

# Vortex (Team 20)

By:

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## 1. INTRODUCTION

We thought of this project as a collaborative team effort. Without one component the creation of the other one is nearly impossible. We all decided to have two people work on each component so that in case of doubts etc., we can easily resolve them faster. We collectively decided to work on HW3 for the search engine and the crawling & use EMR for indexing and page ranking. There were many decisions we had to make as a team which helped a lot.

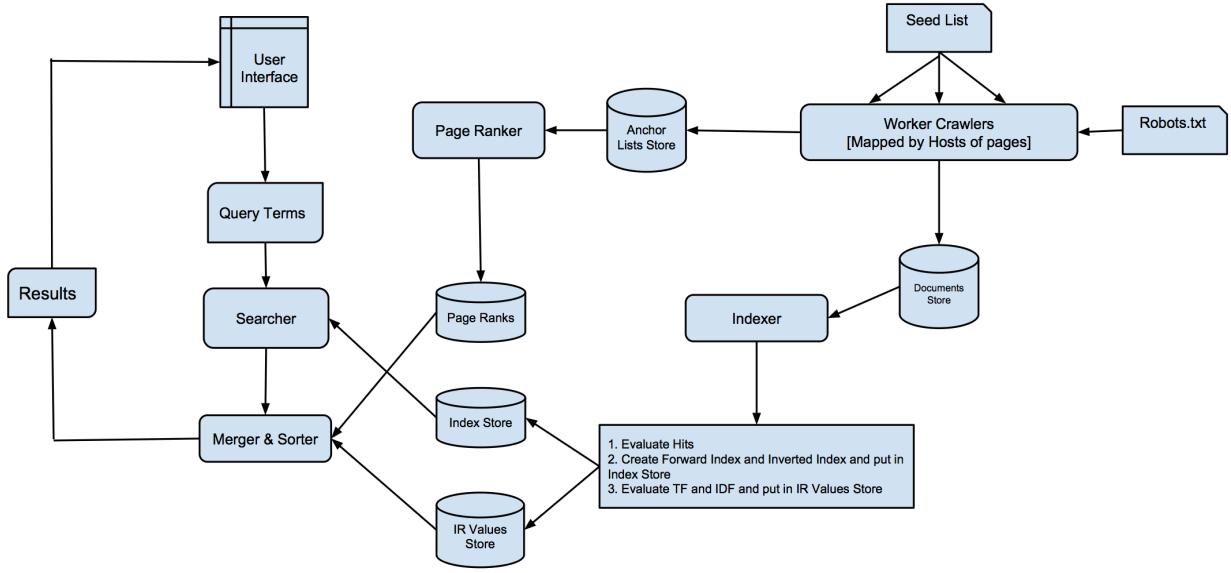
When we started to build code for the system, we decided to have everyone focus on crawling and once a layout of the architecture was ready, we shifted to indexing and so on. It was really important to have a decision on the data structures to be used as the format of the data one person returns majorly affects the next person. Besides this, there were many design issues to be resolved at each step and within each component, which was taken care of. Overall, we all built a single node job first and then expanded it to scale to multiple workers on local machines. Once, we had this framework ready, we scaled it to EC2 machines and rigorously tested and changed the code constantly to deliver a more concrete and robust code.

Division of labour:

- HTML crawling + Image/PDF crawling: Lasya, Urvashi
- Indexing: Sonal
- Page Ranking: Karthik
- Search Engine: Urvashi, Lasya
- User Interface: Michael Fisher
- Pulling/ Pushing of Data From And To S3: Karthik, Lasya
- Other extra credits: Team
- Integration/ Testing: Team

Overall Architecture:

We kept our architecture simple yet scalable. We implemented the architecture we decided on which is diagrammatically described below:



The whole system is majorly divided into five components

- 1) Crawler
- 2) Indexer
- 3) Page Ranker
- 4) Search Engine
- 5) UI

## 2. ARCHITECTURE

### Crawling:

Crawler mainly followed the Mercator design.  
This design choice was robust and scalable.

Instead of having a URL frontier, we decided to persist the URLs to be crawled.  
The major reasons were that URL frontier as queue would occupy more program memory and cannot scale.

We had a distributed architecture where we had 10 EC2 instances for crawling.  
Each instance was coordinated by the master instance. The workers(EC2), had crawl threads, which crawled and mapped URLs (by SHA-1) to the respective workers.

We used our own HW3 map reduce framework and tweaked it to Map Push framework.

Data was pushed for every 40 seconds. Whenever data crawled exceeded a certain limit even if it were not 40 seconds we ensured push of data so as to avoid network bottlenecks.

At every push to a worker it created a seed file (txt file) (which it would crawl later). Immediately after crawling we ensured deletion of all data in the seed(URL frontier) to optimize memory usage.  
We constantly kept monitoring memory limits and persisting data as need. We handled all possible exceptions so that no matter what happened crawl did not stop.

We also provided a start and stop feature, that is saved crawl state for crawling, so that incase of halting we could continue.

It was launched on ten instances. We hashed the URLs to respective workers on the basis of their hostnames.

Crawl was constantly monitored by logging each and every possible exception. We implemented local content seen by using a relational like database design where for every document checksum content was stored only once. We were polite!

We decided on the number of threads and instances after a lot experimentation and chose the optimum. We also crawled images and PDF documents. We extracted URL and URL to links during the crawl which would be later utilized by the Page Rank component.

We ensured clean coding standards and perfect thread synchronization and optimization.

Some snapshots of the crawl rate of each EC2 instance (Worker)

---

Time elapsed since start Sat May 03 05:22:34 UTC 2014					
Current time Sat May 03 07:03:51 UTC 2014					
IP:Port	Status	Keys Written	Seed count	Creation count	Line Count of BFR
54.86.140.150:8011	mapping	5424	5	108	5247
54.86.0.95:8015	mapping	8057	6	78	957
54.86.119.139:8014	mapping	11213	5	88	5904
54.86.140.15:8013	mapping	6800	5	86	10754
54.86.140.20:8012	mapping	4938	4	59	18808
54.86.120.126:8018	mapping	11279	5	93	3132
54.86.120.7:8016	mapping	6648	6	125	7392
54.86.118.48:8017	mapping	8587	6	102	6401

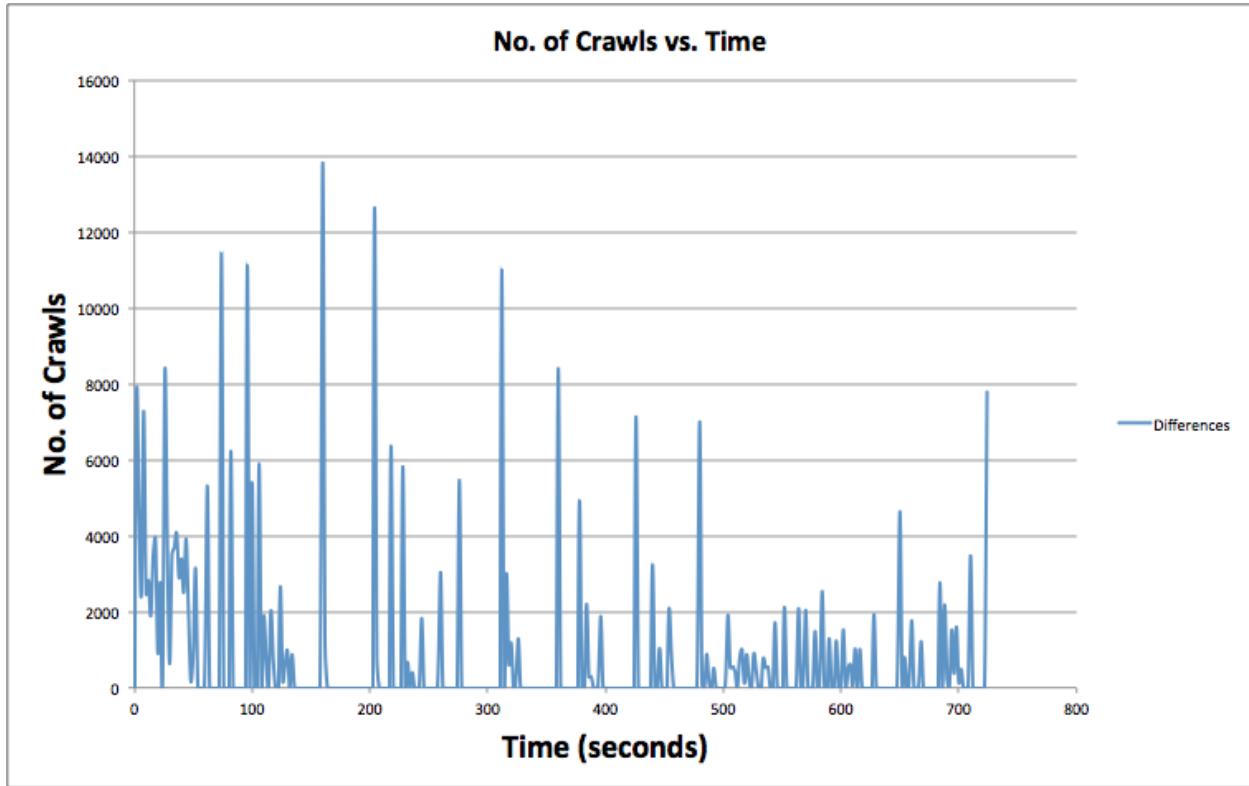
Total crawl count 62946

Seed count indicates the URL seed number being read and creation count the no of seed files still to read, both of them are synonymous to URL frontier. The above results are experimental results with 8 instances. After observing the crawl performance on 8 instances we decided to go with 10 EC2 instances with 10 crawl threads on each.

Approximate crawl rate for 2 mins 53 seconds

Time elapsed since start Elapsed Time: 0:2:53							
IP:Port	Status	HTML Pages	Images	PDFs	Seed count	Creation count	BFR Line count
54.86.117.164:8011	mapping	387	17	0	2	9	550
54.86.117.240:8015	mapping	520	496	0	3	8	1281
54.86.116.102:8014	mapping	466	234	0	3	9	1164
54.86.117.71:8013	mapping	464	147	0	3	7	1667
54.86.117.192:8012	mapping	472	1525	0	3	8	3935
54.86.115.56:8018	mapping	1170	125	0	3	12	1396
54.86.117.233:8019	waiting	409	0	0	2	11	643
54.86.115.17:8016	mapping	593	510	0	3	11	1924
54.86.108.19:8017	mapping	517	664	1	3	10	1979
54.86.114.207:8020	mapping	66	0	0	2	3	93
Total HTML crawl count 5064							
Total IMAGE count 3718							
Total pdf count 1							
Total crawl count 8783							

We crawled at an average of 120-150 documents per worker for 10 workers.



The number of crawls on all the workers recorded every 2 seconds for a period of 6 hours (as sent to master).

### **Indexing:**

Indexing consists of a Map Reduce Job on EMR. The data for indexing was obtained from the berkeley db store of HW3 framework where it was distributed among the workers. We used Docid and docContent along

with the url of the document as an input to the indexer. The data was pushed into a S3 bucket consisting of files of 1000 documents each using the HW3 framework. A HashMap <Word, <feature,count>> was used in the Mapper to store intermediate results before emitting to the reducer which included the following information to support fancy hits:

For All PDF/HTML and Images:

- Positions of the word occurring in the host/URL/Title.
- Normalized TF score based on the formula for vector model:

$$f(i,j) = a + (1-a) * freq(i,j) / max(freq(i,j))$$

a=0.5

- URL of the document.

For HTML and PDF:

- Number of bold/italic/h1/h2/h3 and anchor tag occurrences for the word in the document.

A **Lexicon** of English words originally consisting of 349990 words was used for indexing ensuring extensive search and a word not in the lexicon was added based on the heuristic of its occurrences in the Title, URL and the domain name. The **Stopwords** for English language were removed and the words were **lemmatized** using Morpha stemmer before indexing. The indexing process also ensured taking into account only english words and not adding other words [e.g. special characters like “??????”, “&&&\*”, UTF-8 characters from other languages like russian,chinese etc. to the lexicon using **pattern matching** for only english characters as the vague data was bloating the size of database and was not of any use.

The reduce task was to aggregate all the data for a word with its documentId and emit the words already in the lexicon or the ones that are to be added to the lexicon as decided by the mapper task. The results were output in an S3 bucket on Amazon Webservices. The results were then pulled from the S3 bucket using a distributed framework of HW3 where the word was hashed based on SHA-1 and stored along with its inverted index in the corresponding worker's berkeley Db for inverted index. The decision of using EMR was based on the large amount of data to be processed by the map reduce job for indexing and its potential robustness and scalability to increase the cluster size as and when required.

### **Page Ranking:**

We have implemented the same algorithm as Google's Page Rank on Elastic MapReduce. The jobs will be iteratively running, the output of one job will be the input of the next job, until it converges. When it converges, the primaryOutput Folder contains the final ranks. As we have discovered that there are a lot of urls which are yet to be crawled, but were still added in the database of the output links. Therefore, we have written a mapreduce job to compute which nodes are the dangling nodes, and not consider them as children when evaluating the rank to be distributed to the children.

On testing on a small corpus initially, we have obtained the following results, which gave us further insights about the intra-domain page ranking.

```

http://musicmoz.org/: 491.6165
http://www.dmoz.org/: 184.47379
http://www.dmoz.org/docs/en/termsofuse.html: 166.30946
https://dev.twitter.com/docs/embedded-tweets: 122.73691
http://www.dmoz.org/help/en/helpmain.html: 100.88622
http://blog.dmoz.org/: 82.67614
http://www.dmoz.org/erz/: 81.93546
https://twitter.com/dmoz: 78.899376
http://www.dmoz.org/guidelines/: 77.581055
http://www.dmoz.org/about.html: 77.21874
http://www.dmoz.org/docs/en/license.html: 66.92537
http://www.dmoz.org/docs/en/about.html: 55.658226
http://creativecommons.org/licenses/by/3.0/: 49.062088
https://www.mediawiki.org/wiki/Special:MyLanguage/How_to_contribute: 48.346886
http://www.dmoz.org/docs/en/help/become.html: 41.288692
http://www.dmoz.org/docs/en/help/submit.html: 39.575764
http://www.dmoz.org/docs/en/socialcontract.html: 39.381218
http://www.dmoz.org/docs/en/rdf.html: 39.275185
http://www.dmoz.org/World/: 34.372574
http://www.dmoz.org/license.html: 33.191933
http://creativecommons.org/licenses/by-sa/3.0/: 32.755978
https://twitter.com/privacy: 29.370615
https://twitter.com/tos: 29.370611
http://www.addthis.com/bookmark.php: 28.721237
https://twitter.com/: 28.185879
http://www.dmoz.org/docs/en/guidelines/regional/: 25.360262
http://www.dmoz.org/socialcontract.html: 24.45645
http://www.dmoz.org/rdf.html: 23.623981
http://www.dmoz.org/help/become.html: 22.735252
https://twitter.com/account/complete: 21.50534
https://twitter.com/account/resend_password: 21.50534
https://support.twitter.com: 20.696903
https://twitter.com/about: 16.075956
https://twitter.com/articles/20170514: 14.832898
http://corp.aol.com/: 14.566647
https://twitter.com/login: 12.24395
http://www.dmoz.org/help/geninfo.html: 10.928364
https://business.twitter.com/: 10.57994

```

Upon inspection, we realized that there are pages which gather heavy ranks like help, terms of use, guidelines, about and license, which are present in every page within this domain. Hence, we took care of the intra-domain links and considered only inter-domain links as an eligible link for ranking. This allowed us to rank only useful pages and get good aggregate ranks.

For testing the convergence, we have tried inspecting the intermediate outputs of the mapreduce jobs, which are sequentially ordered and checked where they are possibly converging. First we started testing for 20 iterations and started checking the results in the intermediate results from the 12th iteration. We have observed that between 17-18 iterations, the values are converging. We have observed few url's like below:

Iteration17:

**27 0180f8121866bcb8cbf351e4bac4c836091670f4:1.4995952**

Iteration18:

**27 0180f8121866bcb8cbf351e4bac4c836091670f4:1.4884576 f**

Hence, we have decided on running 20 iterations to converge the values for page rank. Finally, after all the iterations, the page ranks are stored in the primaryOutputs folder. For analysis, we have ordered the results, to check the range in which they were appearing. (OrderedResults.txt, can be found here: <https://drive.google.com/folderview?id=0B2TGMyMZ7A8OVFE5S2RIUm1ObVE&usp=sharing>)

We ran the page ranking on 122,324 (only inter-domain links) for 2 preprocessing jobs and 20 iterative jobs on 7 workers which took 35 minutes to complete.

Master public DNS:	ec2-54-86-184-36.compute-1.amazonaws.com		
Tags:	--		
<b>Summary</b>	<b>Configuration Details</b>	<b>Security/Network</b>	<b>Hardware</b>
ID: j-DTMDGIJEOHYD	AMI version: 2.4.2	Availability us-east-1d zone:	Master: Terminated 1 m1.xlarge
Creation date: 2014-05-07 23:10 (UTC-4)	Hadoop Amazon 1.0.3 distribution:	Subnet ID: subnet-295d676f	Core: Terminated 7 m1.xlarge
End date: 2014-05-07 23:45 (UTC-4)	Applications: --	Key name: keypair	Task: --
Elapsed time: 35 minutes	Log URI: s3://iwsranking/log/ 	EC2 role: --	
Auto - Yes terminate:	Visible to all None <a href="#">Change</a>	users:	
Termination Off protection:			

▶ Monitoring

**Upload** **Create Folder** **Actions** ▾

Name
<input type="checkbox"/> <a href="#">output1399008784616--1</a>
<input type="checkbox"/> <a href="#">output1399008784616--2</a>
<input type="checkbox"/> <a href="#">output1399008784616--3</a>
<input type="checkbox"/> <a href="#">output1399008784616--4</a>
<input type="checkbox"/> <a href="#">output1399008784616--5</a>
<input type="checkbox"/> <a href="#">output1399008784616--6</a>
<input type="checkbox"/> <a href="#">output1399008784616--7</a>
<input type="checkbox"/> <a href="#">output1399008784616--8</a>
<input type="checkbox"/> <a href="#">output1399160421000--1</a>
<input type="checkbox"/> <a href="#">output1399160421000--2</a>
<input type="checkbox"/> <a href="#">output1399160421000--3</a>
<input type="checkbox"/> <a href="#">output1399160421000--4</a>
<input type="checkbox"/> <a href="#">output1399160421000--5</a>
<input type="checkbox"/> <a href="#">output1399160421000--6</a>
<input type="checkbox"/> <a href="#">output1399160421000--7</a>
<input type="checkbox"/> <a href="#">output1399160421000--8</a>
<input type="checkbox"/> <a href="#">output1399518871949--1</a>
<input type="checkbox"/> <a href="#">output1399518871949--2</a>
<input type="checkbox"/> <a href="#">output1399518871949--3</a>
<input type="checkbox"/> <a href="#">output1399518871949--4</a>
<input type="checkbox"/> <a href="#">output1399518871949--5</a>
<input type="checkbox"/> <a href="#">output1399518871949--6</a>
<input type="checkbox"/> <a href="#">output1399518871949--7</a>
<input type="checkbox"/> <a href="#">output1399518871949--8</a>
<input type="checkbox"/> <a href="#">output1399518871949--9</a>
<input type="checkbox"/> <a href="#">primaryOutput1399008784616</a>
<input type="checkbox"/> <a href="#">primaryOutput1399160421000</a>
<input type="checkbox"/> <a href="#">primaryOutput1399518871949</a>

Output of the cluster on running the Page Rank Algorithm.

### Search Engine:

The search engine uses the homework 3 framework for distributed look-ups. There are four major components which the search engine uses. They are: master, worker, calculator, sorter. The master and the worker interact through get/post requests. We have used multithreading to perform the calculations. Both of them have direct access to the calculator and the sorter components. Implementation was as follows:

- Initially the master receives the word from the UI component. The master lemmatize's the word and hashes it. Using this hashed value we contact the worker responsible for the word. The ranges are pre-defined. Once, the worker has the word, it pings the database and retrieves all the corresponding documents which contain that word.
- The worker then calculates the rank for the word in a particular document. The rank is calculated using many parameters such as the position of the word, title, url, host, bold tag, italics tag, h1, h2 and h3. There are other important parameters like the page rank (calculated and stored persistently) and the tf-idf. Once the calculations are over, the worker sorts the data and sends it to the master as post body. The worker only sends about 500 documents back to the master per word.

- The master, on receiving the data for all the words, creates a new index from the inverted index it receives. This index contains the <doc, <word, calculation parameters>>. These words are only the words received as a query from the user.
- The master then, performs more calculations based on the positions of the word. Once, the calculations are over, the master sorts the data and displays about 100 results.

The key data structures used are an ArrayList<String> and an HashMap<word, data for calculations>.

The arraylist is used to store the final list of urls in the descending order of their ranks. This list is returned to the UI for display. The HashMap is used to store the calculations etc for each word with its doc ID.

We decided to follow this design as it was an easy extension from homework 3. the communication was made really simple through this framework and was really clear in determining what had to happen in each step. The architecture is scalable. Addition of new nodes/workers can be easily done. The architecture is robust as on the death of one worker the others continue to work and try to process as much data as they can.

### **User Interface and Extra Credits**

The User Interface (UI) was written in a java servlet as java and html code with a complementary .css file. The overall design of the UI took a simplistic approach, with goals set in achieving an easily understood, user-friendly environment that returned accurate and organized results in a timely manner. In implementing this design the search engine was broken into two main parts: the 'home page' and the 'result page'. The 'home page' was designed to fulfill the needs of a user -- to perform a search and nothing else. Upon entering the desired word or phrase, the user was redirected to the 'result page' where a list of up to 100 matching links were provided in ranked order for the user to browse. The page also allowed the user to perform another search or return to the home page.

Three extra credit functionalities were added to the project.

1. Speech Recognition API
  - a. built-in function of Google Chrome
  - b. x-webkit-speech API
  - c. user selects speech function, speaks into microphone, and words are entered into the text box
2. Page Preview
  - a. displays a preview of the top link in a search result list as an inlaid frame on the 'result page'
  - b. built with a frame in HTML and CSS
  - c. frame accesses top ranked link, and displays scaled version in frame
3. Spell Check
  - a. reads in textbox words, compares words to dictionary lexicon
  - b. if the words don't match any in the lexicon, a word that the user might have meant to type is suggested
  - c. utilizes "shortest distance" algorithm - suggests a new word based on a word in the lexicon that is nearest in spelling to the misspelled word (often by substituting only a single letter)

Outside of these extra credit functions we developed an image search functionality, which paralleled the actions of the typed word search but resulted in images that had been gathered within our database. This feature was completed fully functionally but was not included in the final search engine.

Something I might have done differently - utilized an outside CSS style or JavaScript code to ease the building of the User Interface and increase user functionality. It likely would have made for a speedier development with at least the same, if not better, results.

### **Database design:**

We used Berkeley DB for storage of crawled data, indexed documents(inverted indices) and page ranks.

Our database tables were

#### **1) Crawl**

- a) URL ID(key, SHA-1 of URL) ,URL
- b) URL ID document ID(document checksum)
- c) URL ID, All urls linked from that URL (Used for page ranking)
- d) document ID , document content
- e) We also persisted robots.txt as and when we parsed to avoid re-getting and re-parsing it for every crawl

#### **2) Indexing**

The text files generated by EMR were also stored in Berkeley DB, which was distributed over 10 instances by SHA-1 hash of every word.

The format of database was word and inverted index.

#### **3) Page rank**

The text files generated by EMR were stored in Berkeley DB, whose copies were stored on every EC-2 instance fully since it did not occupy much memory.

The format of database was url and its calculated page rank.

We used our HW3 Map Reduce framework with appropriate modifications for

- 1) Crawling
- 2) Pushing and pulling data to/from S3
- 3) Search Engine

We used EMR for

- 1) Indexing
- 2) Page Rank

We used 10 EC2 large instances to launch our crawler and search engine.

We used 16 xlarge EC2 instances for indexing.

We used 8 EC2 large instances for calculating page rank

### 3. RANKING

- Features used to implement ranking:

We used a broad variety of features in order to try to understand the ranking system as much as possible. The main three features were the url, the positions of the word in the document and the tf-idf score for each word. The other features include parameters like bold, italic, h1, h2, h3, anchor tags.

- How do you calculate the score for each feature?

The score for each feature was calculated by considering their importance in terms of a word and a document. It was really difficult to assign weights to each parameter. But we started off by deciding which feature seems to be the most important and which ones the least. Then we selected a range by noting the difference we wanted between each parameter. Next, we rigorously tested the results and constantly tweaked the results in order to try to achieve the best results.

- How do you compute the final ranking based on the various scores?

All the parameters were given a different weight on a scale of 1-50. These weights were then multiplied by the tf score of the word. Next, we added the page rank calculated by the ranker and gave it a weight as well. All this was then added, multiplied by the tf-idf. The pages were sorted on the metrics and then merged together. The process was repeated until all the documents were merged together.

### 4. EVALUATION

#### Crawling:

Total number of documents crawled : 10,50,000

Total number of HTML And PDF documents crawled: 6,50,000

Total number of Images crawled : 4,00,000

Average number of documents crawled per EC2 instance is 120-150/min.

#### Indexing:

We indexed about 650,000 HTML/PDF documents and about 490,000 images. The indexing was performed on EMR. It job produced 83 files of size approximately 350MB on an average each. The files had about 3000 words each with their inverted index. We used 16 m1.xlarge EC2 instances which took 37 hours to complete the job.

Cluster: Indexingfinal Terminated Steps completed			
Summary	Configuration Details	Security/Network	Hardware
Master public DNS: ec2-54-82-42-199.compute-1.amazonaws.com			
Tags: --			
ID: j-2ZN51Q3Y6UY1D	AMI version: 2.4.2	Availability zone: us-east-1b	Master: Terminated 1 m1.xlarge
Creation date: 2014-05-08 01:28 (UTC-4)	Hadoop Amazon 1.0.3	Subnet ID: --	Core: Terminated 16 m1.xlarge
End date: 2014-05-09 14:43 (UTC-4)	distribution: --	Key name: indextest	Task: --
Elapsed time: 1 day, 13 hours	Applications: --	EC2 role: --	
Auto-terminate: Yes	Log URI: s3://indexsonal/log/	Visible to all None Change users:	
Termination Off protection:			

Fig. EC2 instances used for indexing

		Standard	2019-01-01
<input type="checkbox"/>	part-r-00064	Standard	390.8 MB
<input type="checkbox"/>	part-r-00065	Standard	430.2 MB
<input type="checkbox"/>	part-r-00066	Standard	442.7 MB
<input type="checkbox"/>	part-r-00067	Standard	473.1 MB
<input type="checkbox"/>	part-r-00068	Standard	456.6 MB
<input type="checkbox"/>	part-r-00069	Standard	341.3 MB
<input type="checkbox"/>	part-r-00070	Standard	389.9 MB
<input type="checkbox"/>	part-r-00071	Standard	405.1 MB
<input type="checkbox"/>	part-r-00072	Standard	370.8 MB
<input type="checkbox"/>	part-r-00073	Standard	275.9 MB
<input type="checkbox"/>	part-r-00074	Standard	285.5 MB
<input type="checkbox"/>	part-r-00075	Standard	407.3 MB
<input type="checkbox"/>	part-r-00076	Standard	346.5 MB
<input type="checkbox"/>	part-r-00077	Standard	328.7 MB
<input type="checkbox"/>	part-r-00078	Standard	399.2 MB
<input type="checkbox"/>	part-r-00079	Standard	433 MB
<input type="checkbox"/>	part-r-00080	Standard	419.6 MB
<input type="checkbox"/>	part-r-00081	Standard	289.7 MB
<input type="checkbox"/>	part-r-00082	Standard	400.8 MB
<input type="checkbox"/>	part-r-00083	Standard	387.3 MB

Fig. Indexing output on S3

## Fig Sample output of Indexing

## Search Engine:

1. Average time to complete one term query e.g., ‘Boston’ : 1.45 seconds.
  2. Average time to complete two term query e.g., ‘Boston rocks’ : 2.33 seconds.
  3. Average time to complete three term query e.g., ‘University of Pennsylvania’ : 2.46 seconds.
  4. Average time to complete one term query e.g., (considering only tf-idf) ‘Elephant’ : 0.67 seconds.
  5. Average time to complete two term query e.g., (considering only tf-idf) ‘panda animal’ : 1.42 seconds.

The above results are calculated by using 15 threads. By the removal and addition of parameters, it was understood that the code was performing a lot of computation. Hence, to achieve a combination of good

result and deciding the number of threads was very important. There was a lot of modifications in the weighting factor but eventually we got the best results as shown above.

## 5. LESSONS LEARNT

- Integration takes a lot of time and effort.
- Yes, we believe the project was a success and we thoroughly enjoyed seeing our results with high precision and accuracy.
- The results were obtained on a very high speed and the time to search was reduced by almost a factor of 10 by using multithreading.
- If we had to do it differently, we will probably try to reduce the number of dynamic computations and store as much data as possible for faster results.
- Although, we received our indexing results in good time, we would want to implement indexing through multiple map-reduce jobs instead of one large one.

## 6. EXTRA CREDITS IMPLEMENTED:

- Add support for content seen.
- Added image crawling and pdf crawling
- Added document and word meta data like bold, italics, title, url, host, h1, h2, h3, a etc.
- Page ranking handled within domain ranks elimination
- Implemented speech recognition
- Implemented page preview
- Implemented spell check
- Added accepted languages for crawling ignoring the foreign pages.
- Implemented morpha stemmer for lemmatization.
- Use of stop words for exclusion of extraneous data.

## 7. SCREENSHOTS:

Interface to upload crawl data to S3 for indexer

Access Key:

Secret Key:

Bucket Name:

To Upload(Local)

Input Folder in S3

Interface to upload crawl data for S3 for page ranker

Access Key:

Secret Key:

Bucket Name:

To Upload(Local)

Input Folder in S3

Interface to start and stop crawl

Input directory:

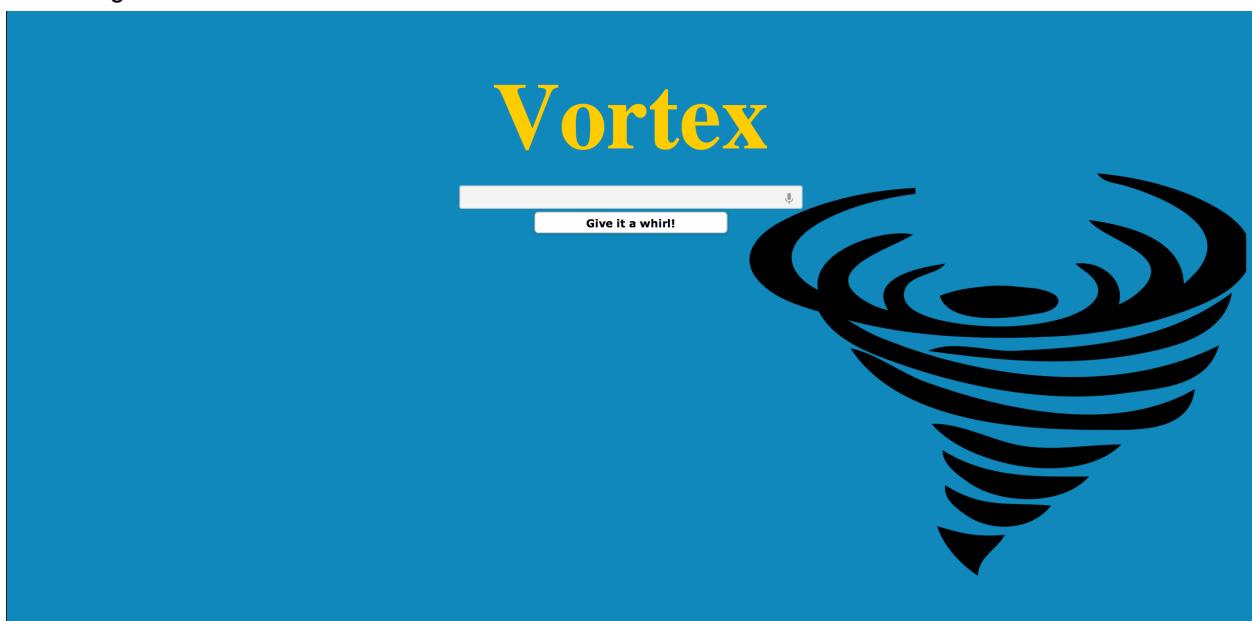
Number of map threads for each worker:

Seed to start with:

Creation count:

**Vortex on the Run:**

Home Page:



## 2. Search on Elephant returned in 0.646 seconds

Time taken to fetch results 646

Home

### Vortex

Give it a Whirl!

Search Results for: elephant

[en.wikipedia.org](http://en.wikipedia.org) <http://en.wikipedia.org/wiki/Elephant>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant+seal>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant+yam>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant%27s+trunk+snake>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant+mans+disease>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant%27s-trunk+snake>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant+shrew>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant+trunk+snake>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant+in+the+room>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant%27s+ear>

[dictionary.reference.com](http://dictionary.reference.com) <http://dictionary.reference.com/browse/elephant+man%27s+disease>

Main page  
Contents  
Featured content  
Current events  
Random article  
Donate to Wikipedia  
Wikimedia Shop

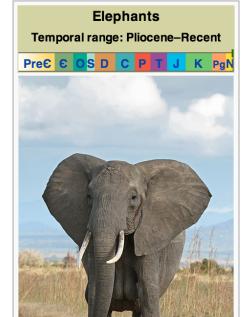
Interaction  
Help  
About Wikipedia  
Community portal  
Recent changes  
Contact page

Tools  
Print/export

Languages  
Acéh  
Afrikaans  
العربية  
Aragonés  
Avañe'ẽ

This article is about the living species. For extinct relatives also known as elephants, see *Elephantidae*. For other uses, see *Elephant* (disambiguation).

Elephants  
Temporal range: Pliocene–Recent  
Pre C C O S D C P T J K PgN



## 3. Search on fasionista, returned in 0.493 seconds which shows a video preview

Time taken to fetch results 493

Home

### Vortex

Give it a Whirl!

Did you mean: fashionist

Search Results for: fasionista

[video.us.msn.com](http://video.us.msn.com) <http://video.us.msn.com/watch/video/plus-size-fashionista/2zpv01xi>

[www.businessweek.com](http://www.businessweek.com) <http://www.businessweek.com/articles/2014-05-02/fashionista-alert-j-dot-crew-is-planning-a-lower-priced-brand#i-shared>

[www.businessweek.com](http://www.businessweek.com) <http://www.businessweek.com/companies-and-industries>

[www.businessweek.com](http://www.businessweek.com) <http://www.businessweek.com/sitemap.htm>

[fashiondollworld.tumblr.com](http://fashiondollworld.tumblr.com) <http://fashiondollworld.tumblr.com/>

[www.thedailybeast.com](http://www.thedailybeast.com) [http://www.thedailybeast.com/fashion\\_4.html](http://www.thedailybeast.com/fashion_4.html)

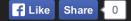
[www.thebudgetfashionista.com](http://www.thebudgetfashionista.com) <http://www.thebudgetfashionista.com/>

[marilynglass.com](http://marilynglass.com) <http://marilynglass.com/>

[stylenews.peoplestylewatch.com](http://stylenews.peoplestylewatch.com) <http://stylenews.peoplestylewatch.com/2014/01/13/best-lip-colors-golden-globes-beauty/#more-149831>



JULIA  
wants form fitting clothe

★★★★★   Share 0

Plus Size Fashionista  
Julia is a plus size fashionista and wants to learn how to best dress for her figure. Celebrity Tanya Gill shows full figured women how to make bold and daring fashion statements while celebrating their curves.

## 4. Search on Watermelon, returned in 0.367 seconds

Time taken to fetch results 367

[Home](#)

## Vortex

[Give it a Whirl!](#)

Search Results for: watermelon

[en.wikipedia.org](http://en.wikipedia.org/wiki/Watermelon) http://en.wikipedia.org/wiki/Watermelon

[www.cookingchanneltv.com](http://www.cookingchanneltv.com/recipes/a-z.W.0.html) http://www.cookingchanneltv.com/recipes/a-z.W.0.html

[www.foodnetwork.com](http://www.foodnetwork.com/recipes/aarti-sequeira/watermelon-feta-and-mint-skewers-with-sumac-recipe.html) http://www.foodnetwork.com/recipes/aarti-sequeira/watermelon-feta-and-mint-skewers-with-sumac-recipe.html

[www.foodnetwork.com](http://www.foodnetwork.com/recipes/bobby-flay/agua-de-sandia-watermelon-recipe.html) http://www.foodnetwork.com/recipes/bobby-flay/agua-de-sandia-watermelon-recipe.html

[www.cookingchanneltv.com](http://www.cookingchanneltv.com/recipes/bobby-flay/watermelon-margarita-mimosa.html) http://www.cookingchanneltv.com/recipes/bobby-flay/watermelon-margarita-mimosa.html

[www.cookingchanneltv.com](http://www.cookingchanneltv.com/recipes/michael-chiarello/watermelon-margaritas.html) http://www.cookingchanneltv.com/recipes/michael-chiarello/watermelon-margaritas.html

[www.cookingchanneltv.com](http://www.cookingchanneltv.com/recipes/watermelon-jalapeno-lemonade.html) http://www.cookingchanneltv.com/recipes/watermelon-jalapeno-lemonade.html

[www.foodchannel.com](http://www.foodchannel.com/shows/90-seconds/90-second-watermelon-berry-and-avocado-salad/) http://www.foodchannel.com/shows/90-seconds/90-second-watermelon-berry-and-avocado-salad/

[www.cookingchanneltv.com](http://www.cookingchanneltv.com/recipes/petite-watermelons.html) http://www.cookingchanneltv.com/recipes/petite-watermelons.html

[www.vintagehawaiianshirt.net](http://www.vintagehawaiianshirt.net/) http://www.vintagehawaiianshirt.net/

[www.foodnetwork.com](http://www.foodnetwork.com/recipes/food-network-kitchens/fish-tacos-with-watermelon-salsa.html) http://www.foodnetwork.com/recipes/food-network-kitchens/fish-tacos-with-watermelon-salsa.html

Main page  
Contents  
Featured content  
Current events  
Random article  
Donate to Wikipedia  
Wikimedia Shop

Interaction  
Help  
About Wikipedia  
Community portal  
Recent changes  
Contact page

Tools  
Print/export

Languages  
Afrikaans  
አማርኛ  
Արցւեա  
العربية  
Avalñe  
Azerbaijani

For other uses, see [Watermelon \(disambiguation\)](#).

## 5. Search on Chocolate returned in 2 seconds

Time taken to fetch results 2008

[Home](#)

## Vortex

[Give it a Whirl!](#)

Search Results for: lollipop

[www.illinoisnut.com](http://www.illinoisnut.com/) http://www.illinoisnut.com/

[www.foodnetwork.com](http://www.foodnetwork.com/shows/diners-drive-ins-and-dives/1900-series/from-meatballs-to-lollipops.html) http://www.foodnetwork.com/shows/diners-drive-ins-and-dives/1900-series/from-meatballs-to-lollipops.html

[www.makeuseof.com](http://www.makeuseof.com) http://www.makeuseof.com/pages/learning-markdown-write-web-faster

[georgemccigure.net](http://georgemccigure.net) http://georgemccigure.net/giorgio/PhreakNation.html

[www.pestochampionship.it](http://www.pestochampionship.it) http://www.pestochampionship.it/

[greatideas.people.com](http://greatideas.people.com) http://greatideas.people.com/2014/02/12/best-food-songs-for-kids-shirley-temple-good-ship-lollipop/#more-6735

[greatideas.people.com](http://greatideas.people.com) http://greatideas.people.com/2014/02/12/best-food-songs-for-kids-shirley-temple-good-ship-lollipop/

[www.iheartbacon.com](http://www.iheartbacon.com) http://www.iheartbacon.com/

[www.smart-central.com](http://www.smart-central.com) http://www.smart-central.com/

[www.foodnetwork.com](http://www.foodnetwork.com/recipes/a-z.L.1.html) http://www.foodnetwork.com/recipes/a-z.L.1.html

Shopping Cart | Wish List

CANDY CHOCOLATE CONFECTIONS NUTS/FRUITS

Powered By Illinois Nut & Candy

**Newsletter Signup**  
Email Address  Go  
Privacy by  SafeSubscribe<sup>SM</sup>  
For Email Marketing you can trust.

**Product Search**  
Keyword Search   
Search By Color  
Search By Flavor  
Advanced Search

**Niche Products**  
Casein Free

Check out our custom built replica of the 'Emerald City' from the Wizard of Oz!

**Raising The Candy Bar.com**  
We've raised the bar on indulgence for individuals and offerings and uncompromised customer service. We supply Kosher Candy, Kosher Gift Baskets, Organic Candy, Gourmet Candy, and more! Our goal is to provide the highest quality products and service.

## 6. Search on 'Martin Luther King' returned in 9 seconds

Time taken to fetch results 9058

[Home](#)

# Vortex

[Give it a Whirl!](#)



Did you mean: clutter

Search Results for: martin luther king

- [en.wikipedia.org](http://en.wikipedia.org) [http://en.wikipedia.org/wiki/Dr.\\_Martin\\_Luther\\_King,\\_Jr.](http://en.wikipedia.org/wiki/Dr._Martin_Luther_King,_Jr.)
- [en.wikipedia.org](http://en.wikipedia.org) [http://en.wikipedia.org/wiki/Martin\\_Luther\\_King](http://en.wikipedia.org/wiki/Martin_Luther_King)
- [en.wikipedia.org](http://en.wikipedia.org) [http://en.wikipedia.org/wiki/Martin\\_Luther\\_King,\\_Jr.](http://en.wikipedia.org/wiki/Martin_Luther_King,_Jr.)
- [en.m.wikipedia.org](http://en.m.wikipedia.org) [http://en.m.wikipedia.org/wiki/Martin\\_Luther\\_King,\\_Jr.](http://en.m.wikipedia.org/wiki/Martin_Luther_King,_Jr.)
- [www.whitepages.com](http://www.whitepages.com) <http://www.whitepages.com/ind/m-043>
- [en.wikipedia.org](http://en.wikipedia.org) [http://en.wikipedia.org/wiki/The\\_King\\_and\\_I](http://en.wikipedia.org/wiki/The_King_and_I)
- [www.whitepages.com](http://www.whitepages.com) <http://www.whitepages.com/ind/k-064>
- [en.wikipedia.org](http://en.wikipedia.org) [http://en.wikipedia.org/wiki/Ricky\\_Martin](http://en.wikipedia.org/wiki/Ricky_Martin)
- [www.espnccrinfo.com](http://www.espnccrinfo.com) <http://www.espnccrinfo.com/england/content/player/country.html?country=l&alpha=M>
- [en.wikipedia.org](http://en.wikipedia.org) <http://en.wikipedia.org/wiki/%C3%86helstan>

(Redirected from Dr. Martin Luther King, Jr.)

"Martin Luther King" and "MLK" redirect here. For other uses, see [Martin Luther King \(disambiguation\)](#) and [MLK \(disambiguation\)](#).

**Martin Luther King, Jr.**



King in 1964

Born

Michael King, Jr.

Main page  
Contents  
Featured content  
Current events  
Random article  
Donate to Wikipedia  
Wikimedia Shop

Interaction  
Help  
About Wikipedia  
Community portal  
Recent changes  
Contact page

Tools  
Print/export

Languages  
Afrikaans  
Alemannisch  
العربية  
Aragonés  
አማርኛ

## 7. Pdf search and preview returned in 3 seconds

Time taken to fetch results 3090

[Home](#)

# Vortex

[Give it a Whirl!](#)

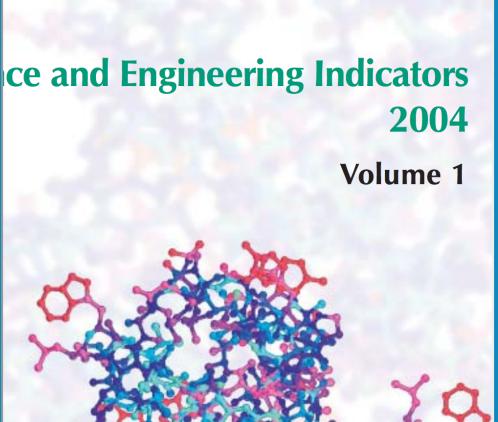


Did you mean: ad

Search Results for: pdf

- [www.nsf.gov](http://www.nsf.gov) <http://www.nsf.gov/statistics/seind04/pdf/volume1.pdf>
- [www.worldsnooker.com](http://www.worldsnooker.com) <http://www.worldsnooker.com/pdfs/WSA PointsSchedule0910.pdf>
- [www.maricopa.edu](http://www.maricopa.edu) <http://www.maricopa.edu/bwd/pdfs/healthpole003.pdf>
- [fds.oup.com](http://fds.oup.com) [http://fds.oup.com/www.oup.com/pdf/13/9780199565962\\_prelim.pdf](http://fds.oup.com/www.oup.com/pdf/13/9780199565962_prelim.pdf)
- [github.com](https://github.com) <https://github.com/Sohl-Dickstein/Hamiltonian-Annealed-Importance-Sampling/blob/master/HAIS.pdf>
- [www.wjh.harvard.edu](http://www.wjh.harvard.edu)  
[http://www.wjh.harvard.edu/~mnkylab/publications/animalcommunication/PrimateComm\\_ElsevierEncy.pdf](http://www.wjh.harvard.edu/~mnkylab/publications/animalcommunication/PrimateComm_ElsevierEncy.pdf)
- [www.fbi.gov](http://www.fbi.gov) [http://www.fbi.gov/about-us/cjis/ucr/additional-ucr-publications/ucr\\_handbook.pdf/view](http://www.fbi.gov/about-us/cjis/ucr/additional-ucr-publications/ucr_handbook.pdf/view)
- [www.freepatentonline.com](http://www.freepatentonline.com) <http://www.freepatentonline.com/20050212207.pdf>
- [www.strategicforesight.com](http://www.strategicforesight.com) <http://www.strategicforesight.com/Cost%20of%20Conflict%20-%20206%20page.pdf>
- [www.djreprints.com](http://www.djreprints.com) <http://www.djreprints.com/B-030413-say-goodbye-SAMPLE.pdf>

**Science and Engineering Indicators  
2004  
Volume 1**



## 8. Search on Apple returned in 5.4 seconds

Time taken to fetch results 5429

Home

### Vortex

Give it a Whirl!

Search Results for: apple

[en.wikipedia.org](http://en.wikipedia.org) [http://en.wikipedia.org/wiki/Apple\\_Inc.](http://en.wikipedia.org/wiki/Apple_Inc.)

[www.amyscandykitchen.com](http://www.amyscandykitchen.com) <http://www.amyscandykitchen.com/>

[apple.stackexchange.com](http://apple.stackexchange.com) <http://apple.stackexchange.com/questions/tagged/apple-id>

[en.wikipedia.org](http://en.wikipedia.org) <http://en.wikipedia.org/wiki/IPhone>

[stackoverflow.com](http://stackoverflow.com) <http://stackoverflow.com/questions/tagged/apple-maps>

[stackoverflow.com](http://stackoverflow.com) <http://stackoverflow.com/questions/tagged/apple>

[en.wikipedia.org](http://en.wikipedia.org) [http://en.wikipedia.org/wiki/iTunes\\_Store](http://en.wikipedia.org/wiki/iTunes_Store)

[en.wikipedia.org](http://en.wikipedia.org) [http://en.wikipedia.org/wiki/Portal:Apple\\_Inc.](http://en.wikipedia.org/wiki/Portal:Apple_Inc.)

[transcripts.cnn.com](http://transcripts.cnn.com) <http://transcripts.cnn.com/TRANSCRIPTS/cnr.html>

[www.cookingchanneltv.com](http://www.cookingchanneltv.com) <http://www.cookingchanneltv.com/recipes/best-apple-harvest-recipes.html>

[macdailynews.com](http://macdailynews.com) <http://macdailynews.com/2014/05/01/some-desperately-needed-context-surrounding-apples-ipad-sales-decline/>

en.wikipedia.org/wiki/File:Apple\_Headquarters\_in\_Cupertino.jpg

Random article  
Donate to Wikipedia  
Wikimedia Shop

Interaction  
Help  
About Wikipedia  
Community portal  
Recent changes  
Contact page

Tools  
Print/export

Languages  
Afrikaans  
Alemannisch  
አማርኛ  
Ænglisc  
العربية  
Asturianu  
Azerbaiyancıca  
বাংলা  
Bân-lâm-gú  
Català

Apple Inc.

 Logo used since 1999

Apple Campus (1 Infinite Loop, Cupertino, California)

Type Public  
Traded as NASDAQ: AAPL [↗](#)  
NASDAQ-100 component

## 9. Search on Angelina Jolie returned in 2.840 seconds

Time taken to fetch results 2840

Home

### Vortex

Give it a Whirl!

Did you mean: angelica  
Did you mean: folie

Search Results for: angelina jolie

[en.wikipedia.org](http://en.wikipedia.org) [http://en.wikipedia.org/wiki/Angelina\\_Jolie](http://en.wikipedia.org/wiki/Angelina_Jolie)

[transcripts.cnn.com](http://transcripts.cnn.com) <http://transcripts.cnn.com/TRANSCRIPTS/sbt.html>

[wonderwall.msn.com](http://wonderwall.msn.com) <http://wonderwall.msn.com/movies/Angelina-Jolie-234.celebrity>

[www.celebitchy.com](http://www.celebitchy.com) [http://www.celebitchy.com/category/angelina\\_jolie/](http://www.celebitchy.com/category/angelina_jolie/)

[wonderwall.msn.com](http://wonderwall.msn.com) <http://wonderwall.msn.com/movies/Maddox-Jolie-Pitt-1477.celebrity>

[www.urbandictionary.com](http://www.urbandictionary.com) <http://www.urbandictionary.com/define.php?term=Angelina%20Jolie>

[www.people.com](http://www.people.com) [http://www.people.com/people/angelina\\_jolie](http://www.people.com/people/angelina_jolie)

[wonderwall.msn.com](http://wonderwall.msn.com) <http://wonderwall.msn.com/movies/Zahara-Jolie-Pitt-1399.celebrity>

[wonderwall.msn.com](http://wonderwall.msn.com) <http://wonderwall.msn.com/movies/Shiloh-Jolie-Pitt-1385.celebrity>

[www.people.com](http://www.people.com) [http://www.people.com/people/news/category/0\\_personsTax:AngelinaJolie.00.html](http://www.people.com/people/news/category/0_personsTax:AngelinaJolie.00.html)

Random article  
Donate to Wikipedia  
Wikimedia Shop

Interaction  
Help  
About Wikipedia  
Community portal  
Recent changes  
Contact page

Tools  
Print/export

Languages  
Čeština  
العربية  
ragonés

Angelina Jolie

From Wikipedia, the free encyclopedia

"Jolie" redirects here. For other uses, see [Jolie \(disambiguation\)](#).

Angelina Jolie



## 10. Search on landslide returned in 5 seconds

Time taken to fetch results 507

[Home](#)

## Vortex

Give it a Whirl!

Search Results for: landslide

[dictionary.reference.com](#) <http://dictionary.reference.com/browse/landslide>

[www.reuters.com](#) <http://www.reuters.com/places/afghanistan>

[www.huffingtonpost.com](#) [http://www.huffingtonpost.com/2014/05/03/afghanistan-landslide\\_n\\_5258800.html](http://www.huffingtonpost.com/2014/05/03/afghanistan-landslide_n_5258800.html)

[transcripts.cnn.com](#) <http://transcripts.cnn.com/TRANSCRIPTS/cnr.html>

[timesofindia.indiatimes.com](#) <http://timesofindia.indiatimes.com/world/south-asia/More-than-2100-confirmed-dead-in-Afghanistan-landslide-Official/articleshow/34577786.cms>

[www.bbc.com](#) <http://www.bbc.com/news/world-asia-27273684>

[www.bing.com](#) <http://www.bing.com/videos/watch/video/baltimore-landslide-sinks-cars/2sonozy0r>

[www.accuweather.com](#) <http://www.accuweather.com/en/weather-news/landslides-where-and-why-they/25524968>

[www.topix.com](#) <http://www.topix.com/topstories>

[time.com](#) <http://time.com/86696/rescuers-struggle-to-help-afghans-hit-by-landslide/>

[www.dw.de](#) <http://www.dw.de/rescuers-abandon-search-for-survivors-of-afghanistan-mudslide/a-17610970>

[Dictionary](#) [Thesaurus](#) [Word Dynamo](#) [Quotes](#) [References](#)

 **Dictionary.com** **landslide**

**Related Searches**

- [Landslide lyrics](#)
- [Facts on landslides](#)
- [Types of landslides](#)
- [Causes of landslides](#)
- [Effects of landslides](#)
- [Stevie nicks landslide](#)
- [Landslide prevention](#)
- [Recent landslides](#)

**Nearby Words**

- [landsleit](#)
- [landslid](#)
- [landsidden](#)
- [landslide](#)
- [landslip](#)
- [landsman](#)

## 11. Search on earthquake returned in 0.6 seconds

Time taken to fetch results 609

[Home](#)

## Vortex

Give it a Whirl!

Search Results for: earthquake

[en.wikipedia.org](#) <http://en.wikipedia.org/wiki/Earthquake>

[transcripts.cnn.com](#) <http://transcripts.cnn.com/TRANSCRIPTS/cnr.html>

[en.wikipedia.org](#) <http://en.wikipedia.org/wiki/Portal:Earthquakes>

[dictionary.reference.com](#) <http://dictionary.reference.com/browse/earthquake>

[www.mapsofworld.com](#) <http://www.mapsofworld.com/thematic-maps/earthquake/>

[dictionary.reference.com](#) <http://dictionary.reference.com/browse/earthquake-engineer>

[dictionary.reference.com](#) <http://dictionary.reference.com/browse/earthquake+engineer>

[en.wikipedia.org](#) [http://en.wikipedia.org/wiki/2005\\_Qeshm\\_earthquake](http://en.wikipedia.org/wiki/2005_Qeshm_earthquake)

[www.earthquakes.bgs.ac.uk](#) <http://www.earthquakes.bgs.ac.uk/>

[en.wikipedia.org](#) [http://en.wikipedia.org/wiki/2002\\_Bou%27in-Zahra\\_earthquake](http://en.wikipedia.org/wiki/2002_Bou%27in-Zahra_earthquake)

[en.wikipedia.org](#) [http://en.wikipedia.org/wiki/1968\\_Illinois\\_earthquake](http://en.wikipedia.org/wiki/1968_Illinois_earthquake)

[en.wikipedia.org/wiki/File:Oquake\\_epicenters\\_1963-98.png](#) [http://en.wikipedia.org/wiki/File:Oquake\\_epicenters\\_1963-98.png](http://en.wikipedia.org/wiki/File:Oquake_epicenters_1963-98.png)

[Main page](#) [Contents](#) [Featured content](#) [Current events](#) [Random article](#) [Donate to Wikipedia](#) [Wikimedia Shop](#)

▼ [Interaction](#) [Help](#) [About Wikipedia](#) [Community portal](#) [Recent changes](#) [Contact page](#)

▶ [Tools](#)

▶ [Print/export](#)

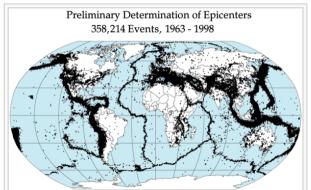
▼ [Languages](#) [Afrikaans](#) [Alemannisch](#) [አማርኛ](#) [Ænglisc](#) [العربية](#)

**Earthquake** [Edit](#)

From Wikipedia, the free encyclopedia

For other uses, see [Earthquake \(disambiguation\)](#).

"Seismic event" redirects here. For seismic migration, see [Seismic migration](#).



Preliminary Determination of Epicenters  
358,214 Events, 1963 - 1998

Global earthquake epicenters, 1963–1998

## 12. Search on pizza returned in 3.4 seconds

Time taken to fetch results 3425

Home

### Vortex

Give it a Whirl!

Search Results for: pizza

[en.wikipedia.org](http://en.wikipedia.org) http://en.wikipedia.org/wiki/Domino%27s\_Pizza

[en.m.wikipedia.org](http://en.m.wikipedia.org) http://en.m.wikipedia.org/wiki/Domino%27s\_Pizza

[local.azdailysun.com](http://local.azdailysun.com) http://local.azdailysun.com/flagstaff+az/pizza\_zq.html

[en.wikipedia.org](http://en.wikipedia.org) http://en.wikipedia.org/wiki/Little\_Caesars

[en.m.wikipedia.org](http://en.m.wikipedia.org) http://en.m.wikipedia.org/wiki/Little\_Caesars

[www.pizza-rendeles-miskolc.hu](http://www.pizza-rendeles-miskolc.hu) http://www.pizza-rendeles-miskolc.hu/

[www.dominos.com](http://www.dominos.com) http://www.dominos.com/

[www.damyhealth.com](http://www.damyhealth.com) http://www.damyhealth.com/2012/03/cauliflower-pizza-bites/

[www.delish.com](http://www.delish.com) http://www.delish.com/entertaining-ideas/parties/barbecue-grilling/vegetarian-grilled-pizza-recipes??src=rss

[greatideas.people.com](http://greatideas.people.com) http://greatideas.people.com/category/pizza/

[www.goodhousekeeping.com](http://www.goodhousekeeping.com) http://www.goodhousekeeping.com/product-reviews/food-products/frozen-pizza-reviews/best-frozen-pizza?click=ghk-more

Main page  
Contents  
Featured content  
Current events  
Random article  
Donate to Wikipedia  
Wikimedia Shop

Interaction  
Help  
About Wikipedia  
Community portal  
Recent changes  
Contact page

Tools  
Print/export

Languages  
العربية  
Azərbaycanca  
Dansk  
Deutsch  
Español

"Domino's" redirects here. It is not to be confused with [Dominoes](#).

**Domino's Pizza**



The current Domino's logo introduced in 2012.

Type Public  
Traded as NYSE: DPZ  
Industry Restaurants  
Founded Ypsilanti, Michigan on June 10, 1960  
Headquarters Domino Farms Office Park  
Ann Arbor Charter Township, Michigan, United States  
Area served Worldwide  
Key people Tom Monaghan, Founder  
I. Patrick Doyle, CEO

## 13. Search on singing returned in 1.9 seconds

Time taken to fetch results 1974

Home

### Vortex

Give it a Whirl!

Search Results for: singing

[dictionary.reference.com](http://dictionary.reference.com) http://dictionary.reference.com/browse/sing

[en.wikipedia.org](http://en.wikipedia.org) http://en.wikipedia.org/wiki/South\_Korea\_national\_football\_team

[en.wikipedia.org](http://en.wikipedia.org) http://en.wikipedia.org/wiki/Singing

[en.wikipedia.org](http://en.wikipedia.org) http://en.wikipedia.org/wiki/Vocalist

[www.casa.org](http://www.casa.org) http://www.casa.org/

[en.wikipedia.org](http://en.wikipedia.org) http://en.wikipedia.org/wiki/Kim\_Il\_Sung

[blog.chrisrowbury.com](http://blog.chrisrowbury.com) http://blog.chrisrowbury.com/

[en.wikipedia.org](http://en.wikipedia.org) http://en.wikipedia.org/wiki/I\_Know\_Why\_the\_Caged\_Bird\_Sings

[en.wikipedia.org](http://en.wikipedia.org) http://en.wikipedia.org/wiki/Frank\_Sinatra

[aboutmalta.com](http://aboutmalta.com) http://aboutmalta.com/grazio/maltesegrammar.html

[simple.wikipedia.org](http://simple.wikipedia.org) http://simple.wikipedia.org/wiki/Sing

[answers.reference.com](http://answers.reference.com) http://answers.reference.com/Wellness/Mind/who\_sings\_apologize

Dictionary Thesaurus Word Dynamo Quotes Reference

**Dictionary.com** sing

Related Searches  
Search lyrics to find...  
Lyric search by wor...  
Locate song by lyrics  
Find a song by parl...  
Teach yourself how...  
Learn to sing free  
Mama I want to sin...  
Lyrics to lift every v...

sinfonie  
sinfonietta  
sinful  
**sing**  
sing a different tune  
sing a song of sixp...

sing [sing] Show IPA  
verb (used without object), sang or, often :  
1. to utter words or sounds in succession w...  
of the voice; vocalize melodically.  
2. to perform a song or voice composition:  
us.  
3. to produce melodious sounds, usually hi...  
birds, insects, etc.: *The nightingale sang in*  
4. to compose poetry: *Keats sang briefly but g*  
5. to tell about or praise someone or somet...  
*He sang of the warrior's prowess.*

EXPAND

Nearby Words

Relevant Questions  
How To Sing

#### 14. Search on ronaldo returned in 0.8 seconds

Time taken to fetch results 860

[Home](#)

## Vortex

Did you mean: Donald

Search Results for: ronaldo

[www.foxsoccershop.com http://www.foxsoccershop.com/shop-by-player-ronaldo--cristiano.html](http://www.foxsoccershop.com/shop-by-player-ronaldo--cristiano.html)

[www.youtube.com http://www.youtube.com/user/MrPalma777](http://www.youtube.com/user/MrPalma777)

[www.youtube.com http://www.youtube.com/user/realmadridcf](http://www.youtube.com/user/realmadridcf)

[www.youtube.com http://www.youtube.com/watch?v=oWoqIzzzJR8&list=PLcTBPve8QnVe1RQjZH7A68lFQYajUYJ91](http://www.youtube.com/watch?v=oWoqIzzzJR8&list=PLcTBPve8QnVe1RQjZH7A68lFQYajUYJ91)

[www.foxsoccershop.com http://www.foxsoccershop.com/shop-by-team-real-madrid-cf.html](http://www.foxsoccershop.com/shop-by-team-real-madrid-cf.html)

[www.youtube.com http://www.youtube.com/watch?v=3XviR/esUvo&list=PLcTBPve8QnVe1RQjZH7A68lFQYajUYJ91](http://www.youtube.com/watch?v=3XviR/esUvo&list=PLcTBPve8QnVe1RQjZH7A68lFQYajUYJ91)

[www.youtube.com http://www.youtube.com/watch?v=8wmXZwAbjo&list=PLcTBPve8QnVe1RQjZH7A68lFQYajUYJ91](http://www.youtube.com/watch?v=8wmXZwAbjo&list=PLcTBPve8QnVe1RQjZH7A68lFQYajUYJ91)

[www.youtube.com http://www.youtube.com/watch?v=AFGAWUBVwgY&list=PLcTBPve8QnVe1RQjZH7A68lFQYajUYJ91](http://www.youtube.com/watch?v=AFGAWUBVwgY&list=PLcTBPve8QnVe1RQjZH7A68lFQYajUYJ91)

Give it a Whirl!

#### Image Search Results

##### 1) Search for Food

# Vortex

Vortex Image!

Time taken to fetch results 3365

Your Search Results for: food



2) Search for Coffee

# Vortex

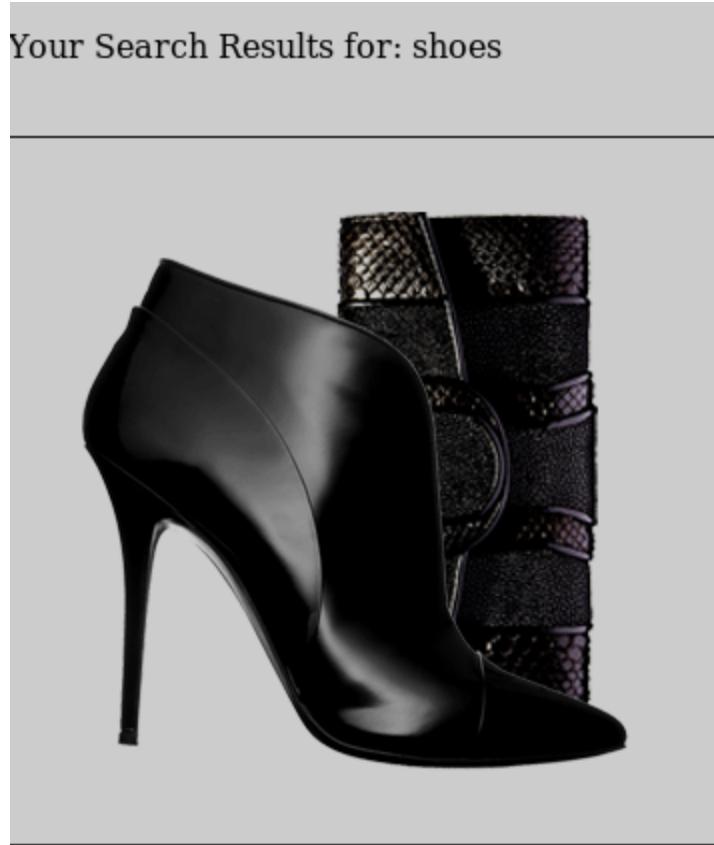
Vortex Image!

Time taken to fetch results 1286

Your Search Results for: coffee



3) Search for shoes



4) Search for rain



5) Search for house



To view our screenshots, results and code, please follow the link below:

**[https://drive.google.com/folderview?id=0B2TGMyMZ7A8OVFE5S2RIUm1ObVE&usp=drive\\_web#](https://drive.google.com/folderview?id=0B2TGMyMZ7A8OVFE5S2RIUm1ObVE&usp=drive_web#)**