

Assignment 4 Report

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1. Steps to complete the assignment

- Download and unzip Solr from given link, use command `$ bin/solr start` to start solr.
- Create a core named **myexample** on Solr using command `$ bin/solr create -c myexample`.
- Change Solr config file **managed-schema** as instructed to below:

```
<field name="id" type="string" indexed="true" stored="true" required="true" multiValued="false" />
<field name="_version_" type="long" indexed="true" stored="true"/>
<field name="_root_" type="string" indexed="true" stored="false"/>
<field name="_text_" type="text_general" indexed="true" stored="false" multiValued="true"/>
<copyField source="*" dest="_text_"/>
```
- Indexing HTML files in Solr, run command `$ bin/post -c <core_name> -filetypes html <path_to_crawl_folder>/`, for my example, I used `$ bin/post -c myexample -filetypes html HTML_files/`
- Open Solr UI on browser via <http://localhost:8983/solr/>, test on query “*:*”, successfully got expected results.
- Download XAMPP for running PHP.
- Git clone given php package, create solr-php-client from it.
- Create a folder named 572 under XAMPP/htdocs, copy Apache files from cloned php package to this 572 folder, create a new php file named **index.php**, modify the code to provide query box, two algorithm options and a submit button. Now we have the front end.
- Open user query page via <http://localhost/572>, currently choosing **Lucene** as algorithm can return expected results.
- Write Java code. Use JSOUP library to get all the outgoing links in HTML pages, then create a edgelist file. Save this file as input for calculating pagerank values.
- Write Python code. Use networkx library to generate graph from given edgelist generated by Java code, as well as calculates pagerank

values from graph. Save pagerank values as a file named **external_pageRankFile**.

- The parameter configuration of Python code is:
alpha=0.85, personalization=None, max_iter=30, tol=1.0e-6, nstart=None, weight='weight', dangling=None
- Copy external_pageRankFile to the core created on Solr. Further modify managed-schema file by add two lines of code as instructed:

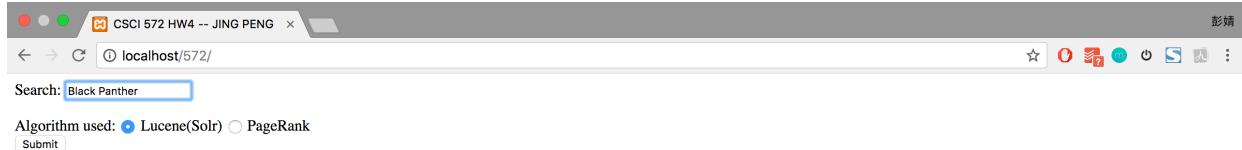
```
<fieldType name="external" keyField="id" defVal="0"
class="solr.ExternalFileField"/>
<field name="pageRankFile" type="external" stored="false"
indexed="false"/>
```
- Reload Solr from Solr UI.
- Open user query page via <http://localhost:572>, everything should work now.
- Overall, this assignment required installing Solr, XAMPP to run PHP and IDEs such as Eclipse and PyCharm to run the Java and Python codes respectively. I wrote code in PHP for query UI, Java for edgelist, Python for calculating pagerank values.

2. Explain why some pages have higher PageRank values

From both the formula and the query results, we can find out that a page which is most pointed to from other pages will have higher PageRank value. For example, homepage for Fox News <http://www.foxnews.com/>, which is reachable from almost all other web pages, it has the highest PageRank value. Because it can be reached from most pages, which gives it a high indegree. Thus, it has a high PageRank value.

3. Screenshots

- Screenshot of initial page where you enter the query in input box.



- Screenshot of page which shows the results for Lucene(Default).

A screenshot of a web browser window titled "CSCI 572 HW4 -- JING PENG". The address bar shows "localhost:572/?q=Black+Panther&rankAlgorithm=solr". A search bar contains the text "Search: Black Panther". Below the search bar, there is a label "Algorithm used: Lucene(Solr) PageRank" and a "Submit" button. The main content area displays the following search results:

Results 1 - 10 of 1679:

1. **Stan Lee, 95, 'feeling great' after return from LA hospital | Fox News**
<http://www.foxnews.com/entertainment/2018/02/02/stan-lee-95-feeling-great-after-return-from-la-hospital.html>
69fd08413af7aa57d89b8378bd860cfdf.html
After being rushed to a hospital Wednesday night, legendary comic book artist Stan Lee confirmed Thursday that he was back home and doing well.
2. **Stan Lee, 95, 'feeling great' after return from LA hospital | Fox News**
<http://www.foxnews.com/entertainment/2018/02/02/stan-lee-95-feeling-great-after-return-from-la-hospital.html>
8cfbb6112f4d8c8f42cb9dd4802fe84.html
After being rushed to a hospital Wednesday night, legendary comic book artist Stan Lee confirmed Thursday that he was back home and doing well.
3. **Stan Lee, 95, 'feeling great' after return from LA hospital | Fox News**
<http://www.foxnews.com/entertainment/2018/02/02/stan-lee-95-feeling-great-after-return-from-la-hospital.html>
146a30dc4e936db411187cf87af486.html
After being rushed to a hospital Wednesday night, legendary comic book artist Stan Lee confirmed Thursday that he was back home and doing well.
4. **Stan Lee robbed of \$1.4M, report says | Fox News**
<http://www.foxnews.com/entertainment/2018/02/28/stan-lee-robbed-1-4m-report-says.html>
829ebd39bc8136a8d592c29cd5d4cd2b.html
Legendary comic book writer Stan Lee was reportedly robbed of \$1.4 million.
5. **FIU bridge collapse sparks reaction from politicians, lawmakers | Fox News**
<http://www.foxnews.com/us/2018/03/15/fiu-bridge-collapse-sparks-reaction-from-politicians-lawmakers.html>
184d34b90af1845e1fa4000527012a62.html
A bridge collapse Thursday at Florida International University left several people dead, Fox News has learned.
6. **Twitter's purge of far-right accounts sparks backlash, praise and confusion | Fox News**
<http://www.foxnews.com/tech/2017/12/20/twitters-purge-far-right-accounts-sparks-backlash-praise-and-confusion.html>
6e0eac2e6bf9df5da3e8656cbad54162.html
Twitter began enforcing its new rules on hate speech and abuse on Monday, suspending a number of far-right accounts including those linked to prominent white nationalists and neo-Nazis, prompting responses that range from defiance to praise and bafflement.
7. **Twitter's purge of far-right accounts sparks backlash, praise and confusion | Fox News**
<http://www.foxnews.com/tech/2017/12/20/twitters-purge-far-right-accounts-sparks-backlash-praise-and-confusion.html>

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localhost:572/?q=Black+Panther&rankAlgorithm=solr

After being rushed to a hospital Wednesday night, legendary comic book artist Stan Lee confirmed Thursday that he was back home and doing well.

4. **Stan Lee robbed of \$1.4M, report says | Fox News**
<http://www.foxnews.com/entertainment/2018/02/28/stan-lee-robbed-1-4m-report-says.html>
829ebd39bc8136a8d592e29cd5d4ed2b.html
Legendary comic book writer Stan Lee was reportedly robbed of \$1.4 million.

5. **FIU bridge collapse sparks reaction from politicians, lawmakers | Fox News**
<http://www.foxnews.com/us/2018/03/15/fiu-bridge-collapse-sparks-reaction-from-politicians-lawmakers.html>
184d34b90af1845e1fa4000527012a62.html
A bridge collapse Thursday at Florida International University left several people dead, Fox News has learned.

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<http://www.foxnews.com/tech/2017/12/20/twitter-purge-far-right-accounts-sparks-backlash-praise-and-confusion.html>
6e0eac2e6bf9df5da3e8656cbad54162.html
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<http://www.foxnews.com/tech/2017/12/20/twitter-purge-far-right-accounts-sparks-backlash-praise-and-confusion.html>
b8c4d649672a0d71b8065baff3f2cfde.html
Twitter began enforcing its new rules on hate speech and abuse on Monday, suspending a number of far-right accounts including those linked to prominent white nationalists and neo-Nazis, prompting responses that range from defiance to praise and bafflement.

8. **FIU bridge collapse sparks reaction from politicians, lawmakers | Fox News**
<http://www.foxnews.com/us/2018/03/15/fiu-bridge-collapse-sparks-reaction-from-politicians-lawmakers.html>
b7c35202faf30e6176983e24bd01f93.html
A bridge collapse Thursday at Florida International University left several people dead, Fox News has learned.

9. **FIU bridge collapse sparks reaction from politicians, lawmakers | Fox News**
<http://www.foxnews.com/us/2018/03/15/fiu-bridge-collapse-sparks-reaction-from-politicians-lawmakers.html>
4f3cd8c0f90b7e6045e329bfdf285397.html
A bridge collapse Thursday at Florida International University left several people dead, Fox News has learned.

10. **FIU bridge collapse sparks reaction from politicians, lawmakers | Fox News**
<http://www.foxnews.com/us/2018/03/15/fiu-bridge-collapse-sparks-reaction-from-politicians-lawmakers.html>
1c9c7452581d7731b4399f59a8cb74d8.html
A bridge collapse Thursday at Florida International University left several people dead, Fox News has learned.

● Screenshot of page which shows the results for PageRank.

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localhost:572/?q=Black+Panther

Search: Black Panther

Algorithm used: Lucene(Solr) PageRank
Submit

Results 1 - 10 of 1679:

1. **US | Fox News**
<http://www.foxnews.com/us.html>
3b6b68bbcd913e0037cd251a5410af4b.html
Fox news features local news and national news articles and videos.
2. **Science | Latest News and Videos on Astronomy, the Environment and Wildlife | Fox News**
<http://www.foxnews.com/science.html>
2738786b24faf2d2b32fa0a707b9ac46.html
Biology, astronomy, chemistry, physics on FoxNews.com. In-depth natural science news. Headlines from the worlds of biology, astronomy, chemistry and physics.
3. **Lifestyle | Fox News**
<http://www.foxnews.com/lifestyle.html>
f5282aa87418389a4d3ac3f78cb08f1b.html
Lifestyle, Auto, Food & Drink, and Home & Garden online news and information
4. **Food & Drink | Latest Food, Drink, Restaurant, and Recipes News | Fox News**
<http://www.foxnews.com/food-drink.html>
64fd0ae267960b7de1fc530b7f12a36.html
Food and Drink brings you the latest news on FOXNews.com. Topics include delicious recipes, advice from food experts, hot restaurants, party tips, and menus.
5. **AIR AND SPACE | Fox News**
<http://www.foxnews.com/category/science/air-and-space.html>
49cdf42b0c6e7c623629734c1c1a44a6.html
NA
6. **MEDICAL RESEARCH | Fox News**
<http://www.foxnews.com/category/health/medical-research.html>
403a50a3361a4babf6702b344a2e231e.html
NA
7. **US | Fox News**
<http://www.foxnews.com/us.html>
5d415a9250115d697d6d8fa61c9c92c8.html

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localhost:572/?q=Black+Panther&rankAlgorithm= pagerank

1. <http://www.foxnews.com/lifestyle.html>
f5282aa87418389a4d3ac3f78cb08f1b.html
Lifestyle, Auto, Food & Drink, and Home & Garden online news and information

4. [Food & Drink | Latest Food, Drink, Restaurant, and Recipes News | Fox News](http://www.foxnews.com/food-drink.html)
<http://www.foxnews.com/food-drink.html>
64fd0ae267960b7de1fc530b7f12a36.html
Food and Drink brings you the latest news on FOXNews.com. Topics include delicious recipes, advice from food experts, hot restaurants, party tips, and menus.

5. [AIR AND SPACE | Fox News](http://www.foxnews.com/category/science/air-and-space.html)
<http://www.foxnews.com/category/science/air-and-space.html>
49cd42b0c6e7c623629734c1c1a44a6.html
NA

6. [MEDICAL RESEARCH | Fox News](http://www.foxnews.com/category/health/medical-research.html)
<http://www.foxnews.com/category/health/medical-research.html>
403a50a3361a4babf6702b344a2c231e.html
NA

7. [US | Fox News](http://www.foxnews.com/us.html)
<http://www.foxnews.com/us.html>
5d415a9250115d697d6d8fa61c9e92c8.html
Fox news features local news and national news articles and videos.

8. [Science | Latest News and Videos on Astronomy, the Environment and Wildlife | Fox News](http://www.foxnews.com/science.html)
<http://www.foxnews.com/science.html>
8f8cebe94a804d7bee5df5b6cb0701702.html
Biology, astronomy, chemistry, physics on FoxNews.com. In-depth natural science news. Headlines from the worlds of biology, astronomy, chemistry and physics.

9. [Lifestyle | Fox News](http://www.foxnews.com/lifestyle.html)
<http://www.foxnews.com/lifestyle.html>
ac6c6c21a9071c0b0cf38345b331f5c4.html
Lifestyle, Auto, Food & Drink, and Home & Garden online news and information

10. [Food & Drink | Latest Food, Drink, Restaurant, and Recipes News | Fox News](http://www.foxnews.com/food-drink.html)
<http://www.foxnews.com/food-drink.html>
3ce660e0d7455bcd4a087cd8149ec44d.html
Food and Drink brings you the latest news on FOXNews.com. Topics include delicious recipes, advice from food experts, hot restaurants, party tips, and menus.

- Screenshot of the actual webpage that opens when clicking on one of the result's link.

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US | Fox News

www.foxnews.com/us.html

U.S. World Opinion Politics Entertainment Business Lifestyle TV Radio More ▾

Hot Topics Syrian military threat | Mueller protection bill | Family possibly perished

Watch TV Login

U.S.



U.S Clips

- VIDEO** College graduates can't keep their books in order  01:12
- VIDEO** US Attorneys Office unseals Backpage indictment  01:12
- VIDEO** Nice catch! Bald eagle appears to pull fish from frozen pond  00:15
- VIDEO** 5-year-old with cerebral palsy recites Pledge of Allegiance  00:30

The screenshot shows a web browser displaying the Fox News homepage. The main headline is "Cop who died after crash was in separate crash less than hour earlier, police say". Below it, there are several other news items with small images and descriptions:

- Kentucky man leaves \$190G in will for local animal shelter: 'We were ecstatic'** (KENTUCKY, 10 mins ago)
- Nurse fired, arrested after patient dies at Texas hospital** (CRIME, 11 mins ago)
- College graduates can't keep their books in order** (VIDEO, 14 mins ago)
- Sen. Ted Cruz: Facebook has been censoring or suppressing conservative speech for years** (FACEBOOK, 15 mins ago)

On the right side, there are three video thumbnails under the heading "Trending in US":

- Dirt biker falls off motorcycle, hops on another to flee cop (VIDEO, 00:59)
- Tenants race to escape apartment building fire (VIDEO, 00:39)
- Dream comes true for 6-year-old battling cancer (VIDEO, 00:48)

4. URL list table

▪ Bitcoin Blockchain

Lucene	PageRank
http://www.foxnews.com/tech/2018/03/01/lawsuit-alleges-bitcoin-pioneer-became-thief.html	http://www.foxnews.com
http://www.foxnews.com/tech/2018/03/01/lawsuit-alleges-bitcoin-pioneer-became-thief.html	http://www.foxnews.com/category/tech/topics/computers.html
http://www.foxnews.com/tech/2018/03/01/lawsuit-alleges-bitcoin-pioneer-became-thief.html	http://www.foxnews.com/category/tech/topics/computers.html
http://www.foxnews.com/politics/2018/02/07/arizona-might-allow-people-to-pay-taxes-via-bitcoin.html	http://www.foxnews.com
http://www.foxnews.com/tech/2018/01/24/hackers-steal-as-much-as-10-percent-new-cryptocurrency-funds.html	http://www.foxnews.com/tech/2018/03/15/canadian-ceo-arrested-in-us-on-charges-supplying-encrypted-phones-to-mexican-cartels.html
http://www.foxnews.com/tech/2018/03/01/lawsuit-alleges-bitcoin-pioneer-became-thief.html	http://www.foxnews.com/tech/2018/03/02/equifax-breach-worsens-sparking-more-concerns-about-consumers-data.html

http://www.foxnews.com/tech/2018/03/01/lawsuit-alleges-bitcoin-pioneer-became-thief.html	http://www.foxnews.com/tech/2018/03/02/biggest-ddos-attack-on-record-hits-github.html
http://www.foxnews.com/tech/2018/01/24/hackers-steal-as-much-as-10-percent-new-cryptocurrency-funds.html	http://www.foxnews.com/tech/2018/02/22/hackers-hijack-tesla-system-in-bold-cryptocurrency-attack.html
http://www.foxnews.com/tech/2018/03/03/smartwatches-better-tv-reception-bitcoin-investments-and-more-tech-q.html	http://www.foxnews.com/tech/2018/02/04/tech-q-dueling-assistants-outsmarting-hackers-blocking-texts-and-more.html
http://www.foxnews.com/tech/2018/03/03/smartwatches-better-tv-reception-bitcoin-investments-and-more-tech-q.html	http://www.foxnews.com/category/tech/topics/cybercrime.html

■ Stephen Hawking

Lucene	PageRank
http://www.foxnews.com/science/slideshow/2018/03/14/look-back-on-life-renowned-physicist-stephen-hawking.html	http://www.foxnews.com/science.html
http://www.foxnews.com/science/slideshow/2018/03/14/look-back-on-life-renowned-physicist-stephen-hawking.html	http://www.foxnews.com/opinion.html
http://www.foxnews.com/science/2018/03/16/how-stephen-hawking-transformed-our-understanding-black-holes.html	http://www.foxnews.com/entertainment.html
http://www.foxnews.com/science/2018/03/16/how-stephen-hawking-transformed-our-understanding-black-holes.html	http://www.foxnews.com/category/science/natural-science.html
http://www.foxnews.com/science/2018/03/14/stephen-hawking-unlocked-universe-possibilities-nasa-says.html	http://www.foxnews.com/category/science/air-and-space.html
http://www.foxnews.com/science/2018/03/14/stephen-hawking-unlocked-universe-possibilities-nasa-says.html	http://www.foxnews.com/category/world/global-economy.html
http://www.foxnews.com/science/2018/03/14/stephen-hawking-famed-physicist-dead-at-76.html	http://www.foxnews.com/category/us/personal-freedoms.html
http://www.foxnews.com/science/2018/03/14/stephen-hawking-famed-physicist-dead-at-76.html	http://www.foxnews.com/category/tech/topics/security.html

http://www.foxnews.com/tech/2018/03/14/stephen-hawking-tech-execs-remember-legacy-famed-physicist.html	http://www.foxnews.com/science.html
http://www.foxnews.com/tech/2018/03/14/stephen-hawking-tech-execs-remember-legacy-famed-physicist.html	http://www.foxnews.com/entertainment.html

▪ Falcon Heavy

Lucene	PageRank
http://www.foxnews.com/science/2018/03/12/how-spacex-falcon-heavy-rocket-compares-to-elon-musks-other-powerful-spacecraft.html	http://www.foxnews.com/weather/your-weather/index.html
http://www.foxnews.com/science/2018/03/12/how-spacex-falcon-heavy-rocket-compares-to-elon-musks-other-powerful-spacecraft.html	http://www.foxnews.com/category/world/disasters.html
http://www.foxnews.com/science/2018/02/06/spacex-falcon-heavy-rocket-launches-successfully.html	http://www.foxnews.com/category/tech/topics/security.html
http://www.foxnews.com/science/2018/03/12/how-spacex-falcon-heavy-rocket-compares-to-elon-musks-other-powerful-spacecraft.html	http://www.foxnews.com/category/politics/elections.html
http://www.foxnews.com/science/2018/03/12/how-spacex-falcon-heavy-rocket-compares-to-elon-musks-other-powerful-spacecraft.html	http://www.foxnews.com/category/health/mental-health.html
http://www.foxnews.com/science/2018/03/12/how-spacex-falcon-heavy-rocket-compares-to-elon-musks-other-powerful-spacecraft.html	http://www.foxnews.com/weather/index.html
http://www.foxnews.com/science/2018/02/06/spacex-falcon-heavy-rocket-launches-successfully.html	http://www.foxnews.com/weather/index.html
http://www.foxnews.com/science/2018/02/06/spacex-falcon-heavy-launch-preview-what-when-and-why.html	http://www.foxnews.com/category/tech/topics/security.html
http://www.foxnews.com/science/2018/02/06/spacex-falcon-heavy-rocket-launches-successfully.html	http://www.foxnews.com/category/politics/elections.html

http://www.foxnews.com/science/2018/02/07/elon-musk-has-launched-falcon-heavy-but-how-long-does-it-take-to-get-to-mars.html	http://www.foxnews.com/category/health/mental-health.html
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■ Syrian War

Lucene	PageRank
http://www.foxnews.com/world/2018/03/15/syria-marks-7-years-war-hundreds-leave-besieged-enclave.html	http://www.foxnews.com/world.html
http://www.foxnews.com/world/2018/03/15/syria-marks-7-years-war-hundreds-leave-besieged-enclave.html	http://www.foxnews.com/us.html
http://www.foxnews.com/world/2018/03/15/syria-marks-7-years-war-hundreds-leave-besieged-enclave.html	http://www.foxnews.com/science.html
http://www.foxnews.com/world/2018/03/15/syria-marks-7-years-war-hundreds-leave-besieged-enclave.html	http://www.foxnews.com/opinion.html
http://www.foxnews.com/world/2018/03/15/syria-marks-7-years-war-hundreds-leave-besieged-enclave.html	http://www.foxnews.com/shows.html
http://www.foxnews.com/opinion/2018/03/16/rep-adam-kinzinger-it-s-for-us-to-lead-on-syria-failure-to-act-is-failure-by-all-us.html	http://www.foxnews.com/weather/your-weather/index.html
http://www.foxnews.com/opinion/2018/03/16/rep-adam-kinzinger-it-s-for-us-to-lead-on-syria-failure-to-act-is-failure-by-all-us.html	http://www.foxnews.com/auto.html
http://www.foxnews.com/politics/2017/03/10/new-trump-travel-ban-cant-be-enforced-on-syrian-family-trying-to-flee-to-wisconsin-judge-says.html	http://www.foxnews.com/category/science/archaeology.html
http://www.foxnews.com/opinion/2018/03/16/rep-adam-kinzinger-it-s-for-	http://www.foxnews.com/category/science/archaeology/dinosaurs.html

us-to-lead-on-syria-failure-to-act-is-failure-by-all-us.html	
http://www.foxnews.com/world/2017/04/08/in-istanbul-little-syria-refugees-want-more-from-us.html	http://www.foxnews.com/category/science/planet-earth.html

■ LA Rams

Lucene	PageRank
http://www.foxnews.com/sports/2018/01/24/rams-add-former-ucla-offensive-coordinator-jedd-fisch-to-staff.html	http://www.foxnews.com
http://www.foxnews.com/sports/2018/01/24/rams-add-former-ucla-offensive-coordinator-jedd-fisch-to-staff.html	http://www.foxnews.com/tech.html
http://www.foxnews.com/sports/2018/01/24/rams-add-former-ucla-offensive-coordinator-jedd-fisch-to-staff.html	http://www.foxnews.com/lifestyle.html
http://www.foxnews.com/sports/2017/01/25/jim-kelly-draws-on-experience-in-campaign-against-cancer.html	http://www.foxnews.com/category/style-and-beauty.html
http://www.foxnews.com/sports/2018/01/24/rams-add-former-ucla-offensive-coordinator-jedd-fisch-to-staff.html	http://www.foxnews.com/category/politics/elections.html
http://www.foxnews.com/sports/2018/01/24/rams-add-former-ucla-offensive-coordinator-jedd-fisch-to-staff.html	http://www.foxnews.com/tech.html
http://www.foxnews.com/auto/2018/01/23/tesla-allegedly-on-autopilot-rams-into-back-fire-truck.html	http://www.foxnews.com/lifestyle.html
http://www.foxnews.com/us/2018/02/04/super-bowl-protesters-to-take-knee-in-minneapolis-with-rally-against-police-brutality.html	http://www.foxnews.com/category/style-and-beauty.html
http://www.foxnews.com/us/2018/02/04/super-bowl-protesters-to-take-knee-in-minneapolis-with-rally-against-police-brutality.html	http://www.foxnews.com/category/politics/elections.html
http://www.foxnews.com/us/2018/01/29/off-duty-cop-shoots-driver-attempting-to-run-over-pedestrians-philadelphia-police-say.html	http://www.foxnews.com/shows/cavuto-live.html

■ Black Panther

Lucene	PageRank
http://www.foxnews.com/entertainment/2018/02/02/stan-lee-95-feeling-great-after-return-from-la-hospital.html	http://www.foxnews.com/us.html
http://www.foxnews.com/entertainment/2018/02/02/stan-lee-95-feeling-great-after-return-from-la-hospital.html	http://www.foxnews.com/science.html
http://www.foxnews.com/entertainment/2018/02/02/stan-lee-95-feeling-great-after-return-from-la-hospital.html	http://www.foxnews.com/lifestyle.html
http://www.foxnews.com/entertainment/2018/02/28/stan-lee-robbed-1-4m-report-says.html	http://www.foxnews.com/food-drink.html
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http://www.foxnews.com/us/2018/03/15/fiu-bridge-collapse-sparks-reaction-from-politicians-lawmakers.html	http://www.foxnews.com/food-drink.html

■ Austin Bombings

Lucene	PageRank
http://www.foxnews.com/us/2018/03/14/austin-package-bomb-victim-remembered-as-boy-who-could-have-accomplished-anything.html	http://www.foxnews.com/tech.html
http://www.foxnews.com/us/2018/03/14/austin-package-bomb-victim-remembered-as-boy-who-could-have-accomplished-anything.html	http://www.foxnews.com/category/health/cancer.html

http://www.foxnews.com/us/2018/03/14/austin-package-bomb-victim-remembered-as-boy-who-could-have-accomplished-anything.html	http://www.foxnews.com/category/us/terror.html
http://www.foxnews.com/us/2018/03/15/austin-package-bombs-probably-pretty-simple-components-could-lead-cops-to-suspect-experts-say.html	http://www.foxnews.com/category/tech/topics/innovation.html
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http://www.foxnews.com/us/2018/03/14/austin-package-bomb-victim-remembered-as-boy-who-could-have-accomplished-anything.html	http://www.foxnews.com/category/tech/topics/innovation.html
http://www.foxnews.com/us/2018/03/15/austin-package-bombs-probably-pretty-simple-components-could-lead-cops-to-suspect-experts-say.html	http://www.foxnews.com/category/us/terror.html
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http://www.foxnews.com/us/2018/03/15/austin-package-bombs-probably-pretty-simple-components-could-lead-cops-to-suspect-experts-say.html	http://www.foxnews.com/category/tech/topics/sxsw.html

▪ Paris Climate Deal

Lucene	PageRank
http://www.foxnews.com/politics/2017/12/06/post-trump-un-climate-pact-supporters-switch-to-state-and-local-strategy.html	http://www.foxnews.com/world.html
http://www.foxnews.com/us/2017/09/16/eu-officials-says-us-wont-reject-paris-climate-treaty-but-white-house-denies-statement.html	http://www.foxnews.com/tech.html

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http://www.foxnews.com/politics/2017/12/06/post-trump-un-climate-pact-supporters-switch-to-state-and-local-strategy.html	http://www.foxnews.com/lifestyle.html
http://www.foxnews.com/politics/2017/12/06/post-trump-un-climate-pact-supporters-switch-to-state-and-local-strategy.html	http://www.foxnews.com/entertainment.html
http://www.foxnews.com/opinion/2017/12/12/heres-how-trump-could-make-quick-and-complete-exit-from-paris-climate-agreement-right-now.html	http://www.foxnews.com/food-drink.html
http://www.foxnews.com/world/2017/07/08/g-20-summit-us-rejects-paris-climate-accord-as-19-members-reaffirm.html	http://www.foxnews.com/auto.html
http://www.foxnews.com/opinion/2017/06/06/cal-thomas-secular-progressives-reveal-again-why-are-not-fit-to-lead-anything.html	http://www.foxnews.com/category/science/archaeology/dinosaurs.html
http://www.foxnews.com/category/us/environment/climate-change.html	http://www.foxnews.com/category/health/heart-health.html
http://www.foxnews.com/category/world/environment/climate-change.html	http://www.foxnews.com/category/science/planet-earth.html

5. Overlap graph

query	overlap
Bitcoin Blockchain	0
Stephen Hawking	0
Falcon Heavy	0
Syrian War	0
LA Rams	0
Black Panther	0
Austin Bombings	0
Paris Climate Deal	0

