

Steps followed to complete the assignment:

- 1) **Setup:** First, I installed solr (solr-7.X.X.zip) by following the quickstart guide

(<http://lucene.apache.org/solr/quickstart.html>).

Then, I started solr using: `bin/solr start`

Next, I created a core named “myexample”: `bin/create -c myexample`. Then, I modified the managed-schema as mentioned in the SolrExercise.pdf.

```
<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_" />
```

Added the `<copyField>`, in order to combine all the information from different fields into a single field, “_text_”.

- 2) **Indexing Data:** I then downloaded the crawl data for “USA today” website and submitted it to solr for indexing, using the following command:
`bin/post -c myexample -filetypes html /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data`
- 3) **EdgeList generation:** Next, I wrote a Java program to obtain the edgeList.txt file, using jsoup library (<https://jsoup.org/download>)
And added the dependency for jsoup in pom.xml of the maven project. The links were extracted using `a[href] attr(abs:href)`
- 4) **PageRank computation:** Installed the networkx library for **python3** using `pip3 install networkx`. Then, generated the graph for the edgeList.txt using the below command:
`G = nx.read_edgelist("edgeList.txt", create_using=nx.DiGraph())`

The above graph was provided as an argument to the pagerank function as:

```
pagerank(G, alpha=0.85, personalization=None, max_iter=30, tol=1e-06, nstart=None, weight='weight', dangling=None)
```

Thus pageranks for the crawl data files were computed in the form `<doc_id=pagerank val>` and written to external_pageRankFile.txt.

Then I placed the file in the data folder of the core, modified the managed-schema and solrconfig.xml as below: managed-schema changes:

```
<fieldType name="external" keyField="id" defVal="0" class="solr.ExternalFileField"/>
<field name="pageRankFile" type="external" stored="false" indexed="false"/>
```

solrconfig.xml changes: added the below two lines within `<query>` tag.

```
<listener event="newSearcher" class="org.pache.solr.schema.ExternalFileFieldRecorder" />
<listener event="firstSearcher" class="org.pache.solr.schema.ExternalFileFieldRecorder" />
```

Finally restarted the core from solr dashboard.

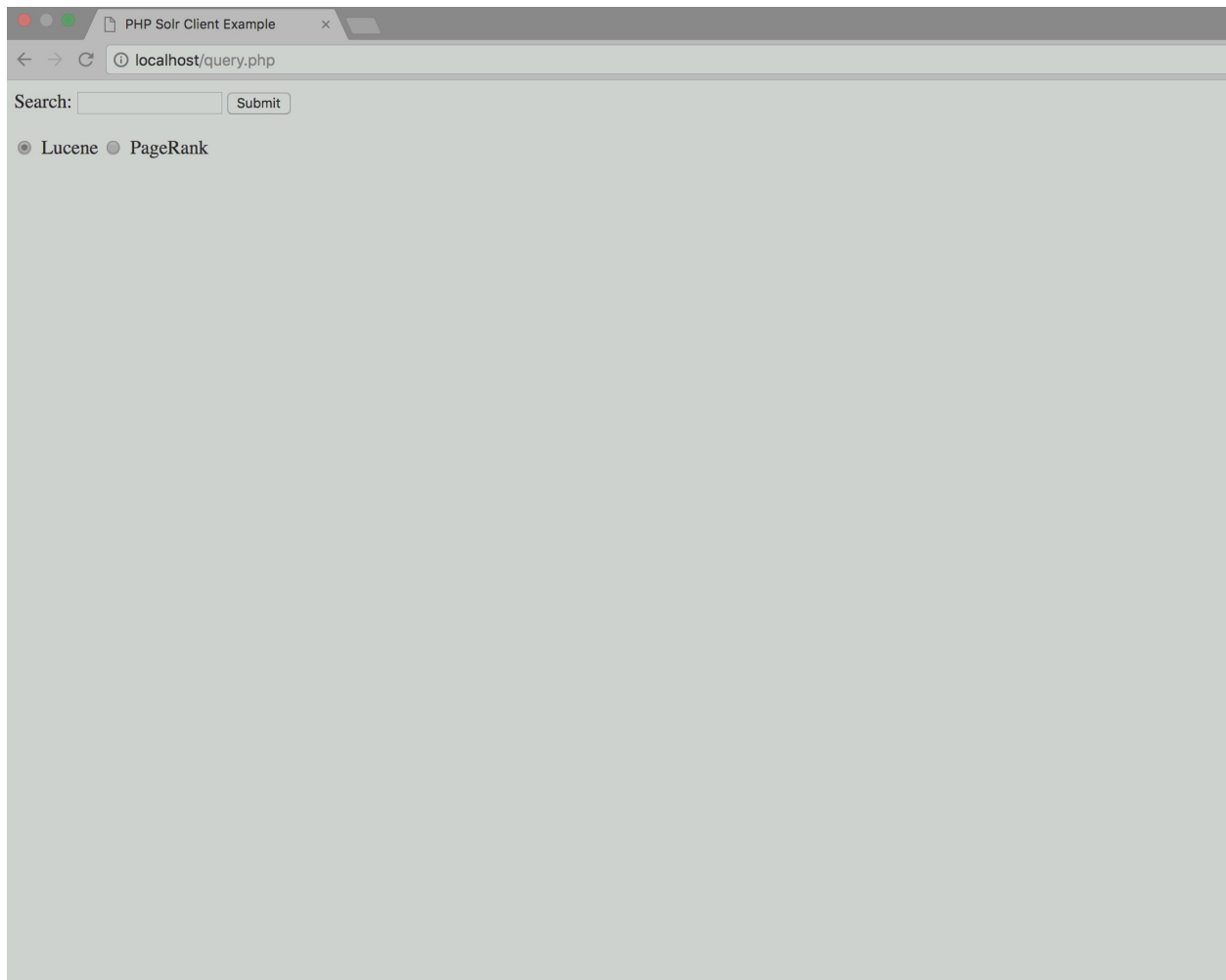
- 5) **Front End Modification:** Next, I modified the php file to handle the selection for pagerank and Lucene algorithms. I downloaded the php solr client from <https://github.com/PTCInc/solr-php-client.git> and then displayed the title, url, id, description for every result of the query.
- 6) **Comparison of Query Results:** I obtained the top ten results for both Lucene and Pagerank and compared them to find any overlaps.
- 7) **Conclusion:** No overlaps were found. Therefore, no overlap graphs were generated.

Why some pages have higher pagerank than others?

Pagerank of a page depends on number of pages that are pointing to it. I.e, as the number of pages pointing to a page P increases, its pagerank value increases. Larger the number of pages referring to a Page P, higher is the pagerank value. Its not only the number of pages, but also the relevance, quality and importance(popularity) of sites that link to a webpage, that determine high pagerank value for a webpage.

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)

PHP Solr Client Example

localhost/query.php?q=Elon+Musk&algo=Lucene

Search:

☒ Lucene ☐ PageRank

Results 1 - 10 of 182:

- | | |
|--------------------|---|
| title | Elon Musk: Artificial intelligence fight could lead to World War III |
| url | https://www.usatoday.com/story/tech/talkingtech/2017/09/05/elon-musk-artificial-intelligence-battle-most-likely-cause-wwiii/632362001/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/2cf4e790d6a6861d8d67a447c7ed8db125caf86619a72c8637cf2407805a1a97.html |
| description | CEO of Tesla, SpaceX outspoken about fears over growth of artificial intelligence. |
- | | |
|--------------------|---|
| title | Elon Musk delays self-driving truck to focus on Model 3, Puerto Rico power |
| url | https://www.usatoday.com/story/tech/talkingtech/2017/10/06/elon-musk-delays-self-driving-truck-focus-model-3-puerto-rico-power/741050001/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/07a88a8d38b69081d3269db3c8e063ed9d3511d74c2a43359b09c2afc6cae71.html |
| description | 'Production hell' for new Tesla model as well as plans to help Puerto Rico with solar power have diverted the CEO. |
- | | |
|--------------------|---|
| title | Tesla to start Model 3 electric car production, CEO Elon Musk says |
| url | https://www.usatoday.com/story/money/cars/2017/07/03/tesla-model-3/447465001/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/9f110a9bbbc922a279b48255a150739c427f8119237ace4e20243cf6d6024ec0.html |
| description | Tesla will begin production of its first mass-market electric vehicle, CEO Elon Musk said, meeting an ambitious goal that was widely questioned. |
- | | |
|--------------------|---|
| title | Elon Musk: Tesla can help fix Puerto Rico's ruined electrical grid |
| url | https://www.usatoday.com/story/money/cars/2017/10/06/elon-musk-tesla-can-help-fix-puerto-ricos-ruined-electrical-grid/738782001/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/adc3fb061e9dc4d93216b4859b936290b8ed0c401ebb73b5cb1a045499959528.html |
| description | Elon Musk pledged to meet with Puerto Rico's governor to discuss how he could help rebuild the island's ruined electrical grid with renewable energy. |
- | | |
|--------------------|---|
| title | Elon Musk: What we learned about Mars, moon base |
| url | https://www.usatoday.com/story/tech/nation-now/2017/09/29/elon-musk-speech-what-we-learned/715703001/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/562debe1f3fe93467ee6a577c7539ba3bcb12d50b274ba49e6f894842776d620.html |
| description | The SpaceX CEO admitted that cost prompted him to scale back the new rocket system's physical size in favor of a new system known as the BFR. |
- | | |
|--------------------|---|
| title | Tesla eyes hurricane-ravaged Caribbean, could shape power grids |
| url | https://www.usatoday.com/story/news/nation-now/2017/10/01/tesla-eyes-hurricane-ravaged-caribbean-could-shape-power-grids/721986001/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/70611b7aaa81412312ba6fea07c26576ac8670c85843806a8550e4d70917f976.html |
| description | Tesla eyes an expansion into storm-ravaged islands of the Caribbean – and it could become a key player in shaping grids of the future. |
- | | |
|--------------------|---|
| title | Elon Musk shares video of SpaceX rocket fails |
| url | https://www.usatoday.com/story/tech/talkingtech/2017/09/14/you-must-watch-elon-musk-video-rocket-fails/665166001/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/bec3d4634924e4c2755a907d7eca4bb90432c7440eb0bf78b5da9a99bc03f400.html |
| description | This is what happens when SpaceX rockets have trouble landing or taking off. |
- | | |
|--------------------|---|
| title | Elon Musk believes Tesla can rebuild Puerto Rico's power grid |
| url | https://www.usatoday.com/videos/money/2017/10/06/elon-musk-believes-tesla-can-rebuild-puerto-ricos-power-grid/106363188/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/9cec1470d5c37941d1efd5151985e8e00bd748d22192fa4bd2f33356aa562e6.html |
| description | Tesla founder Elon Musk believes he can rebuild Puerto Rico's power grid. |
- | | |
|--------------------|---|
| title | Amber Heard, Elon Musk make 'Cheeky' public debut together |
| url | https://www.usatoday.com/story/life/entertainment/2017/04/24/amber-heard-elon-musk-dating-public-debut-instagram-posts/100834568/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/78ff9b5d3d5a3b3b570cddec8d2883c9344276263bfa06d983e96c3e19c6b946.html |
| description | The actress and Tesla CEO, who have been spotted together, have made things IG official. |
- | | |
|--------------------|--|
| title | Tesla CEO Elon Musk: 'I don't hate Apple' |
| url | https://www.usatoday.com/story/driveon/2015/10/09/tesla-elon-musk-apple-hate/73689838/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/95d1cd38927f6f4daa4fe7155cf31a3543bc7f2512d099e47c31e9a261de9ce0.html |
| description | Let's just be clear: Tesla Motors CEO Elon Musk says he doesn't hate Apple. But given earlier comments in which he referred to the tech giant as a "Tesla graveyard," you've got to wonder. Sounding more like |

3) Screenshot of page which shows the results for PageRank.

PHP Solr Client Example

localhost/query.php?q=Elon+Musk&algo=PageRank

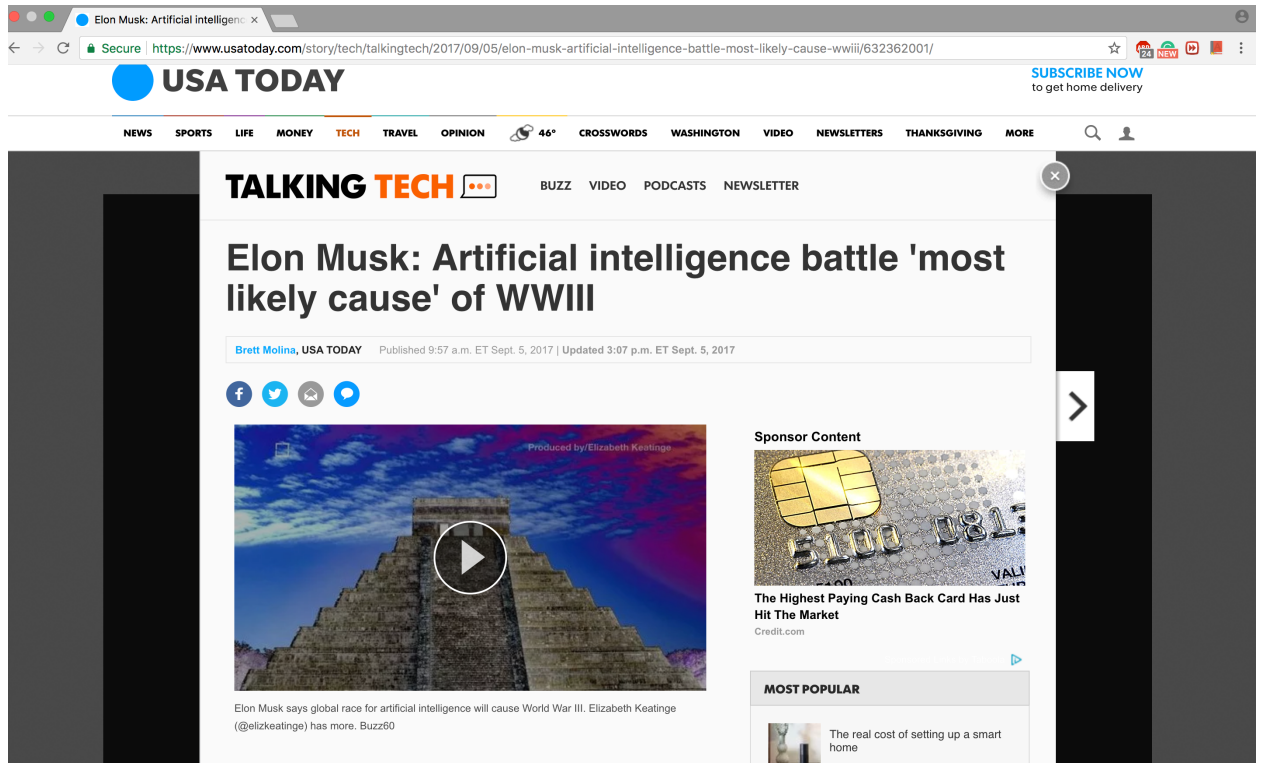
Search:

☐ Lucene ☒ PageRank

Results 1 - 10 of 182:

- | | |
|--------------------|--|
| title | Travel News, Tips, and Guides - USATODAY.com |
| url | https://www.usatoday.com/travel/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/4e2748038c90c804cfbc504b2ba48e367e304e91970b423db8245740ec5a187.html |
| description | The latest travel information, deals, guides and reviews from USA TODAY Travel. |
- | | |
|--------------------|---|
| title | Technology and Electronics Reviews - USATODAY.com |
| url | https://www.usatoday.com/tech/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/d079a8a0740bb41affea1a52940c7d84eb21f77ba25f13157cca7ad3ea137da1.html |
| description | Power up with breaking news on personal technology, electronics, gaming and computers. |
- | | |
|--------------------|---|
| title | Car Reviews and News - USATODAY.com |
| url | https://www.usatoday.com/money/cars/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/3da6115b99a08ca6456c4511fce8236513393c27d05cd891a71a8615491ad772.html |
| description | Get ready to hit the open road with reviews on the newest autos and car news. |
- | | |
|--------------------|---|
| title | Small Business and Corporate News - USATODAY.com |
| url | https://www.usatoday.com/money/business/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/5c4bf458e7e8a500ade00ff63964263c729f404bcc523d16bbdee6d9ad4afbba.html |
| description | USA TODAY Money brings you the latest business news for corporations and small businesses. |
- | | |
|--------------------|--|
| title | Hurricane Maria |
| url | https://www.usatoday.com/topic/Hurricane-Maria/local |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/771b91ab2d048f098f9752a30e4bbe6c5457b39c94190c00bbc814a229f993bd.html |
| description | Hurricane Maria formed in the Atlantic Ocean, first reaching hurricane status on Sept. 17, 2017, and elevating to Category 5 status one day later. |
- | | |
|--------------------|---|
| title | NCAAF Sagarin - NCAAF Football - USA TODAY |
| url | https://www.usatoday.com/sports/ncaaf/sagarin/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/066b8aee0f26eef6c1644f18362baa55497bc0cbcd394f64a7df7890e6b5d11b.html |
| description | Current NCAAF Sagarin - NCAAF Football - USA TODAY |
- | | |
|--------------------|---|
| title | NCAAB Teams - NCAAB Basketball - USA TODAY |
| url | https://www.usatoday.com/sports/ncaab/teams/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/99c074c6232f372d7e54d287750b654048d46b120c290f17a5914951f72e6bd9.html |
| description | Current NCAAB Teams - NCAAB Basketball - USA TODAY |
- | | |
|--------------------|---|
| title | NCAAB Sagarin - NCAAB Basketball - USA TODAY |
| url | https://www.usatoday.com/sports/ncaab/sagarin/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/80e266e50c6f911f1632c83f51fc607445c61a7ca2ffbe6b560a66cf554cf534.html |
| description | Current NCAAB Sagarin - NCAAB Basketball - USA TODAY |
- | | |
|--------------------|---|
| title | NCAAB Scores - NCAAB Basketball - USA TODAY |
| url | https://www.usatoday.com/sports/ncaab/scores/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/218420c0a6fb967bb45504ae7cb77ae1e3d67c02d692728b6b8638a558eac87b.html |
| description | Current NCAAB Scores - NCAAB Basketball - USA TODAY |
- | | |
|--------------------|---|
| title | NCAAB Standings - NCAAB Basketball - USA TODAY |
| url | https://www.usatoday.com/sports/ncaab/standings/ |
| id | /Users/soniyasadalkar/Study/IR/Homeworks/4-HW/solr-7.1.0/crawl_data/322441bf61b0028993ab2682a0dc817d09aeca9f7fa0ef719c32d99929287456.html |
| description | Current NCAAB Standings - NCAAB Basketball - USA TODAY |

- 4) Screenshot of the actual webpage that opens when clicking on one of the result's link. (Clicked on first link of Elon Musk query).



A table containing list of URLs of the top ten results produced by both ranking methods for each query.

Elon Musk	LUCENE	Pagerank
1	"https://www.usatoday.com/story/tech/talkingtech/2017/09/05/elon-musk-artificial-intelligence-battle-most-likely-cause-wwiii/632362001/"	https://www.usatoday.com/travel/
2	"https://www.usatoday.com/story/tech/2017/10/06/elon-musk-delays-self-driving-truck-focus-model-3-puerto-rico-power/741050001/"	https://www.usatoday.com/tech/
3	"https://www.usatoday.com/story/money/cars/2017/07/03/tesla-model-3/447465001/"	https://www.usatoday.com/money/cars/
4	"https://www.usatoday.com/story/money/2017/10/06/elon-musk-tesla-can-help-fix-puerto-ricos-ruined-electrical-grid/738782001/"	https://www.usatoday.com/money/business/
5	"https://www.usatoday.com/story/tech/nation-now/2017/09/29/elon-musk-speech-what-we-learned/715703001/"	https://www.usatoday.com/topic/Hurricane-Maria/local
6	"https://www.usatoday.com/story/news/nation-now/2017/10/01/tesla-eyes-hurricane-ravaged-caribbean-could-shape-power-grids/721986001/"	https://www.usatoday.com/sports/ncaaf/sagarin/
7	"https://www.usatoday.com/story/tech/talkingtech/2017/09/14/you-must-watch-elon-musk-video-rocket-fails/665166001/"	https://www.usatoday.com/sports/ncaab/teams/
8	"https://www.usatoday.com/videos/money/2017/10/06/elon-musk-believes-tesla-can-rebuild-puerto-ricos-power-grid/106363188/"	https://www.usatoday.com/sports/ncaab/sagarin/
9	"https://www.usatoday.com/story/life/entertainthis/2017/04/24/amber-heard-elon-musk-dating-public-debut-instagram-posts/100834568/"	https://www.usatoday.com/sports/ncaab/scores/
10	"https://www.usatoday.com/story/driveon/2015/10/09/tesla-elon-musk-apple-hate/73689838/"	https://www.usatoday.com/sports/ncaab/standings/
Star Wars		
1	"https://www.usatoday.com/story/life/movies/2015/11/03/star-wars-the-force-awakens-masks-lightsabers-amc-cinemark/75089340/"	https://www.usatoday.com/money/
2	"https://www.usatoday.com/story/life/movies/2015/12/16/review-star-wars-the-force-awakens/77342318/"	https://www.usatoday.com/travel/
3	"https://www.usatoday.com/story/life/movies/2015/12/14/harrison-ford-star-wars-the-force-awakens/77243366/"	
4	"https://www.usatoday.com/story/life/movies/2015/12/13/jj-abrams-star-wars-the-force-awakens/76911016/"	https://www.usatoday.com/story/news/2013/01/09/corrections-clarifications/1821023/
5	"https://www.usatoday.com/story/life/entertainthis/2015/12/04/star-wars-need-to-know/76685854/"	None
6	"https://www.usatoday.com/story/life/entertainthis/2015/12/11/star-wars-movie-definitive-ranking/77137480/"	https://www.usatoday.com/life/

7	"https://www.usatoday.com/story/life/movies/2017/09/12/j-j-abrams-return-star-wars-direct-episode-ix-replacing-colin-trevorrow/657203001/"	https://www.usatoday.com/policing/
8	"https://www.usatoday.com/story/life/movies/2017/08/31/star-wars-five-best-ways-celebrate-the-last-jedi-force-friday-ii/618268001/"	https://www.usatoday.com
9	"https://www.usatoday.com/story/money/business/small-business-central/2017/10/08/star-wars-last-jedi-trailer-gets-debut-monday-night-football/744286001/"	https://www.usatoday.com/tech/
10	"https://www.usatoday.com/story/life/movies/2017/10/09/new-star-wars-last-jedi-trailer-hints-troubling-tie-between-rey-and-kylo-ren/748730001/"	https://www.usatoday.com/topic/Las-Vegas-shooting/local
North Korea		
1	"https://www.usatoday.com/story/news/world/2017/06/17/three-americans-still-detained-north-korean-jails/102948008/"	https://www.usatoday.com/opinion/
2	"https://www.usatoday.com/story/news/2017/06/19/north-korean-treatment-western-prisoners-bizarre-not-always-physically-brutal/103022748/"	
3	"https://www.usatoday.com/story/news/world/2016/01/06/north-korea-hydrogen-bomb/78345074/"	https://www.usatoday.com/story/news/2013/01/09/corrections-clarifications/1821023/
4	"https://www.usatoday.com/story/news/world/2017/04/28/seoul-north-korea-test-fires-missile/101044820/"	https://www.usatoday.com/news/
5	"https://www.usatoday.com/story/news/2017/07/04/north-korea-ballistic-missile-south-korea/449341001/"	https://www.usatoday.com/policing/
6	"https://www.usatoday.com/story/news/world/2017/09/02/north-korea-nuclear-test-seismic-activity/629486001/"	https://www.usatoday.com/policing/data-casualties
7	"https://www.usatoday.com/story/news/world/2017/07/17/united-states-missile-defense-north-korea-threats/470177001/"	https://www.usatoday.com/sports/ncaaf/
8	"https://www.usatoday.com/story/news/world/2017/08/29/north-korea-fires-ballistic-missile-over-japan/611119001/"	https://www.usatoday.com/olympics-rio-2016/
9	"https://www.usatoday.com/story/news/world/2017/08/08/report-north-korea-has-nuke-fits-inside-missile/549188001/"	https://www.usatoday.com/policing/politics
10	"https://www.usatoday.com/story/news/politics/2017/06/13/north-korea-releases-us-citizen-otto-warmbier-tillerson-says/102806222/"	https://www.usatoday.com/travel/flights
LA Dodgers		
1	"https://www.usatoday.com/sports/mlb/salaries/2016/player/all/"	https://www.usatoday.com/story/news/2013/01/09/corrections-clarifications/1821023/
2	"https://www.usatoday.com/sports/mlb/salaries/2015/player/all/"	
3	"https://www.usatoday.com/sports/mlb/"	https://www.usatoday.com/life
4		https://www.usatoday.com/olympics-rio-2016/
5	"https://www.usatoday.com/sports/mlb/salaries/2012/player/all/"	https://www.usatoday.com/life/entertainthis/
6	"https://www.usatoday.com/sports/mlb/salaries/2017/player/all/"	https://www.usatoday.com/sports/boxing/
7	"https://www.usatoday.com/sports/mlb/salaries/"	https://www.usatoday.com/sports/ncaab/

8	"https://www.usatoday.com/story/sports/mlb/2017/10/09/leading-off-watching-weather-in-boston-greinke-vs-dodgers/106458414/"	https://www.usatoday.com/travel/experience-america/
9	"https://www.usatoday.com/sports/mlb/salaries/2014/player/all/"	https://www.usatoday.com/sports/nba/
10	"https://www.usatoday.com/sports/mlb/salaries/2009/player/all/"	https://www.usatoday.com/sports/horse/
Puerto Rico		
1	"https://www.usatoday.com/story/news/politics/2017/09/29/acting-homeland-security-director-calls-reach-hurricane-maria-a-good-news-story-mayor-san-juan-outra/716464001/"	https://www.usatoday.com/opinion/
2	"https://www.usatoday.com/story/news/nation-now/2017/10/04/torres-aid-mission-puerto-rico/734371001/"	
3	"https://www.usatoday.com/story/news/nation-now/2017/10/08/aid-makes-needy-hurricane-maria-survivors-puerto-rico/744978001/"	
4	"https://www.usatoday.com/story/news/politics/2017/09/29/trump-hurricane-damaged-puerto-rico-weve-never-seen-situation-like-this/716531001/"	https://www.usatoday.com/story/news/2013/01/09/corrections-clarifications/1821023/
5	"https://www.usatoday.com/story/news/nation-now/2017/10/05/husband-wife-have-surprise-reunion-puerto-rico-airport/737828001/"	https://www.usatoday.com/news/
6	"https://www.usatoday.com/story/news/world/2017/09/20/puerto-rico-braces-direct-hit-hurricane-maria/684121001/"	https://www.usatoday.com
7	"https://www.usatoday.com/story/news/nation/2017/09/26/why-puerto-rico-faces-monumental-recovery-effort/703515001/"	https://www.usatoday.com/tech/
8	"https://www.usatoday.com/story/news/2017/09/24/puerto-rico-dam-holding-some-local-officials-say-threat-overblown/697748001/"	https://www.usatoday.com/weather/
9	"https://www.usatoday.com/story/news/world/2017/09/21/puerto-ricans-hurricane-maria/688060001/"	https://www.usatoday.com/tech/talkingtech/
10	"https://www.usatoday.com/story/weather/hurricanes/2017/10/05/puerto-rico-clean-water/734813001/"	https://www.usatoday.com/travel/roadwarriorvoices/
Hurricane Harvey		
1	"https://www.usatoday.com/story/opinion/2017/08/28/hurricane-harvey-shadowed-two-lessons-2005-editorials-debates/610503001/"	https://www.usatoday.com/money/
2	"https://www.usatoday.com/story/news/nation/2017/09/04/houston-open-business/631151001/"	https://www.usatoday.com/travel/
3	"https://www.usatoday.com/story/news/nation/2017/08/28/hearbreak-texas-harvey-drive-30-000-shelters-fema-says/607224001/"	
4	"https://www.usatoday.com/story/news/2017/08/27/cajun-navy-heads-texas-aid-rescues/606883001/"	https://www.usatoday.com/opinion/
5	"https://www.usatoday.com/story/opinion/faith-in-america/2017/08/30/storm-the-church-bigger-than-joel-osteens-building/618795001/"	https://www.usatoday.com/sports/
6	"https://www.usatoday.com/story/news/nation-now/2017/08/28/harvey-nursing-home-residents-rescued-after-viral-photo-safe-warm-dry/610575001/"	

7	"https://www.usatoday.com/story/news/nation-now/2017/08/27/harvey-nursing-home-residents-rescued-floodwaters-after-photo-goes-viral/606987001/"	
8	"https://www.usatoday.com/story/news/nation-now/2017/08/31/hurricane-harvey-devastated-texas-see-wreckage-drone/619985001/"	
9	"https://www.usatoday.com/story/news/nation/2017/08/30/joel-osteen-we-never-turned-away-hurricane-harvey-flooding-victims/615569001/"	https://www.usatoday.com/story/news/2013/01/09/corrections-clarifications/1821023/
10	"http://www.usatoday.com/picture-gallery/news/nation/2017/08/23/tropical-depression-harvey-batters-texas/104899472/"	https://www.usatoday.com/news/
iPhone X		
1	"https://www.usatoday.com/story/tech/reviewedcom/2017/09/12/should-you-upgrade-to-the-new-iphone-8-or-iphone-x/105546142/"	https://www.usatoday.com/money/
2	"https://www.usatoday.com/story/tech/2017/09/13/iphone-x-too-good-iphone-8-8-plus-may-soon-find-out/663345001/"	https://www.usatoday.com/travel/
3	"https://www.usatoday.com/story/tech/reviewedcom/2017/09/25/7-great-cases-that-will-work-with-the-new-iphone-8-and-8-plus/105985358/"	
4	"https://www.usatoday.com/story/tech/columnist/baig/2017/09/12/iphone-8-how-removing-home-button-change-your-iphone-experience/641540001/"	https://www.usatoday.com/opinion/
5	"https://www.usatoday.com/story/tech/talkingtech/2017/09/11/apples-iphone-event-heres-how-watch/653065001/"	https://www.usatoday.com/sports/
6	"https://www.usatoday.com/story/tech/columnist/2017/09/09/iphone-8-how-sell-your-old-iphone-most-money/649373001/"	https://www.usatoday.com/pages/interactives/podcasts/
7	"http://www.usatoday.com/picture-gallery/tech/2017/06/23/iphone-8-evolution-of-the-iphone-over-the-years/103144056/"	
8	"http://www.usatoday.com/picture-gallery/tech/2017/06/23/iphone-8-evolution-of-the-iphone-over-the-years/103144056/"	
9	"https://www.usatoday.com/story/tech/talkingtech/2017/09/13/skip-iphone-x-and-8-if-you-need-iphone-better-deal/660743001/"	
10	"https://www.usatoday.com/story/tech/talkingtech/2017/09/19/apple-iphone-consumers-waiting-iphone-x/681952001/"	https://www.usatoday.com/story/news/2013/01/09/corrections-clarifications/1821023/
Paris Climate Deal		
1	"https://www.usatoday.com/story/news/nation/2017/05/31/only-two-nations-out-197-oppose-climate-pact---and-us-may-next/102360164/"	https://www.usatoday.com/travel/
2	"https://www.usatoday.com/story/news/2017/06/01/trump-withdraw-paris-climate-deal-5-things-you-need-know-thursday/102286628/"	https://www.usatoday.com/opinion/
3	"https://www.usatoday.com/story/news/politics/2017/09/16/reports-trump-administration-may-not-pull-out-paris-climate-agreement/673988001/"	https://www.usatoday.com/sports/
4	"https://www.usatoday.com/story/news/world/2017/06/01/trump-paris-agreement-climate-change-world-reaction/102390936/"	

5	"https://www.usatoday.com/story/news/politics/2016/02/09/supreme-court-halts-obamas-emissions-rule/80085182/"	https://www.usatoday.com/story/news/2013/01/09/corrections-clarifications/1821023/
6		https://www.usatoday.com/news
7	"https://www.usatoday.com/story/news/2017/04/20/science-march-war-truth-political-polarization/100636124/"	https://www.usatoday.com/life/
8	"https://www.usatoday.com/story/opinion/2017/10/02/north-korea-trump-needs-china-but-hes-doing-it-wrong-max-baucus-ryan-hass-column/721378001/"	https://www.usatoday.com/policing/
9	"https://www.usatoday.com/story/news/2014/12/01/five-things-to-know-monday/19703739/"	https://www.usatoday.com
10		https://www.usatoday.com/tech/