	14
5468	0.00	0.00	0.00	9
5469	0.00	0.00	0.00	12
5470	0.00	0.00	0.00	11
5471	0.00	0.00	0.00	8
5472	0.00	0.00	0.00	15
5473	0.00	0.00	0.00	4
5474	0.00	0.00	0.00	8
5475	0.00	0.00	0.00	9
5476	0.00	0.00	0.00	11
5477	0.00	0.00	0.00	8
5478	0.00	0.00	0.00	6

5479	0.00	0.00	0.00	7
5480	0.00	0.00	0.00	7
5481	0.00	0.00	0.00	10
5482	0.00	0.00	0.00	12
5483	0.00	0.00	0.00	6
5484	0.00	0.00	0.00	9
5485	0.00	0.00	0.00	8
5486	0.00	0.00	0.00	8
5487	0.00	0.00	0.00	9
5488	0.00	0.00	0.00	7
5489	0.00	0.00	0.00	10
5490	0.00	0.00	0.00	12
5491	0.00	0.00	0.00	6
5492	0.00	0.00	0.00	8
5493	0.00	0.00	0.00	13
5494	0.00	0.00	0.00	6
5495	0.00	0.00	0.00	10
5496	0.00	0.00	0.00	7
5497	0.00	0.00	0.00	9
5498	0.00	0.00	0.00	6
5499	0.00	0.00	0.00	13
avg / total	0.53	0.26	0.33	530065

```
[ ]: from sklearn.externals import joblib
joblib.dump(classifier, 'lr_with_equal_weight.pkl')
```

4.5 Modeling with less data points (0.5M data points) and more weight to title and 500 tags only.

```
[ ]: sql_create_table = """CREATE TABLE IF NOT EXISTS QuestionsProcessed (question_
    ↳text NOT NULL, code text, tags text, words_pre integer, words_post integer,
    ↳is_code integer);"""
create_database_table("Titlmoreweight.db", sql_create_table)
```

Tables in the databse:
QuestionsProcessed

```
[ ]: # http://www.sqlitetutorial.net/sqlite-delete/
# https://stackoverflow.com/questions/2279706/
    ↳select-random-row-from-a-sqlite-table

read_db = 'train_no_dup.db'
write_db = 'Titlmoreweight.db'
train_datasize = 400000
if os.path.isfile(read_db):
    conn_r = create_connection(read_db)
```

```

if conn_r is not None:
    reader = conn_r.cursor()
    # for selecting first 0.5M rows
    reader.execute("SELECT Title, Body, Tags From no_dup_train LIMIT 500001;
→")

    # for selecting random points
    #reader.execute("SELECT Title, Body, Tags From no_dup_train ORDER BY_
→RANDOM() LIMIT 500001;")

if os.path.isfile(write_db):
    conn_w = create_connection(write_db)
    if conn_w is not None:
        tables = checkTableExists(conn_w)
        writer = conn_w.cursor()
        if tables != 0:
            writer.execute("DELETE FROM QuestionsProcessed WHERE 1")
            print("Cleared All the rows")

```

Tables in the database:

QuestionsProcessed

Cleared All the rows

4.5.1 Preprocessing of questions

 Separate Code from Body

 Remove Special characters from Question title and description (not in code)

 Give more weightage to title : Add title three times to the question

 Remove stop words (Except 'C')

 Remove HTML Tags

 Convert all the characters into small letters

 Use SnowballStemmer to stem the words

```

[ ]: #http://www.bernzilla.com/2008/05/13/
→selecting-a-random-row-from-an-sqlite-table/
start = datetime.now()
preprocessed_data_list=[]
reader.fetchone()
questions_with_code=0
len_pre=0
len_post=0
questions_proccesed = 0
for row in reader:

    is_code = 0

    title, question, tags = row[0], row[1], str(row[2])

```

```

if '<code>' in question:
    questions_with_code+=1
    is_code = 1
x = len(question)+len(title)
len_pre+=x

code = str(re.findall(r'<code>(.*?)</code>', question, flags=re.DOTALL))

question=re.sub('<code>(.*?)</code>', '', question, flags=re.MULTILINE|re.
→DOTALL)
question=stripthtml(question.encode('utf-8'))

title=title.encode('utf-8')

# adding title three time to the data to increase its weight
# add tags string to the training data

question=str(title)+" "+str(title)+" "+str(title)+" "+question

#     if questions_proccesed<=train_datasize:
#         question=str(title)+" "+str(title)+" "+str(title)+" "+question+"␣
→"+str(tags)
#     else:
#         question=str(title)+" "+str(title)+" "+str(title)+" "+question

question=re.sub(r'[^A-Za-z0-9#+.\-]+' , ' ',question)
words=word_tokenize(str(question.lower()))

#Removing all single letter and and stopwords from question exceptt for the␣
→letter 'c'
question=' '.join(str(stemmer.stem(j)) for j in words if j not in␣
→stop_words and (len(j)!=1 or j=='c'))

len_post+=len(question)
tup = (question,code,tags,x,len(question),is_code)
questions_proccesed += 1
writer.execute("insert into␣
→QuestionsProcessed(question,code,tags,words_pre,words_post,is_code) values (?
→,?,?,?,?,?,?)",tup)
if (questions_proccesed%100000==0):
    print("number of questions completed=",questions_proccesed)

no_dup_avg_len_pre=(len_pre*1.0)/questions_proccesed
no_dup_avg_len_post=(len_post*1.0)/questions_proccesed

print( "Avg. length of questions(Title+Body) before processing:␣
→%d"%no_dup_avg_len_pre)

```



```

print( "Avg. length of questions(Title+Body) after processing:␣
→%d"%no_dup_avg_len_post)
print( "Percent of questions containing code: %d"%((questions_with_code*100.0)/
→questions_proccesed))

print("Time taken to run this cell :", datetime.now() - start)

```

```

number of questions completed= 100000
number of questions completed= 200000
number of questions completed= 300000
number of questions completed= 400000
number of questions completed= 500000
Avg. length of questions(Title+Body) before processing: 1239
Avg. length of questions(Title+Body) after processing: 424
Percent of questions containing code: 57
Time taken to run this cell : 0:23:12.329039

```

```

[:]: # never forget to close the conections or else we will end up with database␣
→locks
conn_r.commit()
conn_w.commit()
conn_r.close()
conn_w.close()

```

__ Sample quesitons after preprocessing of data __

```

[:]: if os.path.isfile(write_db):
    conn_r = create_connection(write_db)
    if conn_r is not None:
        reader =conn_r.cursor()
        reader.execute("SELECT question From QuestionsProcessed LIMIT 10")
        print("Questions after preprocessed")
        print('='*100)
        reader.fetchone()
        for row in reader:
            print(row)
            print('-'*100)
    conn_r.commit()
    conn_r.close()

```

Questions after preprocessed

```

=====
('dynam datagrid bind silverlight dynam datagrid bind silverlight dynam datagrid
bind silverlight bind datagrid dynam code wrote code debug code block seem bind
correct grid come column form come grid column although necessari bind nthank
repli advance..',)
-----

```

('java.lang.noclassdeffoundererror javax servlet jsp tagext taglibraryvalid
java.lang.noclassdeffoundererror javax servlet jsp tagext taglibraryvalid
java.lang.noclassdeffoundererror javax servlet jsp tagext taglibraryvalid follow
guid link instal jstl got follow error tri launch jsp page
java.lang.noclassdeffoundererror javax servlet jsp tagext taglibraryvalid taglib
declar instal jstl 1.1 tomcat webapp tri project work also tri version 1.2 jstl
still messag caus solv',)

('java.sql.sqlexcept microsoft odbc driver manag invalid descriptor index
java.sql.sqlexcept microsoft odbc driver manag invalid descriptor index
java.sql.sqlexcept microsoft odbc driver manag invalid descriptor index use
follow code display caus solv',)

('better way updat feed fb php sdk better way updat feed fb php sdk better way
updat feed fb php sdk novic facebook api read mani tutori still confused.i find
post feed api method like correct second way use curl someth like way better',)

('btnadd click event open two window record ad btnadd click event open two
window record ad btnadd click event open two window record ad open window
search.aspx use code hav add button search.aspx nwhen insert record btnadd click
event open anoth window nafter insert record close window',)

('sql inject issu prevent correct form submiss php sql inject issu prevent
correct form submiss php sql inject issu prevent correct form submiss php check
everyth think make sure input field safe type sql inject good news safe bad news
one tag mess form submiss place even touch life figur exact html use templat
file forgiv okay entir php script get execut see data post none forum field post
problem use someth titl field none data get post current use print post see
submit noth work flawless statement though also mention script work flawless
local machin use host come across problem state list input test mess',)

('countabl subaddit lebesgu measur countabl subaddit lebesgu measur countabl
subaddit lebesgu measur let lbrace rbrace sequenc set sigma -algebra mathcal
want show left bigcup right leq sum left right countabl addit measur defin set
sigma algebra mathcal think use monoton properti somewher proof start appreci
littl help nthank ad han answer make follow addit construct given han answer
clear bigcup bigcup cap emptyset neq left bigcup right left bigcup right sum
left right also construct subset monoton left right leq left right final would
sum leq sum result follow',)

('hql equival sql queri hql equival sql queri hql equival sql queri hql queri

```
replac name class properti name error occur hql error',)
```

```
-----
('undefin symbol architectur i386 objc class skpsmtpmessag referenc error
undefin symbol architectur i386 objc class skpsmtpmessag referenc error undefin
symbol architectur i386 objc class skpsmtpmessag referenc error import framework
send email applic background import framework i.e skpsmtpmessag somebody suggest
get error collect2 ld return exit status import framework correct sorc taken
framework follow mfmcomposeviewcontrol question lock field updat answer drag
drop folder project click copi nthat',)
-----
-----
```

__ Saving Preprocessed data to a Database __

```
[ ]: #http://www.sqlitetutorial.net/sqlite-python/create-tables/
def create_connection(db_file):
    """ create a database connection to the SQLite database
        specified by db_file
    :param db_file: database file
    :return: Connection object or None
    """
    try:
        conn = sqlite3.connect(db_file)
        return conn
    except Error as e:
        print(e)

    return None

def create_table(conn, create_table_sql):
    """ create a table from the create_table_sql statement
    :param conn: Connection object
    :param create_table_sql: a CREATE TABLE statement
    :return:
    """
    try:
        c = conn.cursor()
        c.execute(create_table_sql)
    except Error as e:
        print(e)

def checkTableExists(dbcon):
    cursr = dbcon.cursor()
    str = "select name from sqlite_master where type='table'"
    table_names = cursr.execute(str)
    print("Tables in the databse:")
    tables = table_names.fetchall()
```

```

print(tables[0][0])
return(len(tables))

def create_database_table(database, query):
    conn = create_connection(database)
    if conn is not None:
        create_table(conn, query)
        checkTableExists(conn)
    else:
        print("Error! cannot create the database connection.")
    conn.close()

sql_create_table = """CREATE TABLE IF NOT EXISTS QuestionsProcessed (question_
→text NOT NULL, code text, tags text, words_pre integer, words_post integer,
→is_code integer);"""
create_database_table("Processed.db", sql_create_table)

def tags_to_choose(n):
    t = multilabel_y.sum(axis=0).tolist()[0]
    sorted_tags_i = sorted(range(len(t)), key=lambda i: t[i], reverse=True)
    multilabel_yn=multilabel_y[:,sorted_tags_i[:n]]
    return multilabel_yn

def questions_explained_fn(n):
    multilabel_yn = tags_to_choose(n)
    x= multilabel_yn.sum(axis=1)
    return (np.count_nonzero(x==0))

```

Tables in the databse:
QuestionsProcessed

```

[:]: #Taking 0.5 Million entries to a dataframe.
write_db = 'Titlmoreweight.db'
if os.path.isfile(write_db):
    conn_r = create_connection(write_db)
    if conn_r is not None:
        preprocessed_data = pd.read_sql_query("""SELECT question, Tags FROM
→QuestionsProcessed limit 300000""", conn_r)
    conn_r.commit()
    conn_r.close()

```

```
[:]: preprocessed_data.head()
```

```

[:]:
question
tags

```

```

0 dynam datagrid bind silverlight dynam datagrid...          c# silverlight
data-binding
1 dynam datagrid bind silverlight dynam datagrid...  c# silverlight data-
binding columns
2 java.lang.noclassdeffounderror javax servlet j...
jsp jstl
3 java.sql.sqlexcept microsoft odbc driver manag...
java jdbc
4 better way updat feed fb php sdk better way up...          facebook api
facebook-php-sdk

```

```

[: print("number of data points in sample :", preprocessed_data.shape[0])
print("number of dimensions :", preprocessed_data.shape[1])

```

```

number of data points in sample : 300000
number of dimensions : 2

```

__ Converting string Tags to multilable output variables __

```

[: vectorizer = CountVectorizer(tokenizer = lambda x: x.split(), binary='true')
multilabel_y = vectorizer.fit_transform(preprocessed_data['tags'])

```

```

[: multilabel_y.shape

```

```

[: (300000, 25099)

```

__ Selecting 500 Tags __

```

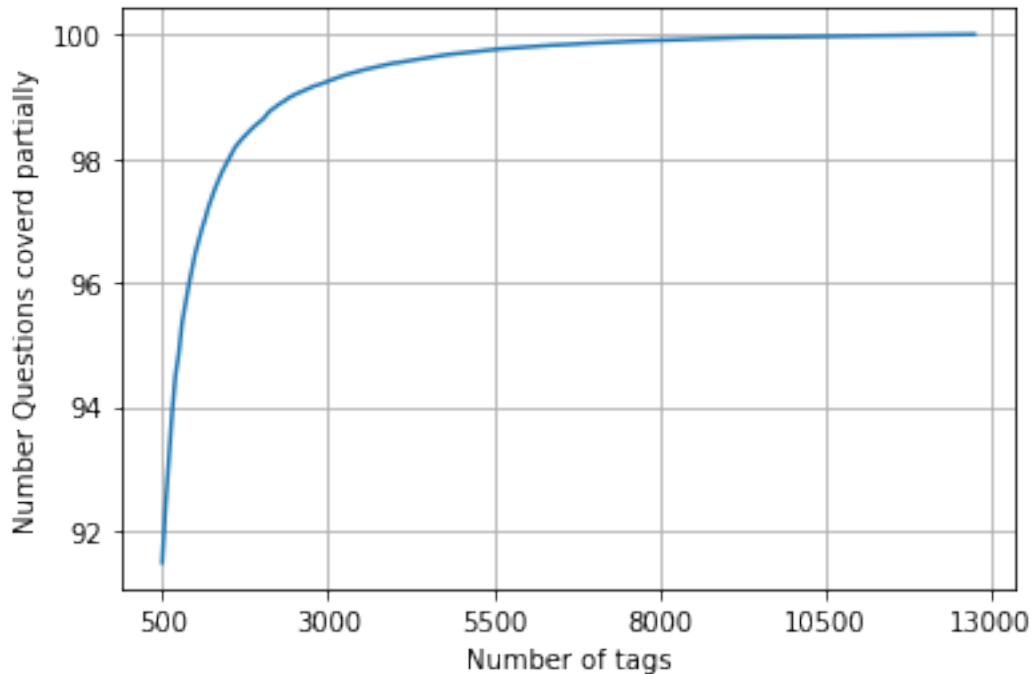
[: questions_explained = []
total_tags=multilabel_y.shape[1]
total_qs=preprocessed_data.shape[0]
for i in range(500, total_tags, 100):
    questions_explained.append(np.round(((total_qs-questions_explained_fn(i))/
→total_qs)*100,3))

```

```

[: fig, ax = plt.subplots()
ax.plot(questions_explained)
xlabel = list(500+np.array(range(-50,450,50))*50)
ax.set_xticklabels(xlabel)
plt.xlabel("Number of tags")
plt.ylabel("Number Questions covered partially")
plt.grid()
plt.show()
# you can choose any number of tags based on your computing power, minimum is
→500(it covers 90% of the tags)
print("with ",5500,"tags we are covering ",questions_explained[50],"% of
→questions")
print("with ",500,"tags we are covering ",questions_explained[0],"% of
→questions")

```



with 5500 tags we are covering 99.244 % of questions
 with 500 tags we are covering 91.492 % of questions

```
[ ]: # we will be taking 500 tags
      multilabel_yx = tags_to_choose(500)
      print("number of questions that are not covered :",
            →questions_explained_fn(500),"out of ", total_qs)
```

number of questions that are not covered : 25523 out of 300000

```
[ ]: head=int(multilabel_y.shape[0]*0.7)
      x_train=preprocessed_data.head(head)
      x_test=preprocessed_data.tail(preprocessed_data.shape[0] - head)

      y_train = multilabel_yx[0:head,:]
      y_test = multilabel_yx[head:preprocessed_data.shape[0],:]

      print("Number of data points in train data :", y_train.shape)
      print("Number of data points in test data :", y_test.shape)
```

Number of data points in train data : (210000, 500)
 Number of data points in test data : (90000, 500)

4.5.2 Featurizing data with Count vectorizer

```
[ ]: %%time
vectorizer = CountVectorizer(min_df=0.00009, max_features=200000, \
                             tokenizer = lambda x: x.split(), ngram_range=(1,4))
x_train_multilabel = vectorizer.fit_transform(x_train['question'])
x_test_multilabel = vectorizer.transform(x_test['question'])
```

CPU times: user 3min 52s, sys: 10.1 s, total: 4min 2s
Wall time: 4min 2s

```
[ ]: print("Dimensions of train data X:",x_train_multilabel.shape, "Y :",y_train.
        →shape)
print("Dimensions of test data X:",x_test_multilabel.shape,"Y:",y_test.shape)
```

Dimensions of train data X: (210000, 97803) Y : (210000, 500)
Dimensions of test data X: (90000, 97803) Y: (90000, 500)

```
[ ]: from sklearn.externals import joblib
# data points with 0.5 million data
joblib.dump(x_train_multilabel, 'x_train_multilabel.pkl')
joblib.dump(x_test_multilabel, 'x_test_multilabel.pkl')

# target class i.e multilabel classes with 0.5 million
joblib.dump(y_train, 'y_train.pkl')
joblib.dump(y_test, 'y_test.pkl')
```

```
[ ]: ['y_test.pkl']
```

```
[5]: from sklearn.externals import joblib
x_train_multilabel = joblib.load('x_train_multilabel.pkl')
x_test_multilabel = joblib.load('x_test_multilabel.pkl')
y_train = joblib.load('y_train.pkl')
y_test = joblib.load('y_test.pkl')
```

4.5.3 Applying Linear SVM with OneVsRest Classifier

```
[ ]: %%time
from sklearn.model_selection import GridSearchCV
params = {'estimator__alpha': [10**i for i in range(-8,2)] }

lr_svm = OneVsRestClassifier(SGDClassifier(loss='hinge',penalty='l1'))
lr_svm_gs = GridSearchCV(lr_svm, params, verbose = 5 , scoring = 'f1_micro',
    →cv=2,n_jobs=-1)

lr_svm_gs.fit(x_train_multilabel, y_train)
```

Fitting 2 folds for each of 10 candidates, totalling 20 fits

```
[Parallel(n_jobs=-1)]: Using backend LokyBackend with 2 concurrent workers.  
[Parallel(n_jobs=-1)]: Done 14 tasks      | elapsed: 353.2min  
[Parallel(n_jobs=-1)]: Done 20 out of 20 | elapsed: 399.4min finished
```

```
CPU times: user 23min 10s, sys: 58.2 s, total: 24min 8s  
Wall time: 7h 2min 31s
```

```
[ ]: print(lr_svm_gs.best_estimator_)
```

```
OneVsRestClassifier(estimator=SGDClassifier(alpha=0.001, average=False,  
                                             class_weight=None,  
                                             early_stopping=False, epsilon=0.1,  
                                             eta0=0.0, fit_intercept=True,  
                                             l1_ratio=0.15,  
                                             learning_rate='optimal',  
                                             loss='hinge', max_iter=1000,  
                                             n_iter_no_change=5, n_jobs=None,  
                                             penalty='l1', power_t=0.5,  
                                             random_state=None, shuffle=True,  
                                             tol=0.001, validation_fraction=0.1,  
                                             verbose=0, warm_start=False),  
                    n_jobs=None)
```

```
[13]: %%time  
classifier = OneVsRestClassifier(SGDClassifier(loss='hinge', alpha=lr_svm_gs.  
→best_params_['estimator__alpha'], penalty='l1'), n_jobs=-1)  
classifier.fit(x_train_multilabel, y_train)  
predictions = classifier.predict(x_test_multilabel)
```

```
CPU times: user 19.7 s, sys: 2.95 s, total: 22.7 s  
Wall time: 19min 47s
```

```
[15]: svm_acc=metrics.accuracy_score(y_test, predictions)  
svm_hl=metrics.hamming_loss(y_test, predictions)  
  
print("Accuracy :",svm_acc)  
print("Hamming loss ",svm_hl)  
  
svmi_precision = precision_score(y_test, predictions, average='micro')  
svmi_recall = recall_score(y_test, predictions, average='micro')  
svmi_f1 = f1_score(y_test, predictions, average='micro')  
  
print("Micro-average quality numbers")  
print("Precision: {:.4f}, Recall: {:.4f}, F1-measure: {:.4f}".  
→format(svmi_precision,svmi_recall, svmi_f1))
```



```

svma_precision = precision_score(y_test, predictions, average='macro')
svma_recall = recall_score(y_test, predictions, average='macro')
svma_f1 = f1_score(y_test, predictions, average='macro')

print("Macro-average quality numbers")
print("Precision: {:.4f}, Recall: {:.4f}, F1-measure: {:.4f}".
      →format(svma_precision, svma_recall, svma_f1))

print(metrics.classification_report(y_test, predictions))

```

Accuracy : 0.1645

Hamming loss 0.0033901333333333333

Micro-average quality numbers

Precision: 0.5634, Recall: 0.2673, F1-measure: 0.3625

Macro-average quality numbers

Precision: 0.2771, Recall: 0.2098, F1-measure: 0.2174

	precision	recall	f1-score	support
0	0.80	0.61	0.69	4214
1	0.60	0.03	0.05	6906
2	0.74	0.25	0.37	6185
3	0.74	0.57	0.65	3716
4	0.75	0.27	0.39	4540
5	0.73	0.50	0.59	4648
6	0.77	0.54	0.63	2919
7	0.60	0.18	0.28	2783
8	0.69	0.37	0.48	2866
9	0.50	0.46	0.48	1464
10	0.65	0.48	0.55	2588
11	0.00	0.00	0.00	1967
12	0.63	0.26	0.36	2362
13	0.53	0.36	0.43	792
14	0.76	0.16	0.26	1933
15	0.68	0.48	0.56	1666
16	0.72	0.60	0.65	2411
17	0.72	0.54	0.62	1485
18	0.65	0.59	0.62	1692
19	0.62	0.20	0.30	2069
20	0.47	0.55	0.51	338
21	0.44	0.13	0.20	1217
22	0.25	0.01	0.02	1570
23	0.17	0.00	0.01	2066
24	0.44	0.43	0.43	2480
25	0.00	0.00	0.00	1273
26	0.61	0.29	0.39	662
27	0.40	0.57	0.47	389

28	0.49	0.39	0.44	628
29	0.91	0.71	0.80	2384
30	0.56	0.19	0.28	1504
31	0.00	0.00	0.00	992
32	0.64	0.44	0.52	511
33	0.56	0.41	0.47	935
34	0.22	0.25	0.24	526
35	0.68	0.31	0.43	576
36	0.61	0.23	0.33	917
37	0.00	0.00	0.00	147
38	0.52	0.27	0.36	857
39	0.33	0.42	0.37	329
40	0.75	0.54	0.63	790
41	0.43	0.43	0.43	657
42	0.66	0.49	0.56	482
43	0.48	0.29	0.37	675
44	0.32	0.25	0.28	880
45	0.02	0.00	0.00	564
46	0.55	0.39	0.45	132
47	0.63	0.52	0.57	479
48	0.00	0.00	0.00	1615
49	0.07	0.00	0.01	758
50	0.00	0.00	0.00	692
51	0.74	0.50	0.60	641
52	0.07	0.16	0.09	378
53	0.00	0.00	0.00	463
54	0.50	0.37	0.42	485
55	0.49	0.60	0.54	187
56	0.84	0.78	0.81	560
57	0.00	0.00	0.00	389
58	0.42	0.13	0.19	386
59	0.61	0.27	0.37	622
60	0.00	0.00	0.00	795
61	0.67	0.82	0.74	507
62	0.36	0.09	0.15	372
63	0.24	0.29	0.26	97
64	0.00	0.00	0.00	441
65	0.64	0.61	0.63	441
66	0.00	0.00	0.00	491
67	0.54	0.14	0.22	92
68	0.17	0.16	0.16	409
69	0.60	0.55	0.57	226
70	0.61	0.33	0.42	421
71	0.00	0.00	0.00	325
72	0.49	0.37	0.42	537
73	0.42	0.57	0.49	250
74	0.00	0.00	0.00	71
75	0.56	0.12	0.19	214

76	0.97	0.44	0.61	818
77	0.18	0.21	0.19	129
78	0.00	0.00	0.00	303
79	0.00	0.00	0.00	101
80	0.69	0.49	0.58	459
81	0.00	0.00	0.00	374
82	0.20	0.50	0.29	189
83	0.89	0.77	0.83	892
84	0.47	0.16	0.24	270
85	0.32	0.38	0.35	282
86	0.69	0.73	0.71	30
87	0.48	0.33	0.39	428
88	0.00	0.00	0.00	362
89	0.37	0.40	0.38	455
90	0.00	0.00	0.00	331
91	0.22	0.12	0.16	169
92	0.48	0.66	0.55	80
93	0.00	0.00	0.00	331
94	0.02	0.01	0.01	105
95	0.41	0.13	0.19	352
96	0.55	0.41	0.47	847
97	0.00	0.00	0.00	372
98	0.45	0.69	0.55	75
99	0.03	0.01	0.01	108
100	0.79	0.10	0.18	379
101	0.29	0.28	0.29	117
102	0.73	0.21	0.33	260
103	0.00	0.00	0.00	813
104	0.00	0.00	0.00	587
105	0.72	0.57	0.63	350
106	0.07	0.14	0.09	120
107	0.00	0.00	0.00	215
108	0.41	0.26	0.32	225
109	0.00	0.00	0.00	624
110	1.00	0.01	0.01	339
111	0.50	0.06	0.11	62
112	0.66	0.09	0.16	328
113	0.00	0.00	0.00	428
114	0.00	0.00	0.00	73
115	0.00	0.00	0.00	271
116	0.34	0.59	0.43	154
117	0.42	0.63	0.51	94
118	0.47	0.35	0.40	105
119	0.00	0.00	0.00	202
120	0.38	0.74	0.50	327
121	0.52	0.49	0.51	247
122	0.00	0.00	0.00	219
123	0.66	0.54	0.59	468

124	0.00	0.00	0.00	392
125	0.00	0.00	0.00	223
126	0.53	0.56	0.55	238
127	0.00	0.00	0.00	197
128	0.31	0.14	0.19	517
129	0.41	0.58	0.48	332
130	0.54	0.32	0.41	99
131	0.59	0.36	0.45	373
132	0.00	0.00	0.00	140
133	0.36	0.39	0.38	273
134	0.76	0.71	0.74	311
135	0.00	0.00	0.00	225
136	0.22	0.01	0.02	186
137	0.00	0.00	0.00	223
138	0.00	0.00	0.00	199
139	0.58	0.24	0.34	344
140	0.36	0.69	0.47	36
141	0.00	0.00	0.00	80
142	0.36	0.13	0.19	206
143	0.00	0.00	0.00	209
144	0.00	0.00	0.00	168
145	0.62	0.56	0.59	324
146	0.52	0.58	0.55	299
147	0.56	0.30	0.39	117
148	0.66	0.18	0.28	173
149	0.55	0.43	0.48	255
150	0.13	0.06	0.08	80
151	0.00	0.00	0.00	594
152	0.00	0.00	0.00	222
153	0.58	0.25	0.35	184
154	0.21	0.26	0.24	175
155	0.00	0.00	0.00	339
156	0.90	0.61	0.73	232
157	0.64	0.17	0.26	205
158	0.38	0.49	0.43	216
159	0.53	0.24	0.33	164
160	0.60	0.68	0.64	352
161	0.56	0.46	0.51	205
162	0.00	0.00	0.00	183
163	0.00	0.00	0.00	294
164	0.00	0.00	0.00	195
165	0.76	0.14	0.23	207
166	0.03	0.01	0.01	253
167	0.00	0.00	0.00	50
168	0.34	0.53	0.41	199
169	0.04	0.01	0.02	202
170	0.38	0.19	0.25	201
171	0.67	0.38	0.49	26

172	0.00	0.00	0.00	541
173	0.00	0.00	0.00	187
174	0.00	0.00	0.00	151
175	0.62	0.67	0.64	144
176	0.00	0.00	0.00	182
177	0.69	0.19	0.30	276
178	0.32	0.37	0.34	186
179	0.00	0.00	0.00	314
180	0.00	0.00	0.00	322
181	0.32	0.39	0.35	88
182	0.00	0.00	0.00	209
183	0.42	0.15	0.23	202
184	0.01	0.01	0.01	182
185	0.66	0.69	0.67	220
186	0.00	0.00	0.00	175
187	0.36	0.34	0.35	91
188	0.27	0.40	0.32	40
189	0.49	0.53	0.51	238
190	0.00	0.00	0.00	204
191	0.64	0.38	0.48	252
192	0.00	0.00	0.00	152
193	0.29	0.27	0.28	270
194	0.00	0.00	0.00	190
195	0.12	0.22	0.16	183
196	0.52	0.62	0.56	428
197	0.57	0.66	0.61	82
198	0.00	0.00	0.00	230
199	0.26	0.24	0.25	194
200	0.00	0.00	0.00	109
201	0.83	0.44	0.58	186
202	0.68	0.18	0.29	115
203	0.00	0.00	0.00	243
204	0.00	0.00	0.00	285
205	0.00	0.00	0.00	265
206	0.61	0.21	0.31	170
207	0.86	0.14	0.24	88
208	0.00	0.00	0.00	211
209	0.00	0.00	0.00	368
210	0.84	0.52	0.64	178
211	0.56	0.48	0.52	176
212	0.41	0.52	0.46	185
213	0.00	0.00	0.00	359
214	0.00	0.00	0.00	98
215	0.44	0.29	0.35	181
216	0.00	0.00	0.00	272
217	0.40	0.05	0.09	82
218	0.66	0.48	0.55	164
219	0.34	0.09	0.14	128

220	0.00	0.00	0.00	160
221	0.00	0.00	0.00	254
222	0.59	0.04	0.08	229
223	0.00	0.00	0.00	297
224	0.88	0.42	0.56	178
225	0.00	0.00	0.00	160
226	0.82	0.73	0.77	186
227	0.15	0.40	0.22	72
228	0.62	0.67	0.65	15
229	0.00	0.00	0.00	201
230	0.56	0.62	0.59	276
231	0.00	0.00	0.00	104
232	0.65	0.79	0.71	70
233	0.00	0.00	0.00	170
234	0.00	0.00	0.00	71
235	0.00	0.00	0.00	188
236	0.00	0.00	0.00	212
237	0.00	0.00	0.00	144
238	0.23	0.42	0.30	31
239	0.29	0.03	0.06	126
240	0.05	0.01	0.01	130
241	0.00	0.00	0.00	34
242	0.00	0.00	0.00	110
243	0.00	0.00	0.00	438
244	0.00	0.00	0.00	109
245	0.38	0.42	0.40	79
246	0.00	0.00	0.00	155
247	0.40	0.54	0.46	182
248	0.71	0.02	0.04	235
249	0.70	0.35	0.47	163
250	0.00	0.00	0.00	131
251	0.70	0.64	0.67	11
252	0.64	0.30	0.41	70
253	0.25	0.43	0.32	35
254	0.22	0.25	0.23	130
255	0.35	0.63	0.45	94
256	0.64	0.54	0.58	13
257	0.08	0.22	0.12	45
258	0.22	0.21	0.21	135
259	0.00	0.00	0.00	114
260	0.00	0.00	0.00	156
261	0.52	0.25	0.34	214
262	0.36	0.45	0.40	139
263	0.47	0.32	0.38	63
264	0.66	0.57	0.61	152
265	0.00	0.00	0.00	182
266	0.42	0.66	0.51	128
267	0.51	0.60	0.55	171

268	0.00	0.00	0.00	138
269	0.00	0.00	0.00	197
270	0.57	0.55	0.56	94
271	0.34	0.36	0.35	83
272	0.11	0.01	0.02	104
273	0.50	0.37	0.42	155
274	0.00	0.00	0.00	86
275	0.05	0.18	0.08	88
276	0.41	0.44	0.42	136
277	0.00	0.00	0.00	150
278	0.30	0.05	0.08	144
279	0.44	0.30	0.36	23
280	0.00	0.00	0.00	85
281	0.00	0.00	0.00	73
282	0.00	0.00	0.00	148
283	0.00	0.00	0.00	51
284	0.08	0.34	0.13	44
285	0.00	0.00	0.00	150
286	0.00	0.00	0.00	112
287	0.39	0.44	0.41	16
288	0.32	0.57	0.41	47
289	0.00	0.00	0.00	111
290	0.38	0.18	0.24	166
291	0.12	0.28	0.17	43
292	0.20	0.35	0.26	144
293	0.17	0.43	0.25	87
294	0.87	0.42	0.57	160
295	0.17	0.22	0.19	85
296	0.00	0.00	0.00	225
297	0.59	0.46	0.52	110
298	0.69	0.16	0.26	124
299	0.48	0.18	0.26	200
300	0.00	0.00	0.00	167
301	0.61	0.70	0.65	102
302	0.49	0.62	0.55	176
303	0.00	0.00	0.00	287
304	0.26	0.28	0.27	134
305	0.30	0.38	0.34	78
306	0.41	0.11	0.17	111
307	0.33	0.06	0.10	87
308	0.69	0.48	0.57	145
309	0.70	0.25	0.37	121
310	0.73	0.67	0.70	144
311	0.26	0.61	0.37	188
312	0.00	0.00	0.00	95
313	0.60	0.66	0.63	151
314	0.33	0.54	0.41	100
315	0.00	0.00	0.00	30

316	0.39	0.85	0.54	13
317	0.41	0.14	0.21	92
318	0.32	0.26	0.28	94
319	0.00	0.00	0.00	144
320	0.47	0.26	0.34	117
321	0.00	0.00	0.00	313
322	0.14	0.32	0.19	68
323	0.00	0.00	0.00	57
324	0.83	0.40	0.54	112
325	0.00	0.00	0.00	163
326	0.00	0.00	0.00	176
327	0.00	0.00	0.00	350
328	0.45	0.48	0.47	94
329	0.00	0.00	0.00	142
330	0.74	0.67	0.70	165
331	0.00	0.00	0.00	75
332	0.00	0.00	0.00	164
333	0.05	0.01	0.02	84
334	0.00	0.00	0.00	335
335	0.00	0.00	0.00	81
336	0.79	0.38	0.51	153
337	0.00	0.00	0.00	173
338	0.82	0.60	0.69	126
339	0.47	0.05	0.09	266
340	0.00	0.00	0.00	123
341	0.26	0.27	0.27	22
342	0.40	0.23	0.29	109
343	0.20	0.24	0.22	113
344	0.86	0.52	0.65	200
345	0.90	0.07	0.14	122
346	0.00	0.00	0.00	163
347	0.38	0.09	0.14	34
348	0.79	0.39	0.52	97
349	0.35	0.56	0.43	66
350	0.00	0.00	0.00	268
351	0.38	0.84	0.52	125
352	0.78	0.33	0.46	122
353	0.00	0.00	0.00	113
354	0.00	0.00	0.00	110
355	0.00	0.00	0.00	60
356	0.00	0.00	0.00	173
357	0.00	0.00	0.00	51
358	0.00	0.00	0.00	176
359	0.00	0.00	0.00	92
360	0.00	0.00	0.00	129
361	0.00	0.00	0.00	104
362	0.47	0.36	0.40	56
363	0.76	0.14	0.24	177

364	0.13	0.20	0.16	10
365	0.00	0.00	0.00	126
366	0.00	0.00	0.00	35
367	0.52	0.18	0.27	71
368	0.00	0.00	0.00	72
369	0.52	0.51	0.52	94
370	0.26	0.63	0.36	67
371	0.00	0.00	0.00	92
372	0.75	0.26	0.39	102
373	0.57	0.38	0.46	21
374	0.00	0.00	0.00	73
375	0.31	0.16	0.22	61
376	0.00	0.00	0.00	119
377	0.53	0.27	0.36	131
378	0.36	0.18	0.24	44
379	0.29	0.36	0.32	42
380	0.00	0.00	0.00	117
381	0.35	0.82	0.49	11
382	1.00	0.01	0.02	242
383	0.04	0.16	0.06	37
384	0.00	0.00	0.00	89
385	0.00	0.00	0.00	59
386	0.00	0.00	0.00	108
387	0.38	0.48	0.42	94
388	0.00	0.00	0.00	67
389	0.44	0.38	0.41	116
390	0.00	0.00	0.00	129
391	0.00	0.00	0.00	111
392	0.00	0.00	0.00	157
393	0.00	0.00	0.00	113
394	0.15	0.30	0.20	90
395	0.80	0.47	0.59	210
396	0.41	0.18	0.25	76
397	0.22	0.14	0.17	37
398	0.00	0.00	0.00	79
399	0.00	0.00	0.00	109
400	0.00	0.00	0.00	56
401	0.00	0.00	0.00	83
402	0.00	0.00	0.00	98
403	0.64	0.27	0.38	107
404	0.27	0.39	0.32	49
405	0.00	0.00	0.00	66
406	0.00	0.00	0.00	87
407	0.00	0.00	0.00	88
408	0.00	0.00	0.00	111
409	0.00	0.00	0.00	24
410	0.72	0.56	0.63	120
411	0.00	0.00	0.00	91

412	0.00	0.00	0.00	133
413	0.00	0.00	0.00	29
414	0.00	0.00	0.00	99
415	0.00	0.00	0.00	44
416	0.88	0.66	0.75	99
417	0.00	0.00	0.00	111
418	0.16	0.15	0.16	113
419	0.00	0.00	0.00	106
420	0.33	0.65	0.44	23
421	0.00	0.00	0.00	69
422	0.00	0.00	0.00	153
423	0.00	0.00	0.00	151
424	0.00	0.00	0.00	75
425	0.17	0.17	0.17	65
426	0.39	0.26	0.31	101
427	0.00	0.00	0.00	200
428	0.11	0.18	0.14	82
429	0.00	0.00	0.00	32
430	0.00	0.00	0.00	14
431	0.00	0.00	0.00	115
432	0.00	0.00	0.00	16
433	0.66	0.48	0.56	118
434	0.00	0.00	0.00	94
435	1.00	0.50	0.67	12
436	0.00	0.00	0.00	25
437	0.00	0.00	0.00	126
438	0.50	0.26	0.34	96
439	0.58	0.64	0.61	22
440	0.00	0.00	0.00	80
441	0.29	0.31	0.30	72
442	0.00	0.00	0.00	74
443	0.00	0.00	0.00	84
444	0.74	0.43	0.54	117
445	0.00	0.00	0.00	55
446	0.23	0.29	0.25	76
447	0.23	0.41	0.29	17
448	0.00	0.00	0.00	77
449	0.00	0.00	0.00	102
450	0.87	0.35	0.50	110
451	0.20	0.04	0.06	78
452	0.00	0.00	0.00	54
453	0.00	0.00	0.00	63
454	0.00	0.00	0.00	111
455	0.00	0.00	0.00	79
456	0.00	0.00	0.00	72
457	0.25	0.50	0.33	14
458	0.38	0.33	0.35	9
459	0.00	0.00	0.00	139

460	0.37	0.24	0.29	29
461	0.00	0.00	0.00	128
462	0.00	0.00	0.00	48
463	0.00	0.00	0.00	98
464	0.78	0.60	0.68	89
465	0.11	0.29	0.16	24
466	0.00	0.00	0.00	69
467	0.33	0.05	0.08	63
468	0.00	0.00	0.00	63
469	0.00	0.00	0.00	64
470	0.00	0.00	0.00	88
471	0.00	0.00	0.00	106
472	0.25	0.30	0.27	67
473	0.00	0.00	0.00	88
474	0.00	0.00	0.00	98
475	0.17	0.50	0.25	6
476	0.44	0.52	0.48	100
477	0.13	0.18	0.16	38
478	0.54	0.09	0.15	81
479	0.00	0.00	0.00	67
480	0.00	0.00	0.00	195
481	0.08	0.01	0.03	68
482	0.00	0.00	0.00	94
483	0.00	0.00	0.00	73
484	0.00	0.00	0.00	84
485	0.48	0.34	0.40	47
486	0.00	0.00	0.00	26
487	0.00	0.00	0.00	46
488	0.00	0.00	0.00	59
489	0.39	0.30	0.34	81
490	0.00	0.00	0.00	7
491	0.30	0.57	0.40	105
492	0.00	0.00	0.00	103
493	0.41	0.42	0.41	77
494	0.00	0.00	0.00	36
495	0.00	0.00	0.00	79
496	0.00	0.00	0.00	122
497	0.00	0.00	0.00	33
498	0.51	0.42	0.46	118
499	0.00	0.00	0.00	29
micro avg	0.56	0.27	0.36	162325
macro avg	0.28	0.21	0.22	162325
weighted avg	0.45	0.27	0.31	162325
samples avg	0.35	0.26	0.27	162325

2 Applying Logistic Regression

```
[7]: %%time

import warnings
warnings.filterwarnings("ignore")

from sklearn.model_selection import GridSearchCV
params = {'estimator__C': [10**i for i in range(-8,2)] }

log_reg = OneVsRestClassifier(LogisticRegression(penalty='l1', solver='liblinear'))
log_reg_gs = GridSearchCV(log_reg, params, verbose =10 , scoring = 'f1_micro',
                           cv=2, n_jobs=-1)

log_reg_gs.fit(x_train_multilabel, y_train)
```

Fitting 2 folds for each of 10 candidates, totalling 20 fits

```
[Parallel(n_jobs=-1)]: Using backend LokyBackend with 2 concurrent workers.
[Parallel(n_jobs=-1)]: Done   1 tasks      | elapsed:  6.9min
[Parallel(n_jobs=-1)]: Done   4 tasks      | elapsed: 14.1min
[Parallel(n_jobs=-1)]: Done   9 tasks      | elapsed: 49.4min
[Parallel(n_jobs=-1)]: Done  14 tasks      | elapsed: 98.5min
[Parallel(n_jobs=-1)]: Done  20 out of  20 | elapsed: 303.4min remaining:
0.0s
[Parallel(n_jobs=-1)]: Done  20 out of  20 | elapsed: 303.4min finished
```

CPU times: user 1h 57min 2s, sys: 14.2 s, total: 1h 57min 16s

Wall time: 7h 43s

```
[8]: print(log_reg_gs.best_estimator_)
```

```
OneVsRestClassifier(estimator=LogisticRegression(C=1, class_weight=None,
                                                    dual=False, fit_intercept=True,
                                                    intercept_scaling=1,
                                                    l1_ratio=None, max_iter=100,
                                                    multi_class='auto',
                                                    n_jobs=None, penalty='l1',
                                                    random_state=None,
                                                    solver='liblinear', tol=0.0001,
                                                    verbose=0, warm_start=False),
                    n_jobs=None)
```

```
[9]: %%time
classifier_2 = OneVsRestClassifier(LogisticRegression(C=log_reg_gs.
    ↳best_params_['estimator__C'],penalty='l1',solver='liblinear'), n_jobs=-1)
classifier_2.fit(x_train_multilabel, y_train)
predictions_2 = classifier_2.predict(x_test_multilabel)
```

CPU times: user 20.5 s, sys: 6 s, total: 26.5 s
Wall time: 1h 55min 37s

```
[12]: lr_acc=metrics.accuracy_score(y_test, predictions_2)
lr_hl=metrics.hamming_loss(y_test, predictions_2)

print("Accuracy :",lr_acc)
print("Hamming loss ",lr_hl)

lri_precision = precision_score(y_test, predictions_2, average='micro')
lri_recall = recall_score(y_test, predictions_2, average='micro')
lri_f1 = f1_score(y_test, predictions_2, average='micro')

print("Micro-average quality numbers")
print("Precision: {:.4f}, Recall: {:.4f}, F1-measure: {:.4f}".
    ↳format(lri_precision,lri_recall, lri_f1))

lra_precision = precision_score(y_test, predictions_2, average='macro')
lra_recall = recall_score(y_test, predictions_2, average='macro')
lra_f1 = f1_score(y_test, predictions_2, average='macro')

print("Macro-average quality numbers")
print("Precision: {:.4f}, Recall: {:.4f}, F1-measure: {:.4f}".
    ↳format(lra_precision, lra_recall, lra_f1))

print (metrics.classification_report(y_test, predictions_2))
```

```
Accuracy : 0.20004444444444444
Hamming loss  0.0032927111111111111
Micro-average quality numbers
Precision: 0.5600, Recall: 0.4067, F1-measure: 0.4712
Macro-average quality numbers
Precision: 0.4291, Recall: 0.3201, F1-measure: 0.3623
```

	precision	recall	f1-score	support
0	0.88	0.73	0.80	4214
1	0.49	0.33	0.39	6906
2	0.62	0.45	0.52	6185
3	0.73	0.58	0.64	3716

4	0.59	0.46	0.52	4540
5	0.67	0.53	0.60	4648
6	0.70	0.58	0.63	2919
7	0.37	0.21	0.27	2783
8	0.59	0.46	0.52	2866
9	0.63	0.46	0.53	1464
10	0.69	0.52	0.60	2588
11	0.41	0.27	0.33	1967
12	0.52	0.40	0.45	2362
13	0.53	0.38	0.44	792
14	0.45	0.31	0.37	1933
15	0.73	0.58	0.64	1666
16	0.80	0.59	0.68	2411
17	0.71	0.58	0.63	1485
18	0.71	0.57	0.63	1692
19	0.41	0.30	0.35	2069
20	0.67	0.52	0.58	338
21	0.42	0.31	0.36	1217
22	0.28	0.18	0.22	1570
23	0.44	0.37	0.40	2066
24	0.66	0.60	0.63	2480
25	0.48	0.37	0.42	1273
26	0.48	0.31	0.38	662
27	0.45	0.39	0.42	389
28	0.61	0.47	0.53	628
29	0.91	0.86	0.88	2384
30	0.53	0.40	0.45	1504
31	0.29	0.18	0.22	992
32	0.66	0.43	0.52	511
33	0.61	0.40	0.48	935
34	0.41	0.32	0.36	526
35	0.54	0.31	0.39	576
36	0.50	0.36	0.42	917
37	0.15	0.08	0.11	147
38	0.39	0.25	0.30	857
39	0.52	0.34	0.41	329
40	0.77	0.55	0.64	790
41	0.51	0.44	0.47	657
42	0.67	0.49	0.56	482
43	0.48	0.39	0.43	675
44	0.52	0.34	0.41	880
45	0.36	0.25	0.30	564
46	0.49	0.30	0.37	132
47	0.71	0.53	0.61	479
48	0.98	0.90	0.94	1615
49	0.43	0.24	0.31	758
50	0.31	0.18	0.22	692
51	0.73	0.65	0.69	641

52	0.25	0.16	0.20	378
53	0.27	0.22	0.24	463
54	0.54	0.30	0.38	485
55	0.49	0.50	0.50	187
56	0.86	0.73	0.79	560
57	0.19	0.11	0.14	389
58	0.45	0.25	0.32	386
59	0.52	0.32	0.40	622
60	0.42	0.28	0.34	795
61	0.75	0.71	0.73	507
62	0.34	0.24	0.28	372
63	0.31	0.26	0.28	97
64	0.31	0.18	0.23	441
65	0.67	0.58	0.62	441
66	0.30	0.19	0.23	491
67	0.23	0.12	0.16	92
68	0.36	0.23	0.28	409
69	0.64	0.49	0.55	226
70	0.62	0.32	0.42	421
71	0.27	0.15	0.19	325
72	0.54	0.40	0.46	537
73	0.56	0.44	0.50	250
74	0.21	0.17	0.19	71
75	0.35	0.17	0.23	214
76	0.97	0.89	0.93	818
77	0.61	0.48	0.54	129
78	0.34	0.23	0.28	303
79	0.09	0.04	0.06	101
80	0.75	0.59	0.66	459
81	0.13	0.05	0.07	374
82	0.61	0.49	0.54	189
83	0.91	0.90	0.91	892
84	0.37	0.26	0.31	270
85	0.61	0.43	0.50	282
86	0.69	0.60	0.64	30
87	0.42	0.28	0.34	428
88	0.06	0.02	0.03	362
89	0.52	0.36	0.43	455
90	0.22	0.08	0.12	331
91	0.28	0.27	0.28	169
92	0.62	0.53	0.57	80
93	0.21	0.13	0.16	331
94	0.22	0.13	0.17	105
95	0.33	0.22	0.27	352
96	0.69	0.44	0.54	847
97	0.15	0.07	0.10	372
98	0.65	0.57	0.61	75
99	0.14	0.05	0.07	108

100	0.47	0.27	0.35	379
101	0.54	0.30	0.38	117
102	0.75	0.49	0.59	260
103	0.53	0.46	0.49	813
104	0.31	0.19	0.24	587
105	0.73	0.44	0.55	350
106	0.17	0.14	0.16	120
107	0.16	0.11	0.13	215
108	0.47	0.32	0.38	225
109	0.47	0.37	0.41	624
110	0.65	0.37	0.47	339
111	0.27	0.16	0.20	62
112	0.37	0.23	0.29	328
113	0.26	0.14	0.18	428
114	0.20	0.14	0.16	73
115	0.25	0.15	0.19	271
116	0.65	0.46	0.54	154
117	0.56	0.52	0.54	94
118	0.44	0.33	0.38	105
119	0.43	0.31	0.36	202
120	0.85	0.76	0.80	327
121	0.56	0.43	0.49	247
122	0.22	0.12	0.16	219
123	0.82	0.70	0.75	468
124	0.44	0.29	0.35	392
125	0.31	0.20	0.24	223
126	0.63	0.40	0.49	238
127	0.12	0.07	0.09	197
128	0.51	0.32	0.39	517
129	0.51	0.38	0.44	332
130	0.47	0.37	0.42	99
131	0.57	0.48	0.52	373
132	0.32	0.35	0.33	140
133	0.49	0.48	0.48	273
134	0.76	0.59	0.67	311
135	0.25	0.15	0.19	225
136	0.33	0.28	0.31	186
137	0.42	0.29	0.34	223
138	0.27	0.15	0.19	199
139	0.60	0.44	0.51	344
140	0.33	0.25	0.29	36
141	0.03	0.03	0.03	80
142	0.37	0.30	0.33	206
143	0.37	0.23	0.28	209
144	0.57	0.43	0.49	168
145	0.79	0.68	0.73	324
146	0.61	0.59	0.60	299
147	0.41	0.29	0.34	117

148	0.34	0.17	0.23	173
149	0.57	0.49	0.53	255
150	0.27	0.09	0.13	80
151	0.56	0.34	0.42	594
152	0.30	0.16	0.21	222
153	0.61	0.43	0.50	184
154	0.35	0.25	0.29	175
155	0.30	0.18	0.23	339
156	0.84	0.63	0.72	232
157	0.53	0.30	0.39	205
158	0.73	0.56	0.64	216
159	0.50	0.29	0.36	164
160	0.70	0.61	0.65	352
161	0.62	0.40	0.48	205
162	0.28	0.26	0.27	183
163	0.25	0.10	0.14	294
164	0.13	0.08	0.10	195
165	0.49	0.25	0.33	207
166	0.21	0.12	0.16	253
167	0.25	0.10	0.14	50
168	0.63	0.55	0.59	199
169	0.32	0.24	0.27	202
170	0.35	0.26	0.30	201
171	0.29	0.27	0.28	26
172	0.24	0.15	0.18	541
173	0.20	0.10	0.13	187
174	0.37	0.23	0.28	151
175	0.85	0.62	0.72	144
176	0.30	0.20	0.24	182
177	0.71	0.44	0.55	276
178	0.46	0.34	0.39	186
179	0.51	0.35	0.41	314
180	0.31	0.24	0.27	322
181	0.54	0.41	0.46	88
182	0.15	0.04	0.06	209
183	0.39	0.30	0.34	202
184	0.15	0.07	0.09	182
185	0.75	0.69	0.72	220
186	0.24	0.13	0.17	175
187	0.52	0.40	0.45	91
188	0.28	0.25	0.26	40
189	0.57	0.48	0.52	238
190	0.43	0.34	0.38	204
191	0.73	0.64	0.68	252
192	0.17	0.10	0.13	152
193	0.81	0.59	0.68	270
194	0.48	0.24	0.32	190
195	0.47	0.44	0.46	183

196	0.57	0.44	0.49	428
197	0.70	0.51	0.59	82
198	0.29	0.18	0.22	230
199	0.39	0.32	0.36	194
200	0.13	0.09	0.11	109
201	0.72	0.55	0.62	186
202	0.57	0.50	0.53	115
203	0.18	0.08	0.11	243
204	0.41	0.27	0.33	285
205	0.18	0.09	0.12	265
206	0.70	0.43	0.53	170
207	0.62	0.61	0.62	88
208	0.22	0.10	0.14	211
209	0.15	0.06	0.09	368
210	0.79	0.61	0.69	178
211	0.71	0.51	0.59	176
212	0.62	0.35	0.44	185
213	0.14	0.10	0.12	359
214	0.29	0.11	0.16	98
215	0.56	0.34	0.42	181
216	0.18	0.10	0.13	272
217	0.16	0.07	0.10	82
218	0.68	0.48	0.56	164
219	0.33	0.29	0.31	128
220	0.18	0.06	0.09	160
221	0.34	0.24	0.28	254
222	0.41	0.20	0.27	229
223	0.30	0.14	0.19	297
224	0.82	0.56	0.67	178
225	0.40	0.26	0.31	160
226	0.83	0.70	0.76	186
227	0.67	0.58	0.62	72
228	0.67	0.27	0.38	15
229	0.39	0.23	0.29	201
230	0.66	0.42	0.52	276
231	0.08	0.07	0.07	104
232	0.75	0.59	0.66	70
233	0.28	0.15	0.19	170
234	0.07	0.06	0.06	71
235	0.35	0.19	0.24	188
236	0.54	0.41	0.46	212
237	0.15	0.12	0.14	144
238	0.42	0.26	0.32	31
239	0.33	0.23	0.27	126
240	0.24	0.22	0.23	130
241	0.17	0.21	0.19	34
242	0.12	0.05	0.07	110
243	0.97	0.87	0.92	438

244	0.32	0.23	0.27	109
245	0.42	0.32	0.36	79
246	0.22	0.13	0.16	155
247	0.60	0.46	0.52	182
248	0.42	0.21	0.28	235
249	0.79	0.58	0.67	163
250	0.11	0.05	0.06	131
251	0.57	0.73	0.64	11
252	0.36	0.21	0.27	70
253	0.54	0.40	0.46	35
254	0.32	0.34	0.33	130
255	0.69	0.61	0.64	94
256	0.60	0.46	0.52	13
257	0.21	0.18	0.19	45
258	0.41	0.30	0.35	135
259	0.53	0.40	0.46	114
260	0.36	0.21	0.27	156
261	0.48	0.28	0.35	214
262	0.58	0.33	0.42	139
263	0.46	0.43	0.44	63
264	0.78	0.60	0.68	152
265	0.18	0.09	0.12	182
266	0.52	0.50	0.51	128
267	0.62	0.56	0.59	171
268	0.44	0.28	0.34	138
269	0.02	0.01	0.01	197
270	0.69	0.55	0.62	94
271	0.56	0.41	0.47	83
272	0.36	0.38	0.37	104
273	0.56	0.32	0.41	155
274	0.23	0.22	0.22	86
275	0.19	0.16	0.18	88
276	0.56	0.38	0.45	136
277	0.07	0.03	0.04	150
278	0.51	0.26	0.35	144
279	0.20	0.09	0.12	23
280	0.47	0.48	0.47	85
281	0.53	0.42	0.47	73
282	0.39	0.20	0.26	148
283	0.26	0.14	0.18	51
284	0.09	0.07	0.08	44
285	0.00	0.00	0.00	150
286	0.21	0.12	0.15	112
287	0.21	0.25	0.23	16
288	0.42	0.30	0.35	47
289	0.17	0.12	0.14	111
290	0.49	0.36	0.41	166
291	0.17	0.14	0.15	43

292	0.46	0.47	0.46	144
293	0.62	0.56	0.59	87
294	0.92	0.64	0.75	160
295	0.27	0.14	0.18	85
296	0.37	0.30	0.33	225
297	0.80	0.76	0.78	110
298	0.65	0.43	0.51	124
299	0.45	0.29	0.36	200
300	0.36	0.28	0.31	167
301	0.68	0.61	0.64	102
302	0.66	0.52	0.58	176
303	0.25	0.12	0.16	287
304	0.58	0.48	0.52	134
305	0.42	0.36	0.39	78
306	0.51	0.19	0.28	111
307	0.22	0.15	0.18	87
308	0.77	0.66	0.71	145
309	0.39	0.36	0.37	121
310	0.88	0.68	0.77	144
311	0.50	0.46	0.48	188
312	0.22	0.18	0.20	95
313	0.77	0.66	0.71	151
314	0.52	0.50	0.51	100
315	0.14	0.07	0.09	30
316	0.64	0.69	0.67	13
317	0.26	0.18	0.22	92
318	0.35	0.33	0.34	94
319	0.41	0.22	0.29	144
320	0.55	0.50	0.52	117
321	0.98	0.92	0.95	313
322	0.25	0.21	0.22	68
323	0.12	0.07	0.09	57
324	0.83	0.55	0.66	112
325	0.19	0.12	0.14	163
326	0.19	0.09	0.12	176
327	0.96	0.93	0.95	350
328	0.40	0.36	0.38	94
329	0.23	0.11	0.15	142
330	0.86	0.81	0.83	165
331	0.26	0.27	0.26	75
332	0.51	0.40	0.45	164
333	0.09	0.04	0.05	84
334	0.87	0.81	0.84	335
335	0.32	0.23	0.27	81
336	0.81	0.58	0.68	153
337	0.24	0.21	0.22	173
338	0.75	0.68	0.72	126
339	0.52	0.32	0.39	266

340	0.18	0.07	0.10	123
341	0.48	0.50	0.49	22
342	0.45	0.35	0.39	109
343	0.54	0.39	0.45	113
344	0.92	0.70	0.80	200
345	0.62	0.58	0.60	122
346	0.31	0.20	0.24	163
347	0.14	0.09	0.11	34
348	0.85	0.65	0.74	97
349	0.52	0.42	0.47	66
350	0.97	0.95	0.96	268
351	0.76	0.74	0.75	125
352	0.71	0.67	0.69	122
353	0.57	0.31	0.40	113
354	0.06	0.03	0.04	110
355	0.22	0.20	0.21	60
356	0.28	0.11	0.16	173
357	0.39	0.14	0.20	51
358	0.38	0.19	0.25	176
359	0.16	0.10	0.12	92
360	0.32	0.23	0.27	129
361	0.25	0.12	0.16	104
362	0.16	0.11	0.13	56
363	0.51	0.31	0.39	177
364	0.00	0.00	0.00	10
365	0.39	0.28	0.32	126
366	0.24	0.14	0.18	35
367	0.24	0.14	0.18	71
368	0.37	0.24	0.29	72
369	0.66	0.44	0.53	94
370	0.40	0.25	0.31	67
371	0.13	0.07	0.09	92
372	0.81	0.71	0.75	102
373	0.45	0.48	0.47	21
374	0.22	0.11	0.15	73
375	0.28	0.20	0.23	61
376	0.12	0.05	0.07	119
377	0.38	0.23	0.29	131
378	0.33	0.25	0.29	44
379	0.19	0.17	0.18	42
380	0.37	0.12	0.18	117
381	0.25	0.18	0.21	11
382	0.56	0.38	0.46	242
383	0.28	0.19	0.23	37
384	0.27	0.18	0.22	89
385	0.09	0.05	0.06	59
386	0.47	0.39	0.42	108
387	0.59	0.53	0.56	94

388	0.41	0.40	0.41	67
389	0.51	0.40	0.45	116
390	0.18	0.04	0.06	129
391	0.21	0.08	0.12	111
392	0.46	0.34	0.39	157
393	0.35	0.25	0.29	113
394	0.39	0.29	0.33	90
395	0.92	0.86	0.89	210
396	0.46	0.36	0.40	76
397	0.21	0.11	0.14	37
398	0.19	0.09	0.12	79
399	0.25	0.16	0.19	109
400	0.27	0.21	0.24	56
401	0.28	0.18	0.22	83
402	0.11	0.06	0.08	98
403	0.64	0.36	0.46	107
404	0.36	0.43	0.39	49
405	0.55	0.52	0.53	66
406	0.31	0.18	0.23	87
407	0.24	0.15	0.18	88
408	0.21	0.07	0.11	111
409	0.22	0.17	0.19	24
410	0.78	0.60	0.68	120
411	0.16	0.09	0.11	91
412	0.24	0.12	0.16	133
413	0.10	0.07	0.08	29
414	0.28	0.19	0.23	99
415	0.27	0.27	0.27	44
416	0.89	0.80	0.84	99
417	0.32	0.26	0.29	111
418	0.34	0.27	0.30	113
419	0.32	0.21	0.25	106
420	0.46	0.57	0.51	23
421	0.19	0.13	0.16	69
422	0.36	0.22	0.27	153
423	0.32	0.18	0.23	151
424	0.30	0.23	0.26	75
425	0.40	0.29	0.34	65
426	0.45	0.31	0.36	101
427	0.23	0.19	0.21	200
428	0.33	0.18	0.23	82
429	0.27	0.19	0.22	32
430	0.13	0.14	0.14	14
431	0.26	0.07	0.11	115
432	0.00	0.00	0.00	16
433	0.81	0.51	0.62	118
434	0.18	0.13	0.15	94
435	0.45	0.42	0.43	12

436	0.13	0.08	0.10	25
437	0.44	0.29	0.35	126
438	0.45	0.45	0.45	96
439	0.74	0.64	0.68	22
440	0.23	0.10	0.14	80
441	0.55	0.40	0.46	72
442	0.24	0.15	0.18	74
443	0.12	0.06	0.08	84
444	0.87	0.66	0.75	117
445	0.15	0.09	0.11	55
446	0.44	0.28	0.34	76
447	0.20	0.24	0.22	17
448	0.24	0.12	0.16	77
449	0.30	0.28	0.29	102
450	0.79	0.58	0.67	110
451	0.11	0.05	0.07	78
452	0.45	0.31	0.37	54
453	0.36	0.32	0.34	63
454	0.21	0.12	0.15	111
455	0.14	0.04	0.06	79
456	0.44	0.21	0.28	72
457	0.35	0.43	0.39	14
458	0.25	0.22	0.24	9
459	0.41	0.17	0.24	139
460	0.33	0.31	0.32	29
461	0.35	0.20	0.25	128
462	0.33	0.29	0.31	48
463	0.43	0.31	0.36	98
464	0.84	0.81	0.82	89
465	0.33	0.17	0.22	24
466	0.09	0.06	0.07	69
467	0.26	0.17	0.21	63
468	0.18	0.10	0.12	63
469	0.55	0.42	0.48	64
470	0.24	0.10	0.14	88
471	0.59	0.54	0.56	106
472	0.31	0.15	0.20	67
473	0.12	0.05	0.07	88
474	0.31	0.17	0.22	98
475	0.27	0.50	0.35	6
476	0.65	0.47	0.55	100
477	0.19	0.16	0.17	38
478	0.47	0.35	0.40	81
479	0.07	0.03	0.04	67
480	0.90	0.87	0.89	195
481	0.23	0.19	0.21	68
482	0.18	0.09	0.12	94
483	0.17	0.15	0.16	73

484	0.42	0.27	0.33	84
485	0.56	0.38	0.46	47
486	0.11	0.08	0.09	26
487	0.00	0.00	0.00	46
488	0.47	0.32	0.38	59
489	0.67	0.51	0.58	81
490	0.12	0.14	0.13	7
491	0.53	0.52	0.53	105
492	0.39	0.26	0.31	103
493	0.58	0.40	0.48	77
494	0.19	0.14	0.16	36
495	0.62	0.37	0.46	79
496	0.37	0.19	0.25	122
497	0.27	0.30	0.29	33
498	0.69	0.52	0.59	118
499	0.00	0.00	0.00	29
micro avg	0.56	0.41	0.47	162325
macro avg	0.43	0.32	0.36	162325
weighted avg	0.54	0.41	0.46	162325
samples avg	0.44	0.39	0.38	162325

[22]: `from prettytable import PrettyTable`

```

x = PrettyTable()
x.field_names = ["Model", "Accuracy", "Hamming_
→loss", "Precision", "Recall", "Micro f1"]

x.add_row(["Logistic Regression", round(lr_acc,5), round(lr_hl,5),0.5600,0.
→4067,0.4712])
x.add_row(["Linear SVM", round(svm_acc,5), round(svm_hl,5),0.5634,0.2673,0.
→3625])

print(x)

```

```

+-----+-----+-----+-----+-----+-----+
+
|      Model      | Accuracy | Hamming loss | Precision | Recall | Micro f1 |
|
+-----+-----+-----+-----+-----+-----+
+
| Logistic Regression | 0.20004 | 0.00329 | 0.56 | 0.4067 | 0.4712 |
|
|      Linear SVM    | 0.1645 | 0.00339 | 0.5634 | 0.2673 | 0.3625 |
|

```


+-----+-----+-----+-----+-----+-----+
+