CSCI 572 Information Retrieval and Search Engines
Assignment 4
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Steps:

1. Solr Setup
   a. Installed solr-7.7.0
   b. Downloaded the crawl data provided by course producers
   c. Created a core in solr by going to the /solr-7.7.0 directory and running bin/solr create -c myexample
   d. Opened the managed-schema file present in /conf directory and uncommented <copyField source="*" dest="_text_"/> line.
   e. Saved changes and came back to the home directory of solr.
   f. Indexed html files in crawl folder(latimes) by using bin/post -c myexample -filetypes html path_to_crawl_folder/
   g. Checked if the indexing was successful by going to the Solr admin panel at http://localhost:8983/solr/ and selecting 'myexample' from the dropdown
   h. Went to the query section of 'myexample' and submitted the default query (*:*)
   i. The output proved that the indexing was working correctly.
   j. Configured Solr to default querying by changing <!-- <str name="df">text</str>--> in the requestHandler section of solrconfig.xml to <str name="df">_text_</str>

2. Edge list and Page Rank
   a. Wrote a Java program to find edge lists from the pages in latimes folder by using JSoup library
   b. Wrote a Python program using NetworkX library to compute page rank by supplying the EdgeList file as input
   c. Stored the output of the python code in external_pageRankFile.txt
   d. Provided the following parameters to compute the page rank:
      alpha=0.85, personalization=None, max_iter =30, tol=1e-06, nstart=None, weight='weight', dangling=None

Page Rank results on Solr for query "Virus"
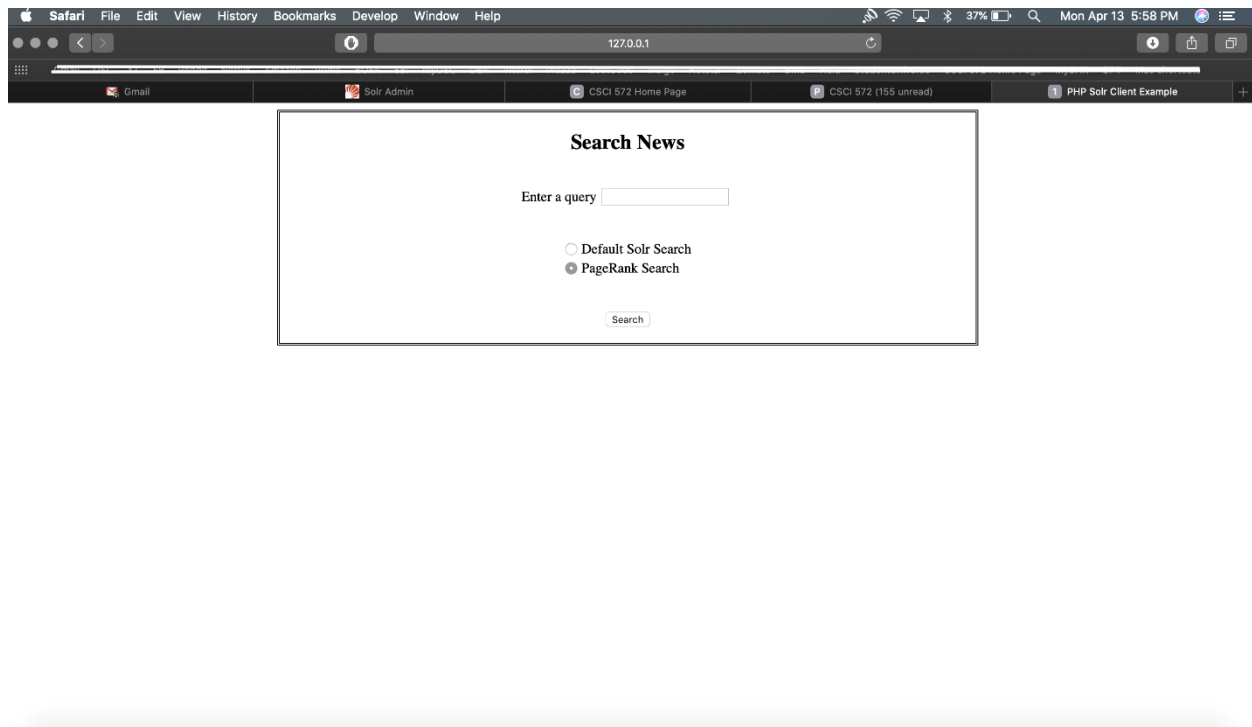
3. Configuring files
   a. Stored external_pageRankFile.txt in solr-7.7.0/server/solr/myexample/ ~~directory~~ data
   b. Added the following to managed-schema:
      <fieldType name="external" keyField="id" defVal="0
      class="solr.ExternalFileField"/><field name="pageRankFile" type="external
      stored="false" indexed="false"
   c. Defined the following within the <query> tags in solrconfig.xml file <listener
      event="newSearcher"
      class="org.apache.solr.schema.ExternalFileFieldReloader"/><listener
      event="firstSearcher" class="org.apache.solr.schema.ExternalFileFieldReloader">
   d. Reloaded the core by clicking on the "Reload" button and verified the results by querying
      again

4. PHP page
   a. Installed PHP and Apache
   b. Cloned the given solr git repository
   c. Wrote a php code using the sample code provided in the assignment description by
      including 2 buttons for default solr search and PageRank search index.php
   d. Hosted the webpage and verified the results of the search by comparing them with the
      results obtained on solr admin panel

PHP Page:

1. Search home

2. Default results:

Search News

Enter a query [Virus]

◉ Default Solr Search
○ PageRank Search

[Search]

Total Results: 242
Displaying top 10 results.

1. **Title:** Monos se volvieron inmunes tras inocularles virus del Ébola con mutación - Los Angeles Times
   Link: https://www.latimes.com/espanol/internacional/articulo/2019-11-09/monos-se-volvieron-inmunes-tras-inocularles-virus-del-ebola-con-mutacion?_amp=true
   ID: /Users/parinita/Downloads/latimes/93b7133f-b7f3-409e-bb23-c2c936725830.html
   Description: Científicos han inoculado el virus del Ébola con una mutación en una proteína llamada VP3 a monos, que enfermaron y se volvieron inmunes, informó hoy la revista Cell Reports.

2. **Title:** Five ways scientists are going after the Zika virus - Los Angeles Times
   Link: https://www.latimes.com/science/sciencenow/la-sci-science-of-zika-five-ways-20160223-htmlstory.html
   ID: /Users/parinita/Downloads/latimes/9dff16c7-f3c6-484f-9276-44ed0f12dbb4.html
   Description: To determine whether the Zika virus is indeed responsible for a surge in birth defects, public health officials are drawing on expertise from many disciplines.

3. **Title:** Monos se volvieron inmunes tras inocularles virus del Ébola con mutación - Los Angeles Times
   Link: https://www.latimes.com/espanol/internacional/articulo/2019-11-09/monos-se-volvieron-inmunes-tras-inocularles-virus-del-ebola-con-mutacion
   ID: /Users/parinita/Downloads/latimes/ba09422e-fed8-49e0-9944-973c7e754bc1.html
   Description: Científicos han inoculado el virus del Ébola con una mutación en una proteína llamada VP3 a monos, que enfermaron y se volvieron inmunes, informó hoy la revista Cell Reports.

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Gmail   Solr Admin   CSCI 572 Home Page   CSCI 572 (155 unread)   PHP Solr Client Example

3. **Title:** Monos se volvieron inmunes tras inocularles virus del Ébola con mutación - Los Angeles Times
   Link: https://www.latimes.com/espanol/internacional/articulo/2019-11-09/monos-se-volvieron-inmunes-tras-inocularles-virus-del-ebola-con-mutacion
   ID: /Users/parinita/Downloads/latimes/ba09422e-fed8-49e0-973c7e754bc1.html
   Description: Científicos han inoculado el virus del Ébola con una mutación en una proteína llamada VP3 a monos, que enfermaron y se volvieron inmunes, informó hoy la revista Cell Reports.

4. **Title:** Virus may be culprit in AFM, the paralyzing illness affecting kids - Los Angeles Times
   Link: https://www.latimes.com/science/story/2019-10-21/virus-afm-illness-paralyzing-kids?_amp=true
   ID: /Users/parinita/Downloads/latimes/733787a8-6c61-4d00-af2b-3e486689001.html
   Description: Scientists have found the strongest evidence yet that a virus is to blame for AFM, a mysterious polio-like illness that can quickly paralyze children.

5. **Title:** Virus may be culprit in AFM, the paralyzing illness affecting kids - Los Angeles Times
   Link: https://www.latimes.com/science/story/2019-10-21/virus-afm-illness-paralyzing-kids
   ID: /Users/parinita/Downloads/latimes/aa26c5e1-6da7-4f49-81dc-36a907202ff7.html
   Description: Scientists have found the strongest evidence yet that a virus is to blame for AFM, a mysterious polio-like illness that can quickly paralyze children.

6. **Title:** Laguna Beach woman tests positive for West Nile virus; first case in O.C. this year - Los Angeles Times
   Link: https://www.latimes.com/socal/daily-pilot/news/tn-dpt-me-west-nile-20170707-story.html
   ID: /Users/parinita/Downloads/latimes/a8b52a29-f6f2-4a58-8b4b-352a89aae45a.html
   Description: A Laguna Beach woman is the first person to test positive for West Nile virus in Orange County this year, the county Health Care Agency said Friday.
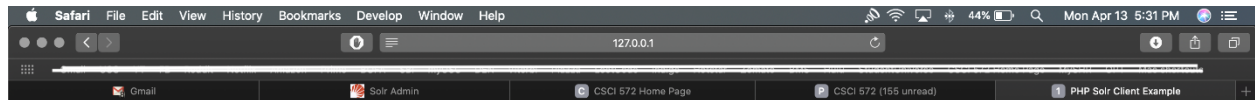
7. **Title:** Q&A: What is AFM? Everything you need to know about the polio-like virus suddenly affecting children across the U.S. - Los Angeles Times
   Link: https://www.latimes.com/science/sciencenow/la-sci-sn-acute-flaccid-myelitis-polio-20181017-story.html?_amp=true
   ID: /Users/parinita/Downloads/latimes/f5d77f1c-7186-46ec-8114-ab2a2d36dae7.html
   Description: It's mysterious, it's dangerous and it's got parents on edge from coast to coast.

8. **Title:** To stop a virus, California has euthanized more than 1.2 million birds. Is it reckless or necessary? - Los Angeles Times
   Link: https://www.latimes.com/local/lanow/la-me-ln-virulent-newcastle-disease-outbreak-in-southern-california-20190607-story.html
   ID: /Users/parinita/Downloads/latimes/cb8f5745-34a1-46e3-9e87-0a54e97c4bfe.html
   Description: Each morning, once the kids were off to school, Kerri Hand would slip out to her backyard, sit in a lawn chair and hang out with her feathered family.

9. **Title:** Polio was nearly extinct. Then the anti-vaxx movement reached Pakistan - Los Angeles Times
   Link: https://www.latimes.com/world-nation/story/2019-09-04/anti-vaxxers-helping-polio-comeback-pakistan?_amp=true
   ID: /Users/parinita/Downloads/latimes/be936012-f139-42c3-b677-aa4c3859823f.html
   Description: Much like measles is spreading in the U.S., polio is resurgent in the last region of the world where it hasn't been eradicated.

10. **Title:** Deborah Asnis dies at 59; helped detect West Nile virus in U.S. - Los Angeles Times
    Link: https://www.latimes.com/local/obituaries/la-me-deborah-asnis-20150921-story.html
    ID: /Users/parinita/Downloads/latimes/1124b1a5-a4f3-46bc-90ca-ef4d64212323.html
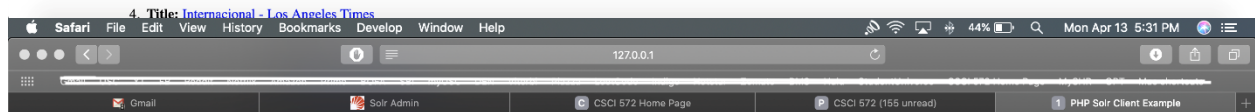   **Description:** Late in the summer of 1999, Dr.

3. PageRank results

Total Results: 242
Displaying top 10 results.

1. **Title:** Terms of Service - Los Angeles Times
   Link: https://www.latimes.com/terms-of-service
   ID: /Users/parinita/Downloads/latimes/8d24338b-94be-4eaf-90cc-6ccf26611e80.html
   Description: N/A

2. **Title:** En Español - Los Angeles Times
   Link: https://www.latimes.com/espanol/
   ID: /Users/parinita/Downloads/latimes/9cfc2f22-bf28-4334-aba8-392b3c66bfb2.html
   Description: N/A

3. **Title:** Science - Los Angeles Times
   Link: https://www.latimes.com/science
   ID: /Users/parinita/Downloads/latimes/f720cc91-c4bb-43a8-bf54-4e8a95b47305.html
   Description: In-depth science news about space exploration, medical science, climate change, technological breakthroughs and the lastest scientific studies.

4. **Title:** Internacional - Los Angeles Times

Description: In-depth science news about space exploration, medical science, climate change, technological breakthroughs and the lastest scientific studies.

4. **Title:** Internacional - Los Angeles Times
   Link: https://www.latimes.com/espanol/internacional
   ID: /Users/parinita/Downloads/latimes/16dceaab-cfbf-476a-9941-a069381d6b06.html
   Description: N/A

5. **Title:** ¿Cómo ser campeón de "League of Legends"? - Los Angeles Times
   Link: https://www.latimes.com/espanol/deportes/articulo/2019-11-09/como-ser-campeon-de-league-of-legends
   ID: /Users/parinita/Downloads/latimes/92e86ba2-2f63-4633-9468-9b083e9834a8.html
   Description: Estamos en uno de los eventos más importantes de las competencias de los deportes electrónicos el "League of Legends", que para este año cuenta con una recta final de 24 equipos de todo el mundo tras una carrera de meses para la "Copa del Invocador".

6. **Title:** In the rush to harvest body parts, death investigations have been upended - Los Angeles Times
   Link: https://www.latimes.com/business/story/2019-10-13/body-parts-harvesting-hinders-coroner-autopsies
   ID: /Users/parinita/Downloads/latimes/73482cb1-1321-4817-b7e7-d664a5755caf.html
   Description: The Times found a rising number of death investigations across the country were complicated or upended after transplantable body parts were taken before a coroner's autopsy.

7. **Title:** Crean en México plataforma para medir impacto ambiental de basura electrónica - Los Angeles Times
   Link: https://www.latimes.com/espanol/mexico/articulo/2019-11-09/crean-en-mexico-plataforma-para-medir-impacto-ambiental-de-basura-electronica
   ID: /Users/parinita/Downloads/latimes/0cc1e298-5411-4ef6-a1fb-7dd17253262f.html
   Description: Una plataforma digital, actualmente en fase de prueba en México, busca que los usuarios conozcan la cantidad de residuos electrónicos que generan y su efecto en los ecosistemas, y puedan tomar mejores decisiones sobre la forma en que deben disponer de su basura tecnológica.

8. **Title:** El nuevo Mitsubishi Mirage pudiera arribar a mediados del próximo año - Los Angeles Times
   Link: https://www.latimes.com/espanol/internacional/articulo/2019-11-09/el-nuevo-mitsubishi-mirage-pudiera-arribar-a-mediados-del-proximo-ano
   ID: /Users/parinita/Downloads/latimes/18b882c4-04a5-4f59-a0b9-107df2856b99.html
   Description: Mitsubishi actualizará el Mirage antes de su presentación en Tailandia el 18 de noviembre.

9. **Title:** Monos se volvieron inmunes tras inocularles virus del Ébola con mutación - Los Angeles Times
   Link: https://www.latimes.com/espanol/internacional/articulo/2019-11-09/monos-se-volvieron-inmunes-tras-inocularles-virus-del-ebola-con-mutacion
   ID: /Users/parinita/Downloads/latimes/ba09422e-fed8-49e0-9944-973c7e754bc1.html
   Description: Científicos han inoculado el virus del Ébola con una mutación en una proteína llamada VP3 a monos, que enfermaron y se volvieron inmunes, informó hoy la revista Cell Reports.

10. **Title:** Una tortuga tecnológica para detectar microplásticos en los océanos - Los Angeles Times
    Link: https://www.latimes.com/espanol/internacional/articulo/2019-11-09/una-tortuga-tecnologica-para-detectar-microplasticos-en-los-oceanos
    ID: /Users/parinita/Downloads/latimes/29a20707-ab40-4f93-9907-7f04c37ff9a5.html
    Description: Parece una tortuga, tiene sus aletas, su cabeza, su caparazón, pero no es una tortuga.

4. Specific URL in the result

Why do some pages have higher page ranks than others?

The PageRank algorithm evaluates the quality and quantity of links to a webpage. This evaluation helps it to determine a relative score of the page's importance. In order to measure this importance, the algorithm counts the number of inlinks and outlinks of the webpage. Inlinks are the number of webpages pointing to this page and outlinks is the number of webpages this page points to. If the number of inlinks is more, the rank of a page is higher. The measure of inlinks and outlinks is determined by calculating EdgeList and then the PageRank is then calculated using the python code in our case.

Comparison of top 10 results of 9 different queries on Lucene (Default) and PageRank:

Cannes	
Default Search Results	**PageRank Search Results**
https://www.latimes.com/topic/cannes-film-festival	https://www.latimes.com/sitemap
https://www.latimes.com/entertainment/movies/la-et-mn-cannes-wrap-critics-conversation-20190526-story.html	https://www.latimes.com/espanol/entretenimiento/articulo/2019-10-04/por-fin-llega-joker-aqui-un-resumen-de-todo-el-drama-que-ha-provocado
https://www.latimes.com/entertainment/movies/moviesnow/la-et-mn-cannes-2015-winners-20150524-story.html	https://www.latimes.com/entertainment-arts/movies/story/2019-11-08/documentaries-apollo-11-the-cave-sea-of-shadows-honeyland
https://www.latimes.com/entertainment/movies/la-et-mn-cannes-film-festival-award-winners-20190525-story.html	https://www.latimes.com/lifestyle/gallery/chloe-sevignys-five-favorite-frocks
https://www.latimes.com/entertainment/movies/la-et-mn-cannes-parasite-atlantics-awards-20190526-story.html	https://www.latimes.com/topic/film-festivals

https://www.latimes.com/entertainment/movies/la-et-mn-cannes-once-upon-a-time-in-hollywood-20190522-story.html	https://www.latimes.com/topic/cannes-film-festival
https://www.latimes.com/entertainment/movies/la-ca-mn-cannes-genre-parasite-wild-goose-lake-tarantino-20190522-story.html	https://www.latimes.com/people/genaro-molina
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/music/story/2019-11-06/whitney-houston-lesbian-relationship-robyn-crawford
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-arts/movies/story/2019-10-31/apple-disney-hbomax-streaming-movies
https://www.latimes.com/entertainment/movies/la-et-mn-cannes-robert-eggers-the-lighthouse-robert-pattinson-20190524-story.html	https://www.latimes.com/opinion/story/2019-09-17/patt-morrison-dana-thomas-fast-fashion-environment

Congress	
Default Search Results	**PageRank Search Results**
https://www.latimes.com/opinion/enterthefray/la-ol-new-york-rhode-island-congress-marijuana-20190116-story.html	https://www.latimes.com/opinion
https://www.latimes.com/politics/story/2019-10-28/jerry-brown-to-testify-to-congress-rebutting-trumps-criticism-of-california	https://www.latimes.com/espanol/politica
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
https://www.latimes.com/politics/la-pol-ca-richest-california-lawmakers-20180305-story.html	https://www.latimes.com/opinion/story/2019-11-09/facebook-twitter-political-ads-lies
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-used-bare-knuckle-tactics-to-take-down-an-obama-nominee
https://www.latimes.com/opinion/story/2019-10-16/democratic-debate-trump-congress-executive-action	https://www.latimes.com/politics/story/2019-11-09/devin-nunes-impeachment-witness-list
https://www.latimes.com/politics/story/2019-10-14/trump-ukraine-aid-congress-impeachment	https://www.latimes.com/environment/story/2019-11-08/eastern-sierra-towns-recreation-tourism-forest-service
https://www.latimes.com/politics/la-na-pol-congress-bioweapons-detection-system-20190414-story.html	https://www.latimes.com/politics/story/2019-11-08/steve-bannon-roger-stone-trump-campaign-wikileaks
https://www.latimes.com/politics/la-na-pol-congress-mueller-pressure-impeachment-20190529-story.html	https://www.latimes.com/opinion/story/2019-11-08/impeachment-trump-republicans-toomey
https://www.latimes.com/politics/la-pol-ca-richest-in-congress-darrell-issa-story.html	https://www.latimes.com/politics/story/2019-11-08/alexander-vindman-fiona-hill-impeachment-transcripts

Democrats	
Default Search Results	**PageRank Search Results**
https://www.latimes.com/politics/story/2019-11-07/house-democrats-subpoena-mick-mulvaney-in-impeachment-probe	https://www.latimes.com/california
https://www.latimes.com/opinion/story/2019-11-05/impeachment-donald-trump-democrats-political-cost-elections	https://www.latimes.com/opinion
https://www.latimes.com/politics/story/2019-11-03/iowa-democrats-candidate-beat-trump	https://www.latimes.com/politics
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
https://www.latimes.com/politics/story/2019-10-08/impeachment-trump-democrats-whistleblower-identity-testimony	https://www.latimes.com/politics/story/2019-11-08/democratic-primary-debate-moves-from-ucla-to-loyola-marymount-university
https://www.latimes.com/politics/story/2019-09-24/democrats-and-pelosi-appear-close-to-tipping-point-on-impeachment	https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-used-bare-knuckle-tactics-to-take-down-an-obama-nominee
https://www.latimes.com/politics/story/2019-09-29/trump-allies-and-democrats-reveal-the-deep-divisions-over-impeachment-inquiry	https://www.latimes.com/opinion/story/2019-11-09/elizabeth-warren-trump
https://www.latimes.com/politics/story/2019-08-01/assignment-post-debate-health-care-analysis-new-story	https://www.latimes.com/opinion/story/2019-11-09/devin-nunes-impeachment-witness-list
https://www.latimes.com/nation/ct-democrats-economic-plan-20170824-story.html	https://www.latimes.com/politics/story/2019-11-08/steve-bannon-roger-stone-trump-campaign-wikileaks
https://www.latimes.com/california/story/2019-10-21/california-independent-voters-can-cast-ballots-for-democrats-not-trump-march-2020-primary	https://www.latimes.com/opinion/story/2019-11-08/impeachment-trump-republicans-toomey

Patriot Movement	
Default Search Results	**PageRank Search Results**
https://www.latimes.com/archives/la-xpm-2012-oct-23-la-me-russell-means-20121023-story.html	https://www.latimes.com/environment
https://www.latimes.com/staff/megan-garvey	https://www.latimes.com/science
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
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-opera
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-stole-christmas-old-globe-key-largo-andy-garcia-geffen-playhouse

https://www.latimes.com/politics/story/2019-09-20/bernie-sanders-muslim-voters-2020	https://www.latimes.com/food/story/2019-11-07/kung-pao-chicken-history-recipe-gong-bao
https://www.latimes.com/sports/nba/la-sp-nba-best-game-ever-20181222-story.html	https://www.latimes.com/obituaries/story/2019-11-04/james-stern-obit-black-activist-who-led-neo-nazi-group-dies-amid-bid-to-destroy-it
https://www.latimes.com/sports/highschool/story/2019-11-06/girls-tennis-southern-section-playoff-results-and-updated-pairings	https://www.latimes.com/topic/column-one
https://www.latimes.com/entertainment/movies/la-et-mn-july-4-box-office-history-20180629-story.html	https://www.latimes.com/topic/mexico-americas
https://www.latimes.com/entertainment/movies/la-et-mn-july-4-box-office-history-20180629-story.html	https://www.latimes.com/topic/museums

Republicans	
Default Search Results	**PageRank Search Results**
https://www.latimes.com/opinion/story/2019-10-23/house-republicans-storm-hearing-impeachment	https://www.latimes.com/
https://www.latimes.com/politics/story/2019-10-30/democrats-hoped-theyd-win-over-republicans-on-impeachment-but-its-not-looking-that-way-so-far	https://www.latimes.com/opinion
https://www.latimes.com/opinion/story/2019-11-08/impeachment-trump-republicans-toomey	https://www.latimes.com/opinion/la-letter-to-the-editor-htmlstory.html
https://www.latimes.com/politics/story/2019-10-04/vulnerable-senate-republicans-impeachment	https://www.latimes.com/opinion/story/2019-11-09/facebook-twitter-political-ads-lies
https://www.latimes.com/california/story/2019-10-16/california-republicans-democrats-wildfires-homelessness	https://www.latimes.com/opinion/story/2019-11-08/berlin-wall-30th-anniversary-cold-war-donald-trump
https://www.latimes.com/politics/story/2019-10-23/impeachment-deposition-room-stormed-by-republicans	https://www.latimes.com/politics/story/2019-11-08/elizabeth-warren-used-bare-knuckle-tactics-to-take-down-an-obama-nominee
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https://www.latimes.com/opinion/story/2019-11-06/trump-republicans-democrats-predictions-polling-2020	https://www.latimes.com/opinion/story/2019-11-09/sat-uc-college-admissions
https://www.latimes.com/politics/story/2019-11-06/republicans-election-trump-candidate-loses-kentucky	https://www.latimes.com/opinion/story/2019-11-08/impeachment-trump-republicans-toomey

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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
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
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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/elizabeth-warren-used-bare-knuckle-tactics-to-take-down-an-obama-nominee
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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/devin-nunes-impeachment-witness-list
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Default Search Results	**PageRank Search Results**
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https://www.latimes.com/sports/olympics	https://www.latimes.com/sitemap
https://www.latimes.com/people/david-wharton	https://www.latimes.com/sports
https://www.latimes.com/people/david-wharton	https://www.latimes.com/opinion
https://www.latimes.com/sports/olympics/story/2019-10-16/2020-tokyo-olympics-marathon-sapporo-avoid-heat	https://www.latimes.com/business
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https://www.latimes.com/sports/story/2019-11-05/ioc-anti-doping-2020-tokyo-olympics	https://www.latimes.com/world-nation

https://www.latimes.com/sports/olympics/story/2019-10-10/naomi-osaka-chooses-japan-over-u-s-2020-tokyo-olympics	https://www.latimes.com/environment
https://www.latimes.com/sports/story/2019-07-23/tokyos-rough-road-to-2020-summer-olympics	https://www.latimes.com/newsroom-directory
https://www.latimes.com/people/david-wharton	https://www.latimes.com/politics

Stock	
Default Search Results	**PageRank Search Results**
https://www.latimes.com/business/story/2019-11-06/uber-lock-up-period-ends-with-falling-stock-protests	https://www.latimes.com/
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Virus	
Default Search Results	**PageRank Search Results**
https://www.latimes.com/espanol/internacional/articulo/2019-11-09/monos-se-volvieron-inmunes-tras-inocularles-virus-del-ebola-con-mutacion	https://www.latimes.com/terms-of-service

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https://www.latimes.com/science/story/2019-10-21/virus-afm-illness-paralyzing-kids	https://www.latimes.com/espanol/internacional
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
https://www.latimes.com/socal/daily-pilot/news/tn-dpt-me-west-nile-20170707-story.html	https://www.latimes.com/business/story/2019-10-13/body-parts-harvesting-hinders-coroner-autopsies
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https://www.latimes.com/local/lanow/la-me-ln-virulent-newcastle-disease-outbreak-in-southern-california-20190607-story.html	https://www.latimes.com/espanol/internacional/articulo/2019-11-09/el-nuevo-mitsubishi-mirage-pudiera-arribar-a-mediados-del-proximo-ano
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Overlap Chart: