

Patent Recommendation System

Team #3

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Introduction

The goal of project is to build a patent recommendation system for user.

Patent search is increasingly important to companies and users. An efficient recommender system will provide relevant results to user based on user history/keyword match/category match etc.



User based Collaborative Recommendation System

1- Exploratory data analysis: distribution of how many patents a user interacts with.

Explore and remove duplicate patents.

Most viewed patent id

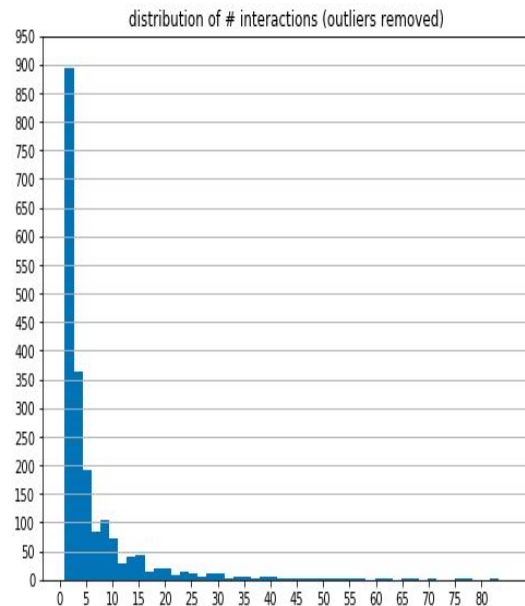
Rank based- return n-top patents

User based collaborative filtering: user-patent matrix.

Because the results for each user here are binary, it (perhaps) makes sense to compute similarity as the dot product of two users.

Most similar users

Recommend patents



```
In [6]: user_interaction_counts.describe()
```

```
Out[6]: count    1993.000000
mean         6.464626
std          11.040400
min           1.000000
25%           1.000000
50%           3.000000
75%           7.000000
max          214.000000
Name: title, dtype: float64
```

```
Out[44]: 1330.0    299
         1429.0    287
         1314.0    215
         1431.0    206
         1364.0    198
         Name: patent_id, dtype: int64
```

```
In [48]: print(get_top_patents(10))
         print(get_top_patent_ids(10))
```

```
['Method and apparatus for managing utilization of wireless resources via use of a reference signal to reduce distortion']
['Access control method and apparatus for use in mobile communication']
['Antenna device and electronic device including the same']
['Rotation variant object detection in Deep Learning']
['Sensing total current of distributed load circuits independent of current distribution using distributed voltage averaging']
['Disabling onboard input devices in an autonomous vehicle']
['Passive radiator assembly']
['Monitoring and controlling the movement of mobile robots']
['Message processing']
['Method and apparatus for promotional programming']
['1330.0', '1429.0', '1314.0', '1431.0', '1364.0', '1398.0', '1170.0', '1293.0', '1436.0', '1351.0']
```

The 10 most similar users to user 1 are: [23, 290, 204, 64, 395, 131, 334, 21, 203, 665]

The 3 most similar users to user 46 are: [23, 21, 98]

```
In [61]: # Check Results
get_patents_names(user_user_recs[1, 10]) # Return 10 recommendations for user 1

['43.0', '109.0', '151.0', '310.0', '329.0', '585.0', '732.0', '1052.0', '1232.0', '1293.0', '1305.0', '1406.0', '1429.0', '1430.0']
```

```
Out[61]: ['Method and apparatus for managing utilization of wireless resources via use of a reference signal to reduce distortion',
'Safe illumination for computerized facial recognition',
'Data storage system and data storage method',
'Imaging device having pan/tilt control for object tracking, imaging method, and computer-readable medium',
'Speaker position identification with respect to a user based on timing information for enhanced sound adjustment',
'Multi-part navigation process by an unmanned aerial vehicle for navigation',
'Methods, systems, and devices for obscuring entities depicted in captured images',
'High-bandwidth underwater data communication system',
'Beat alignment and selection for cardiac mapping',
'Method and apparatus for route selection based on recorded and calculated routes']
```

Out[31]:

	neighbor_id	similarity	num_interactions
0	23	7	214
2	204	6	61
1	290	6	60
5	131	5	93
3	64	5	37

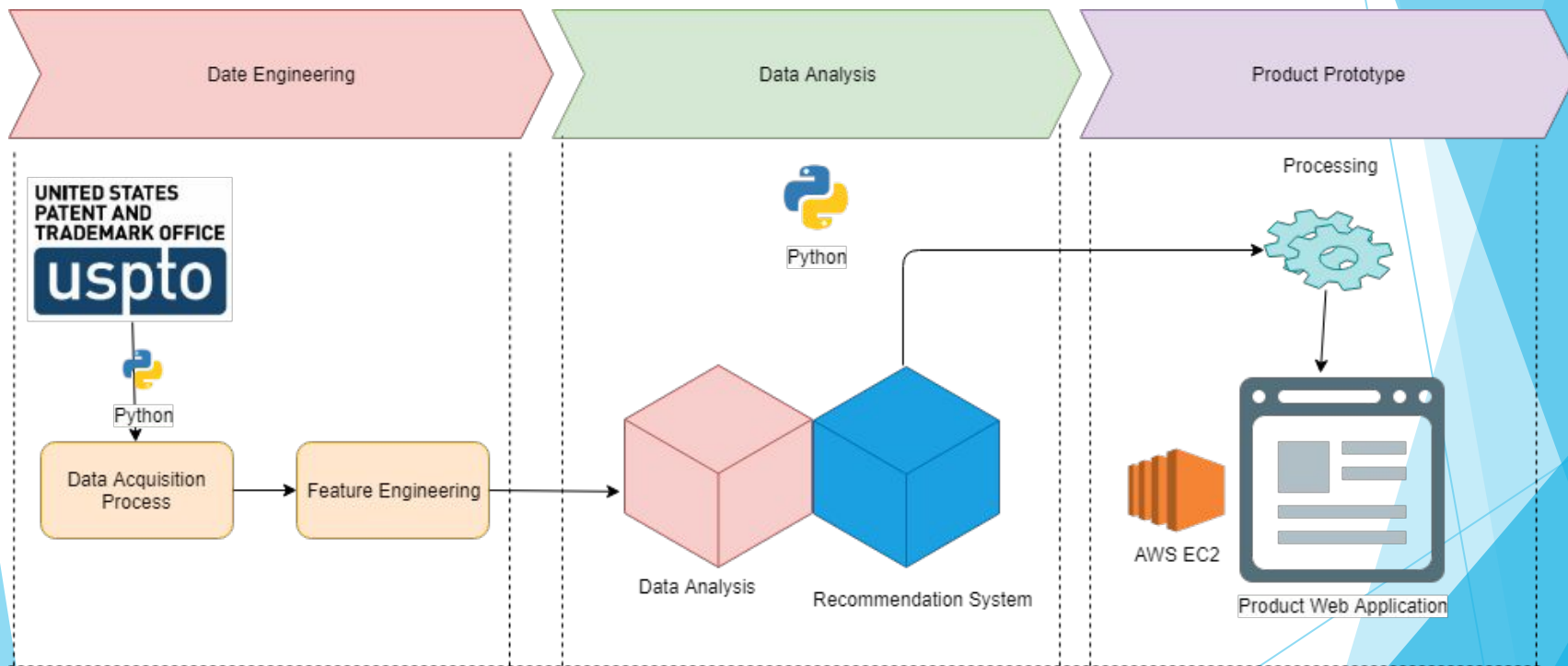
The top 10 recommendations for user 20 are the following patent ids:
['1314.0', '124.0', '1172.0', '1162.0', '1393.0', '1160.0', '1274.0', '14.0', '130.0', '116.0']

The top 10 recommendations for user 20 are the following patent names:
['Method and apparatus for managing utilization of wireless resources via use of a reference signal to reduce distortion', 'Data storage system and data storage method', 'Multi-part navigation process by an unmanned aerial vehicle for navigation', 'Methods, systems, and devices for obscuring entities depicted in captured images', 'Methods for agronomic and agricultural monitoring using unmanned aerial systems', 'Set up of direct mapped routers located across independently managed compute and storage networks', 'In-call command control', 'Over the air acquisition of radio frequency impairment information', 'Text processing method, system and computer program', 'System and method for streaming audio of a visual feed']

7. Using your existing functions, provide the top 10 recommended patent you would provide for the a new user below. You can test your function against our thoughts to make sure we are all on the same page with how we might make a recommendation.

Improved Solution

System Architecture



Data Acquisition Process:

Our recommender system will follow prescriptive data analytics which involves high volume of data and advanced/complex analytical techniques to make correct recommendation.

```
base_url = 'http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PT02&Sect2=HITOFF&u=%2Fnetacgi/nph-srch?_f=ttext:&q={searchstring}&d=PTXT'
url = base_url + searchstring + '&d=PTXT'
print(url)
r = requests.get(url, headers=Constants.request_header).text
s = BeautifulSoup(r, 'html.parser')
total_results = int(s.find(string=re.compile('out of')).find_next().text.strip())
patents = self.get_patents_from_results_url(url, limit=results_limit)
num_results_fetched = len(patents)
list_num = 2
base_url_nextpgs = 'http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PT02&Sect2=HITOFF&u=%2Fnetacgi/nph-srch?_f=ttext:&q={searchstring}&d=PTXT&OS={os}&RS={rs}&Query={query}&Next={nextpgs}'
url_pre = base_url_nextpgs + '&OS=' + searchstring + '&RS=' + searchstring + '&Query='
url_post = '=Next+50+Hits'
while (num_results_fetched < total_results) and (num_results_fetched < results_limit):
    this_url = url_pre + str(list_num) + url_post
    thispatents = self.get_patents_from_results_url(this_url)
    patents.extend(thispatents)
    num_results_fetched = len(patents)
    if num_results_fetched >= results_limit:
        patents = patents[:results_limit]
    list_num += 1
self.patents = patents
```

Data Preprocess

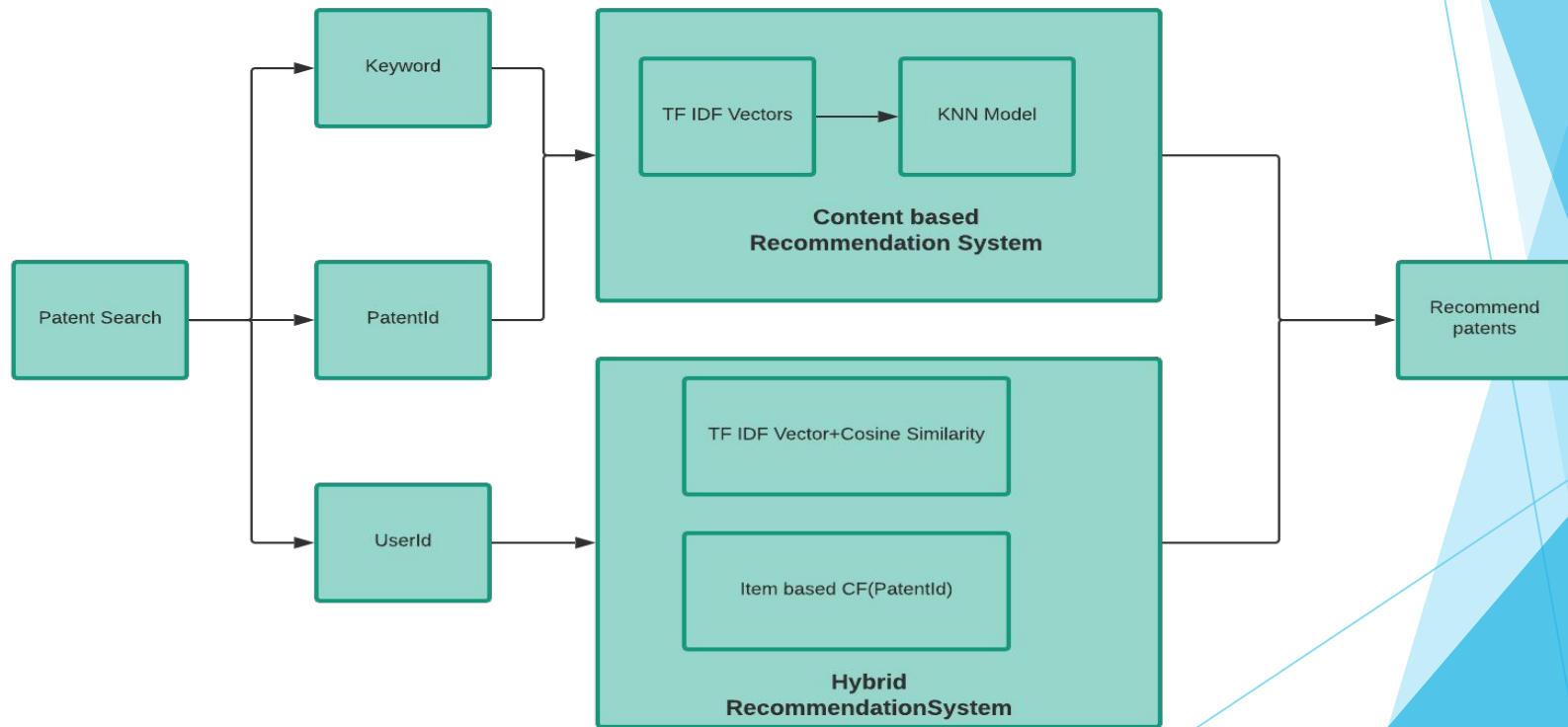
- **Redundancy-** We make sure redundant data is not present in our dataset while web scraping unique patents from the website.
- **Missing Values-** Few documents have missing abstracts, we fill in title in the abstract attribute to make sure data is complete.
- **Attribute Selection-** We have selected the following columns after preprocessing of data.
- **Stemming-** Generating variants of root/base words.

```
for item in patentlist['abstract_org']:
    text=[]
    strtext=''
    for word in item.lower().split():
        word=word.replace(",","").replace(".", "").replace("'", "").replace('"', "")
        if word not in cachedStopWords:
            word = ps.stem(word)
            text.append(word)
        strtext=' '.join(text)
    abstract.append(strtext)
patentlist['abstract_org']=abstract
freq_count = []
for item in patentlist['abstract_org']:
    count = Counter(str(item).split())
    freq_count.append(count)
patentlist['word_count'] = freq_count
```

Dataset:

	A	B	C	D	E
1	patent_nur	abstract	cpc	file_date	url
2	10349422	In one embodiment, a serv	['H04W', 'H04B', 'H04L'	March 10, 2017	http://patft.uspto.gov
3	10349418	Aspects of the subject disc	['H04W', 'H04L']	June 8, 2016	http://patft.uspto.gov
4	10349318	The present disclosure rela	['H04W']	July 13, 2017	http://patft.uspto.gov
5	10349295	Communication network a	['H04W', 'H04L']	July 7, 2017	http://patft.uspto.gov
6	10349285	Wireless devices may be e	['H04W']	August 8, 2017	http://patft.uspto.gov
7	10349227	Various systems and meth	['H04W']	November 2, 20	http://patft.uspto.gov
8	10349218	Systems and methods for	['H04W']	March 6, 2018	http://patft.uspto.gov
9	10349197	According to an aspect of	['H04S', 'G10L']	August 13, 2015	http://patft.uspto.gov
10	10348985	A turbulence-free CCD can	['H04N', 'G01N', 'G02B'	September 20, 2	http://patft.uspto.gov
11	10348514	A lighting system includes	['H04L', 'G05B', 'H04W'	October 26, 201	http://patft.uspto.gov
12	10348394	A wireless communication	['H04B', 'H04W', 'H04L'	December 14, 2	http://patft.uspto.gov

Functional flow



Content based Recommendation (Keyword/Patent Id search)

➤ Step 1: Generate TF-IDF vectors and dump in a pickle file

```
def generateTFIDFMatrix():
    patentlist['abstract_org']=patentlist['abstract']
    abstract=[]
    for item in patentlist['abstract_org']:
        text=[]
        strtext=''
        for word in item.lower().split():
            word=word.replace(",","").replace(".", "").replace("(", "").replace(")", "")
            if word not in cachedStopWords:
                word = ps.stem(word)
                text.append(word)
            strtext=' '.join(text)
        abstract.append(strtext)
    patentlist['abstract_org']=abstract
    freq_count = []
    for item in patentlist['abstract_org']:
        count = Counter(str(item).split())
        freq_count.append(count)
    patentlist['word_count'] = freq_count
    tfidfVect = TfidfVectorizer()
    tfidf = tfidfVect.fit_transform(patentlist['abstract_org'])
    pickle.dump(tfidf, open("tfidf_fit_transform.pickle", "wb"), protocol=2)
```


Content based Recommendation (Keyword/Patent Id search)

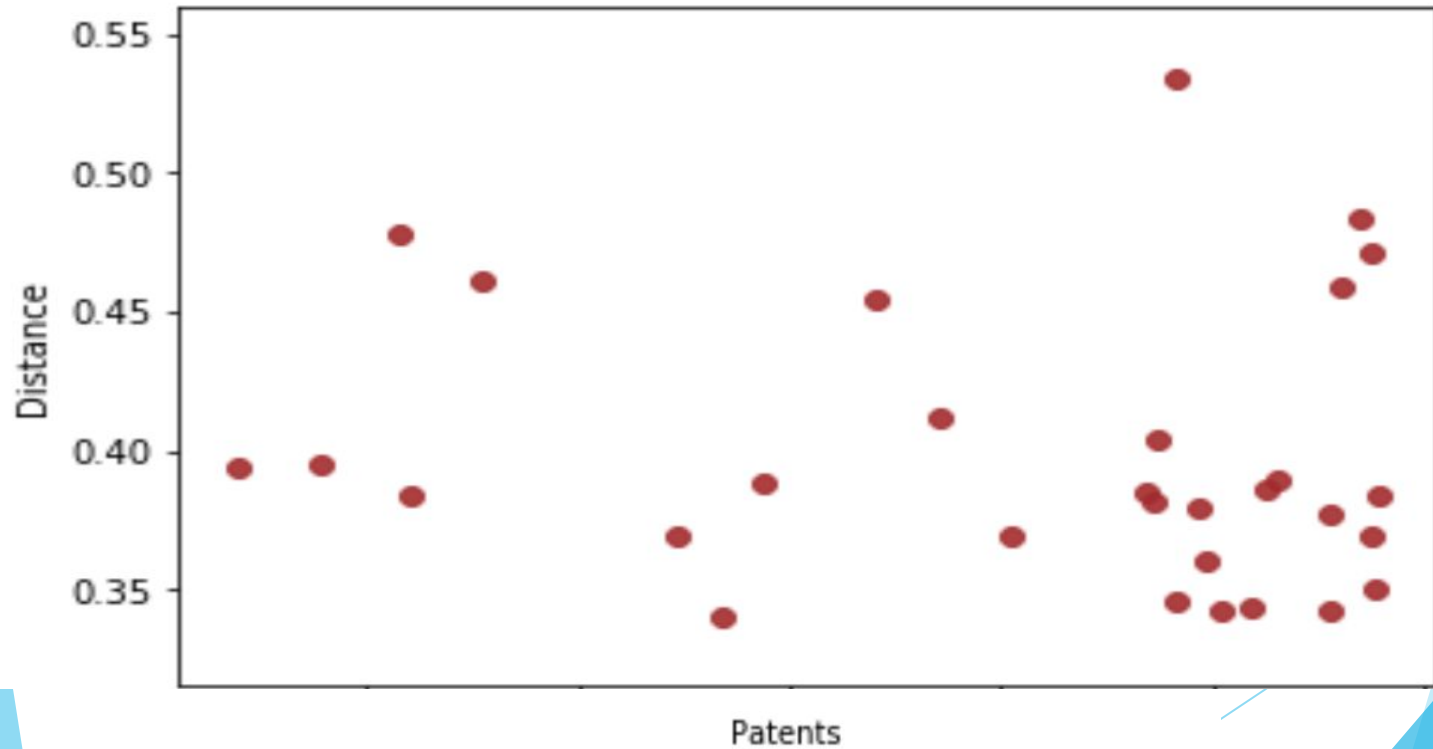
- Step 2: Fetch keyword/patent id and generate fit transform vectors

```
def generateFitVector():  
    patent1_tfidfVect = TfidfVectorizer()  
    patent1_tfidfVect = patent1_tfidfVect.fit(patentlist['abstract_org'])  
    pickle.dump(patent1_tfidfVect, open("tfidf_fit.pickle", "wb"), protocol=2)
```

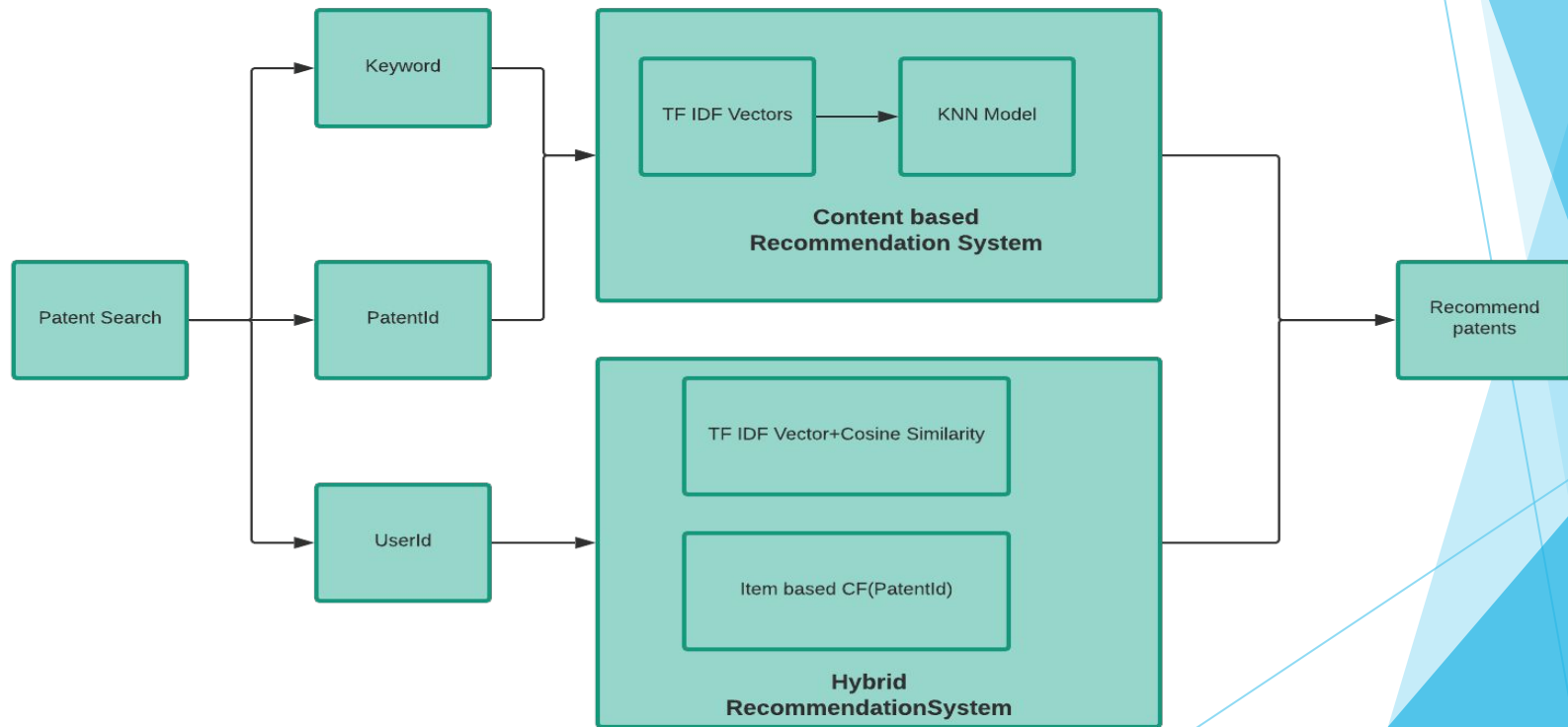
- Step 3: Feed to KNN and send dataframe with required fields in response

```
def patentKeywordMatch(keyword):  
    search=[]  
    text=[]  
    strtext=[]  
    for word in keyword.lower().split():  
        word=word.replace(",","").replace(".", "").replace("(", "").replace(")", "")  
        if word not in cachedStopWords:  
            word = ps.stem(word)  
            text.append(word)  
            strtext=' '.join(text)  
            search.append(strtext)  
    patent1 =search  
    patent1_tfidfVect = pickle.load(open("tfidf_fit.pickle", "rb"))  
    patent1_tfidf = patent1_tfidfVect.transform(patent1)  
    new_tfidf=pickle.load(open("tfidf_fit_transform.pickle", "rb"))  
    nbrs = NearestNeighbors(n_neighbors=5).fit(new_tfidf)  
    distances, indices = nbrs.kneighbors(patent1_tfidf)  
    names_similar = pd.Series(indices.flatten()).map(patentlist.reset_index()['patent_num'])  
    abstract_similar = pd.Series(indices.flatten()).map(patentlist.reset_index()['abstract'])  
    url_similar = pd.Series(indices.flatten()).map(patentlist.reset_index()['url'])  
    title_similar = pd.Series(indices.flatten()).map(patentlist.reset_index()['title'])  
    result = pd.DataFrame({'distance':distances.flatten(), 'patent_num':names_similar, 'abstract':abstract_similar,  
                          'title':title_similar})  
    result=result.sort_values('distance')  
    result.to_csv('result_keyword.csv')  
    return result
```

KNN Plot: Distance vs Patents



Functional flow



Item based Collaborative Filtering (User Id search)

Step 1: Create similarity matrix for all the patents.

```
def createTfIdfSimMatrix():
    patentlist = pd.read_csv('../data/Dataset1.csv')
    patentlist['abstract_org']=patentlist['abstract']
    abstract=[]
    for item in patentlist['abstract_org']:
        text=[]
        strtext=''
        for word in item.lower().split():
            word=word.replace(",","").replace(".", "").replace("(", "").replace(")", "")
            if word not in cachedStopWords:
                word = ps.stem(word)
                text.append(word)
            strtext=' '.join(text)
        abstract.append(strtext)
    patentlist['abstract_org']=abstract
    tf_idf = TfidfVectorizer().fit_transform(patentlist['abstract_org'])
    print(tf_idf.shape[1])
    cosine = linear_kernel(tf_idf, tf_idf)
    df=pd.DataFrame(cosine,columns=patentlist["patent_num"], index=patentlist["patent_num"])
    df.to_csv("../data/tf_idf.csv")
    print(cosine)
```

Similarity Matrix

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	
1		10349422	10349418	10349318	10349295	10349285	10349227	10349218	10349197	10348985	10348514	10348394	10348341	10348329	10348108	10347985	10347579	10347565	10347344	10347329	10347290	
2	10349422		1	0.20611042	0.13420136	0.16896043	0.11372347	0.11297744	0.08209348	0.0303789	0.00422363	0.02082916	0.18004246	0.05114671	0.01348129	0.01054402	0.04733973	0.00675404	0.02520546	0.01404876	0.01172937	0.04270574
3	10349418	0.20611042		1	0.11721271	0.17904791	0.15421714	0.14600898	0.12422746	0.17871952	0.00762415	0.02299453	0.18209461	0.08667758	0.02958937	0.08096596	0.08115517	0.01681503	0.17961375	0.02313877	0.02639476	0.02433532
4	10349318	0.13420136	0.11721271		1	0.12835952	0.12243282	0.08640746	0.13524956	0.03788909	0.02231292	0.01085263	0.04396496	0.05770066	0.05258314	0.00230623	0.01967352	0.00583325	0.02356336	0.01741118	0.01147762	0.03159763
5	10349295	0.16896043	0.17904791	0.12835952		1	0.06939229	0.08706631	0.17525095	0.01156507	0.0095217	0.02472869	0.26652819	0.04818038	0.0331501	0.02254918	0.02957931	0.01437011	0	0.03370668	0.0209357	0.03964243
6	10349285	0.11372347	0.15421714	0.12243282	0.06939229		1	0.09025328	0.1762558	0.03391568	0.01582374	0.02867733	0.0939894	0.03187945	0.01621297	0.03312049	0.00830385	0.02942052	0.02032309	0.04101466	0.04494421	
7	10349227	0.11297744	0.14600898	0.08640746	0.08706631	0.09025328		1	0.06254838	0.05991076	0.01405549	0.07853336	0.11317867	0.07538113	0	0.13690744	0.06403481	0.01286155	0.00159933	0.01495141	0.03565626	0.07605407
8	10349218	0.08209348	0.12422746	0.13524956	0.17525095	0.1762558	0.06254838		1	0.02341759	0.00599154	0.00918427	0.05958797	0.06008215	0.01145911	0.12163681	0.00556273	0.01779946	0.07576264	0.01438136	0.0292924	0.0209192
9	10349197	0.0303789	0.17871952	0.03788909	0.01156507	0.03391568	0.05991076	0.02341759		1	0.00124897	0.00661131	0.01508077	0.06931527	0.00925394	0.16854591	0.01892586	0.01667943	0.00783484	0.00748817	0.00530781	0.01630215
10	10348985	0.00422363	0.00762415	0.02231292	0.0095217	0.01582374	0.01405549	0.00599154	0.00124897		1	0.12078328	0.01365149	0.0045989	0.00866153	0.00574075	0.00204793	0.01747805	0.00854662	0.0082204	0	0.0013351
11	10348514	0.02082916	0.02299453	0.01085263	0.02472869	0.02867733	0.07853336	0.00918427	0.00661131	0.12078328		1	0.02468624	0.05387367	0	0.03049589	0.03223664	0.03706067	0.00350058	0.01639975	0.02128688	0.04943545
12	10348394	0.18004246	0.18209461	0.04396496	0.26652819	0.0939894	0.11317867	0.05958797	0.01508077	0.01365149	0.02468624		1	0.0225564	0.00466243	0.00599671	0.10293621	0.03386388	0.01836188	0.02169711	0.0234121	0.02859425
13	10348341	0.05114671	0.08667758	0.05770066	0.04818038	0.03991006	0.07538113	0.06008215	0.06931527	0.0045989	0.05387367	0.0225564		1	0.0086878	0.02206972	0.01803727	0.00910571	0.03241788	0.0298872	0.04409845	0.02811958
14	10348329	0.01348129	0.02958937	0.05258314	0.0331501	0.03187945	0	0.01145911	0.00925394	0.00866153	0	0.00466243	0.0086878		1	0.00953297	0	0.0117466	0	0.03037885	0	0.00242653
15	10348108	0.01054402	0.08096596	0.00230623	0.02254918	0.01621297	0.13690744	0.12163681	0.16854591	0.00574075	0.03049589	0.00599671	0.02206972	0.00953297		1	0.0657661	0.00867746	0.11211251	0.00587565	0.01683799	0.03290464
16	10347985	0.04733973	0.00675404	0.01681503	0.00583325	0.01437011	0.00830385	0.01286155	0.01779946	0.01667943	0.01747805	0.03706067	0.03386388	0.00910571	0.0117466	0.00867746	0.12793784		1	0.01447656	0.0019529	0.0176369
17	10347579	0.00675404	0.01681503	0.00583325	0.01437011	0.00830385	0.01286155	0.01779946	0.01667943	0.01747805	0.03706067	0.03386388	0.00910571	0.0117466	0.00867746	0.12793784		1	0.01447656	0.0019529	0.0176369	0.00581798
18	10347565	0.02520546	0.17961375	0.02356336	0	0.02942052	0.00159933	0.07576264	0.00783484	0.00854662	0.00350058	0.01836188	0.03241788	0	0.11211251	0.02600836	0.01447656		1	0.01577895	0.00141341	0
19	10347344	0.01404876	0.02313877	0.01741118	0.03370668	0.02902309	0.01495141	0.01438136	0.00748817	0.0082204	0.01639975	0.02169711	0.0298872	0.03037885	0.00587565	0.00871658	0.0019529	0.01577895		1	0.14788842	0.01781601
20	10347329	0.01172937	0.02639476	0.01147762	0.0209357	0.04104166	0.03565626	0.0292924	0.00530781	0	0.02128688	0.0234121	0.04409845	0	0.01683799	0.01255097	0.0176369	0.00141341	0.14788842		1	0.02457856
21	10347290	0.04270574	0.02433532	0.03159763	0.03964243	0.04494421	0.07605407	0.0209192	0.01630215	0.0013351	0.04943545	0.02859425	0.02811958	0.00242653	0.03290464	0.02512806	0.00581798	0	0.01781601	0.02457856		1
22	10347265	0.0205777	0.14824748	0.0136764	0.01023096	0.02158576	0.01152105	0.0187648	0.30496721	0.01007927	0.01673953	0.0153761	0.18862547	0.00464859	0.0096976	0.01278912	0.00446068	0.23663903	0.00683468	0.00320046	0.00627896	
23	10347139	0.01307438	0.01289892	0.01240582	0.01928937	0.07044482	0.00724179	0	0.00728541	0.00939737	0.00687649	0.02200794	0.01328375	0.02683578	0.00194143	0.00188258	0.02786016	0	0.0330902	0.00663044	0.00477143	
24	10347063	0.02070449	0.01570261	0.02397164	0.00546015	0.01423842	0.02764528	0.0266742	0.01340768	0.00317599	0.01208507	0.00126278	0.03849544	0.00392151	0.01192603	0.01898595	0.00625053	0.0004633	0.01519412	0.02856505	0.01249318	
25	10347026	0	0.00974688	0.02566673	0	0.00971276	0.0338277	0	0.01873854	0.08474821	0.06632967	0.01164441	0	0.02319027	0	0.00229109	0.0022795	0.00234502	0.00798496	0.00302422	0.00385917	
26	10347007	0.0293877	0.01477173	0.02661293	0.02808504	0.02149615	0.07431017	0.04472225	0.10124495	0.10588735	0.03457298	0.03589472	0.02432972	0.01816431	0.1107952	0.03270913	0.03069069	0.04364835	0.01478142	0.00529376	0.04852209	
27	10346958	0.00926839	0.00283108	0.0107438	0.01232694	0.05215606	0.01327857	0.01653624	0.0037172	0.11529602	0.07071882	0.03585555	0.00696977	0	0.01310642	0.00152149	0.00823911	0.0015573	0.02093107	0.01445755	0.00135534	
28	10346888	0	0.02233747	0.07329897	0.05145577	0.18637096	0.11565764	0.03204313	0.00546966	0.0049403	0.00435218	0.00413139	0.01200126	0.02346539	0.00257633	0.00249822	0.00290154	0	0.00824797	0.00439938	0.04645631	
29	10346794	0.0042526	0.00774589	0.01382488	0.01658444	0.02204425	0.01294138	0.02680625	0.01096104	0.00155049	0.01619688	0.00622959	0.01569446	0.00255816	0.0083198	0	0.03050059	0.02732239	0.0517482			
30	10346765	0.01759332	0.03007469	0.12965967	0.03192231	0.24170313	0.24870097	0.04474047	0.0089593	0.01009073	0.01334518	0.04579451	0.03342406	0.02983103	0.01611628	0.00588383	0.00524279	0.00293065	0.03577206	0.05704874	0.00542334	
31	10346720	0.00609044	0.00894573	0.00701435	0.02514617	0.00383552	0.02105171	0.01910766	0.00153	0.03418965	0.02443818	0.006589	0.00293693	0.0161962	0	0.00958632	0.0428697	0	0.0170348	0.00489972	0.00791528	
32	10346649	0.02729346	0.06770838	0.03188811	0.0374226	0.03685551	0.07813474	0.14329488	0.0062301	0.00145056	0.04561806	0.04561806	0.0120666	0.05034419	0.06505252	0.01034635	0.00158687	0	0.09254542	0.07795427	0.07833113	
33	10346624	0.00570329	0.01875116	0.02832185	0.02603392	0.01367073	0.05106401	0.01327453	0.02999517	0.055806	0.08068889	0.01336585	0.06611113	0.01299922	0.01860145	0.02297618	0.01561781	0.00285389	0.00817343	0.0215921	0.0099481	
34	10346617	0.02453976	0.01377475	0.0352609	0.00783193	0.03643179	0.02125904	0.01656674	0.01145822	0.00644435	0.0096211	0.05286468	0.01877346	0.01793129	0.01281816	0.01245345	0.06043835	0	0.018258	0.04344426	0.02136027	

Item based Collaborative Filtering (User Id search)

Step 2: Check whether user exists or not. If user exists, get the similar patents.

```
def patentUserIdMatch(id):  
    df= pd.read_excel('../data/Item_based_patents.xlsx')  
    df =df.dropna()  
    df  
    user_list = df["UID"].tolist()  
    user_list  
    if id in user_list:  
        print("USERID is found")  
        k = get_patentnumbers(id,df).values.tolist()  
        res = get_similarity_matrix(k)  
        return res  
    else:  
        print("USERID not there")
```

Item based Collaborative Filtering (User Id search)

Step 3: Find the similar patents and get their related details.

```
def get_similarity_matrix(k):  
    numbers = k[0]  
    for i in range(0, len(numbers)):  
        numbers[i] = int(numbers[i])  
    print(numbers)  
    data= pd.read_csv('../data/tf_idf.csv')  
    data.rename( columns={'Unnamed: 0': 'patent_no'}, inplace=True)  
    data.set_index('patent_no', inplace=True)  
    results = list(data.columns.values)  
    pp= data.loc[numbers]  
    pp= pp.dropna()  
  
    bigdata1 = pd.concat([patent1, patent2, patent3, patent4, patent5, patent6, patent7,  
    bigdata=bigdata1[['patent_num', 'abstract', 'similarity', 'title', 'url']]  
    bigdata.to_csv('result_user.csv')  
    return bigdata
```

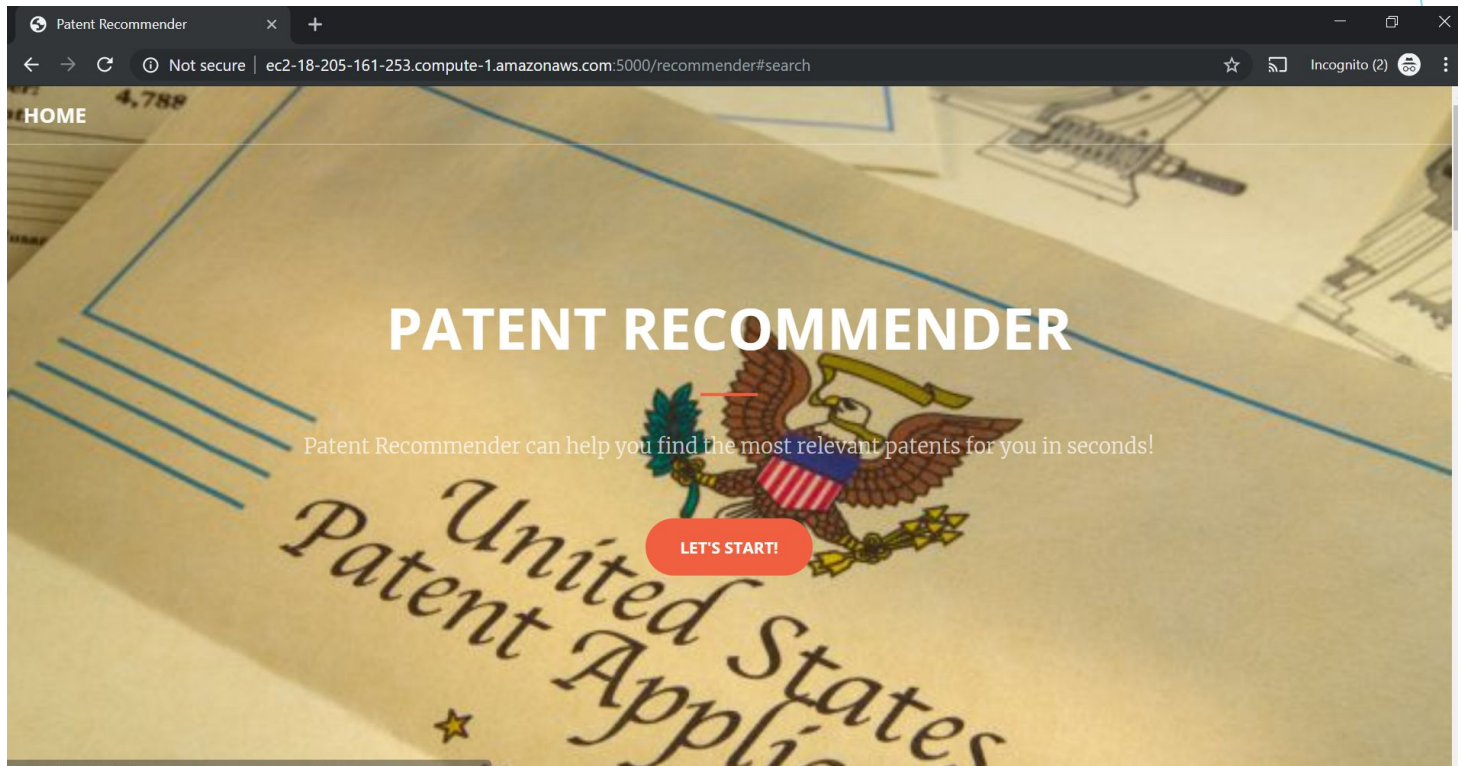

Item based Collaborative Filtering (User Id search)

Step 4: Find the details of read patents

```
def getReadPatents(id):  
    df= pd.read_excel('../data/Item_based_patents.xlsx')  
    df =df.dropna()  
    k = get_patentnumbers(id,df).values.tolist()  
    patentno=k[0]  
    print(patentno)  
    patentlist = pd.read_csv('../data/Dataset1.csv')  
    df=pd.DataFrame()  
    for i in range(len(patentno)):  
        patent=patentlist[patentlist['patent_num'] == str(patentno[i])]  
        df = df.append(pd.DataFrame(patent), ignore_index=True)  
    return df[["patent_num", "abstract", "title", "url"]]
```

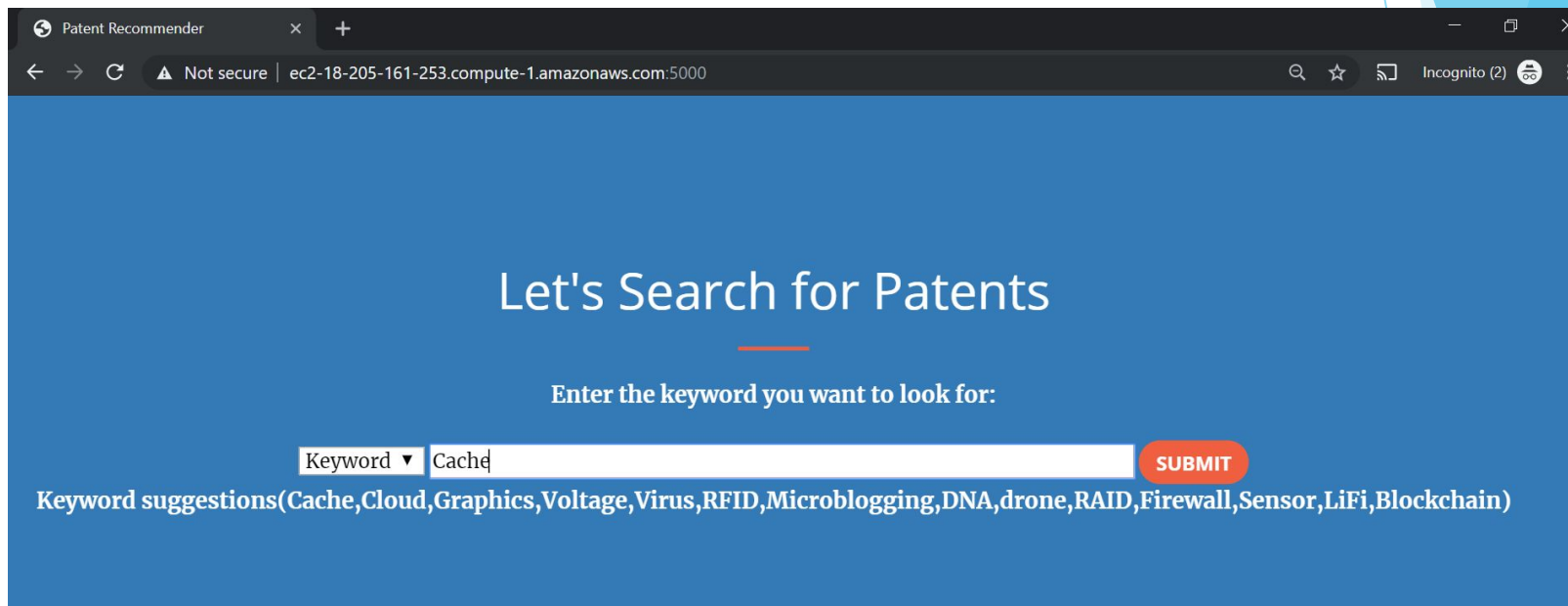
Our System Prototype

<http://ec2-18-205-161-253.compute-1.amazonaws.com:5000/recommender#search>



Our System Prototype

Input :Keyword



The screenshot shows a web browser window with the title 'Patent Recommender'. The address bar displays 'Not secure | ec2-18-205-161-253.compute-1.amazonaws.com:5000'. The page has a blue background and features the text 'Let's Search for Patents' in white. Below this, it says 'Enter the keyword you want to look for:'. There is a search input field with a dropdown menu labeled 'Keyword' and the text 'Cache' entered. To the right of the input field is a red 'SUBMIT' button. At the bottom of the page, it lists 'Keyword suggestions(Cache,Cloud,Graphics,Voltage,Virus,RFID,Microblogging,DNA,drone,RAID,Firewall,Sensor,LiFi,Blockchain)'.

Patent Recommender

Not secure | ec2-18-205-161-253.compute-1.amazonaws.com:5000

Let's Search for Patents

Enter the keyword you want to look for:

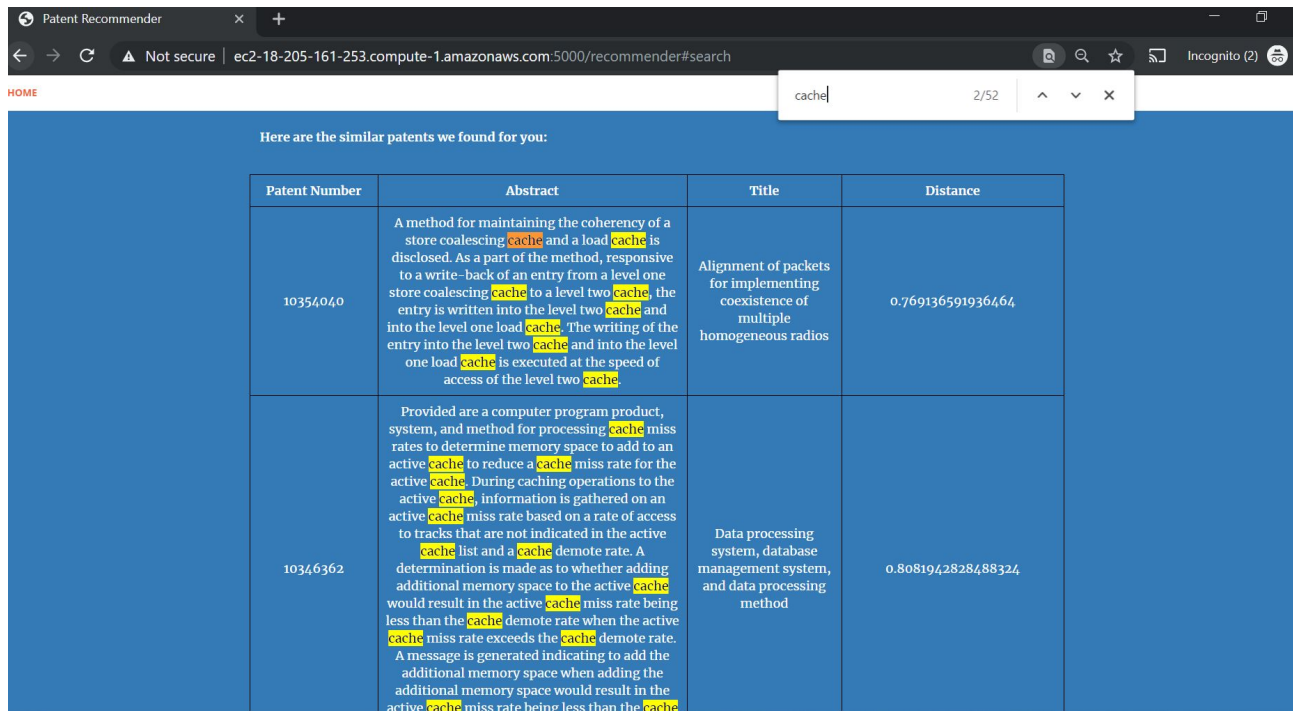
Keyword ▼ Cache

SUBMIT

Keyword suggestions(Cache,Cloud,Graphics,Voltage,Virus,RFID,Microblogging,DNA,drone,RAID,Firewall,Sensor,LiFi,Blockchain)

Our System Prototype

Output: Patent Recommendations

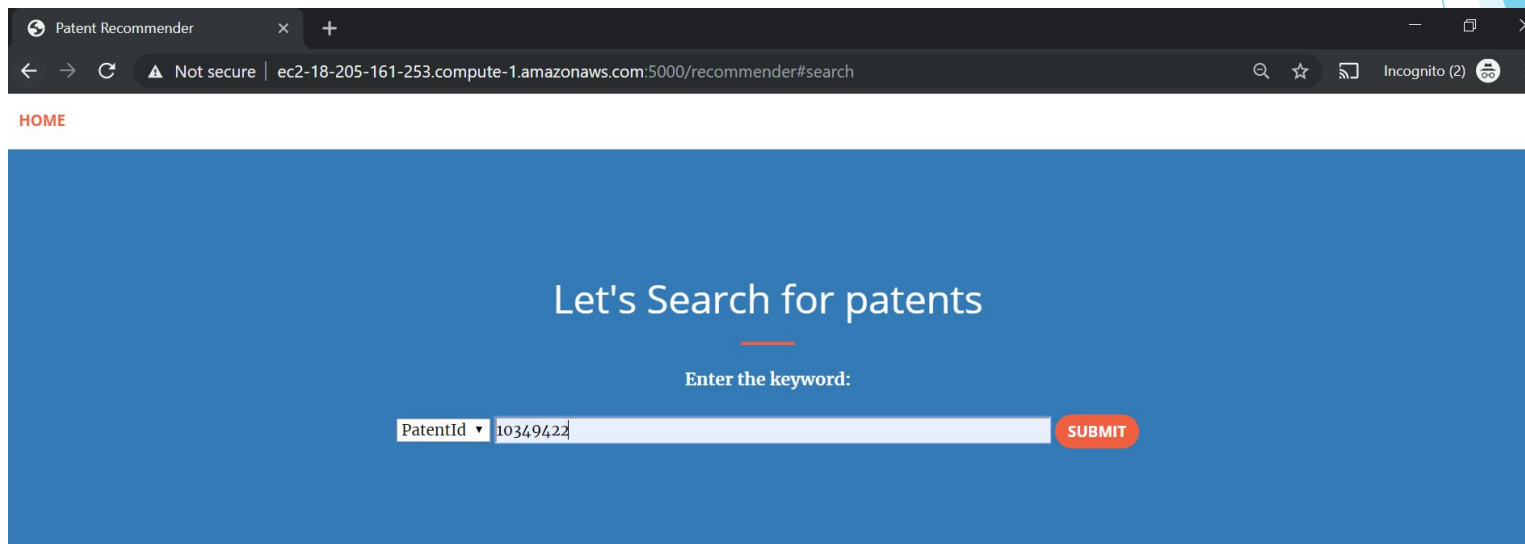


The screenshot shows a web browser window titled "Patent Recommender". The address bar displays the URL "ec2-18-205-161-253.compute-1.amazonaws.com:5000/recommender#search". The search input field contains the text "cache". Below the search bar, a message states "Here are the similar patents we found for you:". A table with four columns (Patent Number, Abstract, Title, Distance) lists two patent recommendations. The first patent (10354040) is titled "Alignment of packets for implementing coexistence of multiple homogeneous radios" and has a distance of 0.769136591936464. The second patent (10346362) is titled "Data processing system, database management system, and data processing method" and has a distance of 0.8081942828488324.

Patent Number	Abstract	Title	Distance
10354040	A method for maintaining the coherency of a store coalescing cache and a load cache is disclosed. As a part of the method, responsive to a write-back of an entry from a level one store coalescing cache to a level two cache , the entry is written into the level two cache and into the level one load cache . The writing of the entry into the level two cache and into the level one load cache is executed at the speed of access of the level two cache .	Alignment of packets for implementing coexistence of multiple homogeneous radios	0.769136591936464
10346362	Provided are a computer program product, system, and method for processing cache miss rates to determine memory space to add to an active cache to reduce a cache miss rate for the active cache . During caching operations to the active cache , information is gathered on an active cache miss rate based on a rate of access to tracks that are not indicated in the active cache list and a cache demote rate. A determination is made as to whether adding additional memory space to the active cache would result in the active cache miss rate being less than the cache demote rate when the active cache miss rate exceeds the cache demote rate. A message is generated indicating to add the additional memory space when adding the additional memory space would result in the active cache miss rate being less than the cache .	Data processing system, database management system, and data processing method	0.8081942828488324

Our System Prototype

Input :PatentId



The screenshot shows a web browser window with the title "Patent Recommender". The address bar displays "Not secure | ec2-18-205-161-253.compute-1.amazonaws.com:5000/recommender#search". The page has a "HOME" link in the top left. The main content area has a blue background with the text "Let's Search for patents" and "Enter the keyword:". Below this is a search input field with a dropdown menu labeled "PatentId" and the value "10349422". To the right of the input field is a red "SUBMIT" button.

Patent Recommender

Not secure | ec2-18-205-161-253.compute-1.amazonaws.com:5000/recommender#search

HOME

Let's Search for patents

Enter the keyword:

PatentId ▼ 10349422

SUBMIT

Our System Prototype

Output: Patent Recommendations

Patent Recommender

Not secure | ec2-18-205-161-253.compute-1.amazonaws.com:5000/recommender#search

HOME

The patent you provided:

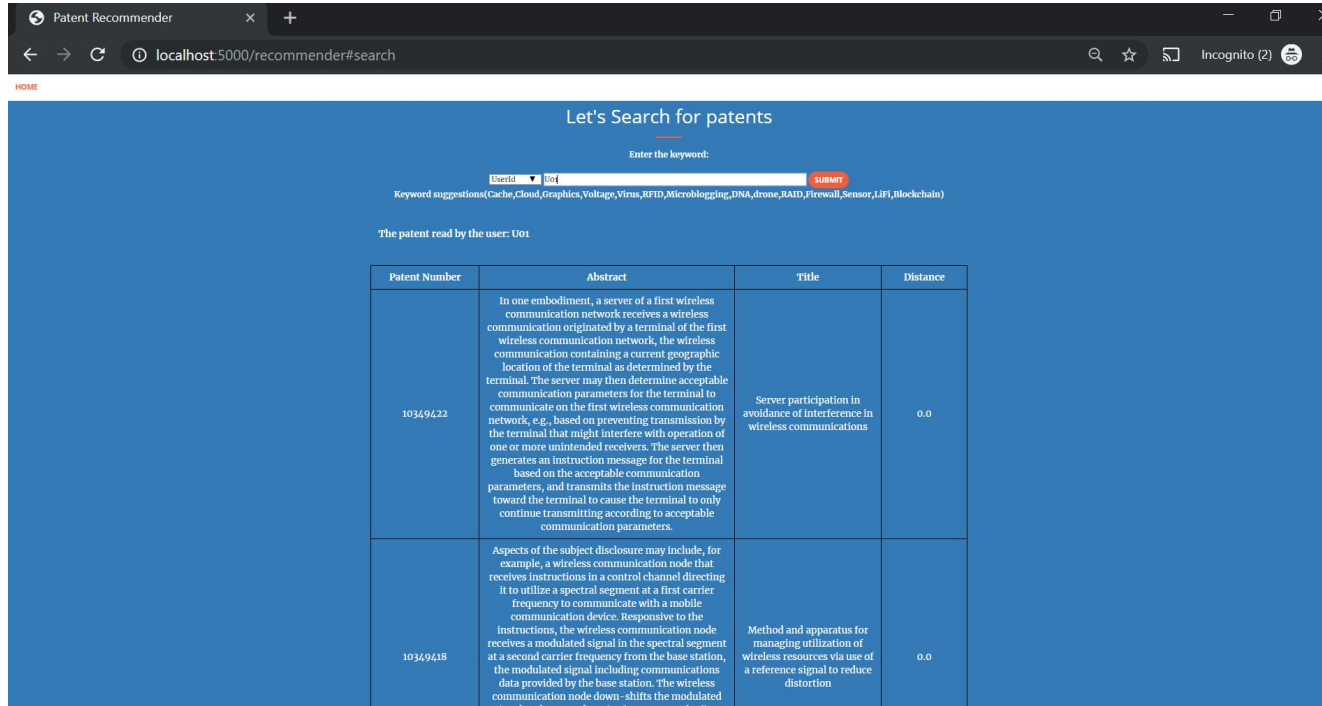
Patent Number	Abstract	Title	Distance
10349422	In one embodiment, a server of a first wireless communication network receives a wireless communication originated by a terminal of the first wireless communication network, the wireless communication containing a current geographic location of the terminal as determined by the terminal. The server may then determine acceptable communication parameters for the terminal to communicate on the first wireless communication network, e.g., based on preventing transmission by the terminal that might interfere with operation of one or more unintended receivers. The server then generates an instruction message for the terminal based on the acceptable communication parameters, and transmits the instruction message toward the terminal to cause the terminal to only continue transmitting according to acceptable communication parameters.	Server participation in avoidance of interference in wireless communications	0.0

Here are the similar patents we found for you:

Patent Number	Abstract	Title	Distance
9332126	A method for managing a wireless communications system may include the steps of: (1) requesting wireless communication links between a plurality of user terminals and an airborne communications relay terminal, (2) designating one of the plurality of user terminals as a primary user terminal to make a direct communication with the relay terminal, (3) designating other ones of the plurality of user terminals as secondary user terminals to make direct communication with the primary user terminal, (4) connecting the primary user terminal directly to the relay terminal, and (5) connecting the secondary user terminals	Media access control protocol data unit aggregation in a time division multiple access media access control layer	0.9569830852405796

Our System Prototype

Input :UserId

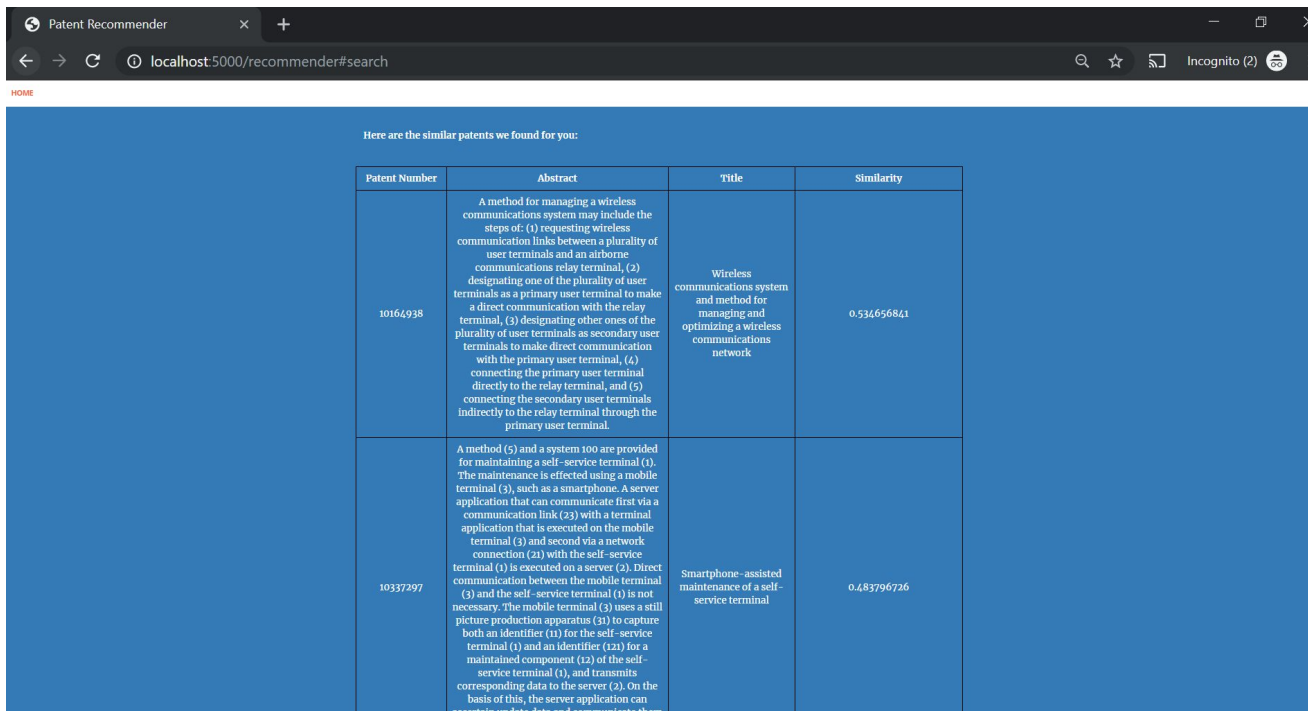


The screenshot shows a web browser window with the title 'Patent Recommender'. The address bar shows 'localhost:5000/recommender#search'. The page has a dark blue header with the text 'Let's Search for patents'. Below the header, there is a search bar with the placeholder text 'Enter the keyword:'. The search bar contains the text 'U01' and a red 'SUBMIT' button. Below the search bar, there is a list of keyword suggestions: 'Cache, Cloud, Graphics, Voltage, Virus, RFID, Microblogging, DNA, drone, RAID, Firewall, Sensor, LiFi, Blockchain'. Below the suggestions, there is a text label 'The patent read by the user: U01'. Below this label, there is a table with four columns: 'Patent Number', 'Abstract', 'Title', and 'Distance'. The table contains two rows of patent data.

Patent Number	Abstract	Title	Distance
10349422	In one embodiment, a server of a first wireless communication network receives a wireless communication originated by a terminal of the first wireless communication network, the wireless communication containing a current geographic location of the terminal as determined by the terminal. The server may then determine acceptable communication parameters for the terminal to communicate on the first wireless communication network, e.g., based on preventing transmission by the terminal that might interfere with operation of one or more unintended receivers. The server then generates an instruction message for the terminal based on the acceptable communication parameters, and transmits the instruction message toward the terminal to cause the terminal to only continue transmitting according to acceptable communication parameters.	Server participation in avoidance of interference in wireless communications	0.0
10349418	Aspects of the subject disclosure may include, for example, a wireless communication node that receives instructions in a control channel directing it to utilize a spectral segment at a first carrier frequency to communicate with a mobile communication device. Responsive to the instructions, the wireless communication node receives a modulated signal in the spectral segment at a second carrier frequency from the base station, the modulated signal including communications data provided by the base station. The wireless communication node down-shifts the modulated signal at the second carrier frequency to the first	Method and apparatus for managing utilization of wireless resources via use of a reference signal to reduce distortion	0.0

Our System Prototype

Output: Patent Recommendations



Patent Recommender

localhost:5000/recommender#search

HOME

Here are the similar patents we found for you:

Patent Number	Abstract	Title	Similarity
10164938	A method for managing a wireless communications system may include the steps of: (1) requesting wireless communication links between a plurality of user terminals and an airborne communications relay terminal, (2) designating one of the plurality of user terminals as a primary user terminal to make a direct communication with the relay terminal, (3) designating other ones of the plurality of user terminals as secondary user terminals to make direct communication with the primary user terminal, (4) connecting the primary user terminal directly to the relay terminal, and (5) connecting the secondary user terminals indirectly to the relay terminal through the primary user terminal.	Wireless communications system and method for managing and optimizing a wireless communications network	0.534656841
10337297	A method (5) and a system 100 are provided for maintaining a self-service terminal (1). The maintenance is effected using a mobile terminal (3), such as a smartphone. A server application that can communicate first via a communication link (23) with a terminal application that is executed on the mobile terminal (3) and second via a network connection (21) with the self-service terminal (1) is executed on a server (2). Direct communication between the mobile terminal (3) and the self-service terminal (1) is not necessary. The mobile terminal (3) uses a still picture production apparatus (31) to capture both an identifier (11) for the self-service terminal (1) and an identifier (121) for a maintained component (12) of the self-service terminal (1), and transmits corresponding data to the server (2). On the basis of this, the server application can	Smartphone-assisted maintenance of a self-service terminal	0.483796726

References

- <https://www.uspto.gov/patents-application-process/search-patents>
- <https://pandas.pydata.org>
- <https://en.wikipedia.org/wiki/Tf%E2%80%93idf>
- https://en.wikipedia.org/wiki/Recommender_system

The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. These shapes are primarily located on the right side of the frame, creating a modern, layered effect. The rest of the background is a solid, very light blue-grey color.

Thank You