

jupyter Assignment-CA675 Last Checkpoint: an hour ago (autosaved)

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Hive Assignment on GCP - TF-IDF

CA675

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Data Extraction

Data set extracted from following link <https://data.stackexchange.com/stackoverflow/query/new>

Query used to extract data

As data extraction limit is 50000 we need to extract 4 files with help of row number.

```

SELECT
*
FROM
(
SELECT
ROW_NUMBER() OVER (ORDER BY VIEWCOUNT DESC) AS RN,
Id,
PostTypeId,
AcceptedAnswerId,
ParentId,
CreationDate,
DeletionDate,
Score,
ViewCount,
OwnerUserId,
OwnerDisplayName,
LastEditorUserId,
LastEditorDisplayName,
LastEditDate,
LastEditDate,
LastActivityDate,
Title,
Tags,
AnswerCount,
CommentCount,
FavoriteCount,
ClosedDate,
CommunityOwnedDate,
ContentLicense
FROM POSTS WHERE VIEWCOUNT IS NOT NULL
) AS T
WHERE RN BETWEEN 150000 AND 200000

```

Starting Hive Server

```
bin/hiveserver2 bin/beeline -n hdoop -u jdbc:hive2://localhost:10000
```

Create Table in HIVE

As delimited file formatted has issues while reading quoted characters we are using SERDE format to read CSV and insert data in HIVE

```
In [ ]: M
create table stackexchange(RN int, Id int, PostTypeId int,AcceptedAnswerId int,ParentId int,CreationDate timestamp,DeletionDa
```

Put Data on HDFS

```
hadoop fs -put < local_path to < hdfs_location >
```

```
In [34]: M
from pyhive import hive
from tabulate import tabulate
import pandas as pd

host_name = "localhost"
port = 10000
user = "cypherhonk"
password = "797216366346360302"
database="default"

def get_hive_connection(host_name, port, user, password, database):
    conn = hive.Connection(host=host_name, port=port, username=user, password=password,
                           database=database, auth='CUSTOM')
    return conn

conn = get_hive_connection(host_name, port, user, password, database)
cur = conn.cursor()
```

Set execution engine to tez

```
In [37]: M
cur.execute('SET hive.execution.engine=tez')
```

Task 2 & 3

2.2.1) Querying top 10 posts by score

```
In [35]: cur.execute('select ID, Title, Score from stackexchange_final order by score desc limit 10')
result = cur.fetchall()
print(tabulate(result, tablefmt='orgtbl'))
```

11227809	Why is processing a sorted array faster than processing an unsorted array?	25893
927358	How do I undo the most recent local commits in Git?	23274
2003505	How do I delete a Git branch locally and remotely?	18451
292357	What is the difference between 'git pull' and 'git fetch'?	12796
231767	What does the "yield" keyword do?	11512
477816	What is the correct JSON content type?	10894
348170	How do I undo 'git add' before commit?	10045
5767325	How can I remove a specific item from an array?	9877
6591213	How do I rename a local Git branch?	9747
1642028	What is the "<-->" operator in C/C++?	9539

2.2.2) The top 10 users by post score

```
In [33]: cur.execute("""
SELECT DISTINCT u.displayname,stackexchange.score,stackexchange.owneruserid
(
    select
        OwnerUserId,
        sum(score) as score
    from stackexchange_final
    group by OwnerUserId
    order by score desc
    LIMIT 11
)stackexchange
LEFT JOIN usernames u
ON stackexchange.owneruserid = u.id
ORDER BY stackexchange.score DESC
""")
result = cur.fetchall()
print(tabulate(result, tablefmt='orgtbl'))
```

GManNickG	448906
readonly	37606
e-satis	28739
pupeno	26728
Hamza Yerlikaya	25860
Joan Venge	23949
Ali	23632
TIMEX	20156
Matthew Rankin	19454
flybywire	19413
	19295
	63051

2.2.3) The number of distinct users, who used the word "cloud" in one of their posts

-- Note : Using Title and Tags field for counting cloud as we are receiving timeout when trying to pull body field from source

```
In [26]: cur.execute("""
SELECT
    COUNT(DISTINCT owneruserid) as user_count
FROM stackexchange_final
WHERE title LIKE '%cloud%' or tags LIKE '%cloud%'
""")
result = cur.fetchall()
print(tabulate(result, tablefmt='orgtbl'))
```

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```
In [28]: df = pd.read_sql("""
SELECT
    owneruserid,
    title
from stackexchange_final
WHERE owneruserid
IN
    (
        87234,
        4883,
        9051,
        6068,
        89904,
        51816,
        49153,
        179736,
        95592,
        63051
    )
order by owneruserid""", conn)
top_10_user_id = list(df['owneruserid'].unique())
```

```
In [31]: from sklearn.feature_extraction.text import TfidfVectorizer

# Calculate sum() of TF-IDF and get top 10 words with highest TF-IDF and select only those columns
def calculate_tf_idf(df):
    vectorizer = TfidfVectorizer(stop_words='english', lowercase=True) # Remove Stop Words
    response = vectorizer.fit_transform(df['title']) # Use title field for TF-IDF
    df_tfidf_sklearn = pd.DataFrame(response.toarray(), columns=vectorizer.get_feature_names())
    total_tfidf = df_tfidf_sklearn.sum(axis = 0) # Remove sum of TF-IDF for getting top 10 most used words
    top_10_list = total_tfidf.nlargest(10) # Get top 10 words per user
    top_10_words = list(top_10_list.index) # Get list of top 10 words
    df_tfidf_sklearn[top_10_words] # Select only top 10 words as column
    return df_tfidf_sklearn[top_10_words]
```

For each of top 10 users and their top 10 words plot TF/IDF table for their corresponding comments

```
In [32]: for each_user in top_10_user_id:
    username_id = str(each_user)
    filtered_data = df[(df['owneruserid']==username_id)]
    tf_idf_df = calculate_tf_idf(filtered_data)
    print("For Username ID TF/IDF table : "+username_id)
    #print(tf_idf_df)
    tf_idf_df['usernameid'] = username_id
    tf_idf_df.insert(0, 'usernameid', username_id)
    display(tf_idf_df)
```

```
print("-----")
```

For Username ID TF/IDF table : 179736

	usernameid	python	django	javascript	js	node	use	string	dictionary	query	mysql
0	179736	0.000000	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0
1	179736	0.000000	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0
2	179736	0.000000	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0
3	179736	0.000000	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0
4	179736	0.252910	0.0	0.0	0.0	0.0	0.0	0.0	0.748622	0.0	0.0
...
109	179736	0.000000	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0
110	179736	0.000000	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0
111	179736	0.000000	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0
112	179736	0.000000	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0
113	179736	0.338128	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0

114 rows × 11 columns

```
*****
```

For Username ID TF/IDF table : 4883

	usernameid	python	git	ruby	table	process	list	rename	rails	difference	write
0	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1	4883	0.000000	0.280138	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	4883	0.288276	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
3	4883	0.000000	0.000000	0.521156	0.000000	0.000000	0.568902	0.000000	0.000000	0.000000	0.000000
4	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
5	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
6	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
7	4883	0.234332	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.311276	0.000000
8	4883	0.000000	0.473839	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
9	4883	0.362262	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
10	4883	0.000000	0.000000	0.000000	0.332494	0.000000	0.000000	0.362955	0.362955	0.000000	0.362955
11	4883	0.000000	0.000000	0.000000	0.000000	0.350231	0.000000	0.000000	0.000000	0.000000	0.000000
12	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.416967	0.000000	0.000000	0.000000	0.000000
13	4883	0.429802	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
14	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
15	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16	4883	0.000000	0.000000	0.000000	0.330545	0.330545	0.000000	0.000000	0.000000	0.000000	0.000000
17	4883	0.000000	0.402233	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
18	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
19	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
20	4883	0.249965	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
21	4883	0.000000	0.000000	0.000000	0.000000	0.350231	0.000000	0.000000	0.000000	0.000000	0.000000
22	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.534435	0.000000	0.000000	0.000000
23	4883	0.288276	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
24	4883	0.000000	0.000000	0.439712	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.479997
25	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
26	4883	0.000000	0.000000	0.521156	0.000000	0.000000	0.568902	0.000000	0.000000	0.000000	0.000000
27	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
28	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
29	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
30	4883	0.000000	0.301298	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
31	4883	0.000000	0.000000	0.427544	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
32	4883	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.534435	0.000000	0.000000

For Username ID TF/IDF table : 49153

	usernameid	javascript	php	using	jquery	java	array	string	file	class	select	
0	49153	0.262825	0.000000	0.262825	0.317541	0.000000	0.000000	0.000000	0.370216	0.0	0.000000	
1	49153	0.271039	0.000000	0.271039	0.327466	0.000000	0.000000	0.000000	0.000000	0.0	0.000000	
2	49153	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.000000	
3	49153	0.000000	0.355438	0.000000	0.000000	0.000000	0.000000	0.434638	0.000000	0.000000	0.0	0.000000
4	49153	0.000000	0.239999	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.000000

...

74 49153 0.000000 0.276814 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.0 0.000000

75 49153 0.000000 0.000000 0.000000 0.000000 0.421193 0.000000 0.000000 0.000000 0.000000 0.0 0.000000

76 49153 0.320213 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.451053 0.000000 0.0 0.000000

77 49153 0.000000 0.000000 0.292530 0.353430 0.000000 0.000000 0.000000 0.000000 0.000000 0.0 0.458594

78 49153 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.0 0.000000

79 rows × 11 columns

For Username ID TF/IDF table : 51816

	usernameid	python	string	list	wpf	values	index	function	class	net	value
0	51816	0.000000	0.000000	0.000000	0.000000	0.0	0.000000	0.0	0.767028	0.000000	0.000000
1	51816	0.314929	0.539368	0.000000	0.000000	0.0	0.000000	0.0	0.000000	0.000000	0.000000
2	51816	0.000000	0.000000	0.378230	0.000000	0.0	0.469521	0.0	0.000000	0.000000	0.000000
3	51816	0.000000	0.000000	0.000000	0.000000	0.0	0.490276	0.0	0.000000	0.000000	0.000000
4	51816	0.000000	0.604756	0.000000	0.000000	0.0	0.000000	0.0	0.000000	0.000000	0.000000
...
59	51816	0.000000	0.000000	0.000000	0.000000	0.0	0.000000	0.0	0.000000	0.000000	0.000000
60	51816	0.000000	0.000000	0.356142	0.000000	0.0	0.000000	0.0	0.000000	0.000000	0.000000
61	51816	0.211668	0.000000	0.362504	0.000000	0.0	0.000000	0.0	0.000000	0.478167	0.000000
62	51816	0.211668	0.000000	0.000000	0.328272	0.0	0.000000	0.0	0.000000	0.000000	0.417964
63	51816	0.000000	0.000000	0.000000	0.328272	0.0	0.000000	0.0	0.000000	0.000000	0.000000

64 rows × 11 columns

For Username ID TF/IDF table : 6068

usernameid	file	sql	android	java	asp	mvc	net	git	data	difference
0	6068	0.000000	0.000000	0.000000	0.000000	0.358590	0.358590	0.358590	0.000000	0.000000
1	6068	0.000000	0.351563	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	6068	0.000000	0.000000	0.000000	0.370995	0.000000	0.000000	0.000000	0.000000	0.398576
3	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
4	6068	0.591830	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.317910	0.000000
5	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
6	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
7	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.441140	0.000000
8	6068	0.000000	0.000000	0.000000	0.000000	0.395053	0.395053	0.395053	0.000000	0.000000
9	6068	0.000000	0.000000	0.416058	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
10	6068	0.000000	0.000000	0.000000	0.000000	0.319194	0.319194	0.319194	0.000000	0.000000
11	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
12	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
13	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
14	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.503013
15	6068	0.000000	0.000000	0.000000	0.476325	0.000000	0.000000	0.000000	0.000000	0.000000
16	6068	0.000000	0.000000	0.000000	0.318064	0.000000	0.000000	0.000000	0.000000	0.000000
17	6068	0.000000	0.000000	0.424029	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
18	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
19	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
20	6068	0.000000	0.654945	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
21	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
22	6068	0.404515	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
23	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
24	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
25	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
26	6068	0.000000	0.000000	0.000000	0.365621	0.000000	0.000000	0.000000	0.000000	0.000000
27	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.709227	0.000000
28	6068	0.404515	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
29	6068	0.000000	0.635499	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
30	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
31	6068	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.355684	0.000000	0.000000
32	6068	0.000000	0.000000	0.379839	0.000000	0.000000	0.000000	0.000000	0.408078	0.000000
33	6068	0.000000	0.000000	0.365621	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
34	6068	0.000000	0.000000	0.000000	0.395053	0.000000	0.395053	0.000000	0.000000	0.000000
35	6068	0.379839	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.408078	0.000000

For Username ID TF/IDF table : 63051

For Username ID TF/IDF table : 87234

	usernameid	operator	array	processing	copy	idiom	swap	faster	sorted	unsorted
0	87234	0.0	0.603023	0.603023	0.00000	0.00000	0.00000	0.301511	0.301511	0.301511
1	87234	0.0	0.000000	0.000000	0.57735	0.57735	0.57735	0.000000	0.000000	0.000000
2	87234	1.0	0.000000	0.000000	0.00000	0.00000	0.00000	0.000000	0.000000	0.000000

For Username ID TF/IDF table : 89904

	usernameid	java	git	undo	jar	Appending	ObjectOutputStream	swing	timer	open	profilers
0	89904	0.313903	0.000000	0.00000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1	89904	0.000000	0.000000	0.000000	0.000000	0.707107	0.707107	0.000000	0.000000	0.000000	0.000000
2	89904	0.000000	0.457985	0.457985	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
3	89904	0.423549	0.000000	0.000000	0.000000	0.000000	0.000000	0.640549	0.640549	0.000000	0.000000
4	89904	0.356655	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.539382	0.539382
5	89904	0.313903	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
6	89904	0.000000	0.403194	0.403194	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
7	89904	0.000000	0.000000	0.000000	0.440595	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
8	89904	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
9	89904	0.000000	0.000000	0.000000	0.391176	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

For Username ID TF/IDF table : 95592

	usernameid	install	pip	installed	python	virtualenv	cache	local	determining	flask	version
0	95592	0.454195	0.454195	0.000000	0.000000	0.541948	0.541948	0.000000	0.000000	0.000000	0.000000
1	95592	0.000000	0.000000	0.435556	0.000000	0.000000	0.000000	0.000000	0.519708	0.519708	0.519708
2	95592	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
3	95592	0.000000	0.000000	0.360493	0.000000	0.360493	0.000000	0.000000	0.000000	0.000000	0.000000
4	95592	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
5	95592	0.347708	0.347708	0.000000	0.347708	0.347708	0.000000	0.000000	0.000000	0.000000	0.000000
6	95592	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
7	95592	0.000000	0.000000	0.000000	0.386479	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

For Username ID TF/IDF table : 9951

	usernameid	git	javascript	python	string	file	callable	android	dictionary	url	way
0	9951	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.45500	0.000000	0.000000	0.000000
1	9951	0.213534	0.000000	0.000000	0.000000	0.586267	0.0	0.00000	0.000000	0.000000	0.000000
2	9951	0.258934	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
3	9951	0.288282	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.396495	0.000000
4	9951	0.360453	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
5	9951	0.000000	0.000000	0.000000	0.000000	0.530479	0.0	0.00000	0.000000	0.000000	0.000000
6	9951	0.306795	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
7	9951	0.000000	0.493950	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
8	9951	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.530479	0.000000	0.000000
9	9951	0.000000	0.000000	0.483550	0.000000	0.000000	0.0	0.48355	0.000000	0.000000	0.483550
10	9951	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
11	9951	0.000000	0.000000	0.000000	0.000000	0.000000	1.0	0.00000	0.000000	0.000000	0.000000
12	9951	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.375106	0.000000	0.375106
13	9951	0.000000	0.372751	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
14	9951	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
15	9951	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
16	9951	0.000000	0.372751	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
17	9951	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
18	9951	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
19	9951	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.468624	0.000000
20	9951	0.000000	0.000000	0.000000	0.662735	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
21	9951	0.000000	0.000000	0.662735	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
22	9951	0.000000	0.000000	0.455000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000
23	9951	0.541841	0.000000	0.000000	0.000000	0.000000	0.0	0.00000	0.000000	0.000000	0.000000

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