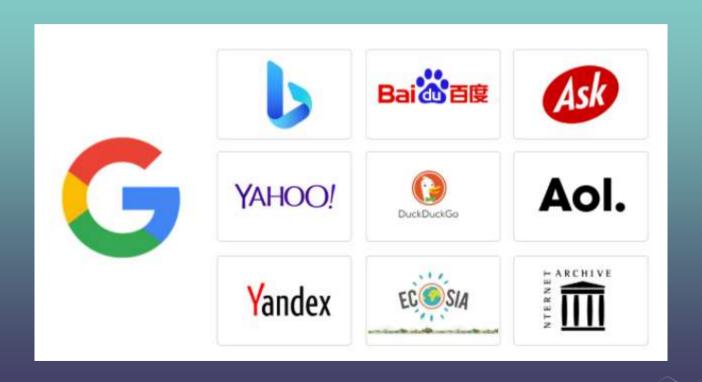
# SEARCH ENGINE OPTIMIZATION

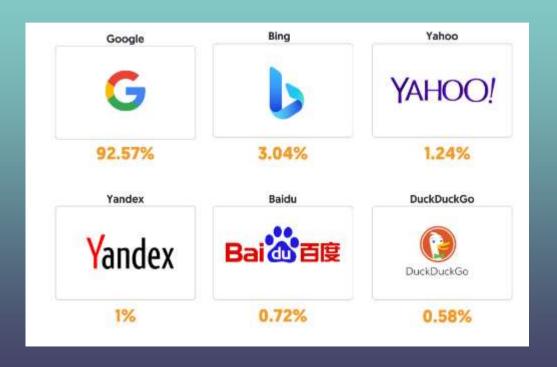
Improve your ranking on Google

### Which search engines have you used?

#### Which search engines have you used?



#### Which search engines have you used?



### Search websites are popular...



### What are the top websites in HK?

## Top 10 websites in HK

Position	Website		Change	Visits	
1	G	google.com	<b>↑</b> 1	609,780,159	
2	0	youtube.com	↓ 1	576,722,223	
3	0	colamanhua.com	↑ 3	80,857,346	
4	F	facebook.com	↓ 1	73,126,847	
5	0	lihkg.com	-	51,378,102	
6	0	manhuagui.com	<b>↑</b> 5	51,128,831	
7	0	discuss.com.hk	=	47,068,091	
8	W	wikipedia.org	<b>↓</b> 4	45,977,001	
9	0	m.manhuagui.com	<b>↑</b> 7	41,696,050	
10	0	yahoo.com	<b>↓</b> 1	35,250,598	

### Today's Agenda

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")

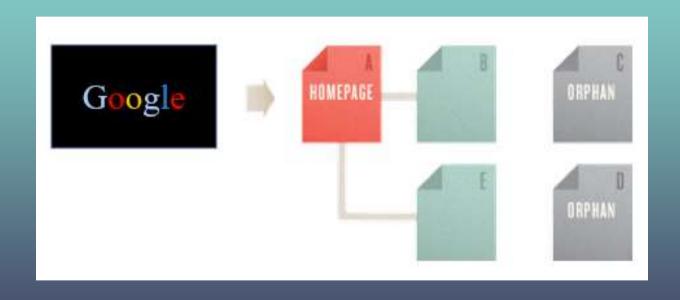
Crawl the web via spiders (a.k.a. web crawlers).



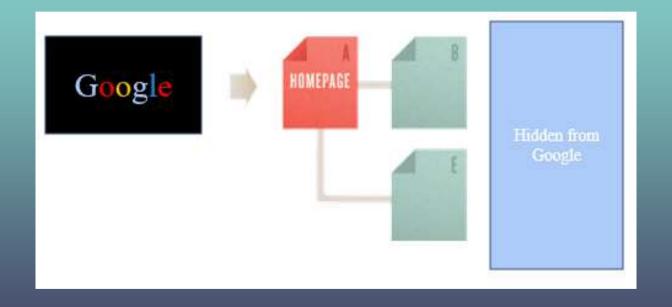
It goes from page to page.

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)

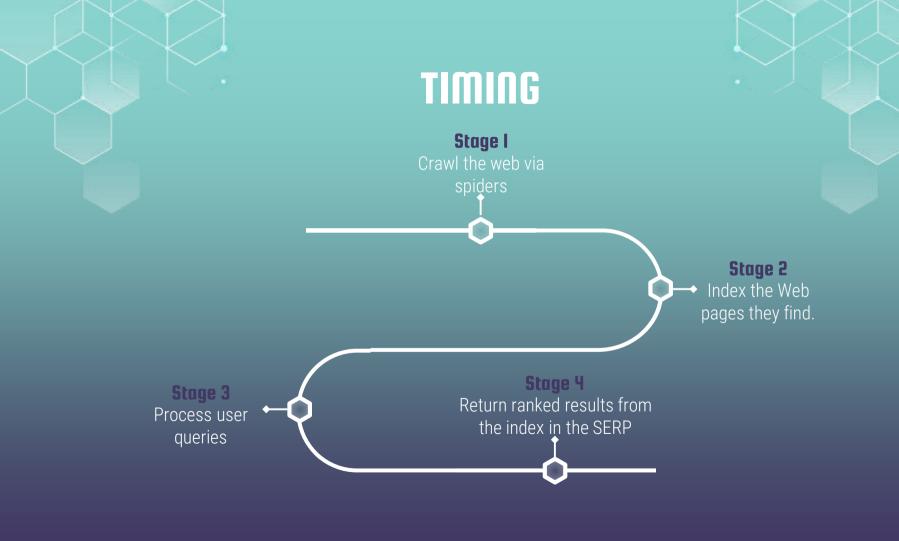
Your webpage may have Images, Flash files, Java applets, and other non-text content.

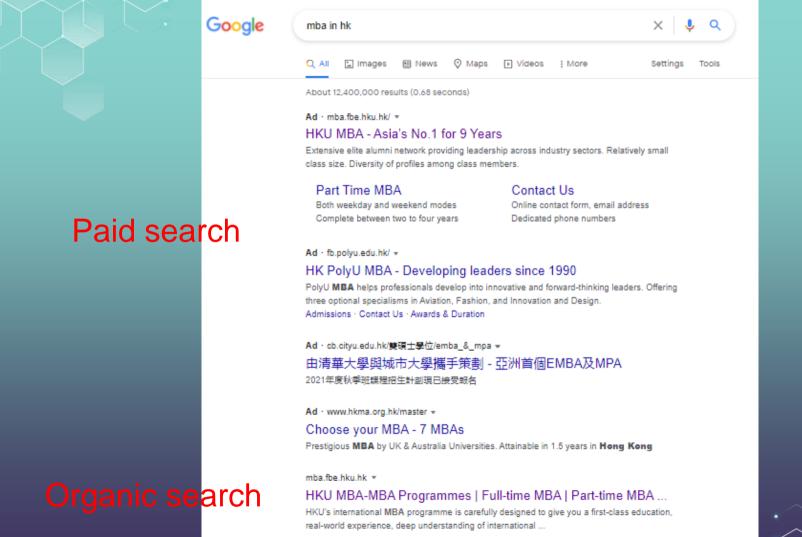
After indexing, search engines process user queries.

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).

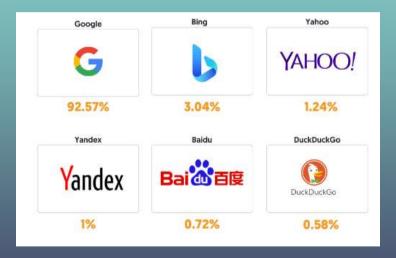
Users input a search query by typing a keyword or phrase into the search bar. The engine then checks its index to find relevant pages and delivers them ordered from most relevant to least relevant.





#### **GOOGLE IS STILL DOMINATING THE MARKET**

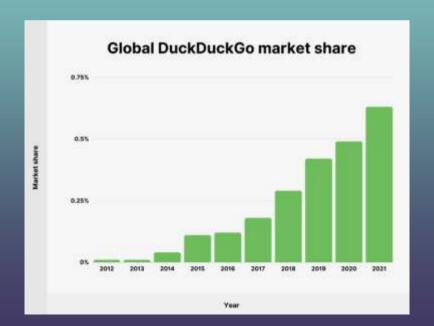
92.6% of search traffic worldwide is from Google.



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

### 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%





### QUESTION

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

50%? 20%? What is your estimate?

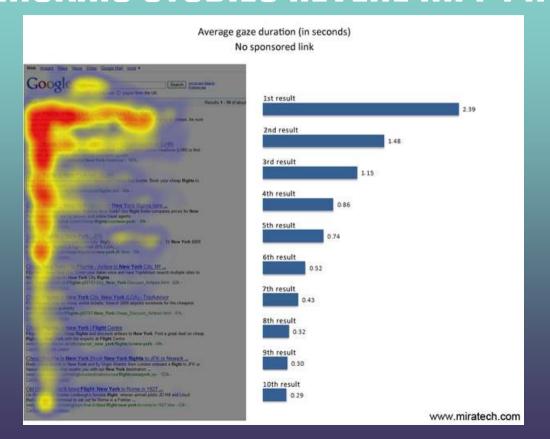
### QUESTION

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

```
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 leaders to the University of Hong Kong (HKU)
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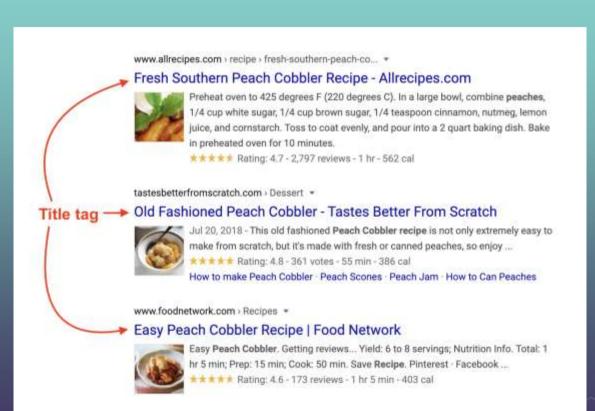
var bgdata = [{lmage: /T/walipaper/21252/2381\_edit copy.]pg , title: 2020 sk </script>

#### **ACCURATE TITLE**

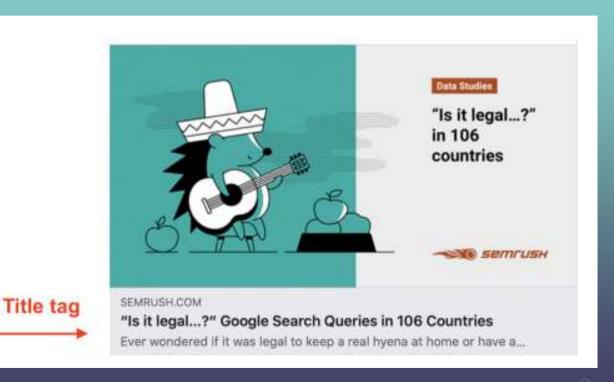
Accurate title: It appears elsewhere and affects visitors.



#### **ACCURATE TITLE**



# **ACCURATE TITLE**



#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

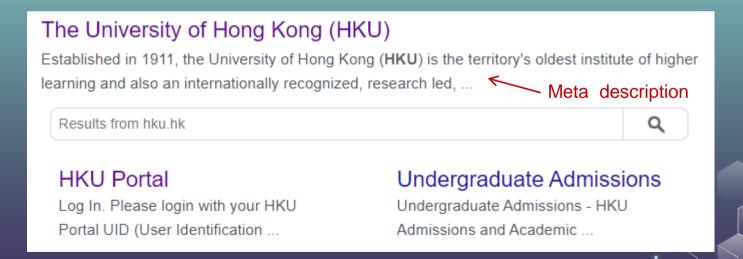
#### Make your URL short:

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

#### Contain keywords in your URL:

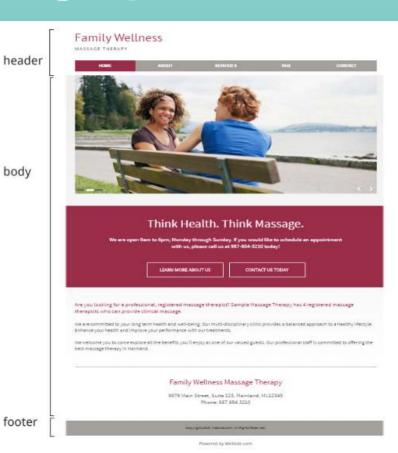
Good example: http://www.example.com/green-dress.html Bad example: http://www.example.com/112.html

#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.



#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.



#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*;"defect-image-overmailer, value :"Utramile or about content
(*id*;"defect-image-overma-items", "value":"Shows additional items"),
 ("id"; "defect-leage-not-clear", "value"; "Is not clear"), ("id"; "defect-
 other-image-issue", "value": "Other")]" data-metadata-"IMAGE" data-
  feature-container-id-"imageBlockEDPOverlay" data-custom-event-handler-
  "ImageBlockEDPCustomEventHandler" data-display-name "Images" data-edit-
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-div class-"a-bidden" id-"auilmersiveViewDiv" --/div-
Woul class a-unordered-list a-nostyle a-horizontal list maintain-
   -span is imageBlockEDPOverlay -/span-
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   Waspan class="a-list-item"=
     Wesper class"s-declarative" data-actions "main-image-click" data-
     main-image-clins-() --
       *-div id-"imgTasWrapperId" class-"imgTasWrapper" style-"height:
           sing alt-"Boritus Tartilla Chips, Nacha Cheese, I.75-Bunce
           Large Single Serve Bags (Pack of 64)" src-"https://images-
            na.sst-images-anazon.com/images/I/
           710:11.ex.)G., 5107355...0.0.406,679 Fibundle-
54.7oshight, 0.0 54006 57679 CH.0.0.406,679 SH70 .jpg data-
           old-hires: "https://images-na.sul-images-anazon.com/images/I/
           715rline3GL_5L1366_.jpg" class="a-dynamic-image a-stretch-
           vertical" id="landingInage" data-a-dynamic-image-"("https://
           images-na.sst-images-amazon.com/images/I/
           718r1Lee3GL, 5Y4505X322 5Y450 CR, 0, 0, 322, 450 PIbundle-
           64, TopRight, 0, 0 5X322 SYASB CR, 0, 0, 322, 450 SH28 . jpg"1
```

### 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: <a href="https://www.fbe.hku.hk/">https://www.fbe.hku.hk/</a>

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.

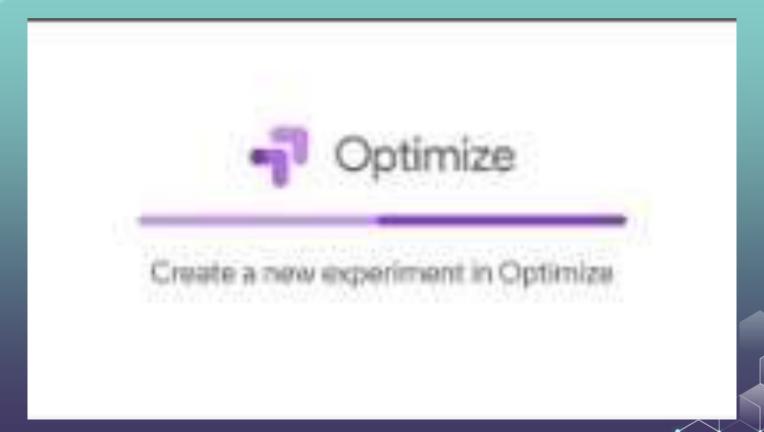


# Landing Page Optimization: AB Testing

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?



### **BACKLINKS**

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

Based on a citation concept; considered 'online currency' A 'silent' vote of confidence from the site linking to you

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

Number of backlink sites
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**

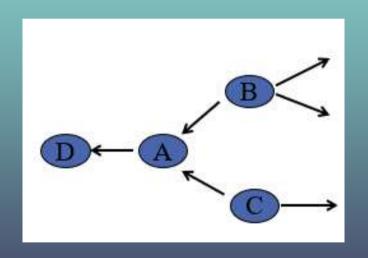
Let PR(U) be the page rank of webpage U.

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

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

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

### **PAGE RANK**



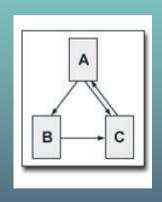
Here, B and C send links to A, so PR(A) is affected by PR(B) and PR(C).

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

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

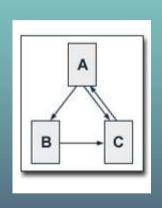


# PAGE RANK EXAMPLE





### PAGE RANK EXAMPLE



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

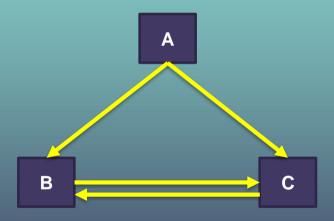
Only A sends a link to B: PR(B) = PR(A)/2

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.





### **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



Backlinks **6**6,470,389

Referring Domains 

17,294

89% dofollow

Top 100 backlinks	top 5 anchors	rop 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 t o start clinical trials in partnership withBeijing Wantai Biological Pha rmacy.  www.hku.hk/press/news_detail_21583.html
Jack Ma - Wikipedia  a 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**

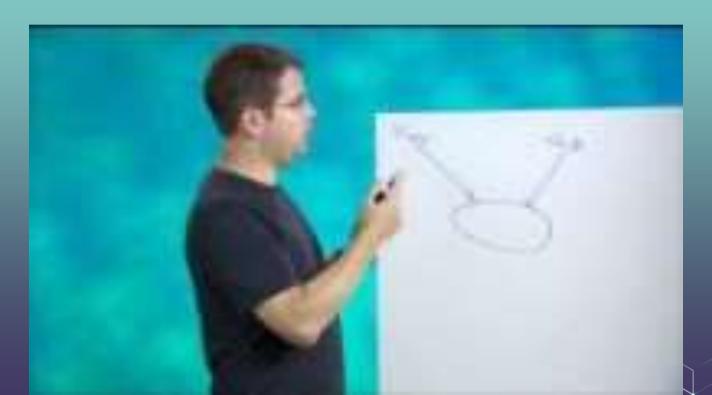
Just a few examples from 1000s of such practices --- you will be penalized by search engines when uncovered.

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 development is SEO friendly. When it comes to looking for a web development company in Bend, Oregon head to make sure they are experienced in web design and SEO. Because experience in web growth 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**

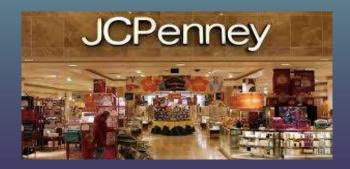
Cloaking: Serve fake content to search engine spider.



### **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.



# **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 (<a href="https://website.grader.com/">https://website.grader.com/</a>): 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







PAGE SIZE



55.2<sub>MB</sub>

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.

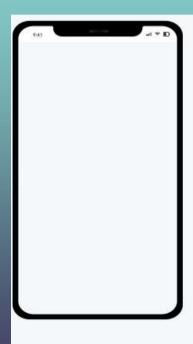
PAGE SPEED



17.6<sub>SEC</sub>

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



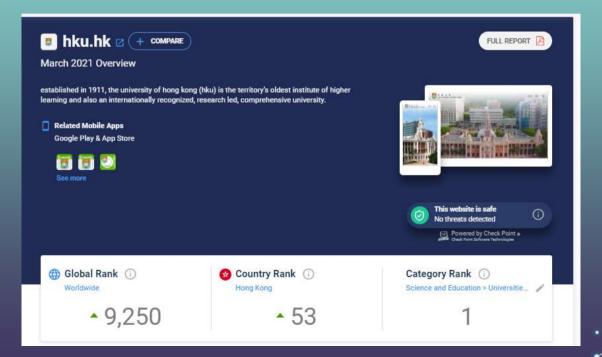
Fantastic! You're ready to face the future.

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

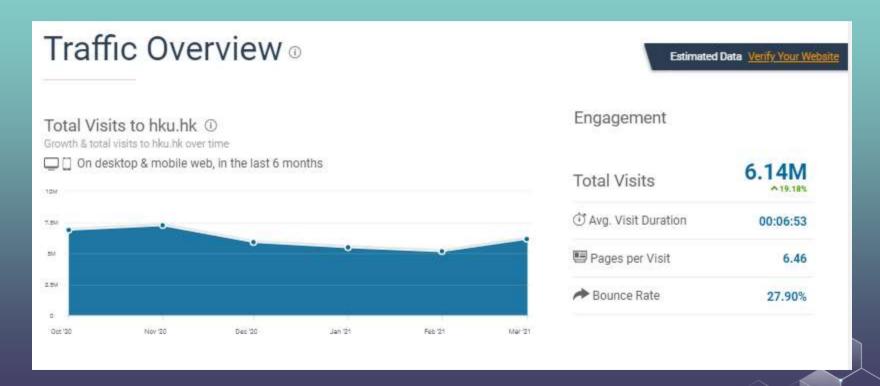
PERFORMANCE	CURRENT	RECOMMEN	RECOMMENDATION	
Page size	55.2MB	< 3MB	Lighten your pages by removing or compressing heavy content such as images and video.	
Page requests	159	< 30	Combine files to minimize the number of HTTP requests your site makes.	
Page speed	17.6Sec	< 5.3Sec	Speed up your site by lightening 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?

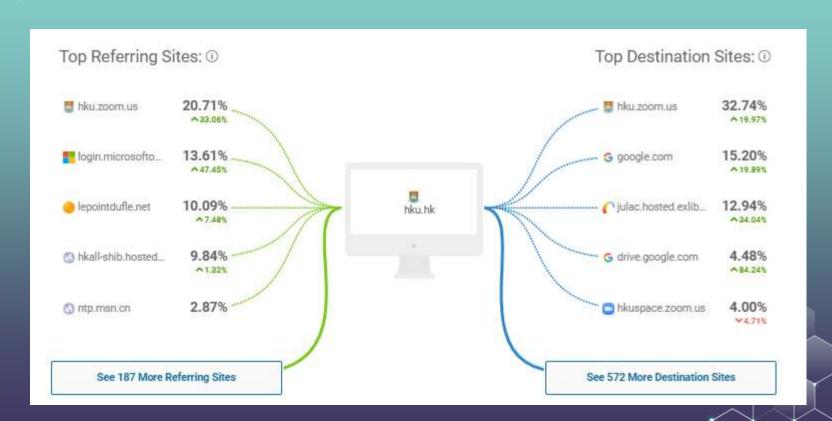
Go to <a href="https://www.similarweb.com/">https://www.similarweb.com/</a>



# 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)