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”, “HKTVMall”)

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

HOW DO SEARCH ENGINES WORK?

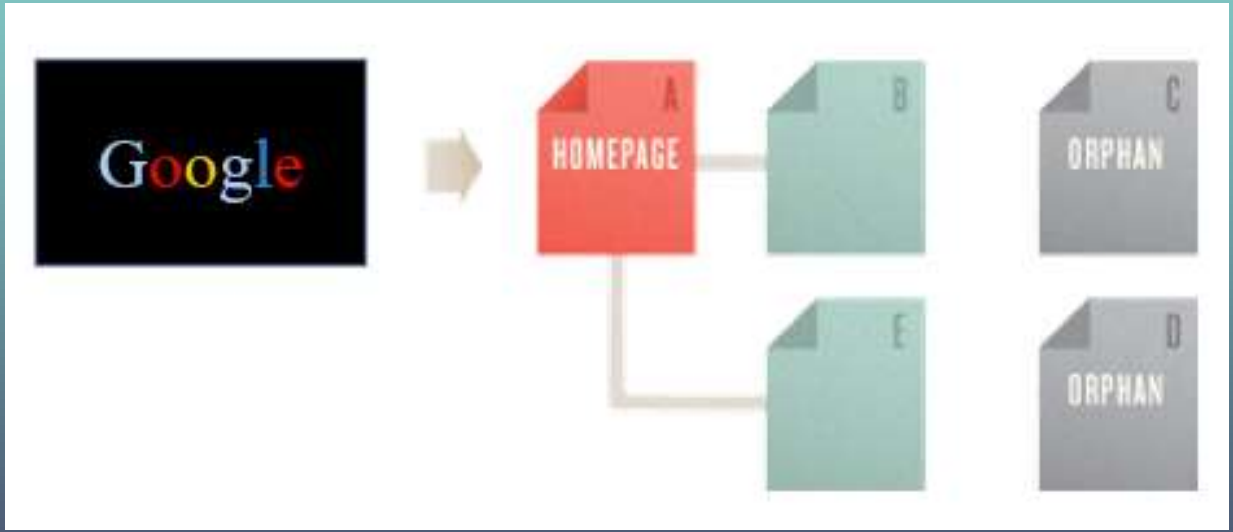
HOW DO SEARCH ENGINES WORK?

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

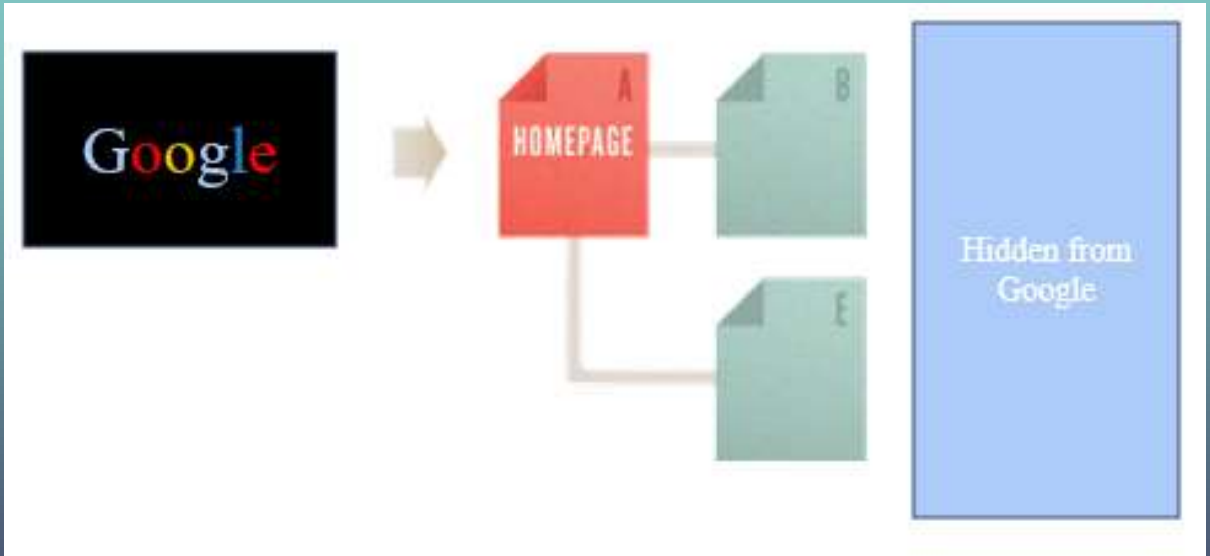
It goes from page to page.

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.

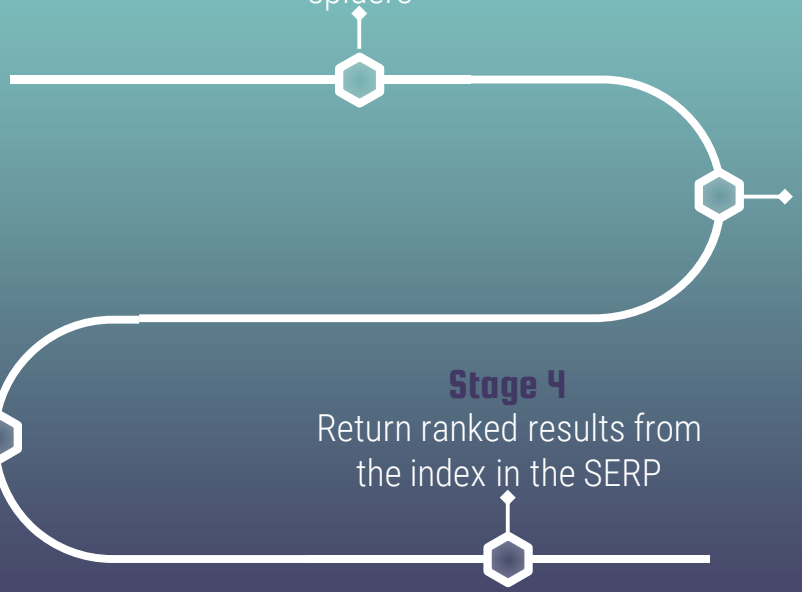
TIMING

Stage 1
Crawl the web via spiders

Stage 2
Index the Web pages they find.

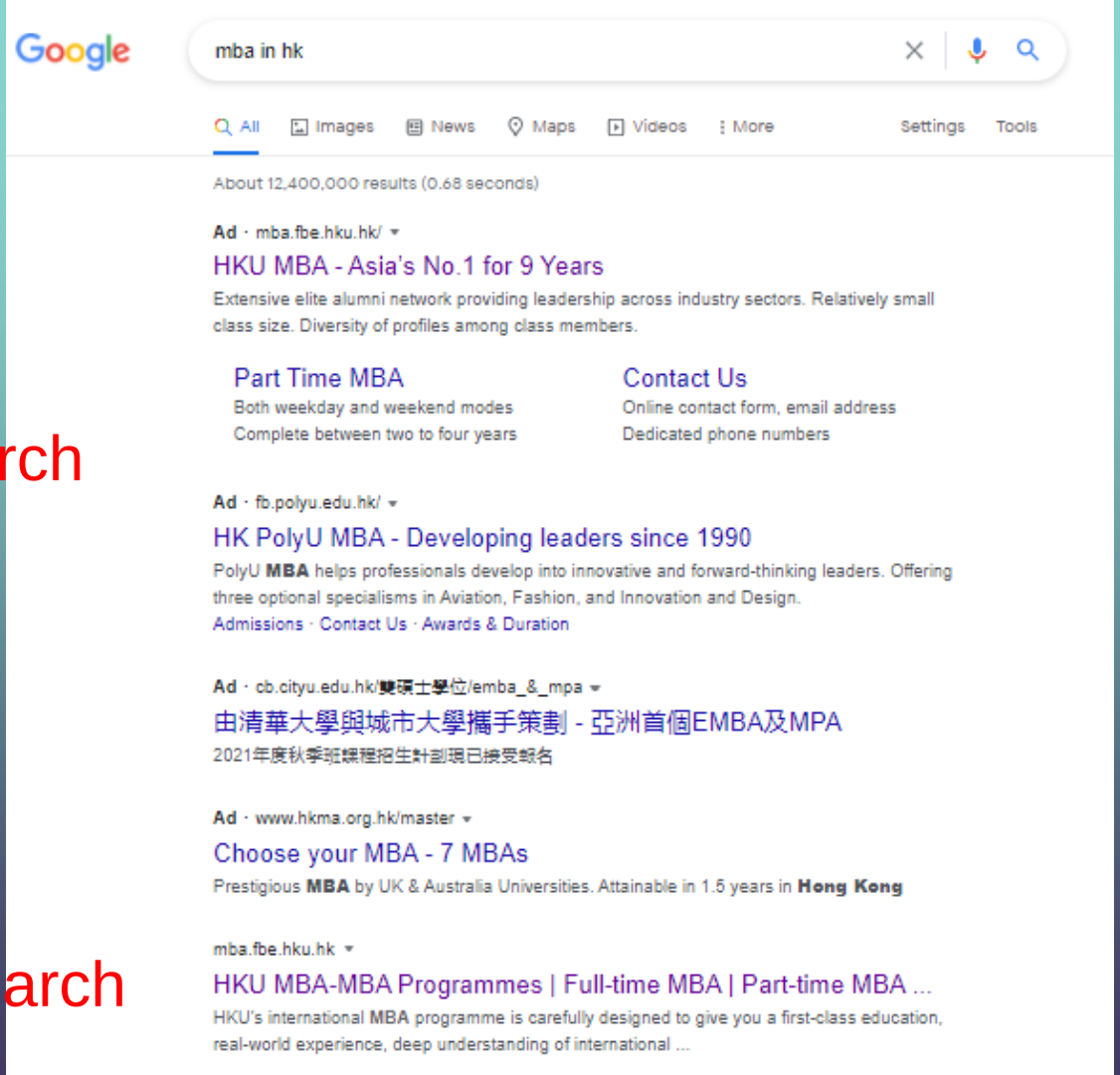
Stage 3
Process user queries

Stage 4
Return ranked results from the index in the SERP



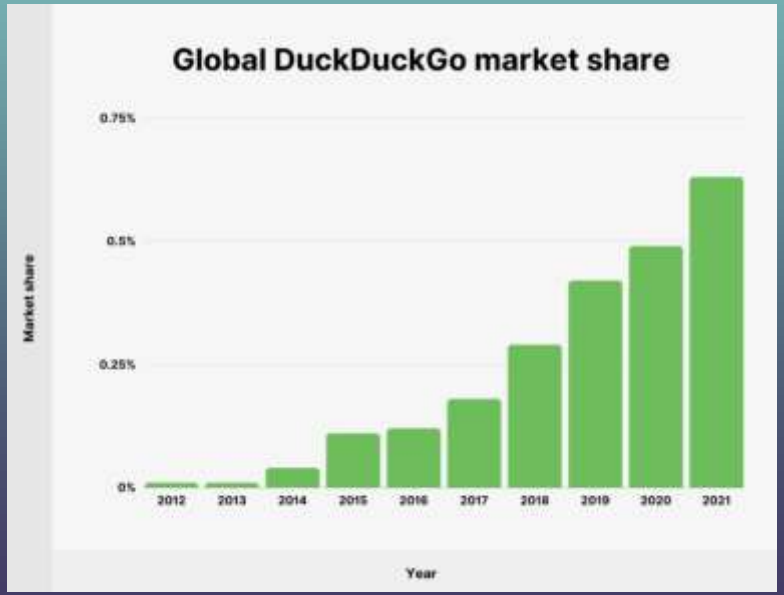
Paid search

Organic search



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).

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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

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

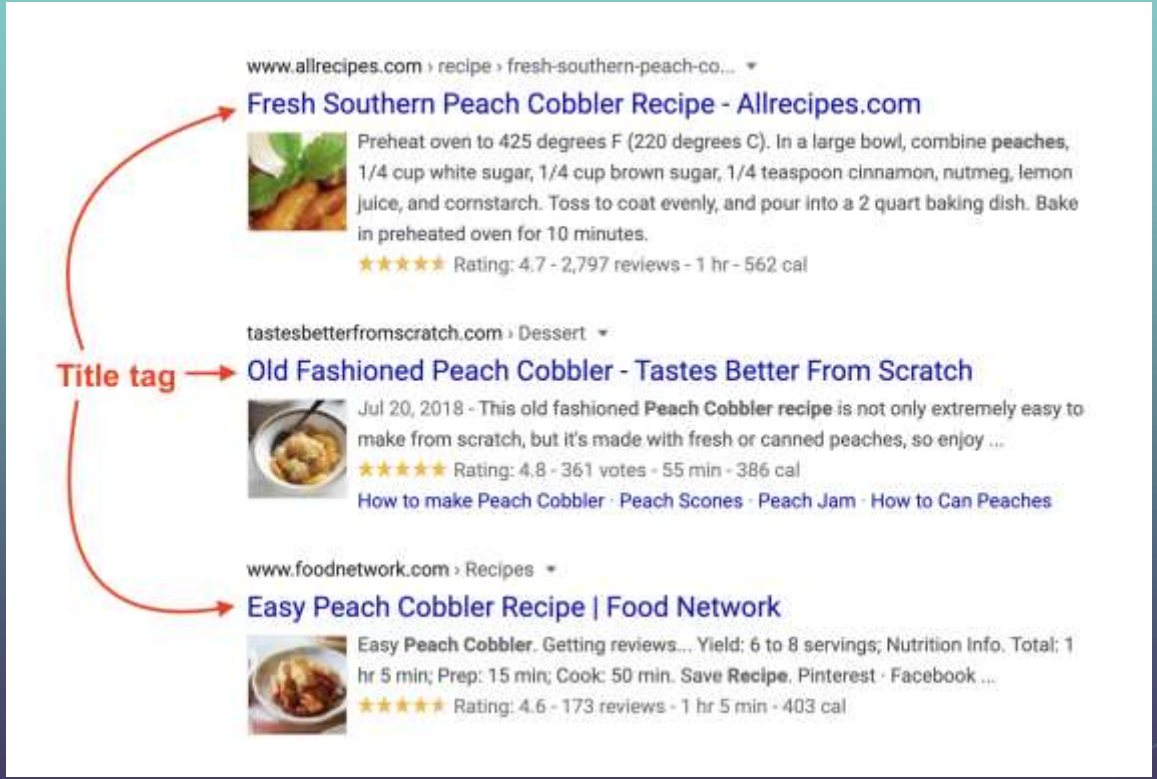
```
<meta  name="description"  content="Established in 1911, the University of Hong Kong (HKU) is the territory's oldest institute of higher learning and also an internationally recognized, research le
<title  >The University of Hong Kong (HKU)</title>

<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>
```

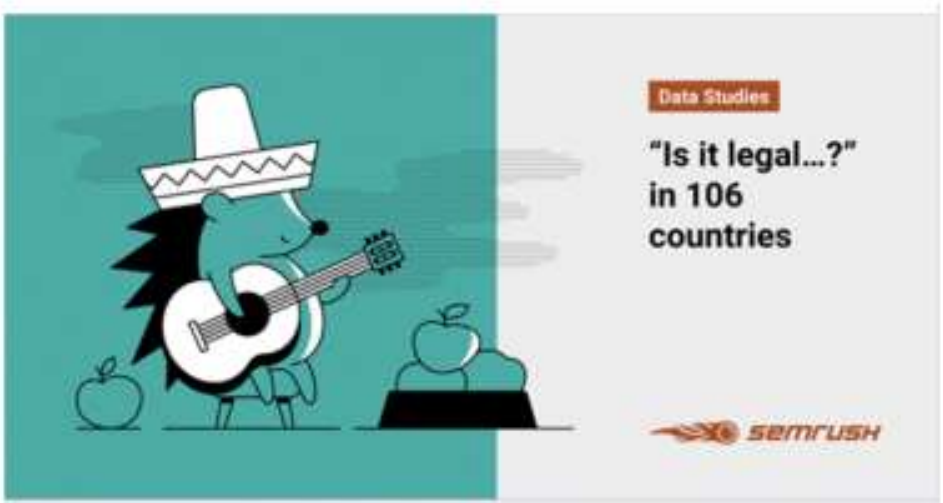
ACCURATE TITLE

Accurate title: It appears elsewhere and affects visitors.

ACCURATE TITLE



ACCURATE TITLE



Title tag

SEMRUSH.COM

"Is it legal...?" Google Search Queries in 106 Countries

Ever wondered if it was legal to keep a real hyena at home or have a...

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/

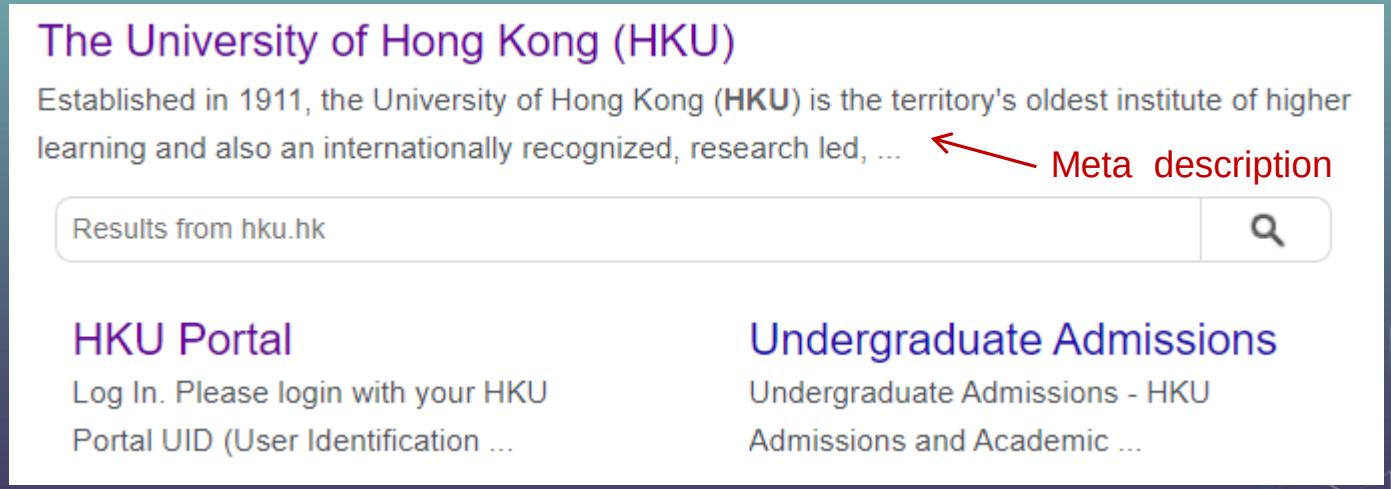
Contain keywords in your URL:

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

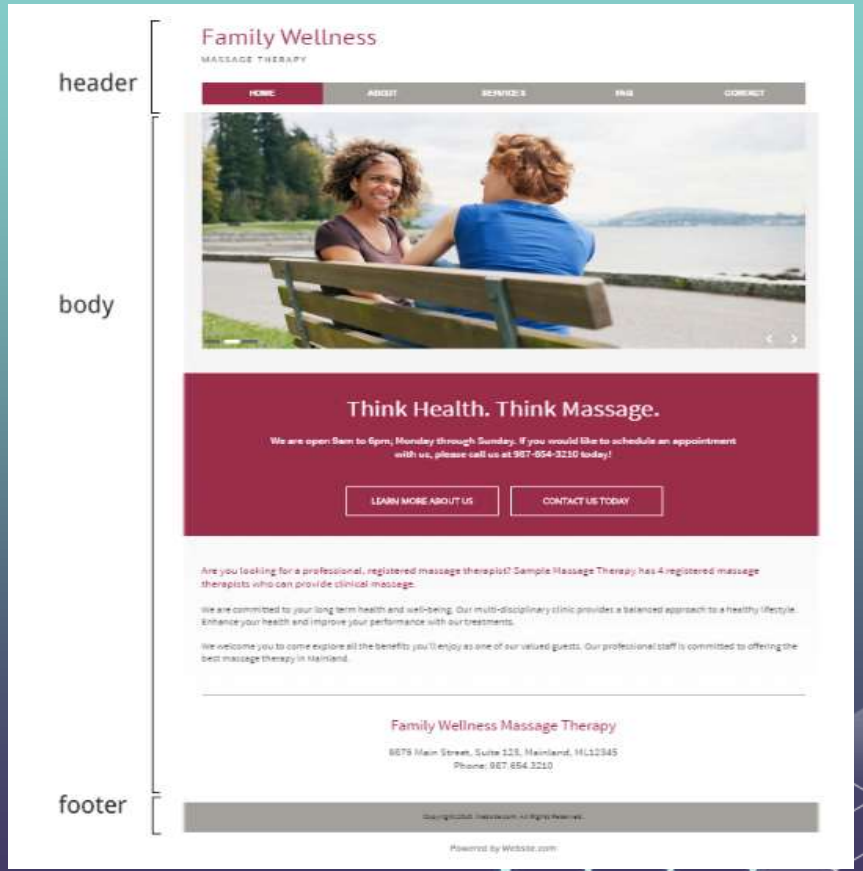
#3: The meta description does not influence the ranking so much, but substantially impacts the "click ability" of your result as it is what the search engine picks up.



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

OTHER TIPS: CLEAR WEBSITE NAVIGATION

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

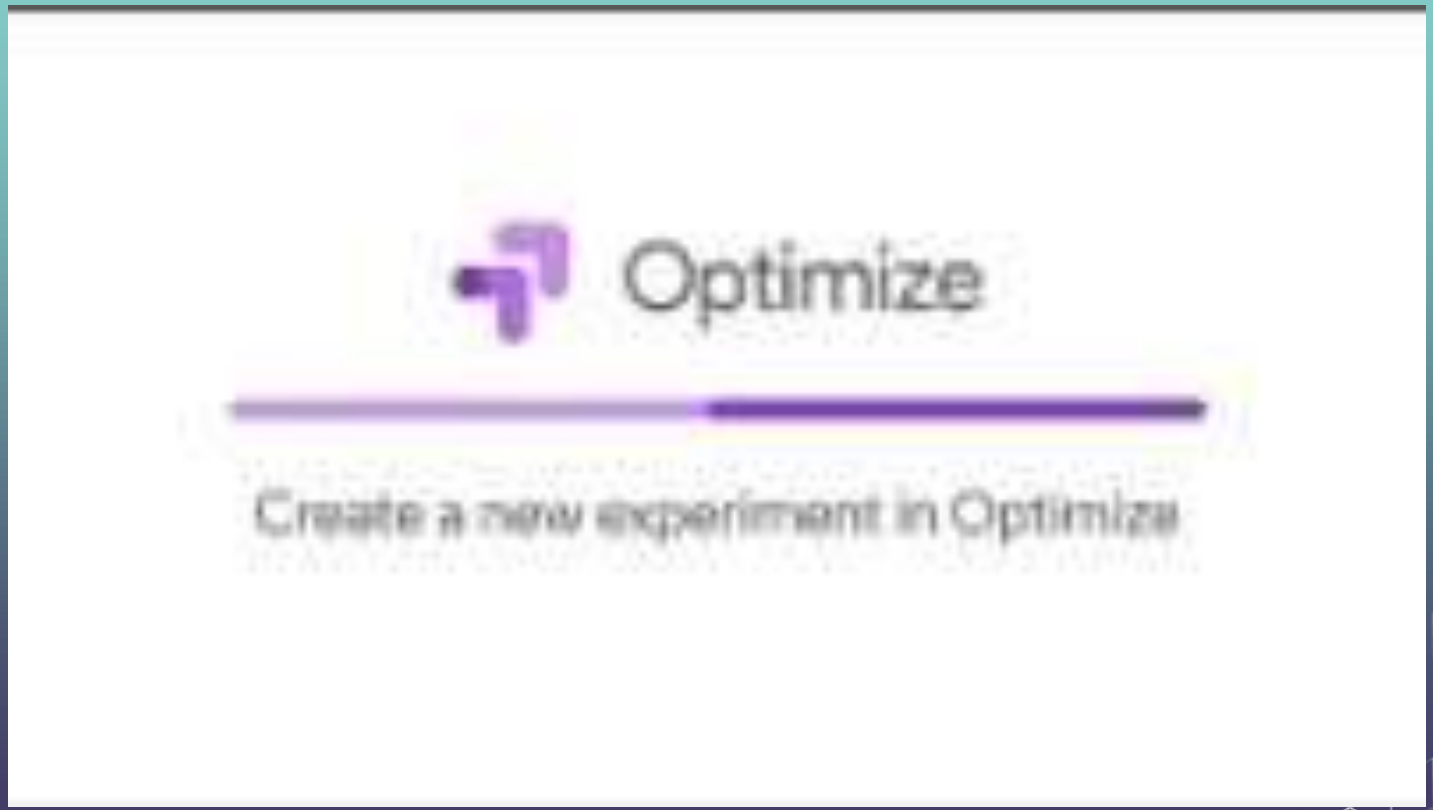
A/B testing (i.e., split testing) is an important tool for identifying the optimal creative.

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):

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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

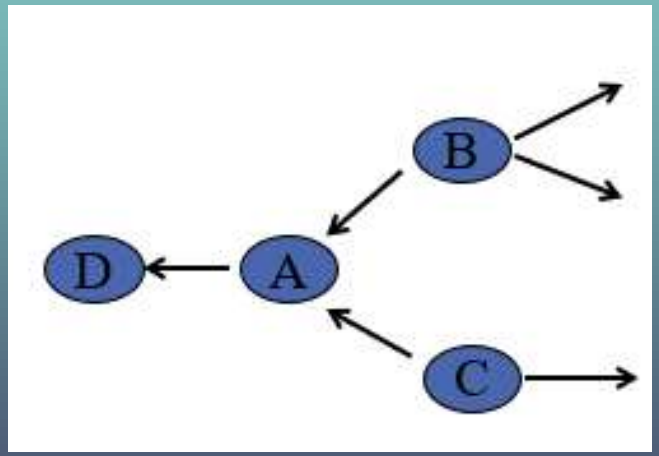
Let PR(U) be the page rank of webpage U.

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

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

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

PAGE RANK

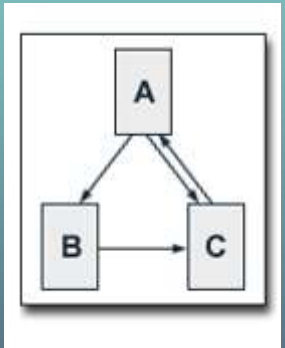


Here, B and C send links to A, so PR(A) is affected by PR(B) and PR(C).

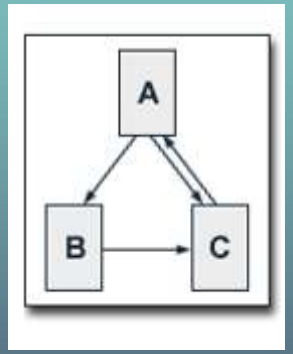
Similarly, PR(A) affects PR(D).

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

PAGE RANK EXAMPLE



PAGE RANK EXAMPLE



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

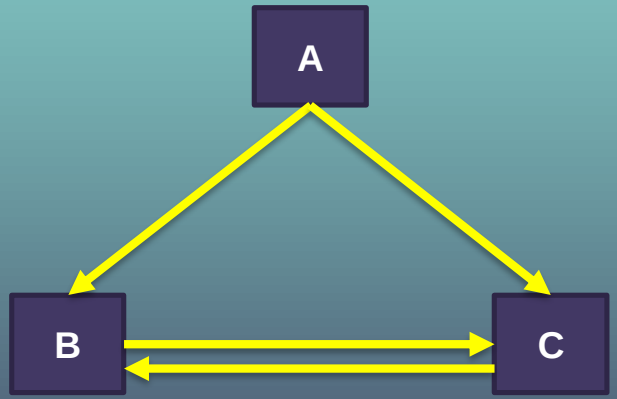
Only A sends a link to B: $PR(B) = PR(A)/2$

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	Referring Domains
84	6,470,389	17,294
	94% dofollow	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 www.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 withBeijing 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

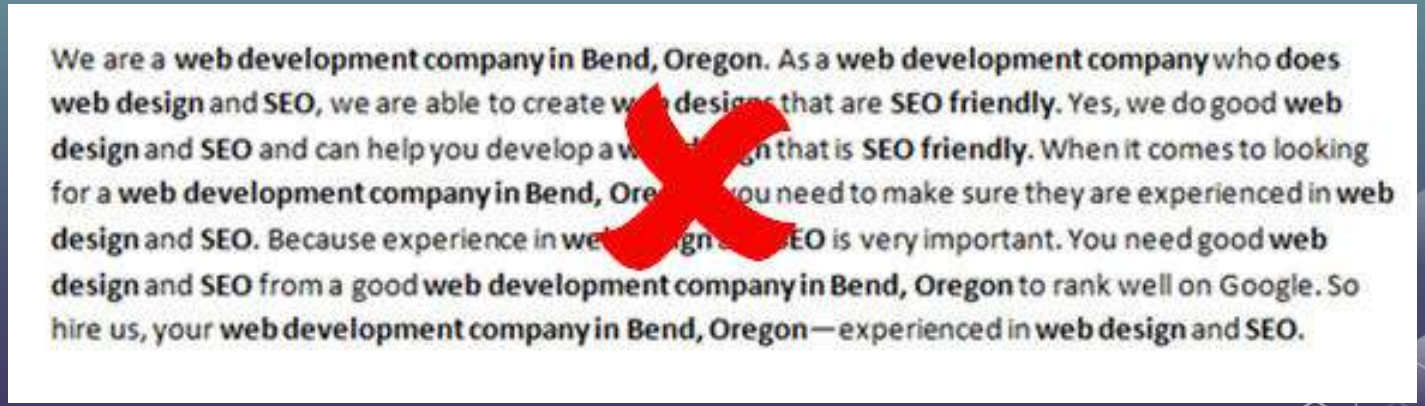
Black Hat SEO (illegitimate)

- 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 w[illegible] desig[illegible] that are **SEO friendly**. Yes, we do good **web design** and **SEO** and can help you develop a w[illegible]gn that is **SEO friendly**. When it comes to looking for a **web development company in Bend, Ore**[illegible]ou need to make sure they are experienced in **web design** and **SEO**. Because experience in we[illegible]gn [illegible]EO 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**.

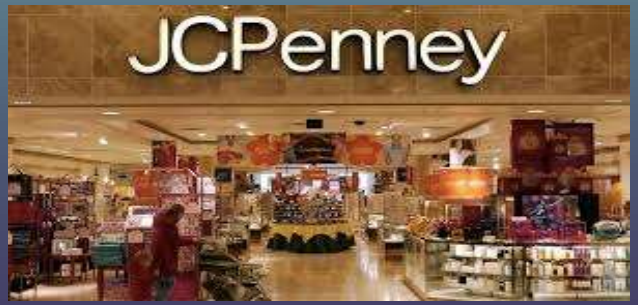
Black Hat SEO

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: 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.



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

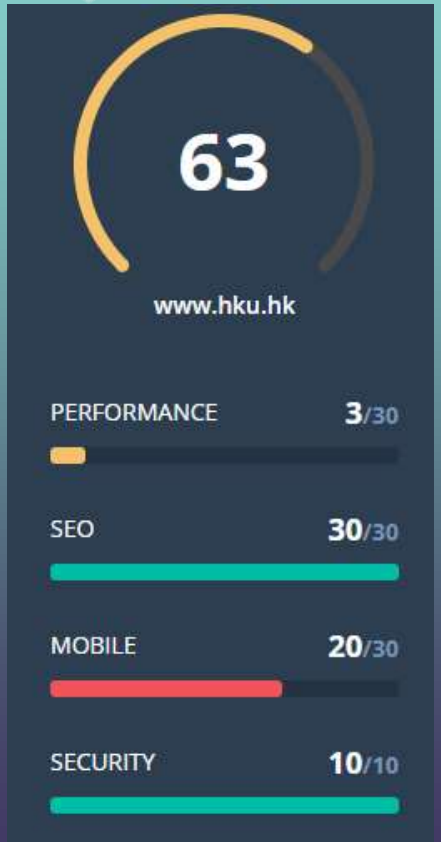
There are two, “off-the-shelf” methods that you can use almost immediately to check progress

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

Using HubSpot Website Grader



Using HubSpot Website Grader

PAGE SIZE

55.2MB

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.

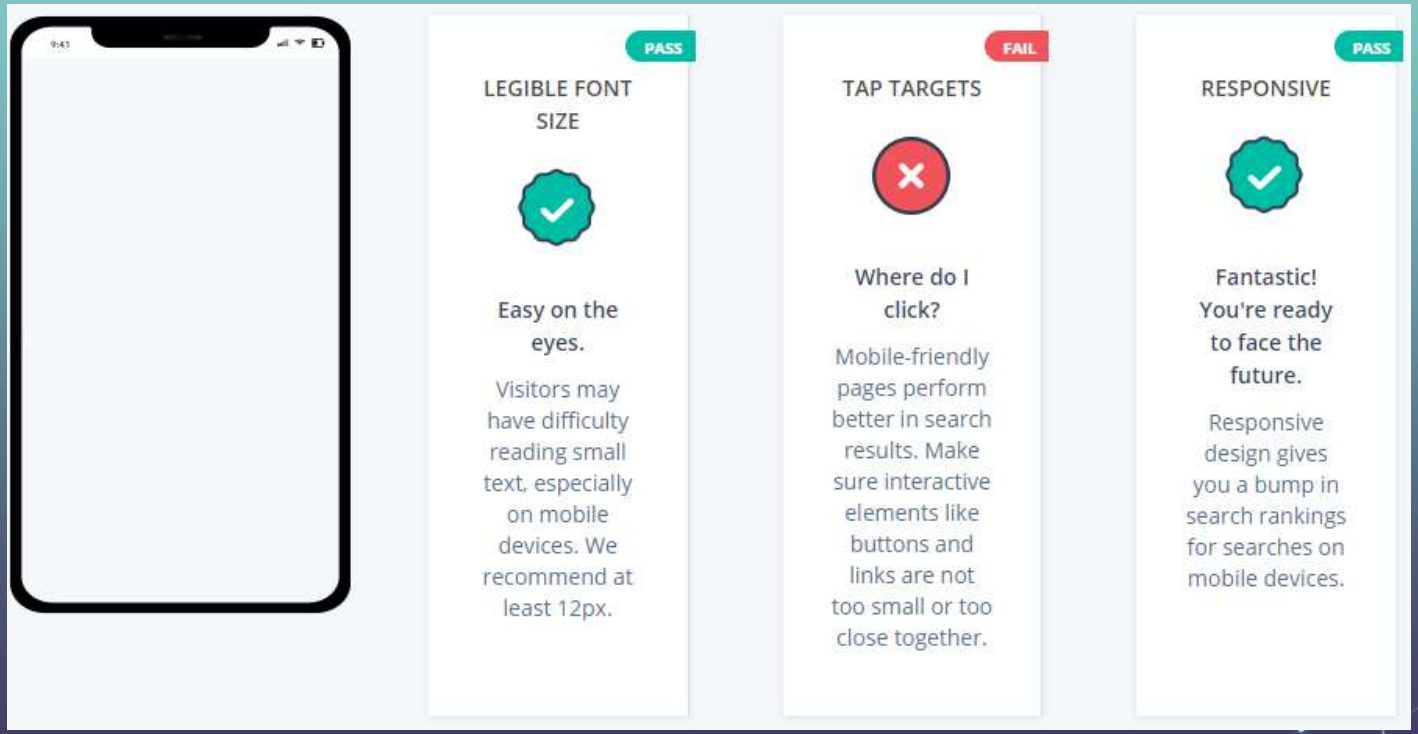
PAGE SPEED

17.6SEC

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

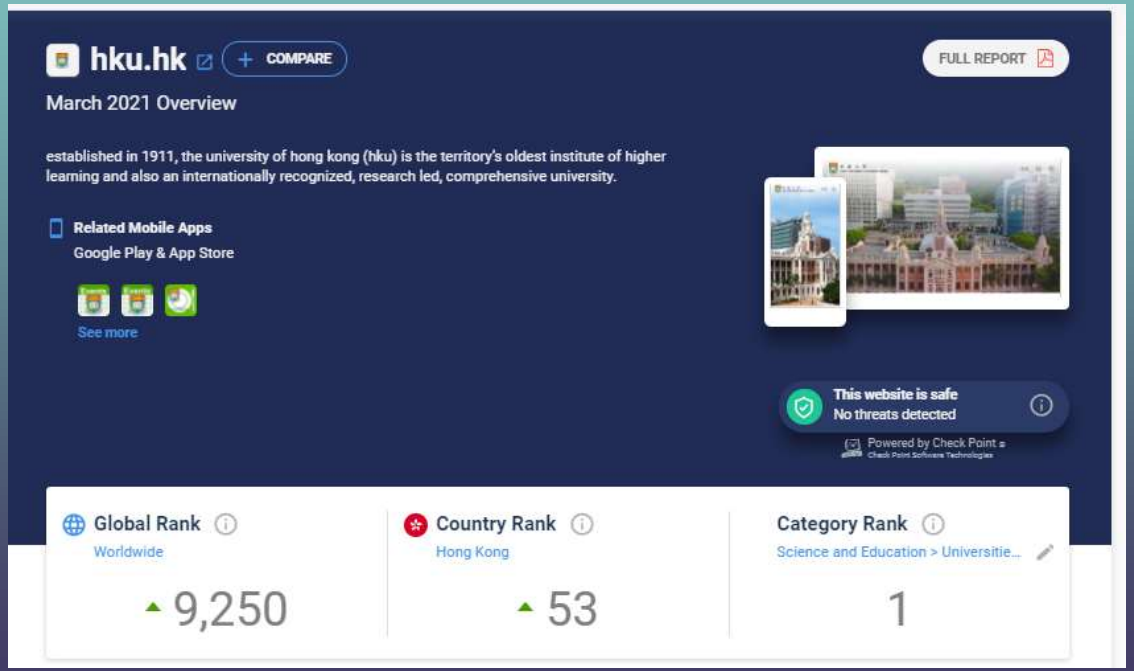


Using HubSpot Website Grader

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?

Traffic Overview

Estimated Data Verify Your Website

Total Visits to hku.hk

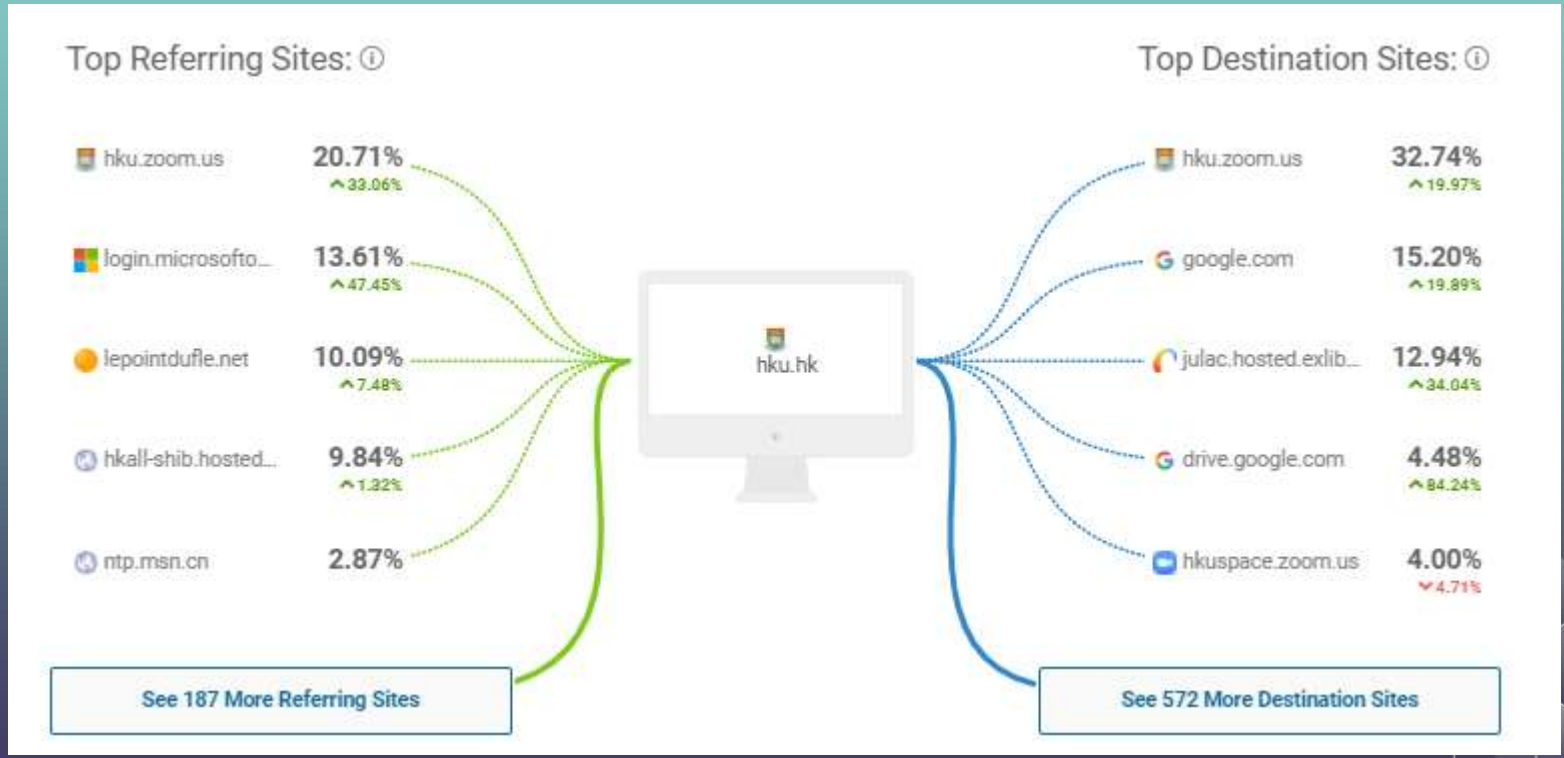
Growth & total visits to hku.hk over time

On desktop & mobile web, in the last 6 months

Engagement

Total Visits	6.14M ^19.18%
Avg. Visit Duration	00:06:53
Pages per Visit	6.46
Bounce Rate	27.90%

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)