



SEARCH ENGINE OPTIMIZATION

Improve your ranking on Google



Which search engines have you used?



Today's Agenda

01

Mechanism

How search engine works?

02

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”, “HKTV Mall”)

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





HOW DO SEARCH ENGINES WORK?



HOW DO SEARCH ENGINES WORK?

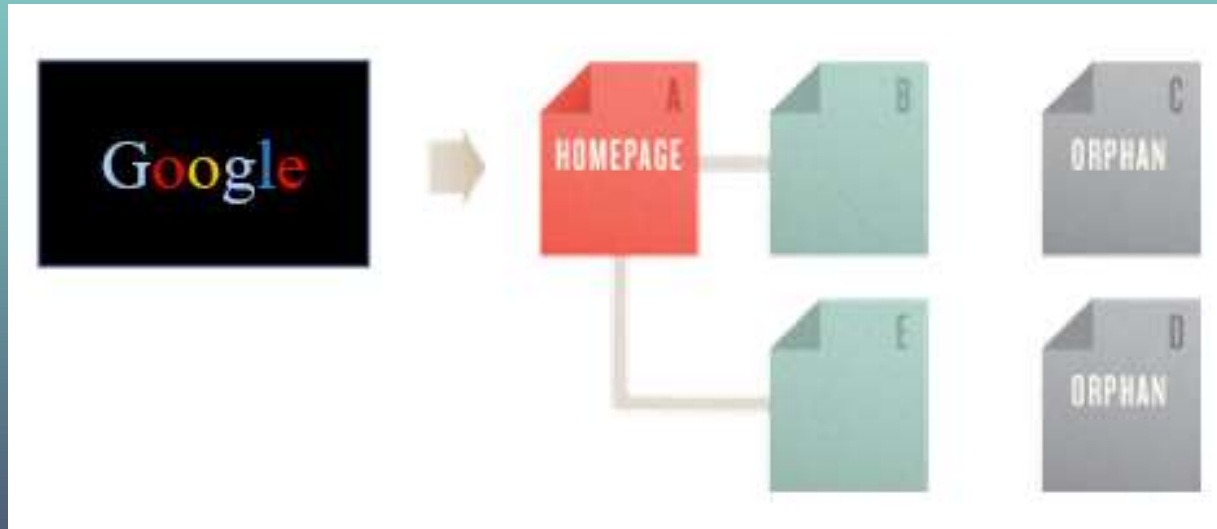
Crawl the web via spiders (a.k.a. web crawlers).



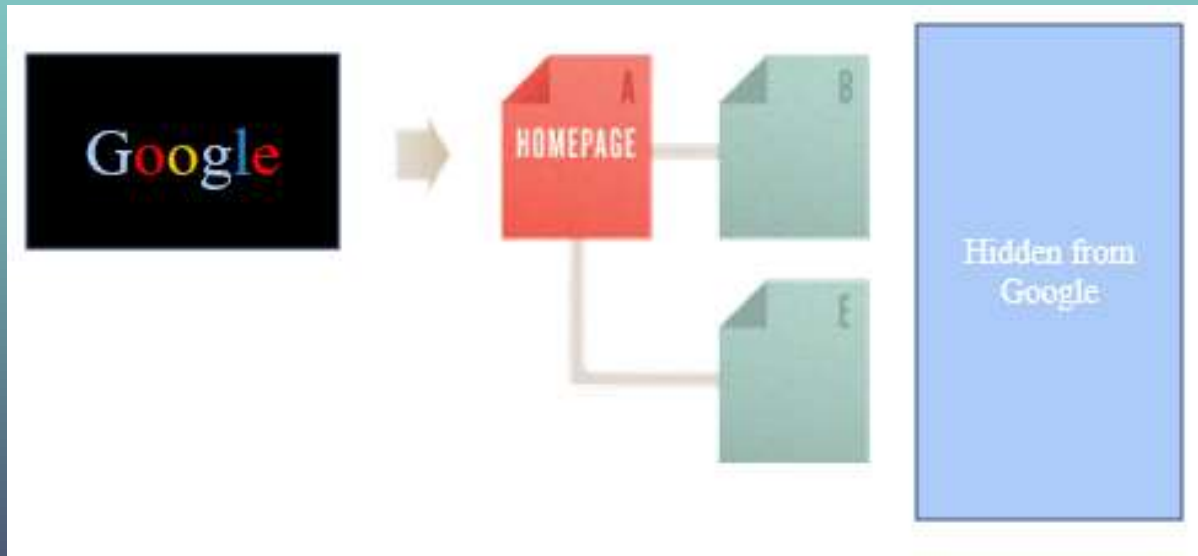
It goes from page to page.

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...





HOW DO SEARCH ENGINES WORK?

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.






HOW DO SEARCH ENGINES WORK?

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.






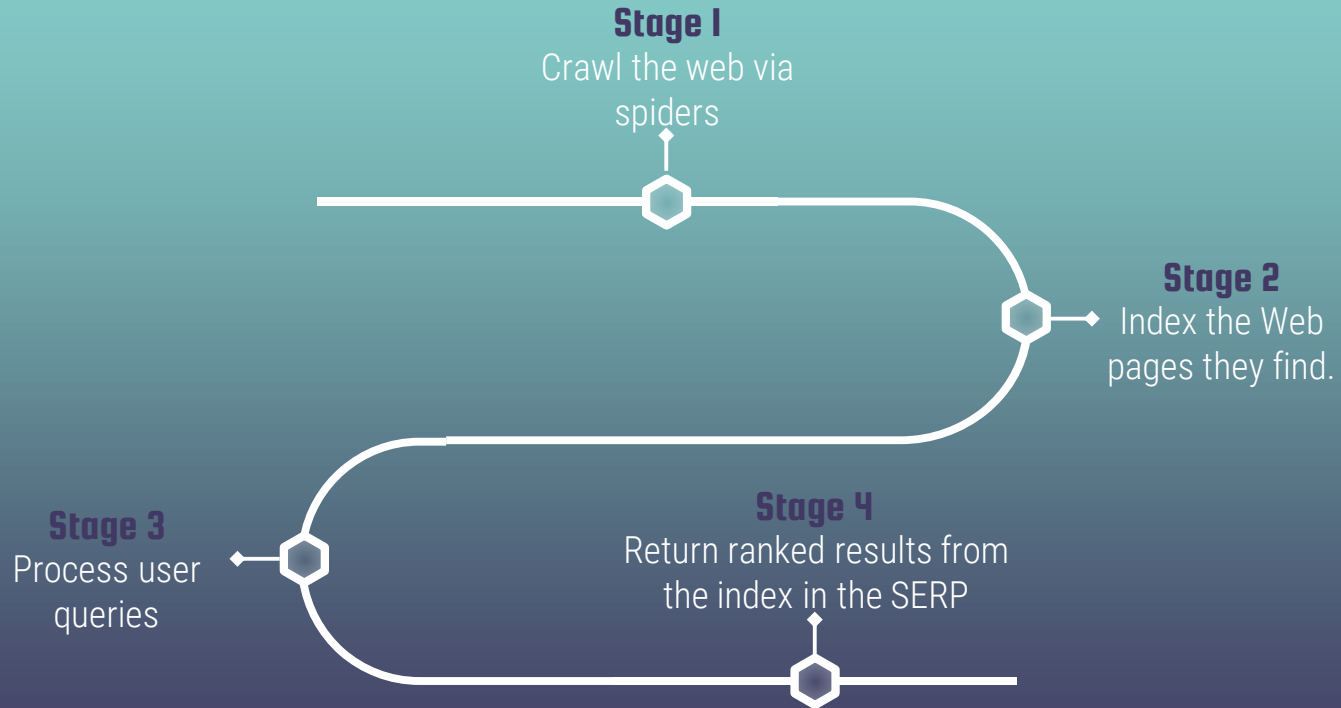
HOW DO SEARCH ENGINES WORK?

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.

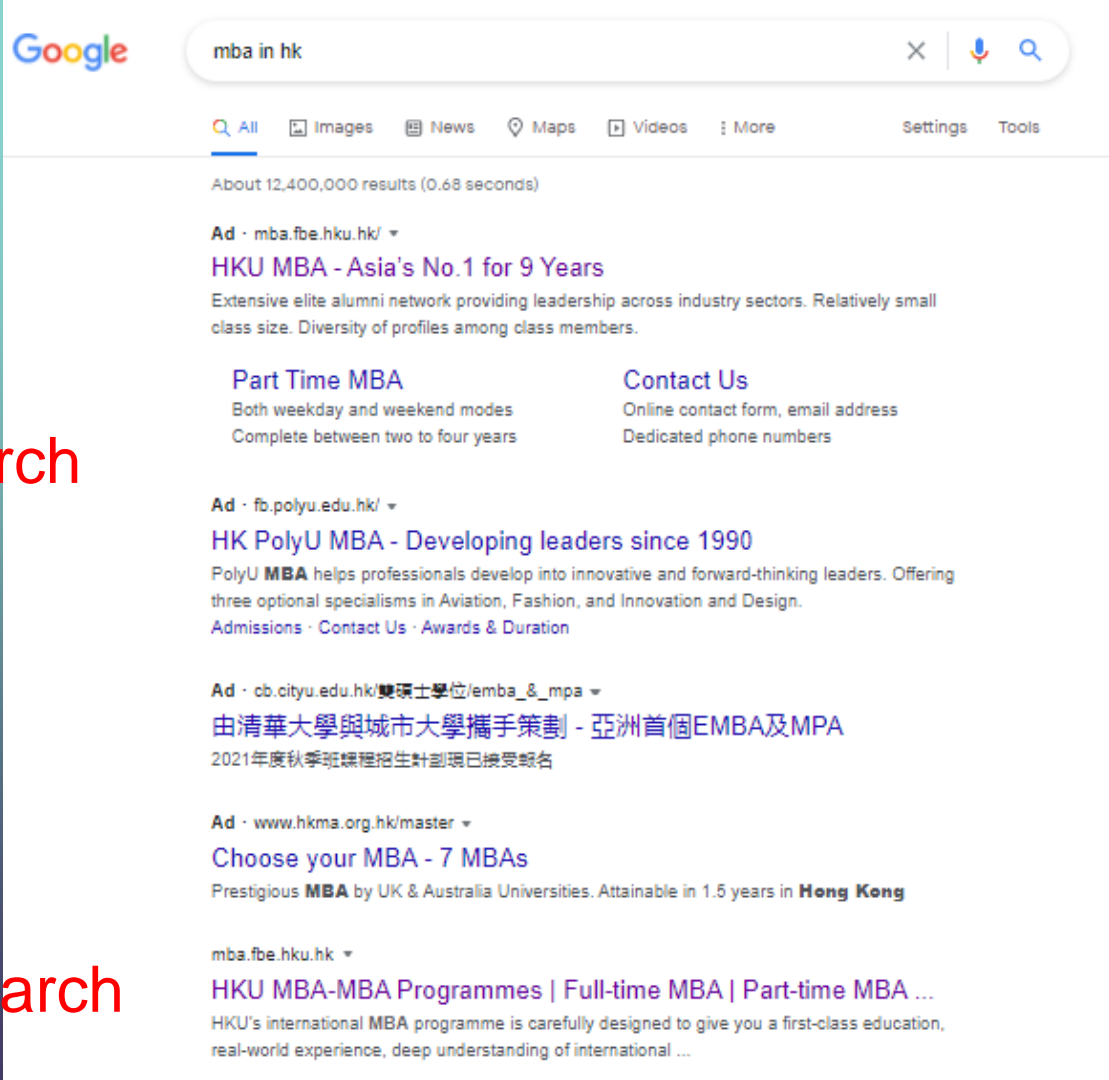


TIMING



Paid search

Organic search



The image is a screenshot of a Google search results page for the query "mba in hk". The search bar at the top shows the query and the Google logo. Below the search bar, there are tabs for "All", "Images", "News", "Maps", "Videos", and "More". The search results are displayed below the tabs. The first result is a paid advertisement for HKU MBA, with the URL "mba.fbe.hku.hk/". The title is "HKU MBA - Asia's No.1 for 9 Years". The description is "Extensive elite alumni network providing leadership across industry sectors. Relatively small class size. Diversity of profiles among class members." Below the title and description, there are two columns of text: "Part Time MBA" and "Contact Us". The "Part Time MBA" column contains the text "Both weekday and weekend modes" and "Complete between two to four years". The "Contact Us" column contains the text "Online contact form, email address" and "Dedicated phone numbers". The second result is a paid advertisement for HK PolyU MBA, with the URL "fb.polyu.edu.hk/". The title is "HK PolyU MBA - Developing leaders since 1990". The description is "PolyU MBA helps professionals develop into innovative and forward-thinking leaders. Offering three optional specialisms in Aviation, Fashion, and Innovation and Design." Below the title and description, there is a link "Admissions - Contact Us - Awards & Duration". The third result is a paid advertisement for CityU MBA, with the URL "cb.cityu.edu.hk/雙碩士學位/emba_&_mpa". The title is "由清華大學與城市大學攜手策劃 - 亞洲首個EMBA及MPA". The description is "2021年度秋季班課程招生計劃現已接受報名". The fourth result is a paid advertisement for HKMA, with the URL "www.hkma.org.hk/master". The title is "Choose your MBA - 7 MBAs". The description is "Prestigious MBA by UK & Australia Universities. Attainable in 1.5 years in Hong Kong". The fifth result is an organic search result for HKU MBA, with the URL "mba.fbe.hku.hk". The title is "HKU MBA-MBA Programmes | Full-time MBA | Part-time MBA ...". The description is "HKU's international MBA programme is carefully designed to give you a first-class education, real-world experience, deep understanding of international ...".

Google

mba in hk

× | 🔊 🔍

🔍 All 🖼️ Images 📰 News 📍 Maps 📺 Videos ⋮ More Settings Tools

About 12,400,000 results (0.68 seconds)

Ad · mba.fbe.hku.hk/ ▾

HKU MBA - Asia's No.1 for 9 Years

Extensive elite alumni network providing leadership across industry sectors. Relatively small class size. Diversity of profiles among class members.

Part Time MBA

Both weekday and weekend modes
Complete between two to four years

Contact Us

Online contact form, email address
Dedicated phone numbers

Ad · fb.polyu.edu.hk/ ▾

HK PolyU MBA - Developing leaders since 1990

PolyU **MBA** helps professionals develop into innovative and forward-thinking leaders. Offering three optional specialisms in Aviation, Fashion, and Innovation and Design.

[Admissions](#) · [Contact Us](#) · [Awards & Duration](#)

Ad · cb.cityu.edu.hk/雙碩士學位/emba_&_mpa ▾

由清華大學與城市大學攜手策劃 - 亞洲首個EMBA及MPA

2021年度秋季班課程招生計劃現已接受報名

Ad · www.hkma.org.hk/master ▾

Choose your MBA - 7 MBAs

Prestigious **MBA** by UK & Australia Universities. Attainable in 1.5 years in **Hong Kong**

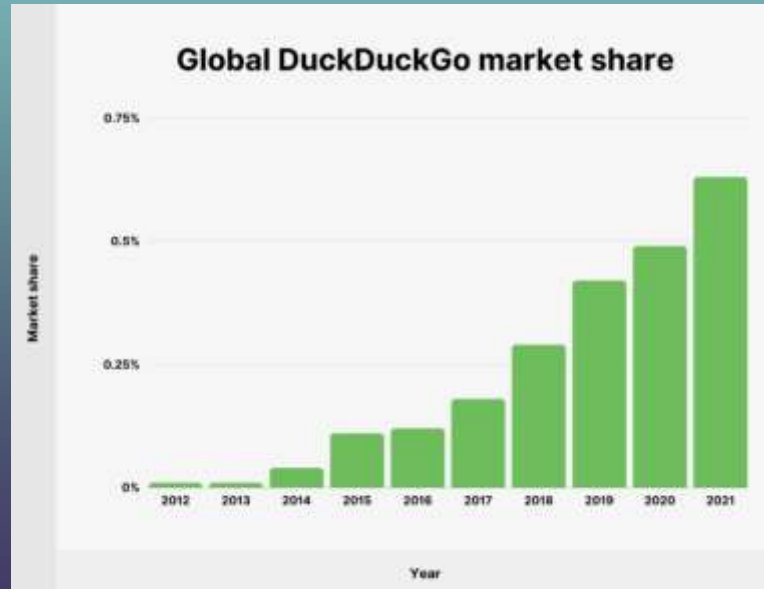
mba.fbe.hku.hk ▾

HKU MBA-MBA Programmes | Full-time MBA | Part-time MBA ...

HKU's international MBA programme is carefully designed to give you a first-class education, real-world experience, deep understanding of international ...

DO YOU KNOW DuckDuckGo?

DuckDuckGo is a pro-privacy search engine that does not collect your data. Every time there is a scandal about your information got stolen, they got a boost.





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).





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).

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%



SEARCH ENGINE OPTIMIZATION





QUESTION

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

50%? 20%? What is your estimate?





QUESTION

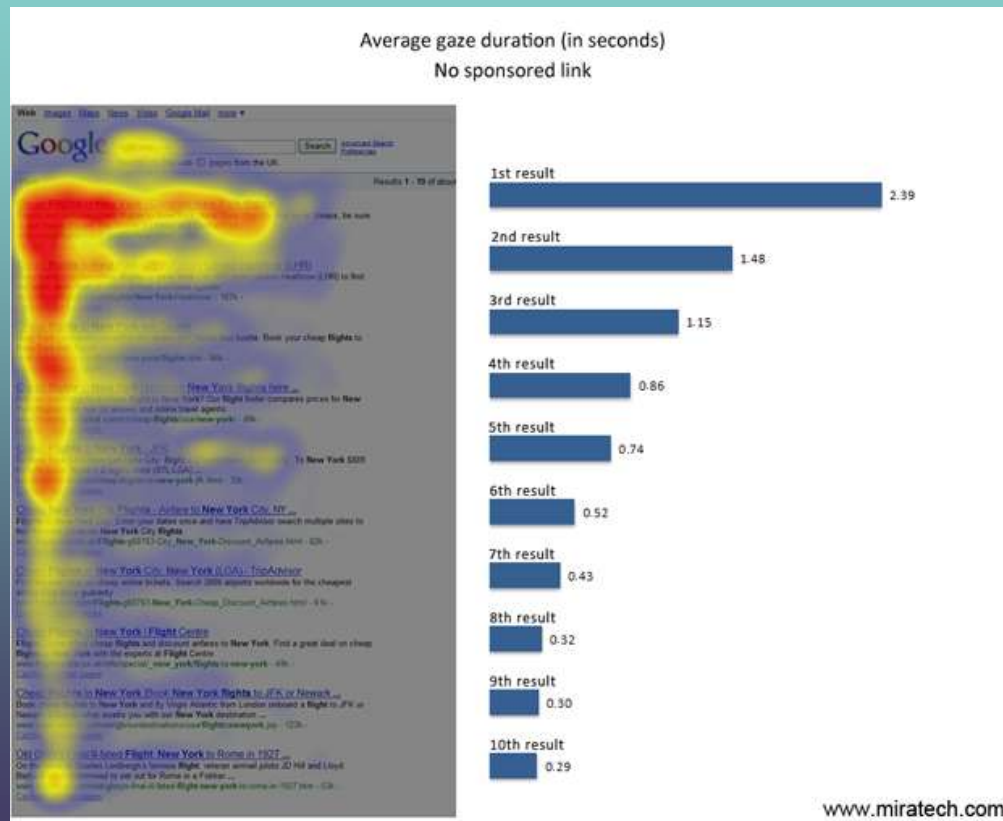
How many users will visit the second page of the search results?

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






SEO CONSIDERATIONS

What are the goals of our business?

Who do we want to visit our website?

What do we want our target audience to do on our website?

What pages do we want them to visit and what path must they follow to get there?





ON-PAGE AND OFF-PAGE SEO

On-page (or on-site):

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

Off-page (or off-site):

- Backlinks (who link to you)
- Social Engagement





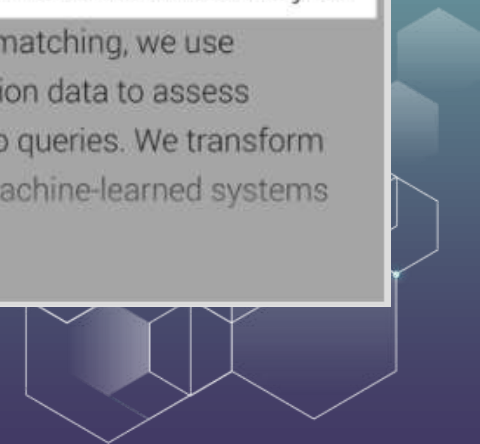
GOOGLE SAYS THAT

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 better estimate relevance.






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

```
<meta 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 leading institution." />
<title>The University of Hong Kong (HKU)</title>

<link media="all" href="/assets/css/index.css?t=20220516" type="text/css" rel="stylesheet" /><link 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_8588G1.jpg', title:'CC Lily Pond'}];
</script>
```

ACCURATE TITLE

Accurate title: It appears elsewhere and affects visitors.



ACCURATE TITLE

Title tag →

www.allrecipes.com › [recipe](#) › [fresh-southern-peach-co...](#) ▾

Fresh Southern Peach Cobbler Recipe - Allrecipes.com



Preheat oven to 425 degrees F (220 degrees C). In a large bowl, combine peaches, 1/4 cup white sugar, 1/4 cup brown sugar, 1/4 teaspoon cinnamon, nutmeg, lemon juice, and cornstarch. Toss to coat evenly, and pour into a 2 quart baking dish. Bake in preheated oven for 10 minutes.

★★★★★ Rating: 4.7 - 2,797 reviews - 1 hr - 562 cal

tastesbetterfromscratch.com › [Dessert](#) ▾

Old Fashioned Peach Cobbler - Tastes Better From Scratch



Jul 20, 2018 - This old fashioned **Peach Cobbler** recipe is not only extremely easy to make from scratch, but it's made with fresh or canned peaches, so enjoy ...

★★★★★ Rating: 4.8 - 361 votes - 55 min - 386 cal

[How to make Peach Cobbler](#) · [Peach Scones](#) · [Peach Jam](#) · [How to Can Peaches](#)

www.foodnetwork.com › [Recipes](#) ▾

Easy Peach Cobbler Recipe | Food Network



Easy **Peach Cobbler**. Getting reviews... Yield: 6 to 8 servings; Nutrition Info. Total: 1 hr 5 min; Prep: 15 min; Cook: 50 min. [Save Recipe](#). [Pinterest](#) · [Facebook](#) ...

★★★★★ Rating: 4.6 - 173 reviews - 1 hr 5 min - 403 cal

ACCURATE TITLE

Title tag





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 University of Hong Kong (HKU)

Established in 1911, the University of Hong Kong (HKU) is the territory's oldest institute of higher learning and also an internationally recognized, research led, ...

← Meta description

Results from hku.hk



HKU Portal

Log In. Please login with your HKU
Portal UID (User Identification ...

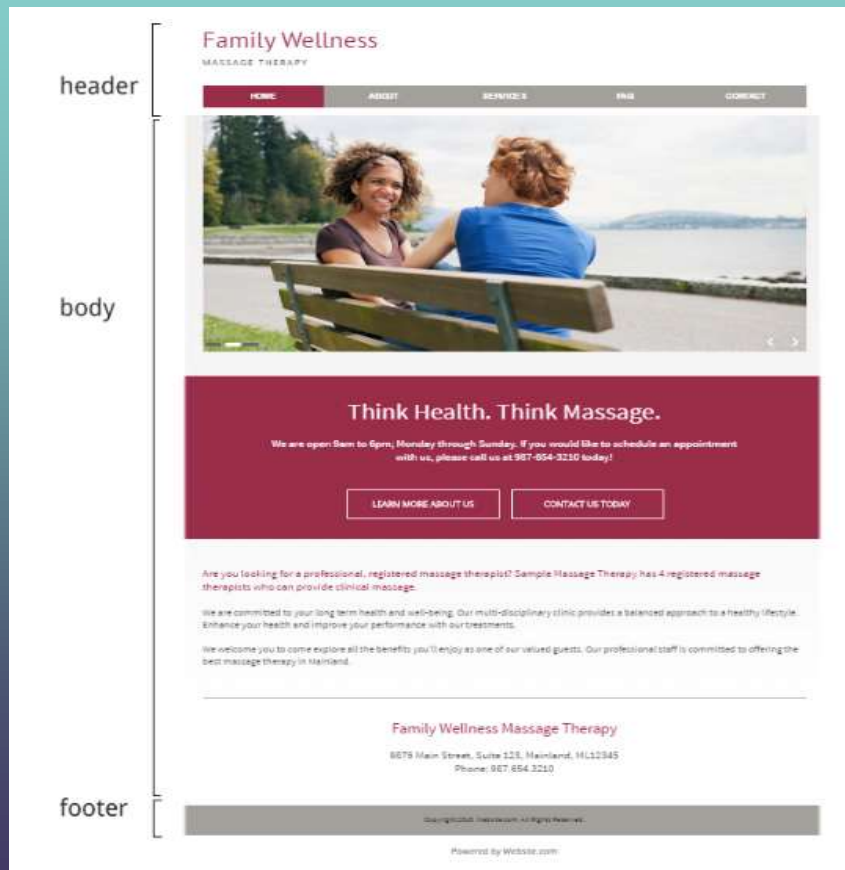
Undergraduate Admissions

Undergraduate Admissions - HKU
Admissions and Academic ...

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

Doritos Tortilla Chips, Nacho Cheese, 1.75-Ounce Large Single Serve Bags (Pack of 64) Circle

★★★★★ 175 customer reviews | 8 answered questions



About the Product:

- Pack of 64, 1.75-ounce large single-serving bags (total of 112 ounces)
- Doritos tortilla chips with classic nacho-cheese flavor
- Made of white corn; Ravitos® feature real cheddar cheese

```
<!-- Creating a custom overlay for image not available experience -->
<div class="variationUnavailable unavailableExp" style="display: none;">
  <div class="a-hidden" id="auiImmersiveViewDiv">
    <ul class="a-unordered-list a-nostyle a-horizontal list-maintain-height">
      <li>
        <span id="imageBlockEOPOverlay">
          <div class="image"
            selected="" style="cursor: pointer;">
            <span class="a-list-item">
              <span class="a-declarative" data-action="main-image-click" data-main-image-click="">
                <div id="imgTagWrapperId" class="imgTagWrapper" style="height: 500px;">
                  
```

OTHER TIPS: CLEAR WEBSITE NAVIGATION

**Content Marketing Pages
& Product Pages**

Homepage



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.





ON PAGE SEO: CONTENT TACTICS

Regular, helpful content targeted at your audience (tutorials, how to guide, etc.).

Make sure content is keyword rich – but not too rich

- Use synonyms, avoid keyword stuffing

- Rule of thumb: keyword density 2-4% of content

Freshness or signs that your site is alive and growing (e.g., news feed).





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



Landing Page Optimization: AB Testing

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





Landing Page Optimization: AB Testing

There are many “plug and play” [tools](#) for AB testing.

[Google optimize](#) for content experiment.



AB Testing: A Quick Tutorial





ON-PAGE AND OFF-PAGE SEO

On-page (or on-site):

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

Off-page (or off-site):

Backlinks (who link to you)
Social Engagement



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





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

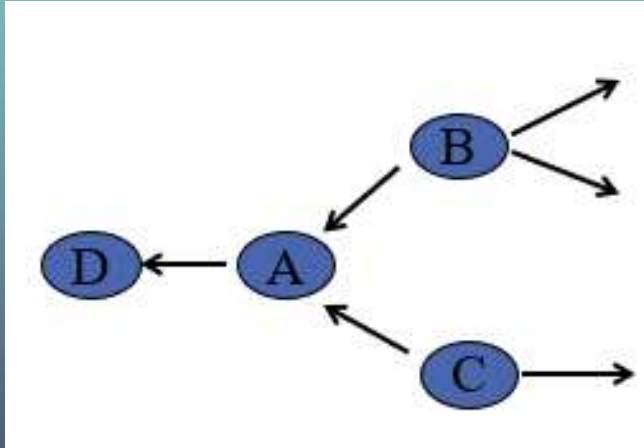
Let $PR(U)$ be the page rank of webpage U .

Assuming m webpages (V_1, \dots, 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

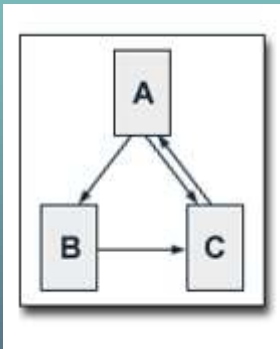


Here, B and C send links to A, so $PR(A)$ is affected by $PR(B)$ and $PR(C)$.

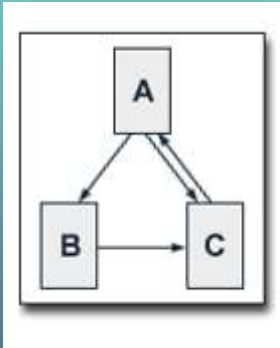
Similarly, $PR(A)$ affects $PR(D)$.

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

PAGE RANK EXAMPLE



PAGE RANK EXAMPLE



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

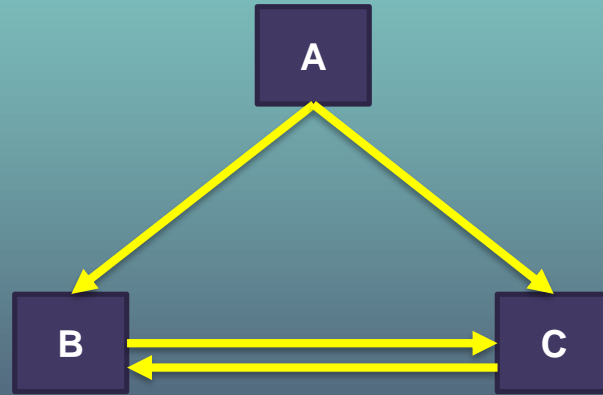
Only A sends a link to B: $PR(B) = PR(A)/2$

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 $PR(A) = 0.4, PR(B) = 0.2, PR(C) = 0.4$.

Exercise



LINK BUILDING

How to get more inbound links?

Create link worthy content

Write content that others want to read and link; Create tools and documents that others want to use; Create and host a game that others want to play

Content variety

Many types of contents available; Examples include blogging, white papers, videos, webinars, podcasts, webcasts, and infographics

Web PR

Submitting guest blog posts to popular blogs in your industry. Generally, you will get a link back to your website in an author box at the top or bottom of your post's content. Submit your website to applicable industry directories

Competitor analysis

Who is linking to your competitors? They may link to you.

Track Inbound Links

Backlink profile for www.hku.hk

Domain including subdomains

Domain Rating [?]



Backlinks [?]

6,470,389

94% dofollow

Referring Domains [?]

17,294

89% dofollow

Top 100 backlinks

Top 5 anchors

Top 5 pages

With HTTP 200 status code

Referring page	DR	UR ▼	Referring Domains	Traffic	Anchor and backlink
Covid-19 Vaccine Tracker: Latest Updates - The New York Times en.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html EN	93	84	7,946	108,385	CONTENT coronavirus spike protein as well. On Sept. 9, they received approval to start clinical trials in partnership with Beijing Wantai Biological Pharmacy. www.hku.hk/press/news_detail_21583.html
Jack Ma - Wikipedia en.wikipedia.org/wiki/Jack_Ma EN WIKIS	95	76	1,666	165,947	NOFOLLOW "HKU to confer honorary degrees upon three outstanding individuals at the 199th Congregation - Press Releases".Hku.hk



Track Inbound Links

There are several tools that help you track inbound links to your website. For example, you can use **ahrefs** to track the links:

ahrefs: <https://ahrefs.com/backlink-checker>





Track Inbound Links

Exercise: Go to **ahrefs** to analyze the website of HKU and HKUST business school:

HKU Business School: <https://www.fbe.hku.hk/>

HKUST Business School: <https://www.bm.ust.hk/>

What did you find? What can HKU learn from HKUST?



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...

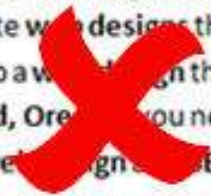
Trying to deceive search engine to increase rank

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 design** that is **SEO friendly**. When it comes to looking for a **web development company in Bend, Oregon**, you need to make sure they are experienced in **web design and SEO**. Because experience in **web design and SEO** is very important. You need good **web design and SEO** from a good **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: JCPenney 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.



GOOGLE PANDA



Google Panda is an algorithm used to reward high-quality websites and diminish the presence of low-quality websites in Google's organic search engine results.

It punishes **thin content, duplicate content, low-quality content, high ad-to-content ratio, content mismatching search query.**

It rewards **original content and outbound links to reputable websites.**



Website Evaluation





Tracking Progress

Tracking your progress (and progress of competitor) helps identify the following:

Strength: Which pieces of content do users spend most time on?

Weakness: Which pieces of content do users spend least time on?

Opportunities: Are many users accessing the mobile version of your website?

Threats: Are your competitors enjoy higher search ranking?





Simple Methods Available

There are two, “off-the-shelf” methods that you can use almost immediately to check progress

HubSpot website grader (<https://website.grader.com/>): Can evaluate any website you enter into their query Assess the health of website architecture

Google Analytics: Need to have administrative access to the website as webmaster Obtain insights from website traffic



Using HubSpot Website Grader

The image shows the HubSpot Website Grader landing page. At the top, there is a logo consisting of a clock face with a gear inside, followed by the text "WEBSITE GRADER" and "Powered by HubSpot" in a smaller font. Below this, the main heading "HOW STRONG IS YOUR WEBSITE?" is displayed in large, bold, white capital letters. Underneath the heading, there are two input fields: "WEBSITE" and "EMAIL", each with a vertical line extending downwards from the text. At the bottom of the form, there is a small paragraph of text: "We're committed to your privacy. HubSpot uses the information you provide to us to contact you about our relevant content, products, and services. You may unsubscribe from these communications at any time. For more information, check out our Privacy Policy." Below the text is a button with the text "GET YOUR ANSWER >" in white capital letters.

Using HubSpot Website Grader



3/30

Performance

Optimizing your website's performance is crucial to increasing traffic, improving conversion rates, generating more leads, and increasing revenue.

Using HubSpot Website Grader

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

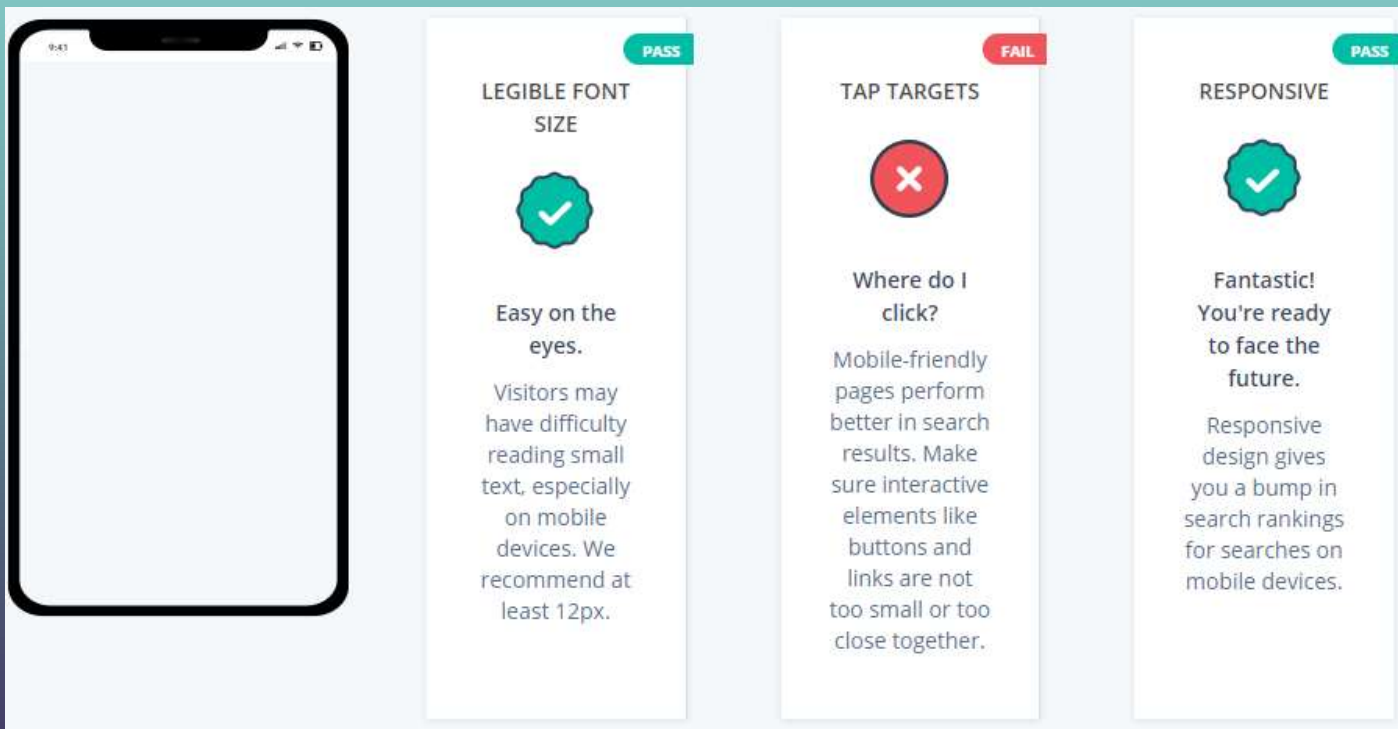


17.6_{SEC}

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.

Using HubSpot Website Grader



The image displays the HubSpot Website Grader interface for a mobile website. On the left is a large black-outlined rectangle representing the mobile device screen. To its right are three vertical panels, each representing a different performance metric. The first panel, 'LEGIBLE FONT SIZE', shows a green 'PASS' status with a green checkmark icon and a positive description. The second panel, 'TAP TARGETS', shows a red 'FAIL' status with a red 'X' icon and a negative description. The third panel, 'RESPONSIVE', shows a green 'PASS' status with a green checkmark icon and a positive description.

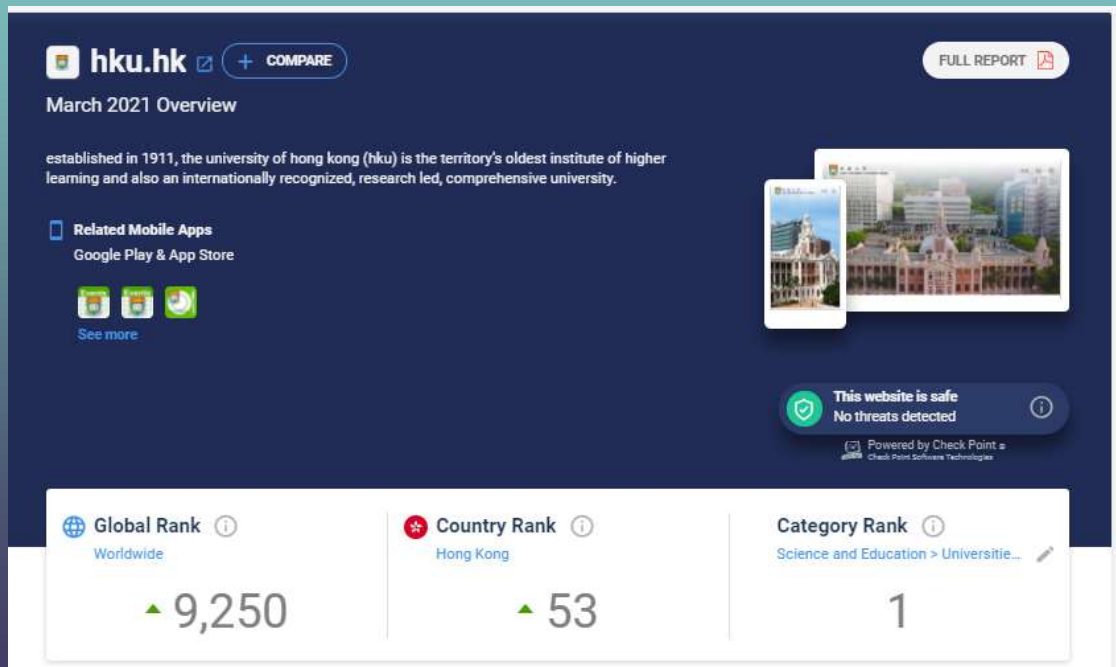
Metric	Status	Description
LEGIBLE FONT SIZE	PASS	Easy on the eyes. Visitors may have difficulty reading small text, especially on mobile devices. We recommend at least 12px.
TAP TARGETS	FAIL	Where do I click? Mobile-friendly pages perform better in search results. Make sure interactive elements like buttons and links are not too small or too close together.
RESPONSIVE	PASS	Fantastic! You're ready to face the future. Responsive design gives you a bump in search rankings for searches on mobile devices.

Using HubSpot Website Grader

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.

How to analyze traffic of a public website?

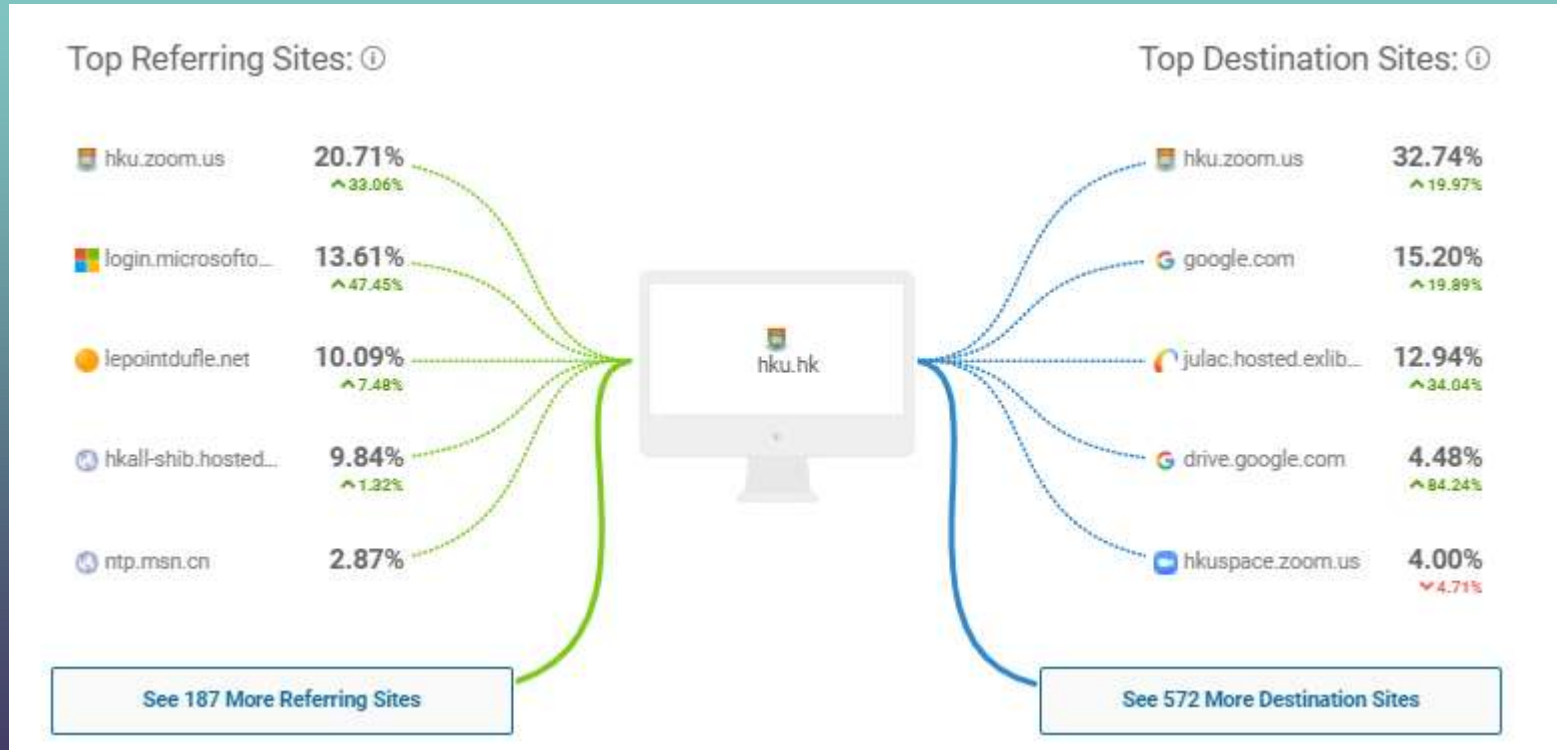
Go to <https://www.similarweb.com/>



How to analyze traffic of a public website?



How to analyze traffic of a public website?





Other Tools

Moz Link Explorer (<https://moz.com/link-explorer>)

Spyfu SEO (<https://www.spyfu.com/seo/overview>)

Quill Engage (<https://www.quillengage.com/>)

Crazy Egg (<https://crazyegg.com>)

Answer the Public (<https://answerthepublic.com/>)





NO CLASS NEXT WEEK (READING WEEK)

