

Homework 4: Indexing the Web Using Solr

Basic Installation

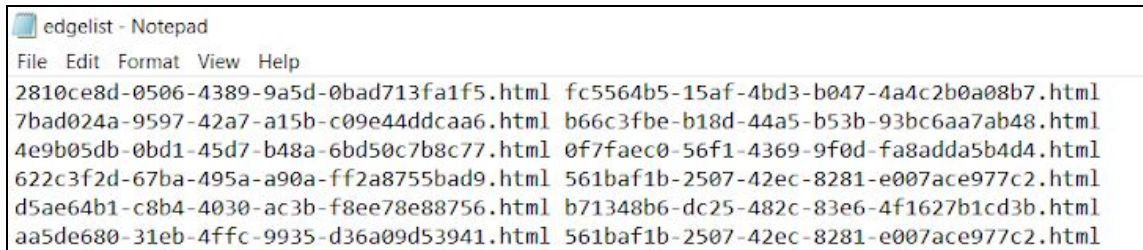
1. Installed Ubuntu 16.04 LTS on my Windows laptop using VirtualBox 5.2.26
2. Installed Java on Ubuntu
3. Downloaded and installed solr-8.0.0 release version
4. Installed PHP and Apache PHP by downloading libapache2-mod-php package
5. Downloaded data from google drive for “The Guardian” news website
6. To create client API, cloned <https://github.com/PTCInc/solr-php-client.git> repository and placed it in /var/www/html folder

Indexing HTML files in Solr

1. Started the Solr server by entering command bin/solr start
2. Created core named “latest” and saved the data downloaded from the drive in folder “guardian”
3. Performed indexing on data in guardian folder by command bin/post -c latest file-types html guardian/

Computation of pagerank

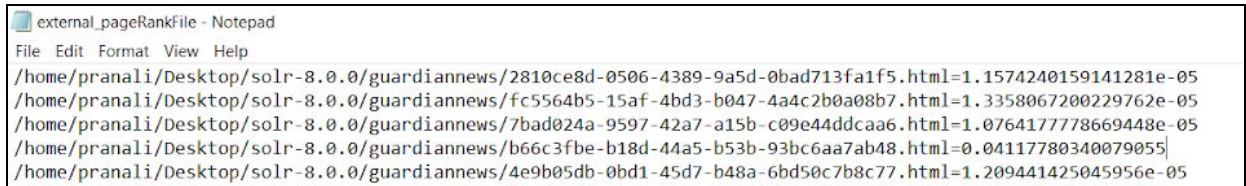
1. Extracted outgoing links from all html files using JSOUP library in Java
2. Created Hashmap for FileURLMap and URLFileMap by parsing given csv file
3. Created an Hashset representing edges between html pages and stored in ‘edgelist.txt’



```
edgelist - Notepad
File Edit Format View Help
2810ce8d-0506-4389-9a5d-0bad713fa1f5.html fc5564b5-15af-4bd3-b047-4a4c2b0a08b7.html
7bad024a-9597-42a7-a15b-c09e44ddcaa6.html b66c3fbe-b18d-44a5-b53b-93bc6aa7ab48.html
4e9b05db-0bd1-45d7-b48a-6bd50c7b8c77.html 0f7faec0-56f1-4369-9f0d-fa8adda5b4d4.html
622c3f2d-67ba-495a-a90a-ff2a8755bad9.html 561baf1b-2507-42ec-8281-e007ace977c2.html
d5ae64b1-c8b4-4030-ac3b-f8ee78e88756.html b71348b6-dc25-482c-83e6-4f1627b1cd3b.html
aa5de680-31eb-4ffc-9935-d36a09d53941.html 561baf1b-2507-42ec-8281-e007ace977c2.html
```

4. Created web graph and computed Pagerank using Python NetworkX package
5. Graph G from edges in “edgelist.txt” was created using networkx.DiGraph() function and Pagerank was computed using networkx.pagerank() function
6. Parameters to pagerank() function are as follows -
 - *Graph G*
 - *Damping parameter alpha = 0.85*
 - *personalization vector = None*
 - *Maximum number of iterations = 30*
 - *Error tolerance - 1e-06*
 - *Nstart - starting value of PageRank iteration for each node = None*
 - *weight='weight'*
 - *dangling =None*

7. Computed Page rank is stored in “**external_pageRankFile.txt**” in following format -



```
external_pageRankFile - Notepad
File Edit Format View Help
/home/pranali/Desktop/solr-8.0.0/guardiannews/2810ce8d-0506-4389-9a5d-0bad713fa1f5.html=1.1574240159141281e-05
/home/pranali/Desktop/solr-8.0.0/guardiannews/fc5564b5-15af-4bd3-b047-4a4c2b0a08b7.html=1.3358067200229762e-05
/home/pranali/Desktop/solr-8.0.0/guardiannews/7bad024a-9597-42a7-a15b-c09e44ddcaa6.html=1.0764177778669448e-05
/home/pranali/Desktop/solr-8.0.0/guardiannews/b66c3fbe-b18d-44a5-b53b-93bc6aa7ab48.html=0.04117780340079055
/home/pranali/Desktop/solr-8.0.0/guardiannews/4e9b05db-0bd1-45d7-b48a-6bd50c7b8c77.html=1.209441425045956e-05
```

8. Saved “**external_pageRankFile.txt**” in Solr core and modified managed-schema.xml and solrconf.xml

User Interface for Search Engine in PHP

1. UI contains a text field to accept query term and a radio button option to select ranking algorithm (Lucene default, Page rank) in descending order
2. The fields to be displayed (id, title, og_url, og_description) in search results are passed in PHP variable \$additionalparameter in request call along with query term and ranking algorithm

Request URL : localhost/solr-php-client/ui.php?q=Democrats&sort=score+desc

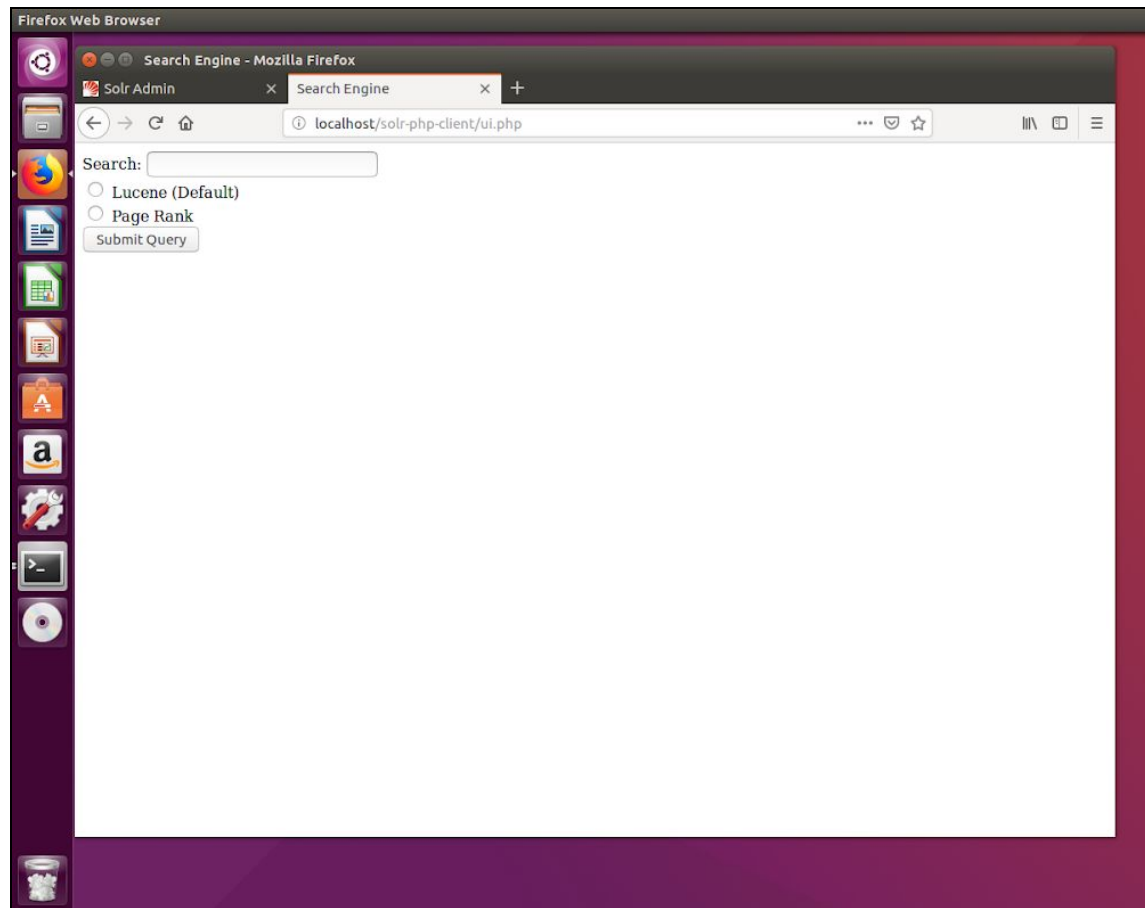
3. Title and og_url are clickable and redirects to og_url link
4. Top 10 results are displayed

Why some pages have higher Pagerank than others?

Pagerank is determined by the number and quality of links pointing to a page. More important web pages are likely to receive more links from other web pages. A Web page that receives links from a highly important pages has higher pagerank value than another web page which is pointed by higher number of pages but with lower page rank value.

Flow of single query “Democrats”

1) Search Engine Initial Page



2) Lucene (Default), Result for Query = “Democrats”

Search Engine - Mozilla Firefox

Solr Admin x Search Engine x +

localhost/solr-php-client/ui.php?q=Democrats&sort=score+desc

Search: Democrats

☒ Lucene (Default)
☐ Page Rank

Submit Query

Results 1 - 10 of 7214:

1.	title	Democrats secure 218 seats in midterms to win control of House - as it happened US news The Guardian
	og_url	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats
	id	/home/pranali/Desktop/solr-8.0.0/guardiannews/2d5fc1a7-9fae-4699-aa9d-04664b7301ea.html
	og_description	Democrats take back House and Republicans hold on to Senate as Trump lauds 'tremendous success'
2.	title	Democrats secure 218 seats in midterms to win control of House - as it happened US news The Guardian
	og_url	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats
	id	/home/pranali/Desktop/solr-8.0.0/guardiannews/55186d2f-2209-4d36-8d31-4a3e6c14633d.html
	og_description	Democrats take back House and Republicans hold on to Senate as Trump lauds 'tremendous success'
3.	title	Democrats secure 218 seats in midterms to win control of House - as it happened US news The Guardian
	og_url	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats
	id	/home/pranali/Desktop/solr-8.0.0/guardiannews/768497f5-88e7-4165-9313-db4807c4c7c5.html
	og_description	Democrats take back House and Republicans hold on to Senate as Trump lauds 'tremendous success'
4.	title	Democrats secure 218 seats in midterms to win control of House - as it happened US news The Guardian
	og_url	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats
	id	/home/pranali/Desktop/solr-8.0.0/guardiannews/f51ee952-da4e-4f1d-a076-64bc16c96424.html
	og_description	Democrats take back House and Republicans hold on to Senate as Trump lauds 'tremendous success'
5.	title	Democrats secure 218 seats in midterms to win control of House - as it happened US news The Guardian

Web Browser

Search Engine - Mozilla Firefox

Solr Admin x Search Engine x +

localhost/solr-php-client/ui.php?q=Democrats&sort=score+desc

	og_description	Democrats take back House and Republicans hold on to Senate as Trump lauds 'tremendous success'
6.	title	Democrats secure 218 seats in midterms to win control of House - as it happened US news The Guardian
	og_url	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats
	id	/home/pranali/Desktop/solr-8.0.0/guardiannews/112f8a6c-02a1-43ee-848f-bb9d0eb28642.html
	og_description	Democrats take back House and Republicans hold on to Senate as Trump lauds 'tremendous success'
7.	title	Democrats secure 218 seats in midterms to win control of House - as it happened US news The Guardian
	og_url	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats
	id	/home/pranali/Desktop/solr-8.0.0/guardiannews/040686f0-a4ae-47bb-8cab-a00e1200d708.html
	og_description	Democrats take back House and Republicans hold on to Senate as Trump lauds 'tremendous success'
8.	title	Democrats secure 218 seats in midterms to win control of House - as it happened US news The Guardian
	og_url	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats
	id	/home/pranali/Desktop/solr-8.0.0/guardiannews/9415f557-b2ac-4413-b144-ba5eeef37f03b.html
	og_description	Democrats take back House and Republicans hold on to Senate as Trump lauds 'tremendous success'
9.	title	Democrats secure 218 seats in midterms to win control of House - as it happened US news The Guardian
	og_url	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats
	id	/home/pranali/Desktop/solr-8.0.0/guardiannews/c35235aa-510b-4b6b-a019-79ebef8b2a3.html
	og_description	Democrats take back House and Republicans hold on to Senate as Trump lauds 'tremendous success'
10.	title	Democrats secure 218 seats in midterms to win control of House - as it happened US news The Guardian
	og_url	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats
	id	/home/pranali/Desktop/solr-8.0.0/guardiannews/12a61952-b0f2-490b-acbd-ac389406c335.html
	og_description	Democrats take back House and Republicans hold on to Senate as Trump lauds 'tremendous success'

3) Page Rank, Result for Query = "Democrats"

Firefox Web Browser

Search Engine - Mozilla Firefox

Solr Admin x Search Engine x +

localhost/solr-php-client/ui.php?q=Democrats&sort=prf+desc

Search: Democrats

☐ Lucene (Default)

☒ Page Rank

Submit Query

Results 1 - 10 of 7214:

- | | | |
|----------------|---|--|
| 1. | title | US news from the Guardian The Guardian |
| og_url | http://www.theguardian.com/us-news | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/c1c4b068-ae06-4408-961f-eabfaf74135b.html | |
| og_description | Latest US news, breaking news and current affairs coverage from theguardian.com | |
- | | | |
|----------------|--|----------------------------|
| 2. | title | US politics The Guardian |
| og_url | http://www.theguardian.com/us-news/us-politics | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/221459f1-16a3-4b6d-be90-78a15ac7a3dd.html | |
| og_description | Latest US politics news, comment and analysis from the Guardian, the world's leading liberal voice | |
- | | | |
|----------------|--|---|
| 3. | title | News, sport and opinion from the Guardian's US edition The Guardian |
| og_url | http://www.theguardian.com/us | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/08a33d9b-af5c-4e9c-8d25-0942007a00d0.html | |
| og_description | Latest US news, world news, sports, business, opinion, analysis and reviews from the Guardian, the world's leading liberal voice | |
- | | | |
|----------------|--|---|
| 4. | title | Comment, opinion and discussion from the Guardian US The Guardian |
| og_url | http://www.theguardian.com/us/commentisfree | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/0f7faec0-56f1-4369-9f0d-fa8adda5b4d4.html | |
| og_description | Latest opinion, analysis and discussion from the Guardian. CP Scott: "Comment is free, but facts are sacred" | |
- | | | |
|----------------|--|---------------------------------------|
| 5. | title | Donald Trump Us-news The Guardian |
| og_url | http://www.theguardian.com/us-news/donaldtrump | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/39026bdd-e782-4487-afe1-3992519416b8.html | |
| og_description | <p>The latest news, opinion and analysis on Donald Trump, the 45th president of the United States. </p> | |
- | | | |
|----------------|---|------------------------------------|
| 6. | title | Democrats Us-news The Guardian |
| og_url | http://www.theguardian.com/us-news/democrats | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/4f80b5ea-e1db-4074-b58e-39b0c63eb453.html | |
| og_description | N/A | |

Firefox Web Browser

Search Engine - Mozilla Firefox

Solr Admin x Search Engine x +

localhost/solr-php-client/ui.php?q=Democrats&sort=prf+desc

- | | | |
|----------------|--|---|
| 4. | title | Comment, opinion and discussion from the Guardian US The Guardian |
| og_url | http://www.theguardian.com/us/commentisfree | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/0f7faec0-56f1-4369-9f0d-fa8adda5b4d4.html | |
| og_description | Latest opinion, analysis and discussion from the Guardian. CP Scott: "Comment is free, but facts are sacred" | |
- | | | |
|----------------|--|---------------------------------------|
| 5. | title | Donald Trump Us-news The Guardian |
| og_url | http://www.theguardian.com/us-news/donaldtrump | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/39026bdd-e782-4487-afe1-3992519416b8.html | |
| og_description | <p>The latest news, opinion and analysis on Donald Trump, the 45th president of the United States. </p> | |
- | | | |
|----------------|---|------------------------------------|
| 6. | title | Democrats Us-news The Guardian |
| og_url | http://www.theguardian.com/us-news/democrats | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/4f80b5ea-e1db-4074-b58e-39b0c63eb453.html | |
| og_description | N/A | |
- | | | |
|----------------|---|--|
| 7. | title | Beto O'Rourke Us-news The Guardian |
| og_url | http://www.theguardian.com/us-news/beto-o-rourke | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/13526f5b-fe57-41ed-81fc-7d791dcd9dfc.html | |
| og_description | N/A | |
- | | | |
|----------------|---|--|
| 8. | title | Who is running for president? The full list of 2020 Democratic candidates US news The Guardian |
| og_url | http://www.theguardian.com/us-news/ng-interactive/2019/jan/17/2020-election-candidates-list-democrats-primaries-trump-bernie-sanders-joe-biden-elizabeth-warren-kamala-harris-beto-o-rourke-running | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/f90a7dd0-d340-4aea-aca2-e2a5fdd64904.html | |
| og_description | Beto O'Rourke, Bernie Sanders and Elizabeth Warren have confirmed, and Joe Biden look likely - but they'll have to see off a historically large field of candidates first | |
- | | | |
|----------------|---|--|
| 9. | title | Beto O'Rourke announces 2020 run for presidency US news The Guardian |
| og_url | http://www.theguardian.com/us-news/2019/mar/14/beto-orourke-announces-2020-run-for-presidency | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/ab7d40cf-b9a5-4f40-a2b1-96d424953c2f.html | |
| og_description | Texas Democrat, who has drawn comparisons to Obama, tells supporters his campaign 'seeks to unite a very divided country' | |
- | | | |
|----------------|---|---|
| 10. | title | Trump tweets "VETO!" after Senate votes to block national emergency - live US news The Guardian |
| og_url | http://www.theguardian.com/us-news/live/2019/mar/14/trump-news-today-latest-live-updates-beto-o-rourke-boeing-flights-us-politics-ireland | |
| id | /home/pranali/Desktop/solr-8.0.0/guardiannews/95aff2f6-99b1-44e1-9e4c-0d7984d46e2c.html | |
| og_description | Trump indicates he will veto first bill since taking office after Senate disapproves his national emergency declaration | |

www.theguardian.com/us-news/ng-interactive/2019/jan/17/2020-election-cand...ie-sanders-joe-biden-elizabeth-warren-kamala-harris-beto-o-rourke-running

4) Actual web page on clicking one of the result's link

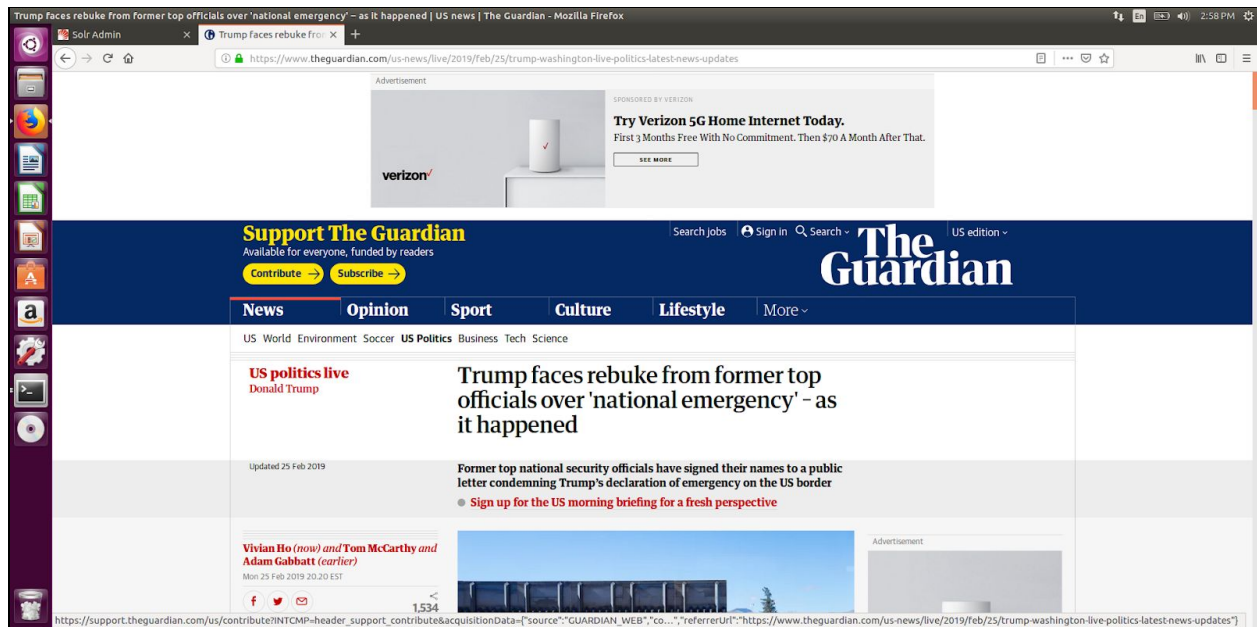


Table of top 10 results by both ranking algorithms -

Venezuela		
	Lucene (Default)	Page Rank
1	http://www.theguardian.com/us-news/live/2019/jan/30/trump-politics-venezuela-congress-shutdown-lat est-news-updates	http://www.theguardian.com/us-news/us-politics
2	http://www.theguardian.com/us-news/live/2019/jan/30/trump-politics-venezuela-congress-shutdown-lat est-news-updates	http://www.theguardian.com/us-news/donaldtrump
3	http://www.theguardian.com/us-news/live/2019/jan/30/trump-politics-venezuela-congress-shutdown-lat est-news-updates	http://www.theguardian.com/us-news/2019/mar/14/beto-orourke-announces-2020-run-for-presidency
4	http://www.theguardian.com/us-news/live/2019/jan/30/trump-politics-venezuela-congress-shutdown-lat est-news-updates	http://www.theguardian.com/us-news/us-elections-2016
5	http://www.theguardian.com/us-news/live/2019/jan/30/trump-politics-venezuela-congress-shutdown-lat est-news-updates	http://www.theguardian.com/us-news/video/2019/feb/13/ihan-omar-elliott-abrams-venezuela-video
6	http://www.theguardian.com/us-news/live/2019/jan/30/trump-politics-venezuela-congress-shutdown-lat est-news-updates	http://www.theguardian.com/us-news/florida
7	http://www.theguardian.com/us-news/live/2019/jan/30/trump-politics-venezuela-congress-shutdown-lat est-news-updates	http://www.theguardian.com/us-news/donaldtrump
8	http://www.theguardian.com/us-news/live/2019/jan/30/trump-politics-venezuela-congress-shutdown-lat est-news-updates	http://www.theguardian.com/us-news/us-foreign-policy
9	http://www.theguardian.com/us-news/live/2019/jan/30/trump-politics-venezuela-congress-shutdown-lat est-news-updates	http://www.theguardian.com/us-news/mike-pence
10	http://www.theguardian.com/us-news/live/2019/jan/30/trump-politics-venezuela-congress-shutdown-lat est-news-updates	http://www.theguardian.com/us-news/live/2019/mar/08/donald-trump-latest-news-live-alabama-paul-manafort-russia-hr1-bill-vote

Senate		
	Lucene (Default)	Page Rank
1	http://www.theguardian.com/us-news/live/2018/sep/28/kavanaugh-senate-committee-vote-live	http://www.theguardian.com/us-news
2	http://www.theguardian.com/us-news/live/2018/sep/28/kavanaugh-senate-committee-vote-live	http://www.theguardian.com/us-news/us-politics
3	http://www.theguardian.com/us-news/live/2014/dec/09/cia-torture-report-released-senate	http://www.theguardian.com/us

4	http://www.theguardian.com/us-news/live/2018/sep/28/kavanaugh-senate-committee-vote-live	http://www.theguardian.com/us-news/donaldtrump
5	http://www.theguardian.com/us-news/live/2018/sep/28/kavanaugh-senate-committee-vote-live	http://www.theguardian.com/us-news/beto-o-rourke
6	http://www.theguardian.com/us-news/live/2018/sep/28/kavanaugh-senate-committee-vote-live	http://www.theguardian.com/us-news/ng-interactive/2019/jan/17/2020-election-candidates-list-democrats-primaries-trump-bernie-sanders-joe-biden-elizabeth-warren-kamala-harris-beto-o-rourke-running
7	http://www.theguardian.com/us-news/live/2018/sep/28/kavanaugh-senate-committee-vote-live	http://www.theguardian.com/us-news/2019/mar/14/beto-o-rourke-announces-2020-run-for-presidency
8	http://www.theguardian.com/us-news/live/2018/sep/28/kavanaugh-senate-committee-vote-live	http://www.theguardian.com/us-news/live/2019/mar/14/trump-news-today-latest-live-updates-beto-o-rourke-boeing-flights-us-politics-ireland
9	http://www.theguardian.com/us-news/live/2018/sep/28/kavanaugh-senate-committee-vote-live	http://www.theguardian.com/us-news/2019/mar/14/senate-national-emergency-declaration-vote-trump
10	http://www.theguardian.com/us-news/live/2018/sep/28/kavanaugh-senate-committee-vote-live	http://www.theguardian.com/us-news/video/2019/mar/14/who-is-2020-presidential-candidate-beto-orourke-video-profile

Democrats		
	Lucene (Default)	Page Rank
1	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats	http://www.theguardian.com/us-news
2	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats	http://www.theguardian.com/us-news/us-politics
3	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats	http://www.theguardian.com/us
4	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats	http://www.theguardian.com/us/commentisfree
5	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats	http://www.theguardian.com/us-news/donaldtrump
6	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats	http://www.theguardian.com/us-news/democrats

	news-updates-donald-trump-republicans-democrats	
7	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats	http://www.theguardian.com/us-news/beto-o-rourke
8	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats	http://www.theguardian.com/us-news/ng-interactive/2019/jan/17/2020-election-candidates-list-democrats-primaries-trump-bernie-sanders-joe-biden-elizabeth-warren-kamala-harris-beto-o-rourke-running
9	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats	http://www.theguardian.com/us-news/2019/mar/14/beto-o-rourke-announces-2020-run-for-presidency
10	http://www.theguardian.com/us-news/live/2018/nov/06/us-midterms-elections-2018-latest-live-polls-news-updates-donald-trump-republicans-democrats	http://www.theguardian.com/us-news/live/2019/mar/14/trump-news-today-latest-live-updates-beto-o-rourke-boeing-flights-us-politics-ireland

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3	http://www.theguardian.com/us-news/live/2018/nov/07/midterm-elections-democrats-trump-republicans-house-latest-live	http://www.theguardian.com/us/commentisfree
4	http://www.theguardian.com/us-news/live/2018/nov/07/midterm-elections-democrats-trump-republicans-house-latest-live	http://www.theguardian.com/us-news/donaldtrump
5	http://www.theguardian.com/us-news/live/2018/nov/07/midterm-elections-democrats-trump-republicans-house-latest-live	http://www.theguardian.com/us-news/democrats
6	http://www.theguardian.com/us-news/live/2018/nov/07/midterm-elections-democrats-trump-republicans-house-latest-live	http://www.theguardian.com/us-news/beto-o-rourke
7	http://www.theguardian.com/us-news/live/2018/nov/07/midterm-elections-democrats-trump-republicans-house-latest-live	http://www.theguardian.com/us-news/ng-interactive/2019/jan/17/2020-election-candidates-list-democrats-primaries-trump-bernie-sanders-joe-biden-elizabeth-warren-kamala-harris-beto-o-rourke-running

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9	http://www.theguardian.com/us-news/live/2018/nov/07/midterm-elections-democrats-trump-republicans-house-latest-live	http://www.theguardian.com/us-news/live/2019/mar/14/trump-news-today-latest-live-updates-beto-orourke-boeing-flights-us-politics-ireland
10	http://www.theguardian.com/us-news/live/2018/nov/07/midterm-elections-democrats-trump-republicans-house-latest-live	http://www.theguardian.com/us-news/2019/mar/14/senate-national-emergency-declaration-vote-trump

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2	http://www.theguardian.com/us-news/oregon-militia-standoff	http://www.theguardian.com/us
3	http://www.theguardian.com/us-news/2018/nov/18/arrests-and-clashes-as-rival-right-and-left-rallies-descend-on-portland-again	http://www.theguardian.com/us/lifeandstyle
4	http://www.theguardian.com/us-news/2018/aug/03/portland-patriot-prayer-rally-fears-violence-charlottesville	http://www.theguardian.com/us/commentisfree
5	http://www.theguardian.com/us-news/portland	http://www.theguardian.com/us-news/ng-interactive/2019/jan/17/2020-election-candidates-list-democrats-priories-trump-bernie-sanders-joe-biden-elizabeth-warren-kamala-harris-beto-orourke-running
6	http://www.theguardian.com/us-news/2018/aug/19/rightwing-protest-seattle-march-against-alleged-leftright-violence	http://www.theguardian.com/us-news/2019/mar/14/beto-orourke-announces-2020-run-for-presidency
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8	http://www.theguardian.com/us-news/2018/aug/04/patriot-prayer-to-carry-guns-at-portland-rally-as-fears-of-violence-rise	http://www.theguardian.com/us-news/2019/mar/13/rich-kids-top-college-admissions
9	http://www.theguardian.com/us-news/2018/aug/06/portland-protest-rightwing-patriot-prayer-police	http://www.theguardian.com/us-news/2019/mar/12/moment-step-backwards-the-1bn-gas-pipeline-project-dividing-new-york
10	http://www.theguardian.com/us-news/2015/may/21/fbi-patriot-act-doj-report	http://www.theguardian.com/us-news/2019/mar/12/climate-change-student-activists-environment

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3	http://www.theguardian.com/us/film	http://www.theguardian.com/us/environment
4	http://www.theguardian.com/us-news/dick-cheney	http://www.theguardian.com/us
5	http://www.theguardian.com/us-news/2018/oct/14/zero-tolerance-family-separation-indefinite-detention-karnes-texas	http://www.theguardian.com/money
6	http://www.theguardian.com/us-news/2018/oct/15/tolerancia-cero-familias-separadas-karnes-texas-detencion-infinita	http://www.theguardian.com/us/lifeandstyle
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9	http://www.theguardian.com/us-news/black-lives-matter-movement	http://www.theguardian.com/us/film
10	http://www.theguardian.com/us-news/2019/feb/25/us-briefing-oscar-shocks-pro-voter-bill-and-venezuela-meeting	http://www.theguardian.com/us/technology

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2	http://www.theguardian.com/us-news/2017/may/28/trump-white-house-jared-kushner-russia	http://www.theguardian.com/us/commentisfree
3	http://www.theguardian.com/us-news/2017/mar/05/roger-stone-trump-adviser-julian-assange	http://www.theguardian.com/us-news/ng-interactive/2018/dec/05/robert-mueller-who-charged-list-trump-russia-inquiry-latest-indictments-flynn-manafort-cohen-what-happens-next
4	http://www.theguardian.com/us-news/2017/apr/07/us-russia-relations-syria-military-strikes-putin-trump	http://www.theguardian.com/us-news/2019/feb/01/cory-booker-announces-run-for-presidency-in-2020

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6	http://www.theguardian.com/us-news/ronpaul	http://www.theguardian.com/us-news/2019/mar/04/fox-news-stormy-daniels-rupert-murdoch-trump-win
7	http://www.theguardian.com/us-news/california	http://www.theguardian.com/us-news/series/the-campaign-minute-2016
8	http://www.theguardian.com/us-news/us-weather	http://www.theguardian.com/us-news/2019/feb/12/parkland-shooting-survivor-gun-control-activism
9	http://www.theguardian.com/us-news/los-angeles	http://www.theguardian.com/us-news/live/2019/jan/09/rod-rosenstein-donald-trump-latest-news-live
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Wall		
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2	http://www.theguardian.com/us-news/live/2018/dec/21/trump-government-shutdown-border-wall-latest-live	http://www.theguardian.com/us-news/us-politics
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