

## **HOMEWORK 4 CSCI 572 REPORT**

### **2.I. Steps followed to complete the assignment:**

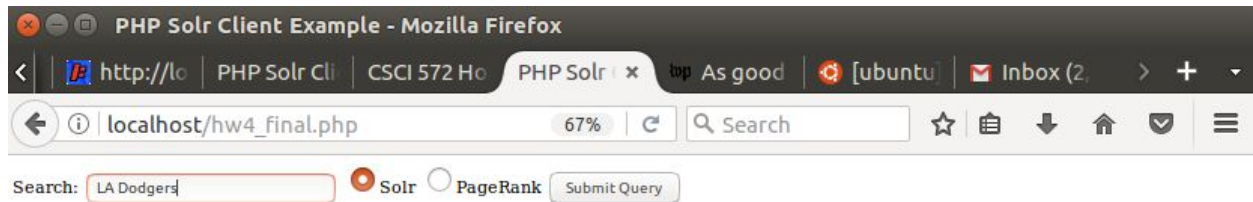
1. Installed Ubuntu Operating system on my laptop with the required amount of memory, virtual hard drive, dynamic allocation of storage and starting drive size. Also added guest additions.
2. Installed Solr and created a new core names csci572.
3. Tika used to extract contents from the documents to be indexed.
4. In the core xml files managed-schema and solrconfig.xml are modified as per the requirements to ensure text content extracted are mapped correctly.
5. Indexing performed on Washington Post website html files using solr default algorithm.
6. This is then checked on the Solr UI for the required query given in the query field, the response is in json format with some notable fields extracted.
7. Install Apache web server with PHP and make call to solr which gives the json response back to the front end. And print the top 10 results from the response as displayed on a search page.
8. Lucene algorithm used which is a combination of vector space model and boolean model based on relevance to the client's query.
9. We also use the PageRank algorithm to manipulate ranking of a document in solr.
  - I. Using the crawl data given we write a java program using jsoup libraries to extract the incoming and outgoing links and create an edgelist.txt
  - II. Using the edgelist.txt created and networkx python libraries we compute the pagerank score for each html page and store it in the external\_pageRankFile.txt. Parameters configured for pageRank algorithm computation are:  
alpha=0.85, personalization=None, max\_iter=30, tol=1e-06, nstart=None, weight='weight', dangling=None
  - III. We can run this pageRank algorithm in solr UI by changing the sort field to ex.pageRankFile desc and check if the results are different from the query run on Lucene.
10. Hence we also make changes to html page to provide options to client to choose either solr Lucene or the pageRank algorithm. And set all the query parameters and fetch results from solr.
11. The results also have a clickable title which opens the actual webpage. Results also contains ID, URL and description.

### **2.II. Why some pages have higher PageRank values than others?**

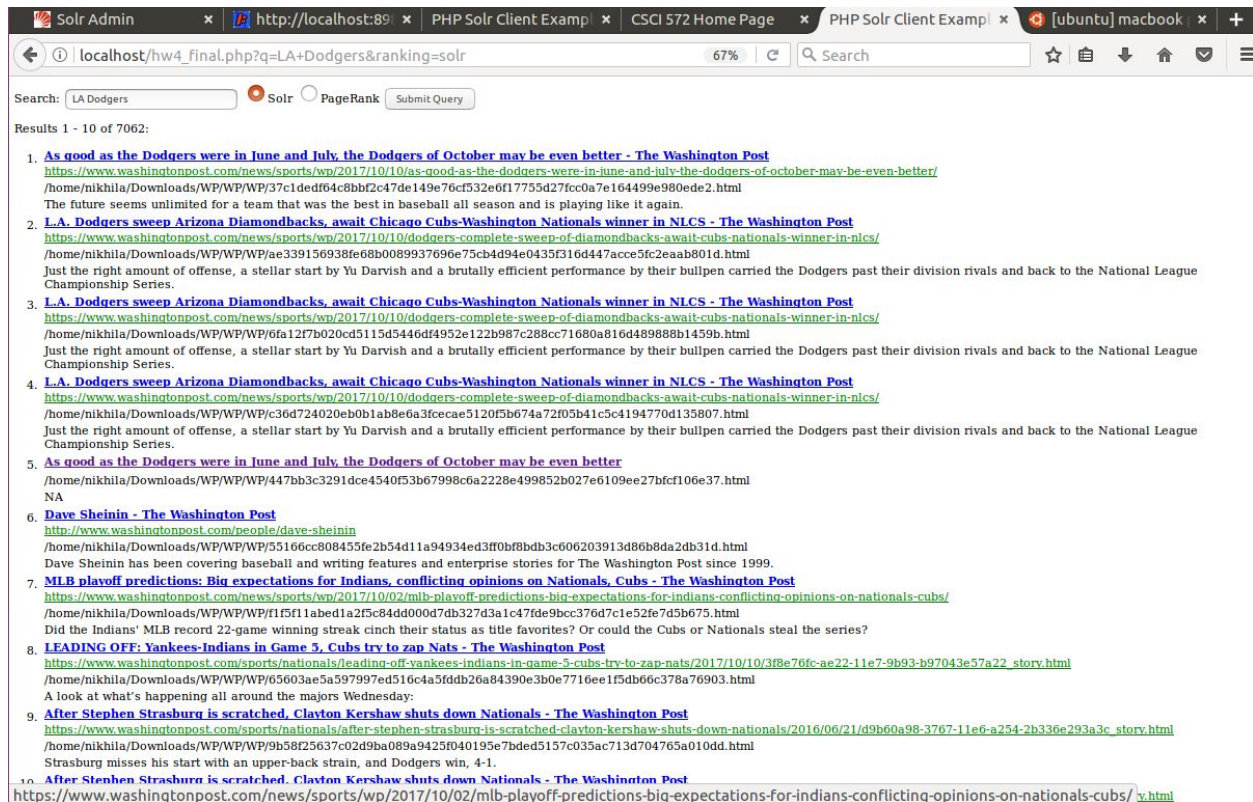
PageRank as the definition suggests is a way of measuring the importance of website pages which works by counting the number and the quality of links to a page. The more important it is the more links it receives from other websites. A PageRank of 0.5 means there is a 50% chance that a person clicking on a random link will be directed to the document with the 0.5 PageRank. Hence some webpages have higher pagerank score because of having higher number of incoming links to the page or clicking on random links are redirected to this webpage more than other webpages.

## 2.III. Document the flow for any single query using screenshots:

### 1.Screenshot of initial page where you enter the query in input box:



### 2.Screenshot of page which shows the results for Lucene(Default).: Given the query:LA Dodgers



### 3. Screenshot of page which shows the results for PageRank: Given the query: LA Dodgers

Solr Admin x http://localhost:89... x PHP Solr Client Examp... x CSCI 572 Home Page x PHP Solr Client Examp... x [ubuntu] macbook x +

localhost/hw4\_final.php?q=LA+Dodgers&ranking=PageRank 67% Search

Search: LA Dodgers Solr PageRank Submit Query

Results 1 - 10 of 7062:

- Black man attacked by white supremacists in Charlottesville faces felony charge - The Washington Post**  
[https://www.washingtonpost.com/local/the-brutal-beating-of-black-man-by-white-supremacists-still-rolls-charlottesville/2017/10/10/e5994132-a515-11e7-8cfe-d5b912fab9\\_story.html](https://www.washingtonpost.com/local/the-brutal-beating-of-black-man-by-white-supremacists-still-rolls-charlottesville/2017/10/10/e5994132-a515-11e7-8cfe-d5b912fab9_story.html)  
/home/nikhila/Downloads/WP/WP/cabb342a183d7ed9e38e59704ca3fc5d7371ef456e61bc31a5cae0339e80722c.html  
DeAndre Harris, pummeled in a parking garage, was charged with unlawful wounding, prompting outrage from the activists searching for his attackers
- Israel hacked Kaspersky, then tipped the NSA that its tools had been breached - The Washington Post**  
[https://www.washingtonpost.com/world/national-security/israel-hacked-kaspersky-then-tipped-the-nsa-that-its-tools-had-been-breached/2017/10/10/d48ce774-aa95-11e7-850e-2bdd1236be5d\\_story.html](https://www.washingtonpost.com/world/national-security/israel-hacked-kaspersky-then-tipped-the-nsa-that-its-tools-had-been-breached/2017/10/10/d48ce774-aa95-11e7-850e-2bdd1236be5d_story.html)  
/home/nikhila/Downloads/WP/WP/7435912aa3d604a5f515b6dc6a5efb8dd161a700e9c21772e22fc65c78dc34ba.html  
The Russian cybersecurity firm is in the spotlight because of suspicions its products facilitate espionage.
- What we still don't know about the Las Vegas shooting - The Washington Post**  
[https://www.washingtonpost.com/national/unanswered-questions-loom-over-las-vegas-concert-massacre/2017/10/10/26963648-adf6-11e7-a908-a3470754bbb9\\_story.html](https://www.washingtonpost.com/national/unanswered-questions-loom-over-las-vegas-concert-massacre/2017/10/10/26963648-adf6-11e7-a908-a3470754bbb9_story.html)  
/home/nikhila/Downloads/WP/WP/2a474b4c2d96cc7dfc53f6b2cf67388c46efa021279ef3a440bd01a0a3b316f.html  
A new police timeline indicates that the guard was shot six minutes before Stephen Paddock attacked the crowd below, raising questions about law enforcement response.
- Robert Mueller can't save us - The Washington Post**  
[https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d\\_story.html](https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html)  
/home/nikhila/Downloads/WP/WP/WP/f4d95d332d722154d3b1d87a3b3e9d3d339d9fa9a69290ebafe3d864356c235e.html  
The special counsel is the anti-Trump. But our problems are beyond the scope of his investigation.
- U.S. moves to ban Kaspersky software in federal agencies amid concerns of Russian espionage - The Washington Post**  
[https://www.washingtonpost.com/world/national-security/us-to-ban-use-of-kaspersky-software-in-federal-agencies-amid-concerns-of-russian-espionage/2017/09/13/36b717d0-989e-11e7-82e4-f1076f6d6152\\_story.html](https://www.washingtonpost.com/world/national-security/us-to-ban-use-of-kaspersky-software-in-federal-agencies-amid-concerns-of-russian-espionage/2017/09/13/36b717d0-989e-11e7-82e4-f1076f6d6152_story.html)  
/home/nikhila/Downloads/WP/WP/7a0336998fd37b2cbc35293046bfb257a0b560c822c0d36b1e59e0fd84b07f1.html  
The Department of Homeland Security issued a directive barring use of the Russian company's product.
- The NSA has its own team of elite hackers - The Washington Post**  
<https://www.washingtonpost.com/news/the-switch/wp/2013/08/29/the-nsa-has-its-own-team-of-elite-hackers/>  
/home/nikhila/Downloads/WP/WP/WP/75f6fa651d25f4735c921063372a44d339772cfedab2dffff195ab8ba067b655.html  
And some of them like to brag about it on LinkedIn.
- Supreme Court dismisses case against Trump's expired travel ban - The Washington Post**  
[https://www.washingtonpost.com/politics/courts\\_law/supreme-court-dismisses-case-against-trumps-expired-travel-ban/2017/10/10/2ae82d6-ad37-11e7-be94-fabb0f1e9ffb\\_story.html](https://www.washingtonpost.com/politics/courts_law/supreme-court-dismisses-case-against-trumps-expired-travel-ban/2017/10/10/2ae82d6-ad37-11e7-be94-fabb0f1e9ffb_story.html)  
/home/nikhila/Downloads/WP/WP/WP/9f66b67eb7ec9f2632a664a8572341c7504466c926f3058d2a203ff9bb8ca5d.html  
Justices also tell appeals court to vacate its earlier ruling.
- Why Chicago's soda tax fizzled after two months — and what it means for the anti-soda movement - The Washington Post**  
<https://www.washingtonpost.com/news/wnk/wp/2017/10/10/why-chicagos-soda-tax-fizzled-after-two-months-and-what-it-means-for-the-anti-soda-movement/>  
/home/nikhila/Downloads/WP/WP/WP/8d200082db924d8105d51cf9efd9f38a6a14bea086c77e39de59e9cabf543aa7.html  
Critics say the collapse of the Cook County tax is proof the national soda tax movement is losing its momentum.
- 'They took too damn long': Inside the police response to the Orlando shooting - The Washington Post**  
[https://www.washingtonpost.com/world/national-security/they-took-too-damn-long-inside-the-police-response-to-the-orlando-shooting/2016/08/01/67a66130-5447-11e6-88eb-7dda4e2f2aee\\_story.html](https://www.washingtonpost.com/world/national-security/they-took-too-damn-long-inside-the-police-response-to-the-orlando-shooting/2016/08/01/67a66130-5447-11e6-88eb-7dda4e2f2aee_story.html)  
/home/nikhila/Downloads/WP/WP/WP/8f9fc9b9bd07ee1c4d6ddba0b32421fa44c4d774f7bc59cb89eef32cda92a8ff.html  
Within minutes of the shooting, police entered the Pulse nightclub and outnumbered Omar Mateen. It would take nearly three more hours before he was killed.
- Frantic switchboard calls, geometry of fire, led police to killer on Mandalay Bay's 32nd floor - The Washington Post**  
[https://www.washingtonpost.com/national/frantic-switchboard-calls-geometry-of-fire-led-police-to-killer-on-mandalay-bays-32nd-floor/2017/10/03/a70857ca-a87b-11e7-b3aa-e0a7a1441a38\\_story.html](https://www.washingtonpost.com/national/frantic-switchboard-calls-geometry-of-fire-led-police-to-killer-on-mandalay-bays-32nd-floor/2017/10/03/a70857ca-a87b-11e7-b3aa-e0a7a1441a38_story.html)  
/home/nikhila/Downloads/WP/WP/WP/0f042481c11576c1a7f25f931b0a0c94e50cd05ff45e02f8de756e99; https://www.washingtonpost.com/politics/ad37-11e7-be94-fabb0f1e9ffb\_story.html

### 4. Screenshot of the actual webpage that opens when clicking on one of the result's link: Given the query: LA Dodgers i. First link in PageRank results:

Solr Admin x http://localhost x PHP Solr Client Ex: x CSCI 572 Home Pag x PHP Solr Client Ex: x bp Black man attac x [ubuntu] macb x +

https://www.washingtonpost.com/local/the-brutal-beating-of-black-man-by-white-suj Search

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## Black man attacked by white supremacists in Charlottesville faces felony charge

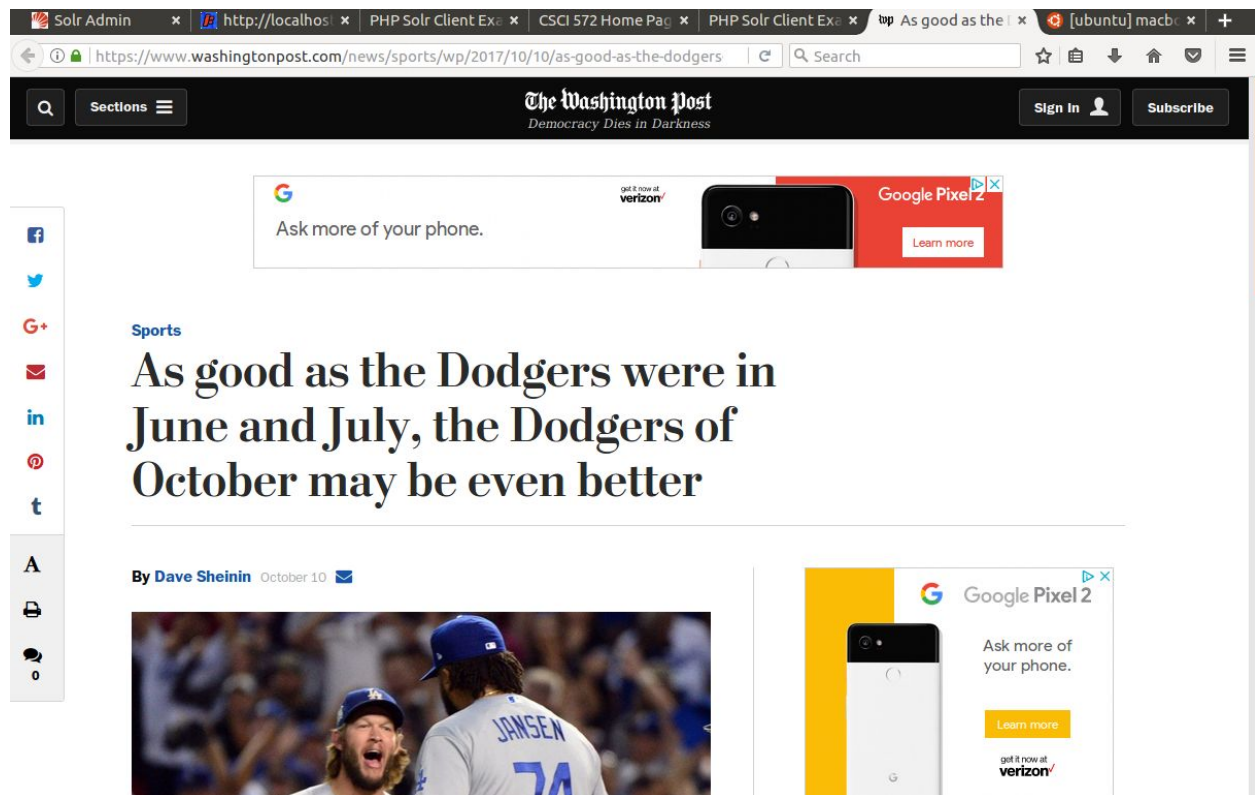
By Ian Shapira and Derek Hawkins October 11

The black man beaten in a Charlottesville parking garage by white supremacists after a "Unite the Right" rally has been charged with a crime in connection with the incident, even as police arrested a third person accused of kicking him to the ground and pummeling him.

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ii. First link in default solr Lucene results:





## 2.IV. Table containing list of URLs of the top ten results produced by both ranking methods for each query:

### Query 1 - Elon Musk

Query	Solr Lucene	PageRank
Elon Musk	<a href="http://www.washingtonpost.com/video/business/technology/nasa-completes-203rd-spacewalk-on-the-international-space-station/2017/10/05/4cf1b276-a9ec-11e7-9a98-07140d2eed02_video.html">http://www.washingtonpost.com/video/business/technology/nasa-completes-203rd-spacewalk-on-the-international-space-station/2017/10/05/4cf1b276-a9ec-11e7-9a98-07140d2eed02_video.html</a>	<a href="http://www.washingtonpost.com/business/technology/">http://www.washingtonpost.com/business/technology/</a>
	<a href="https://www.washingtonpost.com/news/the-switch/wp/2017/10/06/why-musk-is-pitching-solar-panels-to-puerto-rico-even-as-residents-struggle-to-get-clean-water/">https://www.washingtonpost.com/news/the-switch/wp/2017/10/06/why-musk-is-pitching-solar-panels-to-puerto-rico-even-as-residents-struggle-to-get-clean-water/</a>	<a href="https://www.washingtonpost.com/pbhttp://www.washingtonpost.com/video/topic/topnews">https://www.washingtonpost.com/pbhttp://www.washingtonpost.com/video/topic/topnews</a>
	<a href="https://www.washingtonpost.com/amphtml/news/the-switch/wp/2017/10/06/why-musk-is-pitching-solar-panels-to-puerto-rico-even-as-residents-struggle-to-get-clean-water/">https://www.washingtonpost.com/amphtml/news/the-switch/wp/2017/10/06/why-musk-is-pitching-solar-panels-to-puerto-rico-even-as-residents-struggle-to-get-clean-water/</a>	<a href="http://www.washingtonpost.com/people/brian-fung">http://www.washingtonpost.com/people/brian-fung</a>
	<a href="http://www.washingtonpost.com/people/chris">http://www.washingtonpost.com/people/chris</a>	<a href="http://www.washingtonpost.com/people/chris">http://www.washingtonpost.com/people/chris</a>

	<a href="#">stian-davenport</a>	<a href="#">stian-davenport</a>
	<a href="https://www.washingtonpost.com/politics/inside-trumps-climate-decision-after-fiery-debate-he-stayed-where-hes-always-been/2017/06/01/e4acb27e-46db-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/inside-trumps-climate-decision-after-fiery-debate-he-stayed-where-hes-always-been/2017/06/01/e4acb27e-46db-11e7-bcde-624ad94170ab_story.html</a>	<a href="http://www.washingtonpost.com/video/national/orlando-police-chief-details-3-hour-stan-doff-with-shooter/2016/06/13/f1224ed2-31a2-11e6-ab9d-1da2b0f24f93_video.html">http://www.washingtonpost.com/video/national/orlando-police-chief-details-3-hour-stan-doff-with-shooter/2016/06/13/f1224ed2-31a2-11e6-ab9d-1da2b0f24f93_video.html</a>
	<a href="https://www.washingtonpost.com/pbhttp://www.washingtonpost.com/video/topic/tech">https://www.washingtonpost.com/pbhttp://www.washingtonpost.com/video/topic/tech</a>	<a href="https://www.washingtonpost.com/wp-stat/sports/high-schools/all-met/recruit-watch/boys/football/index.html">https://www.washingtonpost.com/wp-stat/sports/high-schools/all-met/recruit-watch/boys/football/index.html</a>
	<a href="https://www.washingtonpost.com/amphtml/news/innovations/wp/2017/10/02/we-understand-what-needs-to-be-fixed-tesla-says-after-bungling-model-3-production-goals/">https://www.washingtonpost.com/amphtml/news/innovations/wp/2017/10/02/we-understand-what-needs-to-be-fixed-tesla-says-after-bungling-model-3-production-goals/</a>	<a href="https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html</a>
	<a href="http://www.washingtonpost.com/video/business/technology/living-smarter-with-tech-how-to-be-a-better-family-member/2017/10/05/3c06e470-a9e4-11e7-9a98-07140d2eed02_video.html">http://www.washingtonpost.com/video/business/technology/living-smarter-with-tech-how-to-be-a-better-family-member/2017/10/05/3c06e470-a9e4-11e7-9a98-07140d2eed02_video.html</a>	<a href="http://www.washingtonpost.com/video/national/white-nationalist-richard-spencer-punched-in-the-face-on-camera/2017/01/20/e44dd490-df82-11e6-8902-610fe486791c_video.html">http://www.washingtonpost.com/video/national/white-nationalist-richard-spencer-punched-in-the-face-on-camera/2017/01/20/e44dd490-df82-11e6-8902-610fe486791c_video.html</a>
	<a href="https://www.washingtonpost.com/opinions/the-mission-to-mars-is-one-stupid-leap-for-mankind/2017/10/06/24078102-aac2-11e7-850e-2bdd1236be5d_story.html">https://www.washingtonpost.com/opinions/the-mission-to-mars-is-one-stupid-leap-for-mankind/2017/10/06/24078102-aac2-11e7-850e-2bdd1236be5d_story.html</a>	<a href="https://www.washingtonpost.com/news/work/wp/2017/06/07/now-is-the-time-for-business-leaders-to-dump-trump-for-the-good-of-the-country/">https://www.washingtonpost.com/news/work/wp/2017/06/07/now-is-the-time-for-business-leaders-to-dump-trump-for-the-good-of-the-country/</a>
	<a href="https://www.washingtonpost.com/news/innovations/wp/2017/07/28/teslas-model-3-has-mass-appeal-that-doesnt-mean-you-can-afford-it/">https://www.washingtonpost.com/news/innovations/wp/2017/07/28/teslas-model-3-has-mass-appeal-that-doesnt-mean-you-can-afford-it/</a>	<a href="https://www.washingtonpost.com/politics/inside-trumps-climate-decision-after-fiery-debate-he-stayed-where-hes-always-been/2017/06/01/e4acb27e-46db-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/inside-trumps-climate-decision-after-fiery-debate-he-stayed-where-hes-always-been/2017/06/01/e4acb27e-46db-11e7-bcde-624ad94170ab_story.html</a>

## Query 2 - Star Wars

Query	Solr Lucene	PageRank
Star Wars	<a href="https://www.washingtonpost.com/news/comic-riffs/wp/2017/10/09/star-wars-the-last-jedi-trailer-beguilingly-teases-a-young-warriors-road-ahead/">https://www.washingtonpost.com/news/comic-riffs/wp/2017/10/09/star-wars-the-last-jedi-trailer-beguilingly-teases-a-young-warriors-road-ahead/</a>	<a href="http://www.washingtonpost.com/people/jennifer-rubin">http://www.washingtonpost.com/people/jennifer-rubin</a>
	<a href="https://www.washingtonpost.com/amphtml/news/comic-riffs/wp/2017/05/25/star-wars-at-40-fans-recall-the-magic-of-seeing-the-film-during-that-first-summer/">https://www.washingtonpost.com/amphtml/news/comic-riffs/wp/2017/05/25/star-wars-at-40-fans-recall-the-magic-of-seeing-the-film-during-that-first-summer/</a>	<a href="https://www.washingtonpost.com/news/work/wp/2017/10/10/why-chicagos-soda-tax-fizzled-after-two-months-and-what-it-means-for-the-anti-soda-movement/">https://www.washingtonpost.com/news/work/wp/2017/10/10/why-chicagos-soda-tax-fizzled-after-two-months-and-what-it-means-for-the-anti-soda-movement/</a>
	<a href="https://www.washingtonpost.com/amphtml/news/comic-riffs/wp/2017/10/09/star-wars-the-last-jedi-trailer-beguilingly-teases-a-young-warriors-road-ahead/">https://www.washingtonpost.com/amphtml/news/comic-riffs/wp/2017/10/09/star-wars-the-last-jedi-trailer-beguilingly-teases-a-young-warriors-road-ahead/</a>	<a href="http://www.washingtonpost.com/people/michael-cavna">http://www.washingtonpost.com/people/michael-cavna</a>

	<a href="#">warriors-road-ahead/</a>	
	<a href="https://www.washingtonpost.com/news/arts-and-entertainment/wp/2015/12/20/how-does-the-original-1977-star-wars-review-from-the-washington-post-hold-up/">https://www.washingtonpost.com/news/arts-and-entertainment/wp/2015/12/20/how-does-the-original-1977-star-wars-review-from-the-washington-post-hold-up/</a>	<a href="https://www.washingtonpost.com/politics/a-pressure-cooker-trumps-frustration-and-fury-rupture-alliances-threaten-agenda/2017/10/09/41115744-ad0d-11e7-9e58-e6288544af98_story.html">https://www.washingtonpost.com/politics/a-pressure-cooker-trumps-frustration-and-fury-rupture-alliances-threaten-agenda/2017/10/09/41115744-ad0d-11e7-9e58-e6288544af98_story.html</a>
	<a href="https://www.washingtonpost.com/amphtml/news/comic-riffs/wp/2017/03/17/how-googles-st-patricks-day-doodle-is-built-on-a-star-wars-easter-egg/">https://www.washingtonpost.com/amphtml/news/comic-riffs/wp/2017/03/17/how-googles-st-patricks-day-doodle-is-built-on-a-star-wars-easter-egg/</a>	<a href="http://www.washingtonpost.com/people/aaron-blake">http://www.washingtonpost.com/people/aaron-blake</a>
	<a href="https://www.washingtonpost.com/news/comic-riffs/wp/2015/12/20/star-wars-the-force-awakens-fulfills-destiny-as-biggest-box-office-opener-ever-with-238-million/">https://www.washingtonpost.com/news/comic-riffs/wp/2015/12/20/star-wars-the-force-awakens-fulfills-destiny-as-biggest-box-office-opener-ever-with-238-million/</a>	<a href="https://www.washingtonpost.com/politics/top-wh-strategist-vows-a-daily-fight-for-deconstruction-of-the-administrative-state/2017/02/23/03f6b8da-f9ea-11e6-bf01-d47f8cf9b643_story.html">https://www.washingtonpost.com/politics/top-wh-strategist-vows-a-daily-fight-for-deconstruction-of-the-administrative-state/2017/02/23/03f6b8da-f9ea-11e6-bf01-d47f8cf9b643_story.html</a>
	<a href="https://www.washingtonpost.com/amphtml/news/comic-riffs/wp/2017/04/14/the-first-star-wars-the-last-jedi-trailer-reveals-luke-skywalker-as-reluctant-hero/">https://www.washingtonpost.com/amphtml/news/comic-riffs/wp/2017/04/14/the-first-star-wars-the-last-jedi-trailer-reveals-luke-skywalker-as-reluctant-hero/</a>	<a href="http://www.washingtonpost.com/sf/childrenofthefallen/story/portraits/">http://www.washingtonpost.com/sf/childrenofthefallen/story/portraits/</a>
	<a href="https://www.washingtonpost.com/news/comic-riffs/wp/2017/05/25/star-wars-at-40-fans-recall-the-magic-of-seeing-the-film-during-the-at-first-summer/">https://www.washingtonpost.com/news/comic-riffs/wp/2017/05/25/star-wars-at-40-fans-recall-the-magic-of-seeing-the-film-during-the-at-first-summer/</a>	<a href="http://www.washingtonpost.com/people/steven-goff">http://www.washingtonpost.com/people/steven-goff</a>
	<a href="https://www.washingtonpost.com/news/comic-riffs/wp/2017/05/25/star-wars-at-40-fans-recall-the-magic-of-seeing-the-film-during-the-at-first-summer/">https://www.washingtonpost.com/news/comic-riffs/wp/2017/05/25/star-wars-at-40-fans-recall-the-magic-of-seeing-the-film-during-the-at-first-summer/</a>	<a href="http://www.washingtonpost.com/people/fredrick-kunkle">http://www.washingtonpost.com/people/fredrick-kunkle</a>
	<a href="https://www.washingtonpost.com/amphtml/news/comic-riffs/wp/2017/09/07/in-loss-for-netflix-star-wars-and-marvel-films-will-migrate-to-disneys-new-streaming-service/">https://www.washingtonpost.com/amphtml/news/comic-riffs/wp/2017/09/07/in-loss-for-netflix-star-wars-and-marvel-films-will-migrate-to-disneys-new-streaming-service/</a>	<a href="http://www.washingtonpost.com/people/laura-vozzella">http://www.washingtonpost.com/people/laura-vozzella</a>

### Query 3 - North Korea

Query	Solr Lucene	PageRank
North Korea	<a href="https://www.washingtonpost.com/graphics/world/north-korea-targets/">https://www.washingtonpost.com/graphics/world/north-korea-targets/</a>	<a href="https://www.washingtonpost.com/local/the-brutal-beating-of-black-man-by-white-supremacists-still-roils-charlottesville/2017/10/10/e5994132-a515-11e7-8cfe-d5b912fab99_story.html">https://www.washingtonpost.com/local/the-brutal-beating-of-black-man-by-white-supremacists-still-roils-charlottesville/2017/10/10/e5994132-a515-11e7-8cfe-d5b912fab99_story.html</a>

	<a href="https://www.washingtonpost.com/graphics/world/north-korea-targets/">https://www.washingtonpost.com/graphics/world/north-korea-targets/</a>	<a href="http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-buy-a-car/2017/09/26/5d913dd0-995d-11e7-af6a-6555caae8dc_video.html">http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-buy-a-car/2017/09/26/5d913dd0-995d-11e7-af6a-6555caae8dc_video.html</a>
	<a href="https://www.washingtonpost.com/amphtml/opinions/some-creative-ways-to-deal-with-north-korea/2017/09/21/239585dc-9f0c-11e7-9c8d-cf053ff30921_story.html">https://www.washingtonpost.com/amphtml/opinions/some-creative-ways-to-deal-with-north-korea/2017/09/21/239585dc-9f0c-11e7-9c8d-cf053ff30921_story.html</a>	<a href="http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-throw-a-dinner-party/2017/10/03/48d75df8-a843-11e7-9a98-07140d2eed02_video.html">http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-throw-a-dinner-party/2017/10/03/48d75df8-a843-11e7-9a98-07140d2eed02_video.html</a>
	<a href="https://www.washingtonpost.com/news/theworldpost/wp/2017/10/10/to-deter-north-korea-japan-and-south-korea-should-go-nuclear/">https://www.washingtonpost.com/news/theworldpost/wp/2017/10/10/to-deter-north-korea-japan-and-south-korea-should-go-nuclear/</a>	<a href="http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-start-a-401k/2017/09/26/a15ada36-a2d5-11e7-b573-8ec86cdf1ed_video.html">http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-start-a-401k/2017/09/26/a15ada36-a2d5-11e7-b573-8ec86cdf1ed_video.html</a>
	<a href="https://www.washingtonpost.com/amphtml/world/national-security/north-korea-now-making-missile-ready-nuclear-weapons-us-analysts-say/2017/08/08/e14b882a-7b6b-11e7-9d08-b79f191668ed_story.html">https://www.washingtonpost.com/amphtml/world/national-security/north-korea-now-making-missile-ready-nuclear-weapons-us-analysts-say/2017/08/08/e14b882a-7b6b-11e7-9d08-b79f191668ed_story.html</a>	<a href="http://www.washingtonpost.com/sf/brand-connect/brand-studio/">http://www.washingtonpost.com/sf/brand-connect/brand-studio/</a>
	<a href="https://www.washingtonpost.com/graphics/2017/world/trump-shifting-alliances/">https://www.washingtonpost.com/graphics/2017/world/trump-shifting-alliances/</a>	<a href="http://www.washingtonpost.com/people/robert-barnes">http://www.washingtonpost.com/people/robert-barnes</a>
	<a href="https://www.washingtonpost.com/amphtml/news/theworldpost/wp/2017/10/10/to-deter-north-korea-japan-and-south-korea-should-go-nuclear/">https://www.washingtonpost.com/amphtml/news/theworldpost/wp/2017/10/10/to-deter-north-korea-japan-and-south-korea-should-go-nuclear/</a>	<a href="http://www.washingtonpost.com/people/ellen-nakashima">http://www.washingtonpost.com/people/ellen-nakashima</a>
	<a href="https://www.washingtonpost.com/amphtml/news/fact-checker/wp/2017/08/09/history-lesson-why-did-bill-clintons-north-korea-deal-fail/">https://www.washingtonpost.com/amphtml/news/fact-checker/wp/2017/08/09/history-lesson-why-did-bill-clintons-north-korea-deal-fail/</a>	<a href="https://www.washingtonpost.com/politics/courts_law/supreme-court-dismisses-case-against-trumps-expired-travel-ban/2017/10/10/2aef82d6-ad37-11e7-be94-fabb0f1e9ffb_story.html">https://www.washingtonpost.com/politics/courts_law/supreme-court-dismisses-case-against-trumps-expired-travel-ban/2017/10/10/2aef82d6-ad37-11e7-be94-fabb0f1e9ffb_story.html</a>
	<a href="http://www.washingtonpost.com/wp-dyn/content/article/2006/06/21/AR2006062101518_pf.html">http://www.washingtonpost.com/wp-dyn/content/article/2006/06/21/AR2006062101518_pf.html</a>	<a href="http://www.washingtonpost.com/people/david-nakamura">http://www.washingtonpost.com/people/david-nakamura</a>
	<a href="http://www.washingtonpost.com/wp-dyn/content/article/2008/10/11/AR2008101100261.html">http://www.washingtonpost.com/wp-dyn/content/article/2008/10/11/AR2008101100261.html</a>	<a href="https://www.washingtonpost.com/news/post-nation/wp/2017/10/09/fast-moving-wildfires-ravage-northern-californias-wine-country/">https://www.washingtonpost.com/news/post-nation/wp/2017/10/09/fast-moving-wildfires-ravage-northern-californias-wine-country/</a>

#### Query 4 - LA Dodgers

Query	Solr Lucene	PageRank
LA Dodgers	<a href="https://www.washingtonpost.com/news/sports/wp/2017/10/10/as-good-as-the-dodgers-were-in-june-and-july-the-dodgers-of-octobe">https://www.washingtonpost.com/news/sports/wp/2017/10/10/as-good-as-the-dodgers-were-in-june-and-july-the-dodgers-of-octobe</a>	<a href="https://www.washingtonpost.com/local/the-brutal-beating-of-black-man-by-white-supremacists-still-roils-charlottesville/2017/10/10/e">https://www.washingtonpost.com/local/the-brutal-beating-of-black-man-by-white-supremacists-still-roils-charlottesville/2017/10/10/e</a>



	<a href="#">r-may-be-even-better/</a>	<a href="#">5994132-a515-11e7-8cfe-d5b912fab99_story.html</a>
	<a href="https://www.washingtonpost.com/news/sports/wp/2017/10/10/dodgers-complete-sweep-of-diamondbacks-await-cubs-nationals-winner-in-nlcs/">https://www.washingtonpost.com/news/sports/wp/2017/10/10/dodgers-complete-sweep-of-diamondbacks-await-cubs-nationals-winner-in-nlcs/</a>	<a href="https://www.washingtonpost.com/world/national-security/israel-hacked-kaspersky-then-tipped-the-nsa-that-its-tools-had-been-breachd/2017/10/10/d48ce774-aa95-11e7-850e-2bdd1236be5d_story.html">https://www.washingtonpost.com/world/national-security/israel-hacked-kaspersky-then-tipped-the-nsa-that-its-tools-had-been-breachd/2017/10/10/d48ce774-aa95-11e7-850e-2bdd1236be5d_story.html</a>
	<a href="https://www.washingtonpost.com/news/sports/wp/2017/10/10/dodgers-complete-sweep-of-diamondbacks-await-cubs-nationals-winner-in-nlcs/">https://www.washingtonpost.com/news/sports/wp/2017/10/10/dodgers-complete-sweep-of-diamondbacks-await-cubs-nationals-winner-in-nlcs/</a>	<a href="https://www.washingtonpost.com/national/unanswered-questions-loom-over-las-vegas-concert-massacre/2017/10/10/26963648-af6-11e7-a908-a3470754bbb9_story.html">https://www.washingtonpost.com/national/unanswered-questions-loom-over-las-vegas-concert-massacre/2017/10/10/26963648-af6-11e7-a908-a3470754bbb9_story.html</a>
	<a href="https://www.washingtonpost.com/news/sports/wp/2017/10/10/dodgers-complete-sweep-of-diamondbacks-await-cubs-nationals-winner-in-nlcs/">https://www.washingtonpost.com/news/sports/wp/2017/10/10/dodgers-complete-sweep-of-diamondbacks-await-cubs-nationals-winner-in-nlcs/</a>	<a href="https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html">https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html</a>
	<a href="https://www.washingtonpost.com/amhtml/news/sports/wp/2017/10/10/as-good-as-the-dodgers-were-in-june-and-july-the-dodgers-of-october-may-be-even-better/">https://www.washingtonpost.com/amhtml/news/sports/wp/2017/10/10/as-good-as-the-dodgers-were-in-june-and-july-the-dodgers-of-october-may-be-even-better/</a>	<a href="https://www.washingtonpost.com/world/national-security/us-to-ban-use-of-kaspersky-software-in-federal-agencies-amid-concerns-of-russian-espionage/2017/09/13/36b717d0-989e-11e7-82e4-f1076fd6152_story.html">https://www.washingtonpost.com/world/national-security/us-to-ban-use-of-kaspersky-software-in-federal-agencies-amid-concerns-of-russian-espionage/2017/09/13/36b717d0-989e-11e7-82e4-f1076fd6152_story.html</a>
	<a href="http://www.washingtonpost.com/people/dave-sheinin">http://www.washingtonpost.com/people/dave-sheinin</a>	<a href="https://www.washingtonpost.com/news/the-switch/wp/2013/08/29/the-nsa-has-its-own-team-of-elite-hackers/">https://www.washingtonpost.com/news/the-switch/wp/2013/08/29/the-nsa-has-its-own-team-of-elite-hackers/</a>
	<a href="https://www.washingtonpost.com/news/sports/wp/2017/10/02/mlb-playoff-predictions-big-expectations-for-indians-conflicting-opinions-on-nationals-cubs/">https://www.washingtonpost.com/news/sports/wp/2017/10/02/mlb-playoff-predictions-big-expectations-for-indians-conflicting-opinions-on-nationals-cubs/</a>	<a href="https://www.washingtonpost.com/politics/courts_law/supreme-court-dismisses-case-against-trumps-expired-travel-ban/2017/10/10/2aef82d6-ad37-11e7-be94-fabb0f1e9ffb_story.html">https://www.washingtonpost.com/politics/courts_law/supreme-court-dismisses-case-against-trumps-expired-travel-ban/2017/10/10/2aef82d6-ad37-11e7-be94-fabb0f1e9ffb_story.html</a>
	<a href="https://www.washingtonpost.com/sports/nationals/leading-off-yankees-indians-in-game-5-cubs-try-to-zap-nats/2017/10/10/3f8e76fc-ae22-11e7-9b93-b97043e57a22_story.html">https://www.washingtonpost.com/sports/nationals/leading-off-yankees-indians-in-game-5-cubs-try-to-zap-nats/2017/10/10/3f8e76fc-ae22-11e7-9b93-b97043e57a22_story.html</a>	<a href="https://www.washingtonpost.com/news/work/wp/2017/10/10/why-chicagos-soda-tax-fizzled-after-two-months-and-what-it-means-for-the-anti-soda-movement/">https://www.washingtonpost.com/news/work/wp/2017/10/10/why-chicagos-soda-tax-fizzled-after-two-months-and-what-it-means-for-the-anti-soda-movement/</a>
	<a href="https://www.washingtonpost.com/sports/nationals/after-stephen-strasburg-is-scratched-clayton-kershaw-shuts-down-nationals/2016/06/21/d9b60a98-3767-11e6-a254-2b336e293a3c_story.html">https://www.washingtonpost.com/sports/nationals/after-stephen-strasburg-is-scratched-clayton-kershaw-shuts-down-nationals/2016/06/21/d9b60a98-3767-11e6-a254-2b336e293a3c_story.html</a>	<a href="https://www.washingtonpost.com/world/national-security/they-took-too-damn-long-inside-the-police-response-to-the-orlando-shooting/2016/08/01/67a66130-5447-11e6-88eb-7dda4e2f2aec_story.html">https://www.washingtonpost.com/world/national-security/they-took-too-damn-long-inside-the-police-response-to-the-orlando-shooting/2016/08/01/67a66130-5447-11e6-88eb-7dda4e2f2aec_story.html</a>
	<a href="https://www.washingtonpost.com/sports/nationals/after-stephen-strasburg-is-scratched-clayton-kershaw-shuts-down-nationals/2016/06/21/d9b60a98-3767-11e6-a254-2b336e293a3c_story.html">https://www.washingtonpost.com/sports/nationals/after-stephen-strasburg-is-scratched-clayton-kershaw-shuts-down-nationals/2016/06/21/d9b60a98-3767-11e6-a254-2b336e293a3c_story.html</a>	<a href="https://www.washingtonpost.com/national/frantic-switchboard-calls-geometry-of-fire-led-police-to-killer-on-mandalay-bays-32nd-floor/2017/10/03/e29857ca-a87b-11e7-b3aa-c0e2e1d41e38_story.html">https://www.washingtonpost.com/national/frantic-switchboard-calls-geometry-of-fire-led-police-to-killer-on-mandalay-bays-32nd-floor/2017/10/03/e29857ca-a87b-11e7-b3aa-c0e2e1d41e38_story.html</a>

## Query 5 - Puerto Rico

Query	Solr Lucene	PageRank
Puerto Rico	<a href="https://www.washingtonpost.com/news/post-nation/wp/2017/09/20/hurricane-maria-take-s-aim-at-puerto-rico-with-force-not-seen-in-modern-history/">https://www.washingtonpost.com/news/post-nation/wp/2017/09/20/hurricane-maria-take-s-aim-at-puerto-rico-with-force-not-seen-in-modern-history/</a>	<a href="https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html">https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html</a>
	<a href="https://www.washingtonpost.com/amphtml/politics/trump-praises-himself-for-administrations-great-job-in-puerto-rico/2017/10/03/fdb5eeb4-a83a-11e7-8ed2-c7114e6ac460_story.html">https://www.washingtonpost.com/amphtml/politics/trump-praises-himself-for-administrations-great-job-in-puerto-rico/2017/10/03/fdb5eeb4-a83a-11e7-8ed2-c7114e6ac460_story.html</a>	<a href="http://www.washingtonpost.com/people/mark-berman">http://www.washingtonpost.com/people/mark-berman</a>
	<a href="https://www.washingtonpost.com/amphtml/news/posteverything/wp/2017/09/26/puerto-rico-may-not-be-a-colony-but-its-getting-treated-that-way/">https://www.washingtonpost.com/amphtml/news/posteverything/wp/2017/09/26/puerto-rico-may-not-be-a-colony-but-its-getting-treated-that-way/</a>	<a href="https://www.washingtonpost.com/news/powerpost/">https://www.washingtonpost.com/news/powerpost/</a>
	<a href="https://www.washingtonpost.com/news/post-nation/wp/2017/09/22/at-least-6-dead-in-puerto-rico-due-to-hurricane-maria-officials-say/">https://www.washingtonpost.com/news/post-nation/wp/2017/09/22/at-least-6-dead-in-puerto-rico-due-to-hurricane-maria-officials-say/</a>	<a href="http://www.washingtonpost.com/people/aaron-c-davis">http://www.washingtonpost.com/people/aaron-c-davis</a>
	<a href="https://www.washingtonpost.com/amphtml/opinions/the-sad-suspicion-about-trumps-poor-treatment-of-puerto-rico/2017/09/26/5a54cde4-a2ef-11e7-8cfe-d5b912fab99_story.html">https://www.washingtonpost.com/amphtml/opinions/the-sad-suspicion-about-trumps-poor-treatment-of-puerto-rico/2017/09/26/5a54cde4-a2ef-11e7-8cfe-d5b912fab99_story.html</a>	<a href="http://www.washingtonpost.com/people/david-nakamura">http://www.washingtonpost.com/people/david-nakamura</a>
	<a href="https://www.washingtonpost.com/amphtml/news/posteverything/wp/2017/10/03/puerto-ricans-are-going-to-flee-if-president-trump-doesnt-fix-hurricane-relief/">https://www.washingtonpost.com/amphtml/news/posteverything/wp/2017/10/03/puerto-ricans-are-going-to-flee-if-president-trump-doesnt-fix-hurricane-relief/</a>	<a href="https://www.washingtonpost.com/news/post-nation/wp/2017/10/09/fast-moving-wildfires-ravage-northern-californias-wine-country/">https://www.washingtonpost.com/news/post-nation/wp/2017/10/09/fast-moving-wildfires-ravage-northern-californias-wine-country/</a>
	<a href="https://www.washingtonpost.com/amphtml/news/post-nation/wp/2017/09/29/san-juan-mayor-slams-trump-administration-comments-on-puerto-rico-hurricane-response/">https://www.washingtonpost.com/amphtml/news/post-nation/wp/2017/09/29/san-juan-mayor-slams-trump-administration-comments-on-puerto-rico-hurricane-response/</a>	<a href="https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html">https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html</a>
	<a href="https://www.washingtonpost.com/amphtml/news/posteverything/wp/2017/10/06/president-trump-has-no-idea-whats-happening-in-puerto-rico/">https://www.washingtonpost.com/amphtml/news/posteverything/wp/2017/10/06/president-trump-has-no-idea-whats-happening-in-puerto-rico/</a>	<a href="https://www.washingtonpost.com/opinions/an-iq-test-for-president-trump/2017/10/10/c0e586d8-adeb-11e7-a908-a3470754bbb9_story.html">https://www.washingtonpost.com/opinions/an-iq-test-for-president-trump/2017/10/10/c0e586d8-adeb-11e7-a908-a3470754bbb9_story.html</a>
	<a href="https://www.washingtonpost.com/amphtml/politics/trumps-puerto-rico-video-tells-positive-story-but-leaves-a-lot-on-cutting-room-floor/2017/10/10/b6b9d8bc-adf9-11e7-9e58-e6288544af98_story.html">https://www.washingtonpost.com/amphtml/politics/trumps-puerto-rico-video-tells-positive-story-but-leaves-a-lot-on-cutting-room-floor/2017/10/10/b6b9d8bc-adf9-11e7-9e58-e6288544af98_story.html</a>	<a href="https://www.washingtonpost.com/news/post-nation/wp/2017/10/10/pure-devastation-at-least-15-dead-as-firefighters-struggle-to-weaken-california-fires/">https://www.washingtonpost.com/news/post-nation/wp/2017/10/10/pure-devastation-at-least-15-dead-as-firefighters-struggle-to-weaken-california-fires/</a>

	<a href="https://www.washingtonpost.com/politics/trumps-puerto-rico-video-tells-positive-story-but-leaves-a-lot-on-cutting-room-floor/2017/10/10/b6b9d8bc-adf9-11e7-9e58-e6288544af98_story.html">https://www.washingtonpost.com/politics/trumps-puerto-rico-video-tells-positive-story-but-leaves-a-lot-on-cutting-room-floor/2017/10/10/b6b9d8bc-adf9-11e7-9e58-e6288544af98_story.html</a>	<a href="https://www.washingtonpost.com/blogs/plum-line/wp/2017/08/07/as-mueller-closes-in-trump-prepares-his-base-for-the-worst/">https://www.washingtonpost.com/blogs/plum-line/wp/2017/08/07/as-mueller-closes-in-trump-prepares-his-base-for-the-worst/</a>
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## Query 6 - Hurricane Harvey

Query	Solr Lucene	PageRank
Hurricane Harvey	<a href="https://www.washingtonpost.com/news/energy-environment/wp/2017/09/14/trump-says-weve-had-bigger-storms-when-asked-about-harvey-irma-and-climate-change/">https://www.washingtonpost.com/news/energy-environment/wp/2017/09/14/trump-says-weve-had-bigger-storms-when-asked-about-harvey-irma-and-climate-change/</a>	<a href="https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html">https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html</a>
	<a href="https://www.washingtonpost.com/amphtml/opinions/when-a-red-state-gets-the-blues/2017/09/05/57a5461a-9254-11e7-aace-04b862b2b3f3_story.html">https://www.washingtonpost.com/amphtml/opinions/when-a-red-state-gets-the-blues/2017/09/05/57a5461a-9254-11e7-aace-04b862b2b3f3_story.html</a>	<a href="http://www.washingtonpost.com/people/mark-berman">http://www.washingtonpost.com/people/mark-berman</a>
	<a href="http://www.washingtonpost.com/news/energy-environment/wp/category/hurricanes/">http://www.washingtonpost.com/news/energy-environment/wp/category/hurricanes/</a>	<a href="http://www.washingtonpost.com/people/phillip-rucker">http://www.washingtonpost.com/people/phillip-rucker</a>
	<a href="https://www.washingtonpost.com/news/retropolis/wp/2017/08/25/as-texas-braces-for-a-huge-hurricane-a-look-at-the-most-devastating-storms-in-u-s-history/">https://www.washingtonpost.com/news/retropolis/wp/2017/08/25/as-texas-braces-for-a-huge-hurricane-a-look-at-the-most-devastating-storms-in-u-s-history/</a>	<a href="https://www.washingtonpost.com/news/powerpost/">https://www.washingtonpost.com/news/powerpost/</a>
	<a href="https://www.washingtonpost.com/politics/trump-arrives-in-houston-to-meet-with-hurricane-harvey-survivors/2017/09/02/4194da68-8ff0-11e7-91d5-ab4e4bb76a3a_story.html">https://www.washingtonpost.com/politics/trump-arrives-in-houston-to-meet-with-hurricane-harvey-survivors/2017/09/02/4194da68-8ff0-11e7-91d5-ab4e4bb76a3a_story.html</a>	<a href="http://www.washingtonpost.com/people/aaron-c-davis">http://www.washingtonpost.com/people/aaron-c-davis</a>
	<a href="http://www.washingtonpost.com/sf/sports/wp/2017/08/31/wizards-kelly-oubre-displaced-by-hurricane-katrina-at-age-9-revisits-new-orleans/">http://www.washingtonpost.com/sf/sports/wp/2017/08/31/wizards-kelly-oubre-displaced-by-hurricane-katrina-at-age-9-revisits-new-orleans/</a>	<a href="http://www.washingtonpost.com/people/david-nakamura">http://www.washingtonpost.com/people/david-nakamura</a>
	<a href="https://www.washingtonpost.com/amphtml/local/a-tiny-dog-lost-her-home-after-the-floods-in-texas-but-that-wasnt-the-end-of-her-story/2017/10/08/286c956a-a875-11e7-b3aac0e2e1d41e38_story.html">https://www.washingtonpost.com/amphtml/local/a-tiny-dog-lost-her-home-after-the-floods-in-texas-but-that-wasnt-the-end-of-her-story/2017/10/08/286c956a-a875-11e7-b3aac0e2e1d41e38_story.html</a>	<a href="http://www.washingtonpost.com/people/michael-cavna">http://www.washingtonpost.com/people/michael-cavna</a>
	<a href="https://www.washingtonpost.com/news/democracy-post/wp/2017/08/29/the-political-lessons-americans-should-learn-from-hurricane-harvey/">https://www.washingtonpost.com/news/democracy-post/wp/2017/08/29/the-political-lessons-americans-should-learn-from-hurricane-harvey/</a>	<a href="https://www.washingtonpost.com/news/post-nation/wp/2017/10/10/gun-control-group-sues-bump-stock-makers-over-las-vegas-shooting-massacre/">https://www.washingtonpost.com/news/post-nation/wp/2017/10/10/gun-control-group-sues-bump-stock-makers-over-las-vegas-shooting-massacre/</a>

	<a href="https://www.washingtonpost.com/news/democracy-post/wp/2017/08/29/the-political-lessons-americans-should-learn-from-hurricane-harvey/">https://www.washingtonpost.com/news/democracy-post/wp/2017/08/29/the-political-lessons-americans-should-learn-from-hurricane-harvey/</a>	<a href="https://www.washingtonpost.com/politics/a-pressure-cooker-trumps-frustration-and-fury-rupture-alliances-threaten-agenda/2017/10/09/41115744-ad0d-11e7-9e58-e6288544af98_story.html">https://www.washingtonpost.com/politics/a-pressure-cooker-trumps-frustration-and-fury-rupture-alliances-threaten-agenda/2017/10/09/41115744-ad0d-11e7-9e58-e6288544af98_story.html</a>
	<a href="https://www.washingtonpost.com/news/democracy-post/wp/2017/08/29/the-political-lessons-americans-should-learn-from-hurricane-harvey/">https://www.washingtonpost.com/news/democracy-post/wp/2017/08/29/the-political-lessons-americans-should-learn-from-hurricane-harvey/</a>	<a href="https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html">https://www.washingtonpost.com/opinions/robert-mueller-cant-save-us/2017/10/10/c0422a56-a9e9-11e7-850e-2bdd1236be5d_story.html</a>

## Query 7 - iPhone X

Query	Solr Lucene	PageRank
iPhone X	<a href="https://www.washingtonpost.com/news/the-switch/wp/2017/09/19/apples-iphone-8-and-iphone-8-plus-wont-blow-you-away-but-they-re-still-solid-phones/">https://www.washingtonpost.com/news/the-switch/wp/2017/09/19/apples-iphone-8-and-iphone-8-plus-wont-blow-you-away-but-they-re-still-solid-phones/</a>	<a href="https://www.washingtonpost.com/privacy-policy/2011/11/18/glQASliaiN_story.html">https://www.washingtonpost.com/privacy-policy/2011/11/18/glQASliaiN_story.html</a>
	<a href="https://www.washingtonpost.com/news/the-switch/wp/2017/09/19/apples-iphone-8-and-iphone-8-plus-wont-blow-you-away-but-they-re-still-solid-phones/">https://www.washingtonpost.com/news/the-switch/wp/2017/09/19/apples-iphone-8-and-iphone-8-plus-wont-blow-you-away-but-they-re-still-solid-phones/</a>	<a href="https://www.washingtonpost.com/rss-terms-of-service/2012/01/16/glQAadFYAQ_story.html">https://www.washingtonpost.com/rss-terms-of-service/2012/01/16/glQAadFYAQ_story.html</a>
	<a href="https://www.washingtonpost.com/news/the-switch/wp/2017/09/19/apples-iphone-8-and-iphone-8-plus-wont-blow-you-away-but-they-re-still-solid-phones/">https://www.washingtonpost.com/news/the-switch/wp/2017/09/19/apples-iphone-8-and-iphone-8-plus-wont-blow-you-away-but-they-re-still-solid-phones/</a>	<a href="https://www.washingtonpost.com/terms-of-service/2011/11/18/glQAldiYiN_story.html">https://www.washingtonpost.com/terms-of-service/2011/11/18/glQAldiYiN_story.html</a>
	<a href="https://www.washingtonpost.com/world/national-security/fbi-paid-professional-hackers-one-time-fee-to-crack-san-bernardino-iphone/2016/04/12/5397814a-00de-11e6-9d36-33d198ea26c5_story.html">https://www.washingtonpost.com/world/national-security/fbi-paid-professional-hackers-one-time-fee-to-crack-san-bernardino-iphone/2016/04/12/5397814a-00de-11e6-9d36-33d198ea26c5_story.html</a>	<a href="https://www.washingtonpost.com/how-can-i-opt-out-of-online-advertising-cookies/2011/11/18/glQABECbiN_story.html">https://www.washingtonpost.com/how-can-i-opt-out-of-online-advertising-cookies/2011/11/18/glQABECbiN_story.html</a>
	<a href="https://www.washingtonpost.com/world/national-security/fbi-paid-professional-hackers-one-time-fee-to-crack-san-bernardino-iphone/2016/04/12/5397814a-00de-11e6-9d36-33d198ea26c5_story.html">https://www.washingtonpost.com/world/national-security/fbi-paid-professional-hackers-one-time-fee-to-crack-san-bernardino-iphone/2016/04/12/5397814a-00de-11e6-9d36-33d198ea26c5_story.html</a>	<a href="https://www.washingtonpost.com/terms-of-sale-for-print-products/2014/05/08/d60c4bc8-d6c0-11e3-aae8-c2d44bd79778_story.html">https://www.washingtonpost.com/terms-of-sale-for-print-products/2014/05/08/d60c4bc8-d6c0-11e3-aae8-c2d44bd79778_story.html</a>
	<a href="https://www.washingtonpost.com/world/national-security/fbi-paid-professional-hackers-one-time-fee-to-crack-san-bernardino-iphone/2016/04/12/5397814a-00de-11e6-9d36-33d198ea26c5_story.html">https://www.washingtonpost.com/world/national-security/fbi-paid-professional-hackers-one-time-fee-to-crack-san-bernardino-iphone/2016/04/12/5397814a-00de-11e6-9d36-33d198ea26c5_story.html</a>	<a href="https://www.washingtonpost.com/terms-of-sale-for-digital-products/2014/05/06/b7763844-cbf9-11e3-93eb-6c0037dde2ad_story.html">https://www.washingtonpost.com/terms-of-sale-for-digital-products/2014/05/06/b7763844-cbf9-11e3-93eb-6c0037dde2ad_story.html</a>

	<a href="#">3d198ea26c5_story.html</a>	
	<a href="https://www.washingtonpost.com/news/the-switch/wp/2017/08/01/the-iphone-is-all-anyone-cares-about-when-it-comes-to-apple-earnings/">https://www.washingtonpost.com/news/the-switch/wp/2017/08/01/the-iphone-is-all-anyone-cares-about-when-it-comes-to-apple-earnings/</a>	<a href="https://www.washingtonpost.com/news/ask-the-post/discussion-and-submission-guidelines/">https://www.washingtonpost.com/news/ask-the-post/discussion-and-submission-guidelines/</a>
	<a href="https://www.washingtonpost.com/news/the-switch/wp/2017/09/29/apple-looks-into-two-reports-of-iphone-8-plus-splitting-open/">https://www.washingtonpost.com/news/the-switch/wp/2017/09/29/apple-looks-into-two-reports-of-iphone-8-plus-splitting-open/</a>	<a href="https://www.washingtonpost.com/local/the-brutal-beating-of-black-man-by-white-supremacists-still-roils-charlottesville/2017/10/10/e5994132-a515-11e7-8cfe-d5b912fab99_story.html">https://www.washingtonpost.com/local/the-brutal-beating-of-black-man-by-white-supremacists-still-roils-charlottesville/2017/10/10/e5994132-a515-11e7-8cfe-d5b912fab99_story.html</a>
	<a href="https://www.washingtonpost.com/news/the-switch/wp/2017/09/29/apple-looks-into-two-reports-of-iphone-8-plus-splitting-open/">https://www.washingtonpost.com/news/the-switch/wp/2017/09/29/apple-looks-into-two-reports-of-iphone-8-plus-splitting-open/</a>	<a href="https://www.washingtonpost.com/world/national-security/israel-hacked-kaspersky-then-tipped-the-nsa-that-its-tools-had-been-breachd/2017/10/10/d48ce774-aa95-11e7-850e-2bdd1236be5d_story.html">https://www.washingtonpost.com/world/national-security/israel-hacked-kaspersky-then-tipped-the-nsa-that-its-tools-had-been-breachd/2017/10/10/d48ce774-aa95-11e7-850e-2bdd1236be5d_story.html</a>
	<a href="https://www.washingtonpost.com/news/post-nation/wp/2016/04/07/fbi-director-says-method-for-unlocking-san-bernardino-iphone-likely-works-on-narrow-slice-of-devices/">https://www.washingtonpost.com/news/post-nation/wp/2016/04/07/fbi-director-says-method-for-unlocking-san-bernardino-iphone-likely-works-on-narrow-slice-of-devices/</a>	<a href="https://www.washingtonpost.com/national/unanswered-questions-loom-over-las-vegas-concert-massacre/2017/10/10/26963648-adf6-11e7-a908-a3470754bbb9_story.html">https://www.washingtonpost.com/national/unanswered-questions-loom-over-las-vegas-concert-massacre/2017/10/10/26963648-adf6-11e7-a908-a3470754bbb9_story.html</a>

## Query 8 - Paris Climate Deal

Query	Solr Lucene	PageRank
<b>Paris Climate Deal</b>	<a href="https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html</a>	<a href="http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-buy-a-car/2017/09/26/5d913dd0-995d-11e7-af6a-6555caae8dc_video.html">http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-buy-a-car/2017/09/26/5d913dd0-995d-11e7-af6a-6555caae8dc_video.html</a>
	<a href="https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html</a>	<a href="http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-throw-a-dinner-party/2017/10/03/48d75df8-a843-11e7-9a98-07140d2eed02_video.html">http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-throw-a-dinner-party/2017/10/03/48d75df8-a843-11e7-9a98-07140d2eed02_video.html</a>
	<a href="https://www.washingtonpost.com/politics/inside-trumps-climate-decision-after-fiery-debate-he-stayed-where-hes-always-been/2017/06/01/e4acb27e-46db-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/inside-trumps-climate-decision-after-fiery-debate-he-stayed-where-hes-always-been/2017/06/01/e4acb27e-46db-11e7-bcde-624ad94170ab_story.html</a>	<a href="http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-start-a-401k/2017/09/26/a15ada36-a2d5-11e7-b573-8ec86cdf1ed_video.html">http://www.washingtonpost.com/video/entertainment/how-to-adult-how-to-start-a-401k/2017/09/26/a15ada36-a2d5-11e7-b573-8ec86cdf1ed_video.html</a>
	<a href="https://www.washingtonpost.com/politics/inside-trumps-climate-decision-after-fiery-debate-he-stayed-where-hes-always-been/2017/06/01/e4acb27e-46db-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/inside-trumps-climate-decision-after-fiery-debate-he-stayed-where-hes-always-been/2017/06/01/e4acb27e-46db-11e7-bcde-624ad94170ab_story.html</a>	<a href="http://www.washingtonpost.com/sf/brand-connect/brand-studio/">http://www.washingtonpost.com/sf/brand-connect/brand-studio/</a>



	<a href="http://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/e4acb27e-46db-11e7-bcde-624ad94170ab_story.html">ery-debate-he-stayed-where-hes-always-been/2017/06/01/e4acb27e-46db-11e7-bcde-624ad94170ab_story.html</a>	
	<a href="https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html</a>	<a href="http://www.washingtonpost.com/people/philip-rucker">http://www.washingtonpost.com/people/philip-rucker</a>
	<a href="https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html</a>	<a href="http://www.washingtonpost.com/opinions/the-posts-view/">http://www.washingtonpost.com/opinions/the-posts-view/</a>
	<a href="https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html</a>	<a href="https://www.washingtonpost.com/news/powerpost/">https://www.washingtonpost.com/news/powerpost/</a>
	<a href="https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html</a>	<a href="http://www.washingtonpost.com/people/jennifer-rubin">http://www.washingtonpost.com/people/jennifer-rubin</a>
	<a href="https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html</a>	<a href="http://www.washingtonpost.com/people/david-nakamura">http://www.washingtonpost.com/people/david-nakamura</a>
	<a href="https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html">https://www.washingtonpost.com/politics/trump-to-announce-us-will-exit-paris-climate-deal/2017/06/01/fbcb0196-46da-11e7-bcde-624ad94170ab_story.html</a>	<a href="https://www.washingtonpost.com/news/post-nation/wp/2017/10/09/fast-moving-wildfires-ravage-northern-californias-wine-country/">https://www.washingtonpost.com/news/post-nation/wp/2017/10/09/fast-moving-wildfires-ravage-northern-californias-wine-country/</a>

**2.V. An overlap graph showing the amount of overlap between the two ranking strategies for all queries:**

