

CSCI572 Hw4 Report Haoyu Jiang

Steps:

Step1.

I followed the instructions at link to install Solr directly in Mac and learned how to create core and index file following INIndexingwithTIKAV3.pdf. Then I downloaded LA Time which contains a set of html files and the mapping file contains mappings between filenames and urls. The latimes file and mapping file were putted in the solr folder. I created new core called “csci572hw4” in solr and index the html files using bash sentences as followed:

```
bin/solr create -c csci572hw4
```

```
bin/post -c csci572hw4 -filetypes html /Users/daisy/solr-7.5.0/latimes/
```

At this time, I could go to <http://localhost:8983/solr/#/csci572hw4> and query with different condition to get feedback sorted based on Lucene.

Then I tried to create a php client called client.php. Before writing client.php, I git clone solr-php-client in /Library/WebServer/Documents/ and put the client.php in the same path. At the same time, I activated OS X’s builtin Apache Web Server and PHP following the link: <https://cachecrew.com/activating-os-xs-builtin-apache-web-server-php/>.

My client.php realized three steps:

1. Accepted input from the user in a HTML form and sent the request to the Solr server.
2. After Solr server processing the query, it returns the results parsed by the PHP program and formatted as clickable title, clickable url, ID and description to display.
3. Realized previous page and next page function in order to check all results.

During the writing period, I continuously changed and improved the code with checking the results on the url: <http://localhost/client.php>.

Step2

For the edgelist part, I detected edge between two files representing a link between two and used these mappings to filter out urls that are not present in the mapping file by java as followed:

```
String dirpath = "/Users/daisy/Desktop/latimes/";
File dir = new File(dirpath);
Set<String> edges = new HashSet<String>();
PrintWriter writer = new PrintWriter( fileName: "edgelist.txt", csns: "UTF-8");

BufferedReader br = new BufferedReader(new FileReader( fileName: "/Users/daisy/Desktop/URLtoHTML_latimes.csv"));
String line = null;

HashMap<String,String> fileurlmap = new HashMap<String, String>();
HashMap<String,String> urlfilemap = new HashMap<String, String>();

while((line=br.readLine())!=null){
    String str[] = line.split( regex: ",");
    fileurlmap.put(str[0], str[1]);
    urlfilemap.put(str[1], str[0]);
}

for (File file: dir.listFiles()){
    Document doc = Jsoup.parse(file, charsetName: "utf-8",fileurlmap.get(file.getName()));
    Elements links = doc.select( cssQuery: "a[href]");

    Elements links = doc.select("a[href]");

    System.out.println(doc);
    for(Element link:links) {
        String url = link.attr( attributeKey: "abs:href").trim();
        if (urlfilemap.containsKey(url)) {
            edges.add(file.getName() + ' ' + urlfilemap.get(url));
        }
    }
}
```

For

the pagerank part, I implemented networkx library in python to get a dictionary of graph nodes with corresponding PageRank scores with parameters: “**alpha=0.85**, **personalization=None**, **max_iter=30**, **tol=1e-06**, **nstart=None**, **weight='weight'**, **dangling=None**”.

```
import networkx as nx

G = nx.read_edgelist("/Users/daisy/Desktop/edgelist.txt", create_using=nx.DiGraph())
pr = nx.pagerank(G,alpha=0.85, personalization=None, max_iter=30, tol=1e-06, nstart=None, weight='weight',dangling=None)
print(len(pr))
with open('external_pageRankFile','w') as file:
    for k,v in pr.items():
        file.write("/Users/daisy/solr-7.5.0/latimes/" + k + '=' + str(v) + '\n')
```

Then I put the pagerankfile without “.txt” in solr/data. Change managed-schema file and solrconfig.xml by adding parameters following the instructions.

After reloading the index, I could choose pagerankfile desc/asc sorting with query to get different feedback in solr UI. Then I revised the client.php and added pagerank desc sorting so that I could choose this kind of sorting at <http://localhost/client.php> and get answers with the ranking based on PageRank scores that were defined in the external file.

Step3

Compared the results of the two ranking algorithms under different queries.

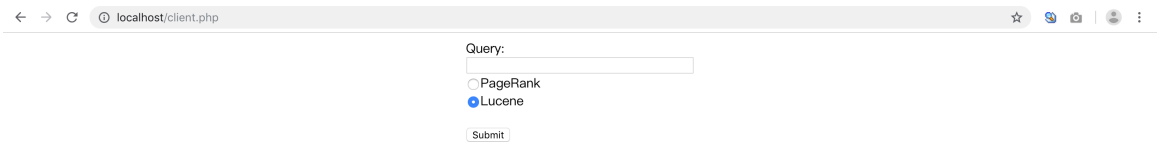
Explanation

Explanation for higher PageRank values pages:

Pages with higher PageRank values tend to be linked (or have many incoming links) by many other pages. Especially a page that is linked to by many pages with high PageRank receives a high rank itself.

Screenshots

Initial page



The results for Lucene(Default)

Query:
Donald Trump
☐ PageRank
☒ Lucene

Results 1 – 10 of 10696: [previous page](#) [next page](#)

1. Title: Donald Trump releases new doctor's letter declaring clean bill of health
Link: <http://www.latimes.com/nation/politics/trailguide/la-na-trailguide-updates-trump-release-new-doctor-s-letter-1473951652-htmlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/292c1d87-3922-48e2-90ea-0b3db47fae4b.html
Description: N/A

2. Title: Trump offers people in the country illegally a way to stay. Join the military
Link: <http://www.latimes.com/nation/politics/trailguide/la-na-trailguide-updates-donald-trump-open-to-allowing-those-in-1473296491-htmlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/73df42d1-bf4e-49d1-9e0e-140d48efb0ad.html
Description: N/A

3. Title: Why Donald Trump keeps popping up in local races he has nothing to do with – Los Angeles Times
Link: <http://www.latimes.com/politics/la-pol-ca-donald-trump-california-races-downticket-20160527-snap-htmlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/a3d9c7e6-d00d-4d23-b449-23c8271be423.html
Description: Donald Trump is the gift that keeps on giving for Democrats in downticket races around California. Many running against Republicans are trying to graft Trump's unfavorable image on to their opponents. And even those who face no Republican opposition are tapping into The Specter of The Donald to raise money, win votes and promote themselves.

4. Title: Following Trump's money exposes the awful truth: Our president is a 'financial vampire'
Link: <http://www.latimes.com/opinion/op-ed/la-oe-johnston-trump-cons-and-cheats-20181004-story.html>
ID: /Users/daisy/solr-7.5.0/latimes/78ff4abb-877a-4c13-a5e2-33fa09d5ef8e.html
Description: For many Americans the truth too horrible to consider is that Donald Trump could be a criminal, a wildly successful con artist.

5. Title: The moment when the Donald Trump and Kim Jong Un impersonators were escorted back to their seats
Link: <http://www.latimes.com/sports/olympics/la-sp-olympics-live-updates-the-moment-when-the-donald-trump-and-kim-151817562-htmlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/1d0a2e04-2478-44d9-9234-b959a0a25746.html
Description: There was a weird scene in the middle of the parade of nations at the Opening Ceremony of the Pyeongchang Olympic Games. Two men dressed as U.S. President Donald Trump and North Korean leader Kim Jong Un came down the steps leading to the area where the media was sitting and once at the first row...

6. Title: Whom do you believe, Michael Cohen or Donald Trump? Yes, that's a rhetorical question
Link: <http://www.latimes.com/opinion/la-ol-enter-the-fray-whom-to-believe-michael-cohen-or-donald-1532702692-htmlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/e78af783-64ca-4d2d-8004-3aa5c6f5debd.html
Description: With this president, the truth usually is the opposite of whatever he says.

7. Title: Dos funerales y una boda: el rechazo a Donald Trump
Link: <http://www.latimes.com/espanol/california/la-es-cas-funerales-y-una-boda-el-rechazo-a-donald-trump-20180828-story.html>
ID: /Users/daisy/solr-7.5.0/latimes/ed6c17fa-2399-4f5d-8d69-37315a2fde3d.html
Description: La exclusión de Trump de eventos de luto y celebración de alto perfil, está emergiendo como un patrón durante sus 19 meses en el cargo.

8. Title: Audio reveals Donald Trump making lewd comments about women
Link: <http://www.latimes.com/nation/politics/trailguide/la-na-live-updates-trailguide-1475872277-htmlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/de5298bb-0d80-43d5-be92-dfb62c18d84a.html
Description: N/A

9. Title: Donald Trump might actually have to shoot someone on Fifth Avenue before GOP leaders say, 'Enough'
Link: <http://www.latimes.com/opinion/la-ol-enter-the-fray-donald-trump-might-actually-have-to-1535040294-htmlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/e1308a8f-ab4b-4f98-b0c0-8a2e3087303f.html
Description: Even as Republican leaders tell their candidates facing tough congressional elections to speak out on Trump, they refuse to condemn the president themselves.

10. Title: On Sunday's '60 Minutes,' meet President-elect Donald Trump – Los Angeles Times
Link: <http://www.latimes.com/entertainment/tv/la-et-st-donald-trump-60-minutes-20161110-story.html>
ID: /Users/daisy/solr-7.5.0/latimes/26ee782-433e-43f1-8866-4a79a4961a41.html
Description: Donald Trump will give his first extensive, post-election interview on Sunday's "60 Minutes."

The results for PageRank

Query:
Donald Trump

☒ PageRank

☐ Lucene

Submit

Results 1 – 10 of 10696: [previous page](#) [next page](#)

1. Title: [Essential Washington](#)
Link: <http://www.latimes.com/politics/washington/la-na-pol-essential-washington-updates-2018-hlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/7a67bee9-5acc-45ad-80e4-e4d482cff8f2.html
Description: Here's our look at the Trump administration and the rest of Washington. Our coverage of California politics is here. Follow us on Twitter and sign up for the free politics newsletter.

2. Title: [David Lauter](#)
Link: <http://www.latimes.com>
ID: /Users/daisy/solr-7.5.0/latimes/ecbe433a-da94-4166-b381-e258ffb9ae5a.html
Description: N/A

3. Title: [Enter the Fray](#)
Link: <http://www.latimes.com/opinion/la-pl-enter-the-fray-hlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/ca8c489a-a449-428e-8333-4cad21c34e10.html
Description: First takes on the news of the minute from the L.A. Times Opinion section.

4. Title: [Emotional hearing comes to a close with vote on Kavanaugh scheduled for Friday](#)
Link: <http://www.latimes.com/politics/la-na-pol-kavanaugh-ford-hearing-hlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/b656bc20-2d12-49b9-bfe4-3634a04d93af.html
Description: Live updates on Supreme Court nominee Brett Kavanaugh's Senate hearing

5. Title: [Sign up for Essential Politics – Los Angeles Times](#)
Link: <http://www.latimes.com/politics/la-politics-newsletter-signup-2018-story.html>
ID: /Users/daisy/solr-7.5.0/latimes/21cc9bf4-7ffa-4c31-9651-7c6444fb860c.html
Description: Sign up for our free Essential Politics newsletter.

6. Title: [Michael Hiltzik](#)
Link: <http://www.latimes.com>
ID: /Users/daisy/solr-7.5.0/latimes/585023e1-aadb-4b09-b12f-cf7f63be0f28.html
Description: N/A

7. Title: [Today in Entertainment: Bryan Singer tries to bat down 'reckless' allegations; Ariana Grande and Pete Davidson reportedly split](#)
Link: <http://www.latimes.com/entertainment/la-et-entertainment-news-updates-2018-hlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/6ea73e77-fa2f-46f5-8b77-7d10bb9a20a9.html
Description: Here's what's happening in the world of entertainment news.

8. Title: [Los Angeles Times – California, national and world news](#)
Link: <http://www.latimes.com>
ID: /Users/daisy/solr-7.5.0/latimes/b2d20b14-88b0-47c2-b286-e490dea60a7f.html
Description: The L.A. Times is a leading source of breaking news, entertainment, sports, politics, and more for Southern California and the world.

9. Title: [David Lazarus](#)
Link: <http://www.latimes.com>
ID: /Users/daisy/solr-7.5.0/latimes/a3568ca0-fac6-4484-b258-e75f04a04d89.html
Description: N/A

10. Title: [California politics news feed](#)
Link: <http://www.latimes.com/politics/essential/la-pol-ca-essential-politics-may-2018-hlstory.html>
ID: /Users/daisy/solr-7.5.0/latimes/4375b4c1-1184-4a1a-a0be-6b2cc494d6e1.html
Description: The L.A. Times' in-the-moment look at California political and government news.

Actual webpage after clicking on one result link

Part of this page:

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TOPICS 🔍 SEARCH Los Angeles Times SUBSCRIBE 4 weeks for only 99¢ LOG IN

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Essential Washington

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1154 POSTS


MIDTERM ELECTION TRADE BUDGET ECONOMY ENVIRONMENT MIDDLE EAST SUPREME COURT

NORTH KOREA IMMIGRATION CONGRESS WHITE HOUSE RUSSIA ✕ CLEAR 📅

12:33 p.m.

By KURTIS LEE

Here's how a controversial voting system will decide a congressional race in Maine



STORY FEED

NOV 11, 2018

12:33 P.M.

Here's how a controversial voting system will decide a congressional race in Maine

NOV 9, 2018

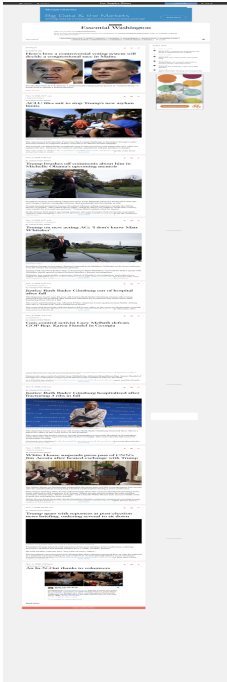
11:57 A.M.

ACLU files suit to stop Trump's new asylum limits

9:16 A.M.

Trump brushes off comments about him in

Whole page:



Tables

Donald Trump

Lucene	PageRank.
http://www.latimes.com/nation/politics/tailguide/la-na-trailguide-updates-trump-release-new-doctor-s-letter-1473951652-htmlstory.html	http://www.latimes.com/politics/washington/la-na-pol-essential-washington-updates-2018-htmlstory.html
http://www.latimes.com/nation/politics/tailguide/la-na-trailguide-updates-donald-trump-open-to-allowing-those-in-1473296491-htmlstory.html	http://www.latimes.com
http://www.latimes.com/politics/la-pol-ca-donald-trump-california-races-downticket-20160527-snap-htmlstory.html	http://www.latimes.com/opinion/la-ol-enter-the-fray-htmlstory.html

http://www.latimes.com/opinion/op-ed/la-oe-johnston-trump-cons-and-cheats-20181004-story.html	http://www.latimes.com/politics/la-na-pol-kavanaugh-ford-hearing-htmlstory.html
http://www.latimes.com/sports/olympics/la-sp-olympics-live-updates-the-moment-when-the-donald-trump-and-kim-1518187562-htmlstory.html	http://www.latimes.com/politics/la-politics-newsletter-signup-2018-story.html
http://www.latimes.com/opinion/la-ol-enter-the-fray-whom-to-believe-michael-cohen-or-donald-1532702692-htmlstory.html	http://www.latimes.com
http://www.latimes.com/espanol/politica/la-es-dos-funerales-y-una-boda-el-rechazo-a-donald-trump-20180828-story.html	http://www.latimes.com/entertainment/la-et-entertainment-news-updates-2018-htmlstory.html
http://www.latimes.com/nation/politics/trailguide/la-na-live-updates-trailguide-1475872277-htmlstory.html	http://www.latimes.com
http://www.latimes.com/opinion/la-ol-enter-the-fray-donald-trump-might-actually-have-to-1535040294-htmlstory.html	http://www.latimes.com
http://www.latimes.com/entertainment/television/la-et-st-donald-trump-60-minutes-20161110-story.html	http://www.latimes.com/politics/essential/la-pol-ca-essential-politics-may-2018-htmlstory.html

LA Lakers

Lucene	PageRank.
http://www.latimes.com	http://www.latimes.com/sports/highschool/varsity-times/la-sp-high-school-sports-

	updates-southern-california-2017-htmlstory.html
http://www.latimes.com	http://www.latimes.com/politics/washington/la-na-pol-essential-washington-updates-2018-htmlstory.html
http://www.latimes.com/sports/lakers/la-sp-lakers-plaschke-20180924-story.html	http://www.latimes.com/sports/dodgers/la-sp-live-dodgers-brewers-nlcs-htmlstory.html
http://www.latimes.com/sports/lakers/la-sp-lakers-plaschke-20180924-story.html	http://www.latimes.com/sports/la-sp-live-dodgers-braves-nlds-htmlstory.html
http://www.latimes.com	https://www.latimes.com/sports/la-sp-live-dodgers-braves-nlds-htmlstory.html
http://www.latimes.com	http://www.latimes.com
http://www.latimes.com/sports/lakers/la-sp-lakers-media-day-20180924-story.html	http://www.latimes.com/opinion/la-ol-enter-the-fray-htmlstory.html
http://www.latimes.com	http://www.latimes.com/politics/la-na-pol-kavanaugh-ford-hearing-htmlstory.html
http://www.latimes.com/sports/lakers/la-sp-lakers-sidebar-20180924-story.html	http://www.latimes.com/politics/la-politics-newsletter-signup-2018-story.html
http://www.latimes.com/sports/lakers/la-sp-lakers-5-questions-20181013-story.html	http://www.latimes.com/sports/highschool/varsity-times/la-sp-high-school-sports-updates-get-the-eric-sondheimer-s-latest-1490657918-htmlstory.html

Star Wars

Lucene	PageRank.
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http://www.latimes.com/entertainment/movies/la-ca-mn-star-wars-timeline-20180516-story.html	http://www.latimes.com/politics/la-politics-newsletter-signup-2018-story.html
http://www.latimes.com/entertainment/movies/la-et-mn-star-wars-last-jedi-characters-20171214-htmllstory.html	http://www.latimes.com/entertainment/la-et-entertainment-news-updates-2018-htmllstory.html
http://www.latimes.com/travel/themeparks/la-trb-star-wars-land-disneyland-20150817-story.html	http://www.latimes.com
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https://www.latimes.com/fashion/la-ig-wwd-rag-and-bones-star-wars-20171106-story.html	http://www.latimes.com/about/la-privacypolicy-20180703-story.html
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http://www.latimes.com/entertainment/herocomp/lex/la-et-hc-jon-favreau-star-wars-mandalorian-20181003-htmllstory.html	http://www.latimes.com
http://www.latimes.com/entertainment/herocomp/lex/la-et-hc-comic-con-star-wars-fandom-20180723-htmllstory.html	http://www.latimes.com
http://www.latimes.com/brandpublishing/travelplus/lasvegasguide/features/la-ss-vegas-the-hot-list-burlesque-star-wars-speakeasies-20180620dto-story.html	http://www.latimes.com/travel/la-tr-california-bucket-list-updates-2017-htmllstory.html
http://www.latimes.com/entertainment/music/la-et-ms-star-wars-secrets-empire-20180116-story.html	http://www.latimes.com

Lebron James

Lucene	PageRank.
http://www.latimes.com/sports/lakers/la-sp-lakers-lebron-james-diet-20181004-story.html?outputType=amp	http://www.latimes.com/opinion/la-ol-enter-the-fray-htmlstory.html
http://www.latimes.com/sports/lakers/la-sp-lakers-lebron-james-20181013-story.html?outputType=amp	http://www.latimes.com
http://www.latimes.com/sports/lakers/la-sp-lakers-nuggets-20181002-story.html	http://www.latimes.com
https://www.latimes.com/sports/lakers/la-sp-lakers-nuggets-20181002-story.html	http://www.latimes.com
http://www.latimes.com/sports/lakers/la-sp-lakers-lebron-rondo-defense-20180930-story.html?outputType=amp	http://www.latimes.com
http://www.latimes.com/sports/nba/la-sp-lebron-james-20160620-snap-story.html	http://www.latimes.com
http://www.latimes.com/sports/lakers/la-sp-lakers-lebron-james-20181013-story.html	http://www.latimes.com/entertainment/la-et-tiff-2018-toronto-film-festival-updates-htmlstory.html
https://www.latimes.com/sports/lakers/la-sp-lakers-lebron-james-20181013-story.html	http://www.latimes.com
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2018 World Cup

Lucene	PageRank.
http://www.latimes.com/sports/la-sp-42nd-ryder-cup-pictures-2018-photogallery.html	http://www.latimes.com/sports/highschool/varsity-times/la-sp-high-school-sports-updates-southern-california-2017-htmlstory.html
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http://www.latimes.com/sports/soccer/worldcup/la-sp-mexico-korea-1998-world-cup-2018-world-cup-20180622-story.html	http://www.latimes.com/sports/la-sp-live-dodgers-braves-nlds-htmlstory.html
http://www.latimes.com/espanol/deportes/la-world-cup-espanol-updates-2018-b-lgica-detiene-en-seco-a-brasil-1530907910-htmlstory.html	https://www.latimes.com/sports/la-sp-live-dodgers-braves-nlds-htmlstory.html
http://www.latimes.com/espanol/deportes/la-world-cup-espanol-updates-2018-empresario-que-fue-secuestrado-en-mexico-1530960855-htmlstory.html	http://www.latimes.com
http://www.latimes.com/espanol/deportes/la-world-cup-espanol-updates-2018-video-brasil-anota-un-autogol-y-b-lgica-1530901739-htmlstory.html	http://www.latimes.com/opinion/la-ol-enter-the-fray-htmlstory.html
http://www.latimes.com/espanol/deportes/la-world-cup-espanol-updates-2018-	http://www.latimes.com/politics/la-na-pol-kavanaugh-ford-hearing-

video-grave-error-de-muslera-le-regala-1530891077-htmlstory.html	htmlstory.html
http://www.latimes.com/espanol/deportes/la-world-cup-espanol-updates-2018-video-francia-acaricia-las-semifinales-1530889005-htmlstory.html	http://www.latimes.com/politics/la-politics-newsletter-signup-2018-story.html
http://www.latimes.com/espanol/deportes/la-world-cup-espanol-updates-2018-aficionados-de-rusia-agradecen-a-1530473387-htmlstory.html	http://www.latimes.com/sports/highschool/varsity-times/la-sp-high-school-sports-updates-get-the-eric-sondheimer-s-latest-1490657918-htmlstory.html

North Korea

Lucene	PageRank.
http://www.latimes.com/world/la-fg-trump-kim-north-korea-summit-will-president-trump-bring-up-north-1528706649-htmlstory.html	http://www.latimes.com/politics/washington/la-na-pol-essential-washington-updates-2018-htmlstory.html
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Paul Allen

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overlap graph

Query Name	Overlap Number
Donald Trump	0
LA Lakers	1
Star Wars	0
Lebron James	2
2018 World Cup	0
North Korea	0

Hurricane Florence	0
Paul Allen	2

