## Steps Followed:

I divided this assignment into 4 chunks

1. Solr setup:
    a. Downloaded Solr version 7.7.3
    b. Unpacked the package
    c. Started the solr server using bin/solr start
    d. Created a new core using command bin/solr create -c myexample
    e. Downloaded the LA Times data from Google drive
    f. Indexed the webpages using Solr by issuing the command: bin/post -c myexample -filetypes html /Users/esha/Documents/CSCI 572/hw4/latimes
    g. Open Solr UI at http://localhost:8983/solr/
2. Java Code for Creating Edge List
    a. Downloaded the JSoup jar file and added it as an external JAR file to my project.
    b. Used the URLtoHTML_la_times.csv and the crawled la times data created the edgelist.txt which is essentially a graph of all the in and out links of a page.
3. Python Code for Computing Page Rank
    a. Used the networkx package to compute the pagerank score of each page using the edge list file created in the last step.
    b. The parameters I used were: alpha=0.85, personalization=None, max_iter=30, tol=1e-06, nstart=None, weight='weight',dangling=None
4. PHP code for creating the UI
    a. Created the front end in PHP
    b. It is responsible for taking user input in a search form. Along with this the user has an option (radio button) of using "Lucene" or "Page Rank" to sort the search results.
    c. Once the user selects the search option and submits the search query, it is sent to the solr server.
    d. Solr returns the results of the search query
    e. We display the top 10 results of the search query on our webpage.
    f. The details we display are title, id, description and url
    g. The url and title are clickable (enclosed in a href tags). If the user clicks on them they are taken to the clicked result's webpage.

## Why some pages have higher PageRank values than others:

Some pages have higher PageRank value than others because page rank is calculated using the number of in links to the page and the number of out links going out of the page. We can see that even though links like https://www.latimes.com/california, https://www.latimes.com/opinion, https://www.latimes.com/politics are not very relevant to our search queries since they serve as "home pages" they are displayed quite high in the search results. This is because they have a lot of external pages pointing to them as they are some of the main pages of the LA Times.

**Flow Diagram:**

Image 1:

Search: [                    ]  ○Lucene ○PageRank  Submit

Image 2:

Search: [                    ]  ○Lucene ○PageRank  Submit

1. **Title** GOP is already thinking about how to turn a Senate impeachment trial to Trump's advantage - Los Angeles Times
   **URL** https://www.latimes.com/politics/story/2019-11-07/gop-is-already-thinking-about-how-to-turn-a-senate-impeachment-trial-to-trumps-advantage
   **ID** /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/77dcba80-8937-435d-805c-87bf5ddc5e1d.html
   **Description** Senate impeachment trial could keep 2020 candidates in Washington during lead-up to Iowa

2. **Title** Californians donate millions to other states' Senate races - Los Angeles Times
   **URL** https://www.latimes.com/politics/story/2019-10-30/california-donors-spend-millions-on-2020-senate-races-across-the-country
   **ID** /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/415fd082-1049-43b2-9f4a-66e39097759f.html
   **Description** Some candidates raised more money here than at home — a sign of California's donor community and the heightened importance of Senate control in the Trump era.

3. **Title** Impeachment prospect worries Senate Republicans from swing states, and could endanger GOP majority - Los Angeles Times
   **URL** https://www.latimes.com/politics/story/2019-10-04/vulnerable-senate-republicans-impeachment
   **ID** /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/90ad4af3-504f-4f0e-9c2b-90563ccad170.html
   **Description** Some Democrats have worried that political backlash to the drive to impeach President Trump could cost them control of the House. But the unpredictable issue could pose a bigger threat to the Republican majority in the Senate.

4. **Title** After Ford testifies she was sexually assaulted, Kavanaugh responds with anger and tears - Los Angeles Times
   **URL** https://www.latimes.com/politics/la-na-pol-kavanaugh-hearing-20180927-story.html
   **ID** /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/f2efd882-0539-4a59-9ec2-24ed69ff7d56.html
   **Description** Embattled Supreme Court nominee Brett Kavanaugh tells the Senate Judiciary Committee that the allegations of sexual assault from Christine Blasey Ford are "last-minute smears, pure and simple."

5. **Title** Senate vote on Kavanaugh was historically close - Los Angeles Times
   **URL** https://www.latimes.com/nation/la-pol-scotus-confirmation-votes-over-the-years-20181005-htmlstory.html
   **ID** /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/99785d79-094e-48ee-bc7e-9ee51e1a7888.html
   **Description** Brett Kavanaugh was confirmed to the Supreme Court by the narrowest margin in modern history.

6. **Title** Will Democrats or Republicans control the Senate after 2020? - Los Angeles Times
   **URL** https://www.latimes.com/politics/story/2019-08-14/2020-senate-control-presidential-race
   **ID** /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/71a35496-01e1-4eae-81c0-7ec61db3c1e5.html
   **Description** Democrats need to gain three or four seats to take control in 2020. Republicans must defend 22 of 34 seats, but the lay of the land seems to favor the GOP.

7. **Title** John Hickenlooper quits presidential race and may run for Senate - Los Angeles Times
   **URL** https://www.latimes.com/politics/story/2019-08-14/john-hickenlooper-quits-presidential-race-for-senate-run
   **ID** /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/49b258f7-0771-48b7-8e39-30b84fa85a8a.html
   **Description** Former Colorado Gov. John Hickenlooper had a floundering presidential campaign, but could become a front-runner for Senate.

8. **Title** Californians donate millions to other states' Senate races - Los Angeles Times
   **URL** https://www.latimes.com/politics/story/2019-10-30/california-donors-spend-millions-on-2020-senate-races-across-the-country
   **ID** /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/ea364e99-7214-40b7-a119-0903741a845c.html
   **Description** Some candidates raised more money here than at home — a sign of California's donor community and the heightened importance of Senate control in the Trump era.

9. **Title** Senate confirms William Barr as attorney general - Los Angeles Times
   **URL** https://www.latimes.com/politics/la-na-pol-william-barr-senate-confirm-attorney-general-20190214-story.html
   **ID** /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/d8e89c00-9005-4736-bc0d-4d497bc37a2f.html
   **Description** The Senate has confirmed William Barr as attorney general, placing the veteran government official and lawyer atop the Justice Department as special counsel Robert Mueller investigates Russian interference in the 2016 election.

10. **Title** Leading Homeland Security could be the least-secure jobs in D.C. - Los Angeles Times
    **URL** https://www.latimes.com/opinion/story/2019-10-15/wmcaleen-homeland-security-trump-nielsen-senate-acting-secretary
    **ID** /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/aaea5cd1-02ed-4f57-8e6a-098f0c0ef0c4.html
    **Description** Kevin McAleenan was the fourth Homeland Security chief in less than three years of the Trump administration. How many more can Trump squeeze in?

## Image 3:

Search: [Senate] ○ Lucene ● PageRank [Submit]

Results 1 - 10 of 1974:

1. | **Title** | News from California, the nation and world - Los Angeles Times |
   | --- | --- |
   | **URL** | https://www.latimes.com/ |
   | **ID** | /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/5763fc4e-d44b-4bb9-ab4c-5554d4c06841.html |
   | **Description** | The L.A. Times is a leading source of breaking news, entertainment, sports, politics, and more for Southern California and the world. |

2. | **Title** | Opinion - Los Angeles Times |
   | --- | --- |
   | **URL** | https://www.latimes.com/opinion |
   | **ID** | /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/cab28094-610b-446f-95d1-1b9838f5ade9.html |
   | **Description** | Opinion, op-eds, letters to the editor, analysis and policy ideas from the Los Angeles Times. |

3. | **Title** | Activists reunite to remember campaign against Prop. 187, California's anti-illegal immigrant initiative - Los Angeles Times |
   | --- | --- |
   | **URL** | https://www.latimes.com/california/story/2019-11-09/prop-187-anniversary-commemoration |
   | **ID** | /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/4cfeaa58-507d-45b6-9823-cc9bd1fe61bb.html |
   | **Description** | Activists reunite to commemorate campaign against Prop. 187 |

4. | **Title** | Does her healthcare plan make Warren too liberal to win? - Los Angeles Times |
   | --- | --- |
   | **URL** | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-healthcare-plan-too-liberal-to-win |
   | **ID** | /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/1600fc93-5a81-4fdc-8491-eef7c4b2507e.html |
   | **Description** | Elizabeth Warren never wanted her campaign to be defined by healthcare. Now, her sweeping proposal has centrist Democrats worried. |

5. | **Title** | Elizabeth Warren took down an Obama nominee. Was it for nothing? - Los Angeles Times |
   | --- | --- |
   | **URL** | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-used-bare-knuckle-tactics-to-take-down-an-obama-nominee |
   | **ID** | /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/2c0b5e5b-199f-4484-b5ea-02442110b52c.html |
   | **Description** | In 2014, Sen. Elizabeth Warren demonstrated her ability to galvanize liberals. But as it turns out, the fight she won was mostly symbolic. |

6. | **Title** | Mass killing and fires: Thousand Oaks' terrible year - Los Angeles Times |
   | --- | --- |
   | **URL** | https://www.latimes.com/opinion/story/2019-11-09/mass-shooting-fire-thousand-oaks-newsletter |
   | **ID** | /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/ddae6db7-00a2-4ca9-ae80-1b40c5fe6f10.html |
   | **Description** | One year ago, the city of Thousand Oaks suffered dual tragedies; plus more from the week in Opinion. |

7. | **Title** | Valerie Plame's advice for the impeachment whistleblower - Los Angeles Times |
   | --- | --- |
   | **URL** | https://www.latimes.com/politics/story/2019-11-08/outed-cia-officer-has-advice-for-whistle-blower-under-fire |
   | **ID** | /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/7d7ea4ad-6284-4e50-83b1-6a4d3b9fb157.html |
   | **Description** | After Valerie Plame was outed as a CIA agent in 2003, a White House aide was convicted, a reporter went to jail and her career in intelligence ended. |

8. | **Title** | Opinion: Lies and conspiracy theories drive Facebook profits - Los Angeles Times |
   | --- | --- |
   | **URL** | https://www.latimes.com/opinion/story/2019-11-09/facebook-twitter-political-ads-lies |
   | **ID** | /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/8e5c47d2-b647-4153-8cd0-985899de2da5.html |
   | **Description** | As long as the financial returns of a social platform align with outrage, the site will be optimized for distributing disinformation. |

9. | **Title** | UC should not dumb itself down by dropping the SAT - Los Angeles Times |
   | --- | --- |
   | **URL** | https://www.latimes.com/opinion/story/2019-11-09/sat-uc-college-admissions |
   | **ID** | /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/05ccf320-91d7-44c7-ba81-3d693ccbe9de.html |
   | **Description** | Studying really hard can earn you high grades, but it might not do much for you on the SAT. Colleges need to know who is both smart and studious. |

10. | **Title** | Conservatives are leaving California? Good riddance, say readers - Los Angeles Times |
    | --- | --- |
    | **URL** | https://www.latimes.com/opinion/story/2019-11-09/conservatives-leaving-california |
    | **ID** | /Users/esha/Documents/CSCI 572/hw4/solr-7.7.3/latimes/baac4ee2-59f6-4163-aa16-c4917b94dd4d.html |
    | **Description** | Reader reaction to a story about Republicans leaving reflects a key feature of politics today: antipathy not only for politicians, but also fellow citizens. |

## Image 4:
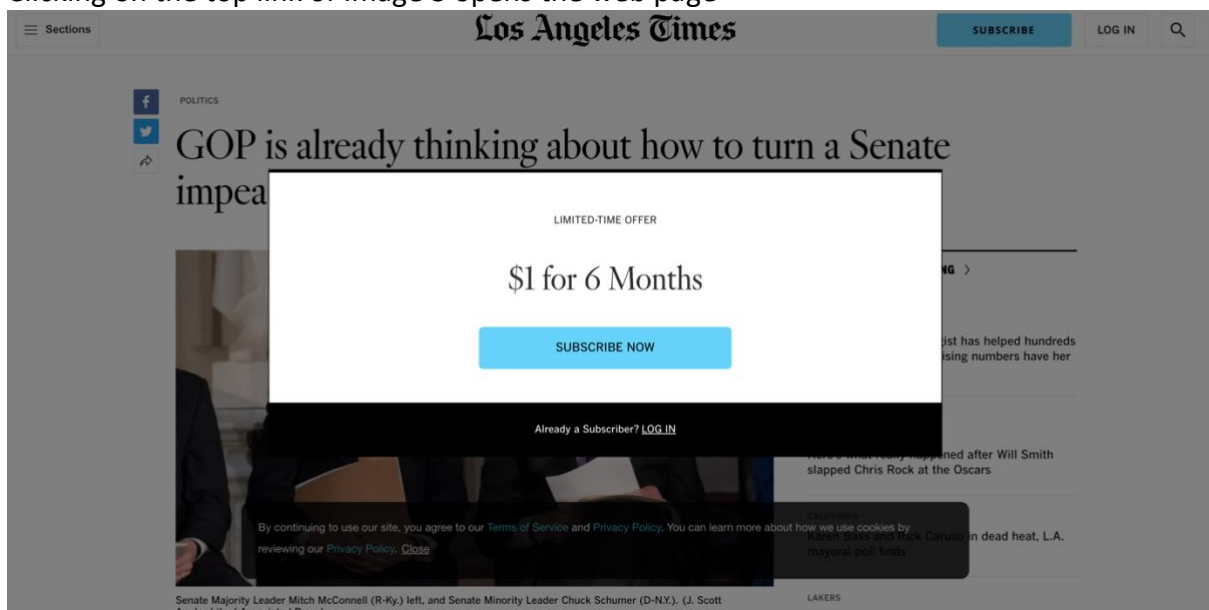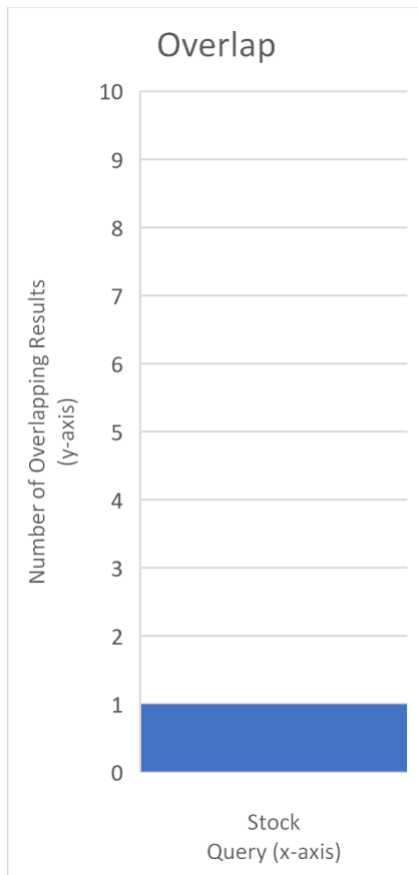Clicking on the top link of Image 3 opens the web page

# Table Of Query Search Results:

## Query: Cannes

| | Lucene | PageRank |
|---|---|---|
| | | https://www.latimes.com/sitemap |
| 1 | https://www.latimes.com/topic/cannes-film-festival | https://www.latimes.com/topic/film-festivals |
| 2 | https://www.latimes.com/entertainment/movies/la-et-mn-cannes-wrap-critics-conversation-20190526-story.html | https://www.latimes.com/entertainment-arts/movies/story/2019-11-08/documentaries-apollo-11-the-cave-sea-of-shadows-honeyland |
| 3 | https://www.latimes.com/entertainment/movies/moviesnow/la-et-mn-cannes-2015-winners-20150524-story.html | https://www.latimes.com/entertainment-arts/movies/story/2019-09-13/toronto-film-festival-best-of-wrap-parasite |
| 4 | https://www.latimes.com/entertainment/movies/la-et-mn-cannes-film-festival-award-winners-20190525-story.html | https://www.latimes.com/entertainment-arts/movies/story/2019-09-13/toronto-film-festival-best-of-wrap-parasite |
| 5 | https://www.latimes.com/entertainment/movies/la-et-mn-cannes-parasite-atlantics-awards-20190526-story.html | https://www.latimes.com/entertainment-arts/movies/story/2019-09-09/jojo-rabbit-knives-out-toronto-film-festival |
| 6 | https://www.latimes.com/entertainment/movies/la-et-mn-cannes-once-upon-a-time-in-hollywood-20190522-story.html | https://www.latimes.com/entertainment-arts/movies/story/2019-09-13/toronto-film-festival-best-of-wrap-parasite |
| 7 | https://www.latimes.com/entertainment/movies/la-ca-mn-cannes-genre-parasite-wild-goose-lake-tarantino-20190522-story.html | https://www.latimes.com/entertainment-arts/movies/story/2019-10-01/joker-review-joaquin-phoenix |
| 8 | https://www.latimes.com/entertainment/movies/la-et-mn-cannes-mektoub-my-love-intermezzo-abdellatif-kechiche-20190523-story.html | https://www.latimes.com/entertainment-arts/movies/story/2019-09-15/oscars-predictions-frontrunners-film-festivals |
| 9 | https://www.latimes.com/entertainment/movies/la-et-mn-cannes-quentin-tarantino-once-upon-a-time-in-hollywood-20190521-story.html | https://www.latimes.com/entertainment/movies/la-et-mn-carrie-fisher-obit-20161227-story.html |
| 10 | https://www.latimes.com/entertainment/movies/la-et-mn-cannes-robert-eggers-the-lighthouse-robert-pattinson-20190524-story.html | https://www.latimes.com/entertainment/movies/la-et-mn-classic-hollywood-20170721-story.html |

## Query: Congress

| | Lucene | PageRank |
|---|---|---|
| 1 | https://www.latimes.com/politics/story/2019-10-28/jerry-brown-to-testify-to-congress-rebutting-trumps-criticism-of-california | https://www.latimes.com/opinion |
| 2 | https://www.latimes.com/opinion/enterthefray/la-ol-new-york-rhode-island-congress-marijuana-20190116-story.html | https://www.latimes.com/espanol/politica |
| 3 | https://www.latimes.com/politics/la-na-pol-congress-sexual-harassment-20181212-story.html | https://www.latimes.com/politics/story/2019-11-08/michael-bloomberg-files-papers-for-2020-democratic-presidential-primary |
| 4 | https://www.latimes.com/politics/la-pol-ca-richest-california-lawmakers-20180305-story.html | https://www.latimes.com/politics/story/2019-11-08/steve-bannon-roger-stone-trump-campaign-wikileaks |
| 5 | https://www.latimes.com/politics/story/2019-09-09/congress-gun-control-government-shutdown | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-healthcare-plan-too-liberal-to-win |
| 6 | https://www.latimes.com/opinion/story/2019-10-16/democratic-debate-trump-congress-executive-action | https://www.latimes.com/politics/story/2019-11-08/alexander-vindman-fiona-hill-impeachment-transcripts |
| 7 | https://www.latimes.com/politics/story/2019-10-14/trump-ukraine-aid-congress-impeachment | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-used-bare-knuckle-tactics-to-take-down-an-obama-nominee |
| 8 | https://www.latimes.com/politics/la-na-pol-congress-bioweapons-detection-system-20190414-story.html | https://www.latimes.com/politics/story/2019-11-08/outed-cia-officer-has-advice-for-whistle-blower-under-fire |
| 9 | https://www.latimes.com/politics/la-na-pol-congress-mueller-pressure-impeachment-20190529-story.html | https://www.latimes.com/opinion/story/2019-11-09/facebook-twitter-political-ads-lies |
| 10 | https://www.latimes.com/politics/la-pol-ca-richest-in-congress-darrell-issa-story.html | https://www.latimes.com/entertainment-arts/movies/story/2019-11-08/lauren-greenfield-imelda-marcos-documentary-the-kingmaker |

## Query: Democrats

| | Lucene | PageRank |
|---|---|---|
| 1 | https://www.latimes.com/politics/story/2019-11-07/house-democrats-subpoena-mick-mulvaney-in-impeachment-probe | https://www.latimes.com/california |
| 2 | https://www.latimes.com/opinion/story/2019-11-05/impeachment-donald-trump-democrats-political-cost-elections | https://www.latimes.com/opinion |
| 3 | https://www.latimes.com/politics/story/2019-11-03/iowa-democrats-candidate-beat-trump | https://www.latimes.com/politics |
| 4 | https://www.latimes.com/politics/story/2019-10-17/democrats-quick-impeachment-timing-complicated | https://www.latimes.com/politics/story/2019-11-08/michael-bloomberg-files-papers-for-2020-democratic-presidential-primary |
| 5 | https://www.latimes.com/politics/story/2019-10-08/impeachment-trump-democrats-whistleblower-identity-testimony | https://www.latimes.com/politics/story/2019-11-08/steve-bannon-roger-stone-trump-campaign-wikileaks |
| 6 | https://www.latimes.com/politics/story/2019-09-24/democratic-and-pelosi-appear-close-to-tipping-point-on-impeachment | https://www.latimes.com/politics/story/2019-11-08/democratic-primary-debate-moves-from-ucla-to-loyola-marymount-university |
| 7 | https://www.latimes.com/politics/story/2019-09-29/trump-allies-and-democrats-reveal-the-deep-divisions-over-impeachment-inquiry | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-healthcare-plan-too-liberal-to-win |
| 8 | https://www.latimes.com/politics/story/2019-08-01/assignment-post-debate-health-care-analysis-new-story | https://www.latimes.com/politics/story/2019-11-08/alexander-vindman-fiona-hill-impeachment-transcripts |
| 9 | https://www.latimes.com/nation/ct-democrats-economic-plan-20170824-story.html | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-used-bare-knuckle-tactics-to-take-down-an-obama-nominee |
| 10 | https://www.latimes.com/california/story/2019-10-21/california-independent-voters-can-cast-ballots-for-democrats-not-trump-march-2020-pri | https://www.latimes.com/politics/story/2019-11-08/outed-cia-officer-has-advice-for-whistle-blower-under-fire |

## Query: Patriot Movement

| | Lucene | PageRank |
|---|---|---|
| 1 | https://www.latimes.com/archives/la-xpm-2012-oct-23-la-me-russell-means-20121023-story.html | https://www.latimes.com/environment |
| 2 | https://www.latimes.com/staff/megan-garvey | https://www.latimes.com/science |
| 3 | https://www.latimes.com/archives/la-xpm-2001-jun-10-mn-8792-story.html | https://www.latimes.com/california/story/2019-11-09/prop-187-anniversary-commemoration |
| 4 | https://www.latimes.com/entertainment-arts/books/story/2019-10-25/shadowlands-anthony-mccann-oregon-standoff | https://www.latimes.com/entertainment-arts/story/2019-11-09/classical-music-things-to-do-in-la-this-week-nov-10-17-magic-flute-la-ope |
| 5 | https://www.latimes.com/sports/highschool/story/2019-11-06/girls-tennis-southern-section-playoff-results-and-updated-pairings | https://www.latimes.com/entertainment-arts/story/2019-11-09/theater-things-to-do-in-la-this-week-nov-10-17-dr-seusss-how-the-grinch- |
| 6 | https://www.latimes.com/politics/story/2019-09-09/bernie-sanders-muslim-voters-2020 | https://www.latimes.com/entertainment-arts/movies/story/2019-11-08/movies-on-tv-this-week-goodfellas-on-amc-and-more |
| 7 | https://www.latimes.com/sports/nba/la-sp-nba-best-game-ever-20181222-story.html | https://www.latimes.com/food/story/2019-11-07/kung-pao-chicken-history-recipe-gong-bao |
| 8 | https://www.latimes.com/sports/highschool/story/2019-11-06/girls-tennis-southern-section-playoff-results-and-updated-pairings | https://www.latimes.com/entertainment-arts/music/story/2019-11-07/placido-domingo-out-tokyo-olympics |
| 9 | https://www.latimes.com/entertainment/movies/la-et-mn-july-4-box-office-history-20180629-story.html | https://www.latimes.com/entertainment-arts/books/story/2019-11-06/julie-andrews-home-work-critics-notebook-book-club |
| 10 | https://www.latimes.com/entertainment/movies/la-et-mn-july-4-box-office-history-20180629-story.html | https://www.latimes.com/entertainment-arts/books/story/2019-11-08/joan-didion-1960s-70s-david-ulin |

## Query: Republicans

| | Lucene | PageRank |
|---|---|---|
| 1 | https://www.latimes.com/opinion/story/2019-10-23/house-republicans-storm-hearing-impeachment | https://www.latimes.com/ |
| 2 | https://www.latimes.com/politics/story/2019-10-30/democrats-hoped-theyd-win-over-republicans-on-impeachment-but-its-not-looking-that-wa | https://www.latimes.com/opinion |
| 3 | https://www.latimes.com/opinion/story/2019-11-08/impeachment-trump-republicans-toomey | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-healthcare-plan-too-liberal-to-win |
| 4 | https://www.latimes.com/politics/story/2019-10-04/vulnerable-senate-republicans-impeachment | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-used-bare-knuckle-tactics-to-take-down-an-obama-nominee |
| 5 | https://www.latimes.com/california/story/2019-10-16/california-republicans-democrats-wildfires-homelessness | https://www.latimes.com/opinion/story/2019-11-09/mass-shooting-fire-thousand-oaks-newsletter |
| 6 | https://www.latimes.com/politics/story/2019-10-23/impeachment-deposition-room-stormed-by-republicans | https://www.latimes.com/politics/story/2019-11-08/outed-cia-officer-has-advice-for-whistle-blower-under-fire |
| 7 | https://www.latimes.com/opinion/story/2019-09-17/california-republicans-trump-fundraising-president | https://www.latimes.com/opinion/story/2019-11-09/facebook-twitter-political-ads-lies |
| 8 | https://www.latimes.com/politics/story/2019-10-28/katie-hill-resignation-trump-obstacle-for-republicans | https://www.latimes.com/opinion/story/2019-11-09/sat-uc-college-admissions |
| 9 | https://www.latimes.com/opinion/story/2019-11-06/trump-republicans-democrats-predictions-polling-2020 | https://www.latimes.com/opinion/story/2019-11-09/conservatives-leaving-california |
| 10 | https://www.latimes.com/politics/story/2019-11-06/republicans-election-trump-candidate-loses-kentucky | https://www.latimes.com/opinion/story/2019-11-09/trump-bribery-impeachment |

## Query: Senate

| | Lucene | PageRank |
|---|---|---|
| 1 | https://www.latimes.com/politics/story/2019-11-07/gop-is-already-thinking-about-how-to-turn-a-senate-impeachment-trial-to-trumps-advanta | https://www.latimes.com/ |
| 2 | https://www.latimes.com/politics/story/2019-10-30/california-donors-spend-millions-on-2020-senate-races-across-the-country | https://www.latimes.com/opinion |
| 3 | https://www.latimes.com/politics/story/2019-10-04/vulnerable-senate-republicans-impeachment | https://www.latimes.com/california/story/2019-11-09/prop-187-anniversary-commemoration |
| 4 | https://www.latimes.com/politics/la-na-pol-kavanaugh-hearing-20180927-story.html | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-healthcare-plan-too-liberal-to-win |
| 5 | https://www.latimes.com/nation/la-pol-scotus-confirmation-votes-over-the-years-20181005-htmlstory.html | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-used-bare-knuckle-tactics-to-take-down-an-obama-nominee |
| 6 | https://www.latimes.com/politics/story/2019-08-14/senate-control-presidential-race | https://www.latimes.com/opinion/story/2019-11-09/mass-shooting-fire-thousand-oaks-newsletter |
| 7 | https://www.latimes.com/politics/story/2019-08-14/john-hickenlooper-quits-presidential-race-for-senate-run | https://www.latimes.com/politics/story/2019-11-08/outed-cia-officer-has-advice-for-whistle-blower-under-fire |
| 8 | https://www.latimes.com/politics/story/2019-10-30/california-donors-spend-millions-on-2020-senate-races-across-the-country | https://www.latimes.com/opinion/story/2019-11-09/facebook-twitter-political-ads-lies |
| 9 | https://www.latimes.com/politics/la-na-pol-william-barr-senate-confirm-attorney-general-20190214-story.html | https://www.latimes.com/opinion/story/2019-11-09/sat-uc-college-admissions |
| 10 | https://www.latimes.com/opinion/story/2019-10-15/wmcaleen-homeland-security-trump-nielsen-senate-acting-secretary | https://www.latimes.com/opinion/story/2019-11-09/conservatives-leaving-california |

## Query: Olympics 2020

| | Lucene | PageRank |
|---|---|---|
| 1 | https://www.latimes.com/sports/olympics/story/2019-08-15/2020-tokyo-olympics-searching-for-answers-amid-heat-wave | https://www.latimes.com/ |
| 2 | https://www.latimes.com/sports/olympics | https://www.latimes.com/sitemap |
| 3 | https://www.latimes.com/people/david-wharton | https://www.latimes.com/sports |
| 4 | https://www.latimes.com/people/david-wharton | https://www.latimes.com/business |
| 5 | https://www.latimes.com/sports/olympics/story/2019-10-16/2020-tokyo-olympics-marathon-sapporo-avoid-heat | https://www.latimes.com/opinions |
| 6 | https://www.latimes.com/sports/olympics/story/2019-07-31/deadly-heat-wave-2020-summer-olympics-tokyo | https://www.latimes.com/newsroom-directory |
| 7 | https://www.latimes.com/sports/story/2019-11-05/ioc-anti-doping-2020-tokyo-olympics | https://www.latimes.com/environment |
| 8 | https://www.latimes.com/sports/olympics/story/2019-10-10/naomi-osaka-chooses-japan-over-u-s-2020-tokyo-olympics | https://www.latimes.com/entertainment-arts |
| 9 | https://www.latimes.com/sports/story/2019-07-23/tokyos-rough-road-to-2020-summer-olympics | https://www.latimes.com/politics |
| 10 | https://www.latimes.com/people/david-wharton | https://www.latimes.com/world-nation |

## Query: Stock

| | Lucene | PageRank |
|---|---|---|
| 1 | https://www.latimes.com/business/story/2019-11-06/uber-lock-up-period-ends-with-falling-stock-protests | https://www.latimes.com/ |
| 2 | https://www.latimes.com/business/la-fi-lyft-stock-20190401-story.html | https://www.latimes.com/business |
| 3 | https://www.latimes.com/business/la-fi-hy-tesla-stock-20160518-snap-story.html | https://www.latimes.com/business/real-estate |
| 4 | https://www.latimes.com/business/story/2019-11-06/uber-lock-up-period-ends-with-falling-stock-protests | https://www.latimes.com/business/real-estate/story/2019-11-09/hulu-looking-for-alaska-landry-bender |
| 5 | https://www.latimes.com/business/story/2019-11-09/stock-managers-who-played-defense-in-2019-are-left-scrambling-to-make-up-ground | https://www.latimes.com/business/story/2019-11-08/trump-china-tariffs |
| 6 | https://www.latimes.com/business/la-fi-uber-ipo-stock-trading-price-20190510-story.html | https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-used-bare-knuckle-tactics-to-take-down-an-obama-nominee |
| 7 | https://www.latimes.com/business/story/2019-09-09/at-t-stock-surges-elliott-reveals-3-2-billion-stake | https://www.latimes.com/business/real-estate/story/2019-11-09/hot-property-very-brady-sale-malibu |
| 8 | https://www.latimes.com/business/la-fi-stock-market-status-update-20180209-story.html | https://www.latimes.com/business/real-estate/story/2019-11-09/hot-property-newsletter-rifleman-leads-the-posse-on-a-little-mosey-d |
| 9 | https://www.latimes.com/business/la-fi-stock-market-correction-20180212-story.html | https://www.latimes.com/business/story/2019-11-09/stock-managers-who-played-defense-in-2019-are-left-scrambling-to-make-up-gro |
| 10 | https://www.latimes.com/business/story/2019-11-09/stock-managers-who-played-defense-in-2019-are-left-scrambling-to-make-up-ground | https://www.latimes.com/business/story/2019-11-08/gap-ceo-was-done-in-by-fashion-missteps-and-fading-brands |

## Query: Virus

| | Lucene | PageRank |
|---|---|---|
| 1 | https://www.latimes.com/espanol/internacional/articulo/2019-11-09/monos-se-volvieron-inmunes-tras-inocularles-virus-del-ebola-con-mutaci | https://www.latimes.com/terms-of-service |
| 2 | https://www.latimes.com/science/sciencenow/la-sci-science-of-zika-five-ways-20160223-htmlstory.html | https://www.latimes.com/science |
| 3 | https://www.latimes.com/espanol/internacional/articulo/2019-11-09/monos-se-volvieron-inmunes-tras-inocularles-virus-del-ebola-con-mutaci | https://www.latimes.com/espanol/internacional |
| 4 | https://www.latimes.com/science/story/2019-10-21/virus-afm-illness-paralyzing-kids | https://www.latimes.com/entertainment-arts/story/2019-11-08/movies-on-tv-this-week-goodfellas-on-amc-and-more |
| 5 | https://www.latimes.com/science/story/2019-10-21/virus-afm-illness-paralyzing-kids | https://www.latimes.com/espanol/deportes/articulo/2019-11-09/como-ser-campeon-de-league-of-legends |
| 6 | https://www.latimes.com/socal/daily-pilot/news/tn-dpt-me-west-nile-20170707-story.html | https://www.latimes.com/espanol/mexico/articulo/2019-11-09/crean-en-mexico-plataforma-para-medir-impacto-ambiental-de-basura- |
| 7 | https://www.latimes.com/science/sciencenow/la-sci-sn-acute-flaccid-myelitis-polio-20181017-story.html | https://www.latimes.com/people/alene-tchekmedyian |
| 8 | https://www.latimes.com/local/lanow/la-me-ln-virulent-newcastle-disease-outbreak-in-southern-california-20190607-story.html | https://www.latimes.com/espanol/etiqueta/salud |
| 9 | https://www.latimes.com/world-nation/story/2019-09-04/anti-vaxxers-helping-polio-comeback-pakistan | https://www.latimes.com/espanol/ |
| 10 | https://www.latimes.com/local/obituaries/la-me-deborah-asnis-20150921-story.html | |

## Overlaps:



The only Query to have an overlap was "Stock" which had one overlapping result between Lucene and the PageRank algorithm.

For all the rest of the queries we had 0 overlapping results.