SEARCH ENGINE OPTIMIZATION

Improve your ranking on Google

Search websites are popular...



What are the top websites in HK?

Top 10 websites in HK

Rank 🔿	Website 🕖	Category (2) Computers Electronics and Technology + Search Engines		
1	6 google.com			
2	 youtube.com 	Arta & Entertainment > Streaming & Online TV		
3	G facebook.com	Computers Electronics and Technology + Social Media Networks		
4	instagram.com	Computers Electronics and Technology > Social Media Networks		
5	ti bilibili.com	Arts & Entertainment + Arimation and Comics		
6	8 baidu.com	Computers Electronics and Technology • Search Engines		
7	yahoo.com	Nows & Media Publishers		
8	6 google.com.hk	Computers Electronics and Technology > Search Engines		
9	x.com	Computers Electronics and Technology + Social Media Networks		
10	ihkg.com	Computers Electronics and Technology + Social Media Networks		

Today's Agenda

Mechanism

How search engine works?

05

Usage

How to make my rank higher on a search engine?

WHY IS SEARCH ENGINE IMPRORTANT?

"A search is a statement of intent."

– Susan Athey, Former Chief Economist at Microsoft

Search engines are the doorway to the Internet 80% of sites are found through search engines.

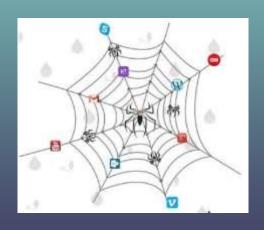
TYPES OF SEARCH

Informational: Generic Search (e.g., "high cholesterol", "school ranking")

Navigational: Brand Names (e.g., "United Airlines", "HKTVMall")

Transactional: Specific information on products/services (e.g., "Macbook Pro", "Diet Coke")

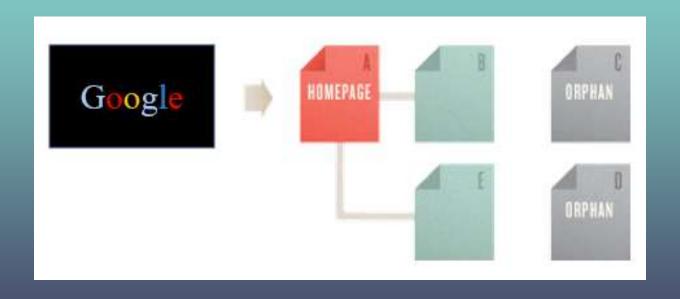
Crawl the web via spiders (a.k.a. web crawlers).



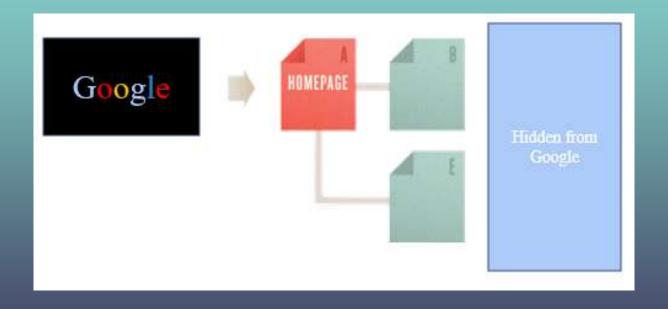
It goes from page to page.

It follows links and recording what it finds.

CRAWLABLE



CRAWLABLE



HOW DOES GOOGLE FIND YOUR HOMEPAGE?

You can submit an individual URL to Google.

Google finds you through links from other websites.

Google finds you from online libraries, books and other materials...

After crawling, search engines *index* the pages.

The index is what the spider creates. It is a "library" of pages on the Internet. The search engine creates databases for keywords, so it knows where to go to when a user enters a query.

Yes, we know you are there (crawlable) but we cannot communicate with you (non-indexable). (Search engine only speaks HTML)

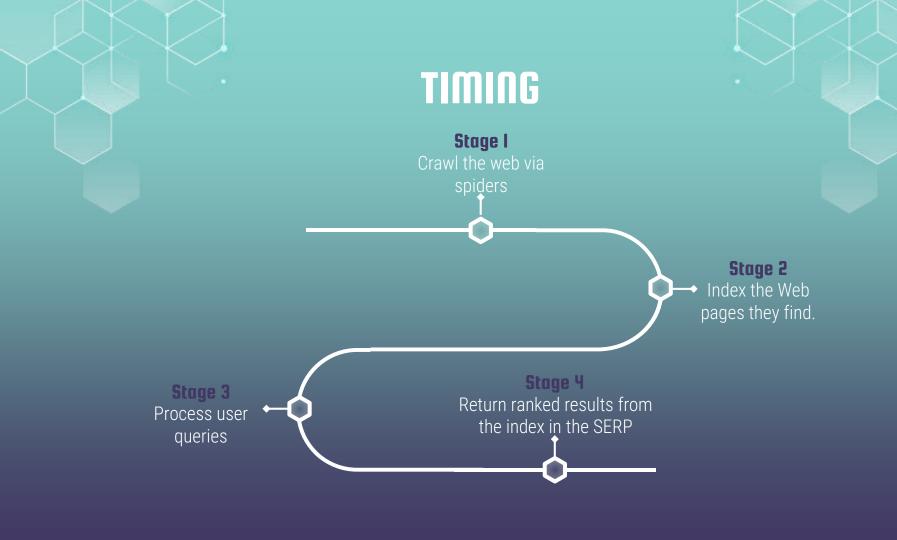
Your webpage may have Images, Flash files, Java applets, and other non-text content.

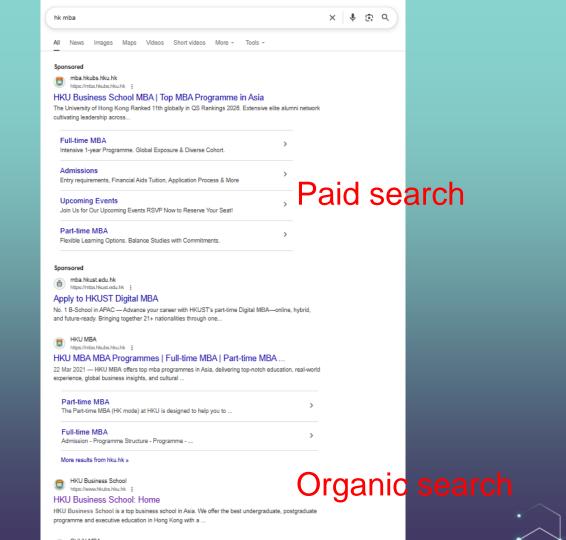
After indexing, search engines process user queries.

Users input a search query by typing a keyword or phrase into the search bar. The engine then checks its index to find relevant pages and delivers them ordered from most relevant to least relevant.

Finally, search engines return ranked results from the index in the SERP (search engine results page).

Users input a search query by typing a keyword or phrase into the search bar. The engine then checks its index to find relevant pages and delivers them ordered from most relevant to least relevant.





GOOGLE IS STILL DOMINATING THE MARKET

92.6% of search traffic worldwide is from Google.



Google also accounts for ~95% search traffic in Hong Kong.

SEARCH ENGINE MARKETING (SEM)

Definition: A form of Internet marketing that involves the promotion of websites by increasing their visibility in search engine results pages (SERPs).

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Definition: A form of Internet marketing that involves the promotion of websites by increasing their visibility in search engine results pages (SERPs).

Type of SEM: SEO + PPC

SEO: Search engine optimization

PPC: Paid search advertising

Organic & paid search responsible for 68% of all site traffic

Vertical Segments	Avg Organic Visits	Avg Other Channel Visits	Avg Paid Search Visits	Avg Social Visits
Retail & eCommerce	41.0%	23.2%	23.6%	5.1%
Media & Entertainment	53.0%	32.7%	6.2%	8.2%
B2B	64.1%	20.6%	12.3%	3.0%
Technology	59.8%	27.8%	9.7%	2.7%
Travel & Hospitality	41.4%	30.7%	23.4%	4.6%
Average	53.3%	27.0%	15.0%	4.7%





SEO = Free Advertising

QUESTION

How many users will visit the second page of the search results?

50%? 20%? What is your estimate?

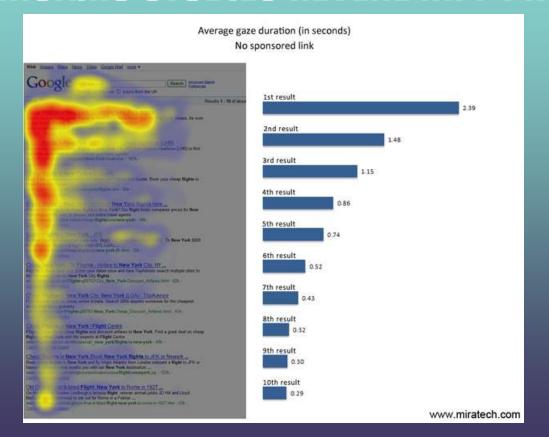
QUESTION

How many users will visit the second page of the search results?

50%? 20%? What is your estimate?

It is 6%! Only 6% of the users bother to visit the second page!

EYE TRACKING STUDIES REVEAL AN F PATTERN



ON-PAGE AND OFF-PAGE SEO

On-page (or on-site):

Technical Structure (Page Title, Headers, Page Body, Image Tags, URL, Meta Description)

AI Overview: Win the "Answer Box"

Off-page (or off-site):

Backlinks (who link to you)



GOOGLE SAYS THAT

Relevance of webpages

Next, algorithms analyze the content of webpages to assess whether the page contains information that might be relevant to what you are looking for.

The most basic signal that information is relevant is when a webpage contains the same keywords as your search query. If those keywords appear on the page, or if they appear in the headings or body of the text, the information is more likely to be relevant. Beyond simple keyword matching, we use aggregated and anonymized interaction data to assess whether search results are relevant to queries. We transform that data into signals that help our machine-learned systems

The Six Secrets of On-the-Page Optimization

#1: The most important piece of on-page optimization is title of the page

Displayed at the top of the browser and in the natural listings Each page should have its own title; unique and includes chosen keywords; short and focused.

The Six Secrets of On-the-Page Optimization

```
Kmeta name="description" content="Established in 1911, the University of Hong Kong (HKU) is the territory's oldest institute of higher learning and also an internationally recognized, research lectitle >The University of Hong Kong (HKU)</title>

Klink media="all" href="/assets/css/index.css/t=20220516" type="text/css" rel="stylesheet" />Klink rel="stylesheet" type="text/css" href="/assets/css/print.css" media="print"/>
```

<script type="text/javascript">
 var bgdata = [{image:'/f/wallpaper/21252/2381_edit copy.jpg', title:'2020 sky'},{image:'/f/wallpaper/9820/DSC_858861.jpg', title:'CC Lily Pond'}];

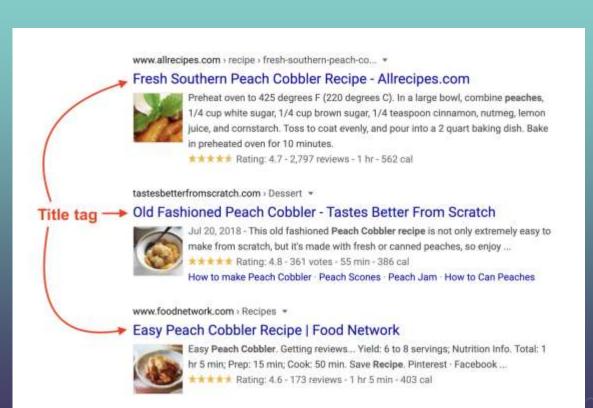
c/script>

ACCURATE TITLE

Accurate title: It appears elsewhere and affects visitors.



ACCURATE TITLE



ACCURATE TITLE



Avoid Too Many Changes!

Don't change your TITLE too frequently. Google will penalize a site that has such-and-such Homepage TITLE on day 1, then another on day 7, and still another on day 4

Rule of thumb: Don't change it again for at least 90 days!

This rule only applies to the title but does not apply to the content.

The Six Secrets of On-the-Page Optimization

#2: Incorporate key words into your URL (your page address)

SIMPLE URL

Make your URL easier to understand:

Good example: www.example.com/green-dress.html Bad example: www.example.com/greendress.html

Make your URL short:

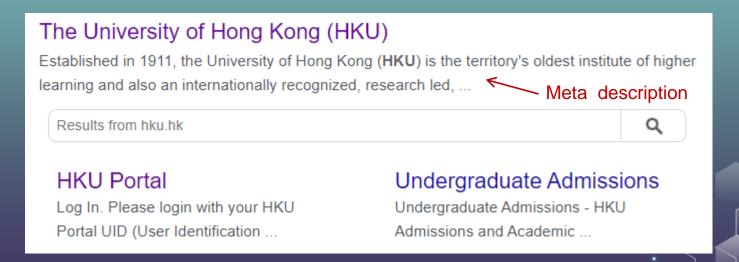
Good example: www.example.com/dress/ Bad example: www.example.com/category/dress/

Contain keywords in your URL:

Good example: http://www.example.com/green-dress.html Bad example: http://www.example.com/112.html

The Six Secrets of On-the-Page Optimization

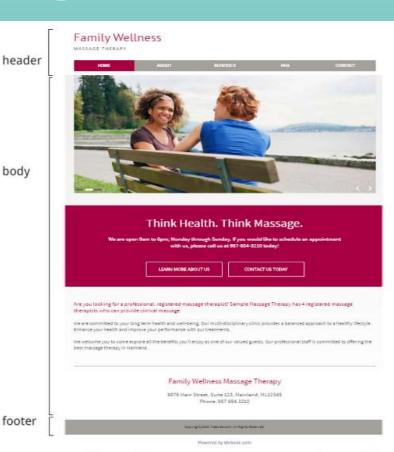
#3: The meta description does not influence the ranking so much, but substantially impacts the "click ability" of your result as it is what the search engine picks up.



The Six Secrets of On-the-Page Optimization

#4: Headers: Visible in the source code, contribute towards Google's perception of the subject matter of the page. Make sure the header has the keyword.

#5: Page Body: Context and proximity in the text play a role – keywords should be close to the beginning of the body copy.



The Six Secrets of On-the-Page Optimization

#6: Alt tags are descriptions of images on your website
Help people who use screen readers to use your website
Allow Google to interpret images, index them and support your ranking



```
('id') betact-image-erransive , value : "Urransive or about content
("id') defect-image-extra-items", "value": "Shows additional items"),
 ("id":"defect-image-not-clear", "value": "Is not clear"), ("id": "defect-
 other-image-issue", "value": "Other"}] " data-metadata- DMSE" data-
 feature-container-id-"imageBlockEDPOverlay" data-custom-event-hondler-
  "imageBlockEDPCustomEventHandler" data-display-name "Images" data-edit-
 Hata-state "imageDlockDDPtditData" data-publican 8 data-resolvers
  "CQNess Lver">-/span-
          Creating a custom overlay for image not available experience
>-div class-"variationUnavailable unavailableExp" style-"displays
-div class="a-hidden" id="auiInmersiveViewDiv">-/div-
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 Wels place-'image
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 selected style-"cursor: pointer:">
   Waspan class="a-list-liss"=
     Weight class"s-declarative" data-actions "main-image-click" data-
     main-image-cline"() --
       *-div id-"imgTagWrapperId" class- imgTagWrapper style height:
           sing alt-"Doritus Tartilla Chips, Nacho Cheese, 1.75-Ounce
           Large Single Serve Bags (Pack of 64)" src-"https://images-
           navist-images-anazon.com/images/I/
           71Brilet/Gi, 5Y8795K-, 0, 0, 496, 679 Floundle-
54, TosRight, 0, 0, 5X496, 5Y879 (N. 0, 0, 486, 879 SH20 , jpg data-
           old-hires "https://images-na.sul-images-anazon.com/images/I/
           718r1Lac3CL_SL1366_.jpg" class="a-dynamic-image a-stretch-
           vertical" io-"landingInage" data-a-dynamic-image-"("https://
           images-na.sst-images-amazon.com/images/I/
           718r1Lee3GL, 5Y458SX322 5Y458 CR, 8, 8, 322, 458 PIbundle-
           64. TopRight, 0, 0 5X322 SY450 CR, 0, 0, 322, 450 SH20 . jpg" |
```

OTHER TIPS: MOBILE FRIENDLINESS

Question: How to design the mobile version of your webpage to make it mobile friendly? Any ideas?

OTHER TIPS: MOBILE FRIENDLINESS

Simplify the mobile version of your website to reduce the load time.

Design for the fat finger: Make sure your buttons are not too small.

Don't use Flash: The plugin may not be available on your user's phone, which means they'll miss out on all the fun. If you want to create special effects, use HTML5 instead.

what is the best university in hk











Al Overview

The University of Hong Kong (HKU) is generally considered the best university in Hong Kong, holding the highest global and Asian rankings, such as 11th worldwide in the 2026 QS World University Rankings. Other top-ranking institutions include the Hong Kong University of Science and Technology (HKUST) and the Chinese University of Hong Kong (CUHK).







When a user asks a question, Google often summarizes an answer in its "AI overview."

Google AI does the followings:

- identifying the most relevant content on the internet,
- summarizing that content using AI, and
- linking to some of the key content on the right-hand side.

How to win the answer box?

How to win the answer box?

Think about the questions that your users may ask.
Answer the question back as if you were having a conversation.
Provide Wikipedia type content.
You can also use People Also Ask function to identify questions!

You can also use People Also Ask function to identify questions!

| People also ask : | |
|--|----------|
| Which university is the best in Hong Kong? | ~ |
| What is the largest university in Hong Kong? | • |
| How many universities are there in HK? | ~ |
| What is the top 5 university? | ~ |
| | Feedback |

BRAINSTROMING IDEAS

Go to the following HKU page: https://www.fbe.hku.hk/

Pair with your classmates, can you come up with some ideas to improve the content/structure of this webpage?

Think from the perspective of a potential visitor, Prospective students, Current students, Alumni, Employee, Donor

Provide rationale for the design ideas

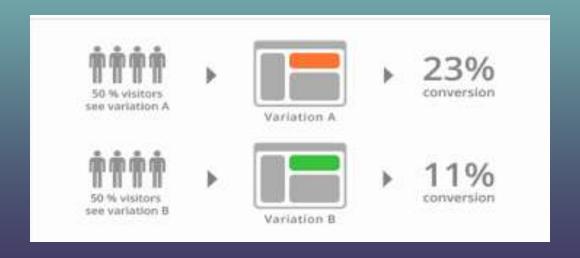
WOORANK

Try to add the following browser extension to check your website:

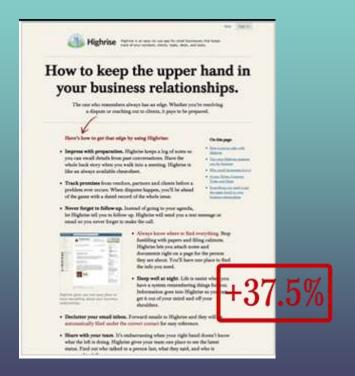
https://www.woorank.com/en/extension

Landing Page Optimization: AB Testing

A/B testing (i.e., split testing) is an important tool for identifying the optimal creative.



Which one is better?





Which one is better?

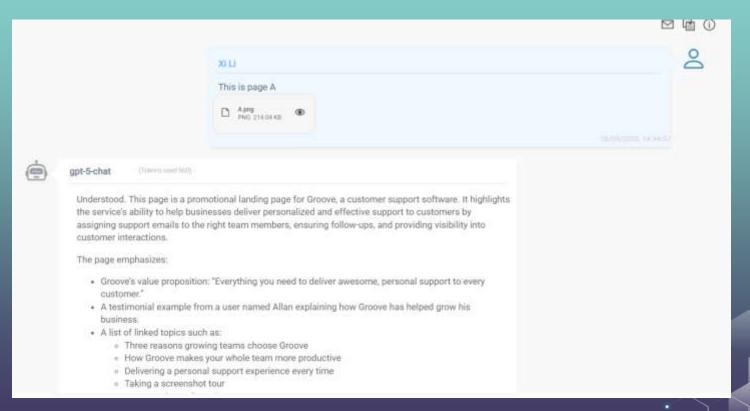


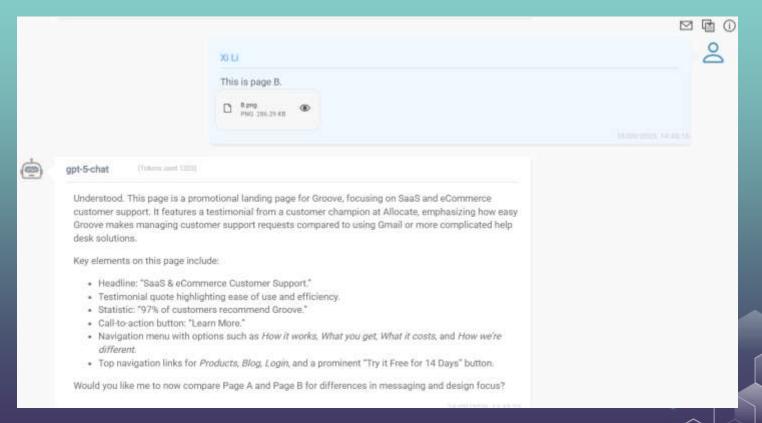


Which one is better?









| | | | жи | Do |
|---|------------|--------|--|----|
| | | | Which one do you think is better? Give me the answer only. | |
| ٠ | gpt-5-chat | (1946) | | |
| | Page A | | | |
| | | | 10,000 2000, \$440 AB | |

Guess: Did LLM give me the right answer? Yes!

| | | | хы | 0 |
|---|------------|-------------------|--|---|
| | | | Which one do you think is better? Give me the answer only. | |
| ė | gpt-5-chat | (764-16-17-17-17) | | |
| | Page A | | | |
| | | | 16/9/2020, 3/6/46/40 | |

Guess: Did LLM give me the right answer? Research shows that LLM is slightly better than human being when guessing the results of AB tests.

ON-PAGE AND OFF-PAGE SEO

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Technical Structure (Page Title, Headers, Page Body, Image Tags, URL, Meta Description)

AI Overview: Win the "Answer Box"

Off-page (or off-site):

Backlinks (who link to you)

If you only had a video of a party, how could you tell who is most influential?



BACKLINKS

Inbound links (backlinks): Links that point back to your website from an external site

Links are "like" votes!

When Google began, this was the most important factor to determine ranking/relevance. How?

Quantity of links

Quality of backlink sites

Share of links on backlink sites

PAGE RANK

PageRank is a numeric value measuring the importance of a page on the web. Named after *Larry Page* (co-founder of Google)

A link analysis algorithm that assigns a numerical weighting to each element (webpage) in the entire set (Web) to measure the importance of the page.

Sum of the PageRank of all pages in a system is set to 1.

PAGE RANK

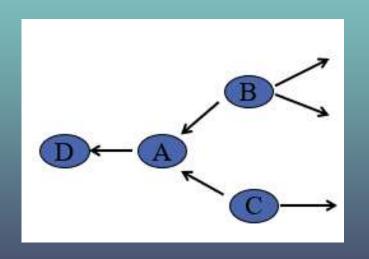
Let PR(U) be the page rank of webpage U.

Assuming m webpages $(V_1, ..., V_m)$ send incoming links to page U, then

$$PR(U) = \frac{PR(V_1)}{L(V_1)} + \frac{PR(V_2)}{L(V_2)} + \dots + \frac{PR(V_m)}{L(V_m)}$$

 $L(V_j)$ = number of outgoing links from website V_j

PAGE RANK



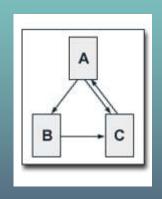
Here, B and C send links to A, so PR(A) is affected by PR(B) and PR(C).

Similarly, PR(A) affects PR(D).

$$PR(A) = \frac{PR(B)}{3} + \frac{PR(C)}{2}$$

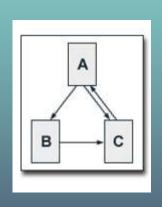


PAGE RANK EXAMPLE





PAGE RANK EXAMPLE



Only C sends a link to A: PR(A) = PR(C)

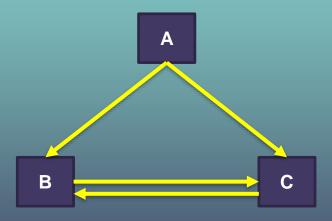
Only A sends a link to B: PR(B) = PR(A)/2

Both A and B send links to C: PR(C) = PR(A)/2 + PR(B)

And all ranks add to 1: PR(A) + PR(B) + PR(C) = 1

Solve the model, we have PR(A) = 0.4, PR(B) = 0.2, PR(C) = 0.4.







How to get more inbound links?



How to get more inbound links?

- Identify Relevant Blogs: A common tactic is to give out product samples for free in exchange for a product review and link back on the blog.
- Complementary Products: A wedding photographer, for example, might search for not only directories of wedding suppliers that would likely exchange links due to the complementary nature of their businesses.
- Competitor analysis: Who is linking to your competitors? They may link to you.

SEO: The White and Black

White Hat SEO (legitimate):

Conforms to the search engines' guidelines and involves no deception Create content for users and search engines



Black Hat SEO (illegitimate)

Going overboard with SEOs...

Trying to deceive search engine to increase rank

Use reputable SEO company & beware guarantees "#1 site on Google"

Black Hat SEO

Just a few examples from 1000s of such practices --- you will be penalized by search engines when uncovered.

Keyword stuffing: overusing the same keywords throughout one page in order to maximize its visibility and organic traffic.

We are a web development company in Bend, Oregon. As a web development company who does web design and SEO, we are able to create web designs that are SEO friendly. Yes, we do good web design and SEO and can help you develop a web development is SEO friendly. When it comes to looking for a web development company in Bend, Oregon web design and SEO. Because experience in web design and SEO. Because experience in web development company in Bend, Oregon to rank well on Google. So hire us, your web development company in Bend, Oregon—experienced in web design and SEO.

Black Hat SEO

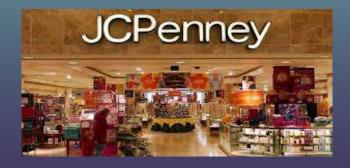
Cloaking: Serve fake content to search engine spider.



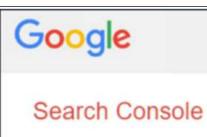
Black Hat SEO

Paid Links: pay other websites to link to their page to get high rankings.

Example: JCPenny paid other websites to link to JCP.com. After being caught, it was blocked from ranking in the first page of results at Google for 3 months. Lost \$30mm in sales.







Help us maintain the quality of Google search results.

We work hard to return the most relevant results for every search we have users' best interests at heart. Some site owners attempt to "buy

Google uses a number of methods to detect paid links, including alg submissions, and we'll use your data to improve our algorithmic dete

Report paid links

| Website selling links: | |
|------------------------|--|
| | |
| Website buying links: | |

Tools for Website Evaluation







PAGE SIZE



55.2_{MB}

Vaster than empires and more slow.

The heavier the site page, the slower the load. For optimal performance, try to keep page size below 3MB.

PAGE REQUESTS



159

Now that's a lot of requests.

The more HTTP requests your website makes, the slower it becomes. Combining files can help reduce the number of requests.

PAGE SPEED



17.6_{SEC}

We need to talk.

Best-in-class webpages should become interactive within 5.3 seconds. Any slower and visitors will abandon your site, reducing conversions and sales.



PASS

LEGIBLE FONT SIZE



Easy on the eyes.

Visitors may have difficulty reading small text, especially on mobile devices. We recommend at least 12px. FAIL

TAP TARGETS



Where do I click?

Mobile-friendly pages perform better in search results. Make sure interactive elements like buttons and links are not too small or too close together.

PASS

RESPONSIVE



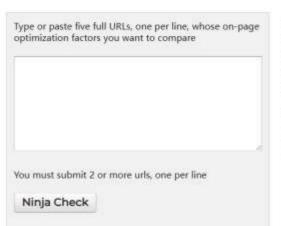
Fantastic! You're ready to face the future.

Responsive design gives you a bump in search rankings for searches on mobile devices.

| PERFORMANCE | CURRENT | RECOMMENDATION | |
|---------------------|---------|----------------|---|
| Page size | 55.2MB | < 3MB | Lighten your pages by removing or compressing heavy content such as images and video. |
| Page requests | 159 | < 30 | Combine files to minimize the number of HTTP requests your site makes. |
| Page speed | 17.6Sec | <
5.3Sec | Speed up your site by lightening up your site pages, compressing images and video where possible. |
| Image Size | No | Yes | Use responsive images or SVGs to optimize your images for different screen sizes. |
| Minified JavaScript | No | Yes | Use a minifier tool or contact your web host to ensure your JavaScript is minified. |

Side-by-Side SEO Comparison

Go to https://tools.internetmarketingninjas.com/seo-compare/



Optimizing text on webpages can increase relevance to keyword queries

The text used on a webpage is vital for conveying to the human reader what the page is about. How the text is used on the page helps search engine crawlers determine what the page is about for query relevance. Words used in HTML tags important for SEO and then echoed again in body text (excluding link text, which describes the linked page) tells the search crawlers this page is relevant to these terms.

Using a free tool to find all the ways keyword text is used on webpage is very helpful to SEOs. But to have a keyword tool that compares two sites in a side-by-side report is even better. At a glance, you can see how your page and a competitor's page use keywords, how much text is on the page, and which keywords are used. This is invaluable competitive intelligence for SEOs. Internet Marketing Ninjas offers just such a free SEO tool.



Page Speed

| Report from Sep 19, 2025, 12 | :24:26 PM | | |
|-------------------------------------|-----------------------------------|--|--|
| https://www.hkubs.hku.hk/ | | Analyze | |
| | Mobile Desktop | | |
| Discover what your real users are e | experiencing | This URL Origin | |
| | Core Web Vitals Assessment: Faile | ed ③ | |
| Largest Contentful Paint (LCP) | Interaction to Next Paint (INP) | Cumulative Layout Shift (CLS) | |
| 4 s | 383 ms | 0.06 | |
| OTHER NOTABLE METRICS | | | |
| First Contentful Paint (FCP) | ▲ Time to First Byte (TTFB) ▲ | | |
| 2.9 s | 1.9 s | ¥3 | |
| Latest 28-day penod (f) (history) | DB Various motifie devices | € Many samples (<u>Chrome UX Report</u>) | |
| | | All Chrome versions | |

Tools for Link Analysis

- <u>Ahrefs</u> allows you to input a competitor URL and reverse engineer who is linking to that competitor.
- Open Link Profiler tracks new links to your website (or to competitors) and requires no registration and no payment. It's totally free!
- <u>Link Explorer by Moz</u>. Type your competitor's homepage or the URL of a highly-ranked site on Google into this tool. Browse to see who is linking to your competitors.