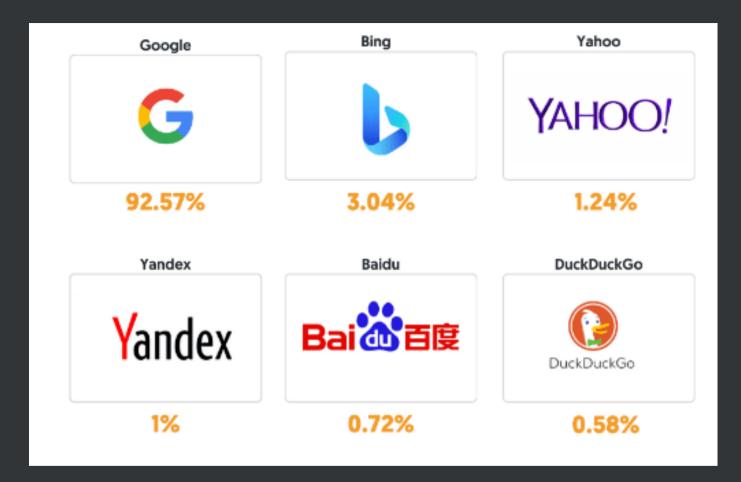
Search Engine Optimization

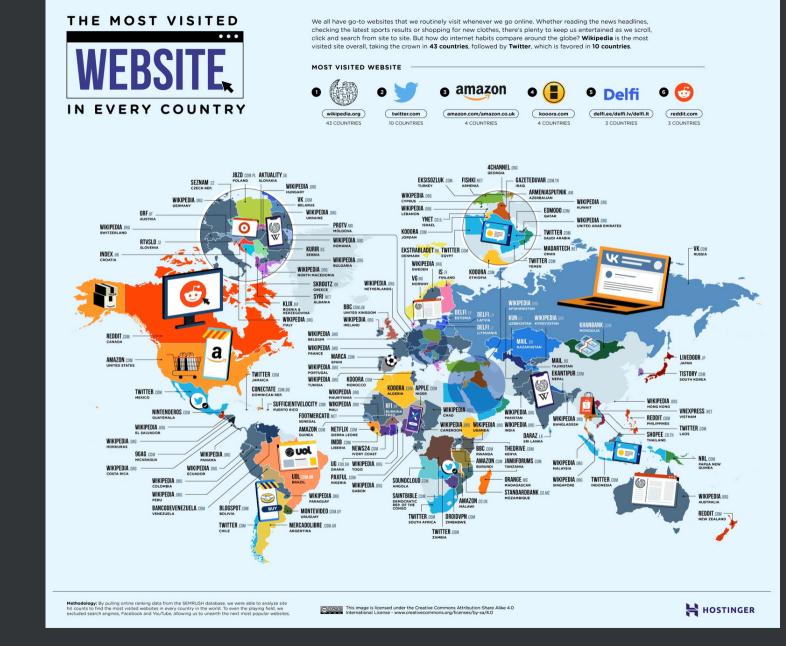
Which search engines have you used except Google?



The search engine market



Search engines are popular and important.



Most visited website that is not search engine, Facebook or YouTube

What are the most popular websites in Hong Kong except Google, Facebook and YouTube?



yahoo!









Please stand by, while we are checking your browser...

Why is search engine important?

"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")

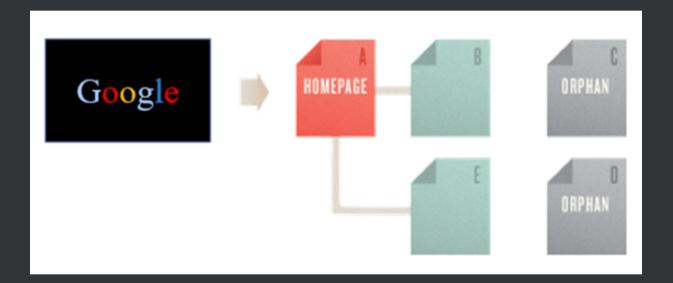
How does search engine work?

How does search engine work?

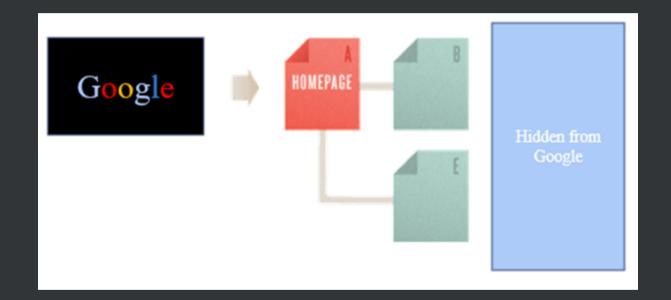
Crawl the web via spiders (a.k.a. web crawlers).

- It goes from page to page.
- It follows links and recording what it finds.

Crawlable?



Crawlable?



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.

- 1. Crawl the web via spiders.
- 2. Index the Web pages they find.
- 3. Process user queries.
- 4. Return ranked results from the index in the SERP.

How does Google make money?

Google

mba in hk

× 🤳 🔍

Q All 🛄 Images 🖽 News 📀 Maps 🕞 Videos 🗄 More Settings Tools

About 12,400,000 results (0.68 seconds)

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Paid Search

Organic Search

Search Engine Marketing

Search Engine Marketing

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

Search Engine Marketing

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

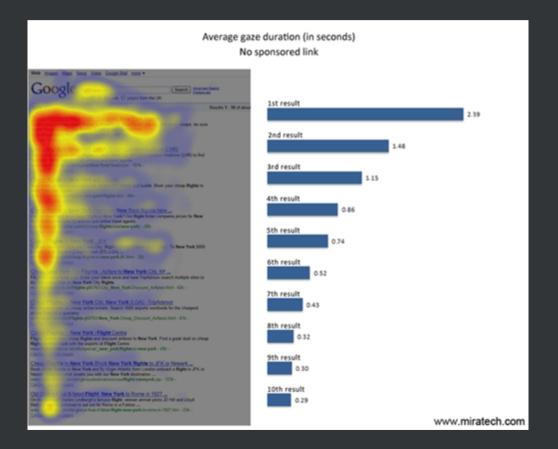
Vertical Segments	Avg Organic Visits	Avg Other Channel Visits	Avg Paid Search Visits	Avg Social Visits
Retail & eCommerce	41.0%	23.2%	23.6%	5.1%
Media & Entertainment	53.0%	32.7%	6.2%	8.2%
B2B	64.1%	20.6%	12.3%	3.0%
Technology	59.8%	27.8%	9.7%	2.7%
Travel & Hospitality	41.4%	30.7%	23.4%	4.6%
Average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

Search Engine Optimization

How many users will visit the second page of the search results? 50%? 20%? What is your estimate?

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?

Brainstorming Ideas

- Go to the following HKU page: 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

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.

#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.

<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 leave <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: It appears elsewhere and affects visitors.



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 -



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



#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 "clickability" 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 ...

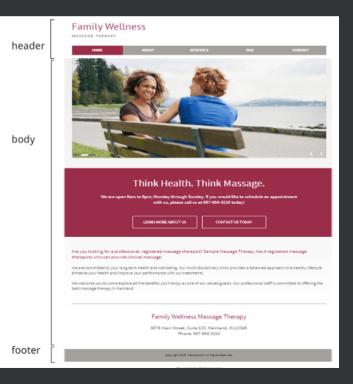
Undergraduate Admissions

Q

Undergraduate Admissions - HKU Admissions and Academic ...

#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

Doritos Tortilla Chips, Nacho Cheese, 1.75-Ounce Large Single Serve Bags (Pack of 64) bortos ******* 175 customer reviews 9 answered questions Image: Im	<pre>,("id":"Getect-image-ottensive","Value":"Uttensive or adult content"), {'id":"defect-image-ottensive","Value":"Shows additional itens"), {'id":"defect-image-not-clear","Value":"Shows additional itens"), chter-image-insue","vulue":"Other"]' data-datadata="TMACE" data- feature-container-id="imageBlockEDPOverlay" data-custom-event-handler= "imageBlockEDPCustomEventHandler" data-dipta/-name="ImageBlockEDPCustomEventHandler" (CQResolver"> "CQResolver"> </pre>
Image: Contract of the product	<pre>><iv <lr="">></iv></pre>
Pock of 4, 75-ounce large single-serving bags (total of 112 ounces) Oorlos tortilla chips with classic nacho-cheese flavor Made of whole com; flavorings feature real cheddar cheese	<pre>images-na.ssl-images-amazon.com/images/I/ 71Br1Lec3GL, SV458SX32_SV458CR,0,0,322,450_Flbundle- 64,TopRight,0,0_SX322_SV450_CR,0,0,322,450_SK20_ipg": [458,322],"https://images-na.ssl-images-amazon.com/images/I/</pre>

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.

Other Tips: 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).

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

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

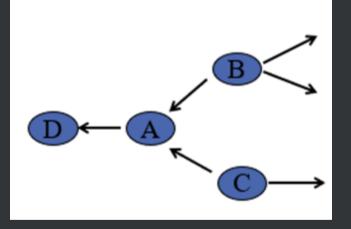
A link analysis algorithm that assigns a numerical weighting to each element (webpage) in the entire set (web) to measure the importance of the page.

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

Let PR(U) be the page rank of page U. Assuming m webpages V_1, \ldots, V_m send incoming links to page U, then

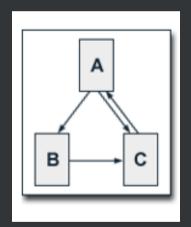
$$PR(U) = rac{PR(V_1)}{L(V_1)} + rac{PR(V_2)}{L(V_2)} + \dots + rac{PR(V_m)}{L(V_m)}$$

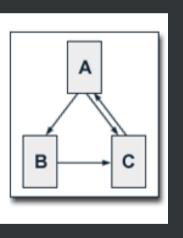
where $L(V_i)$ = number of outgoing links from page V_i .



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).

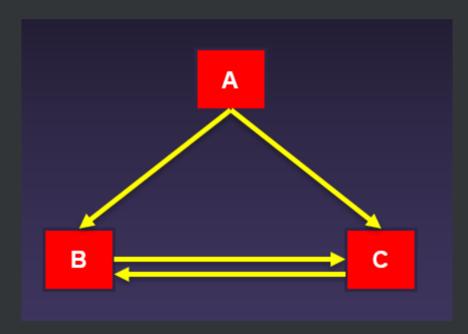
$$PR(A)=rac{PR(B)}{3}+rac{PR(C)}{2}$$





Only C sends a link to A: PR(A) = PR(C)Only A sends a link to B: PR(B) = PR(A)/2Both 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) = 1Solve the model: PR(A) = 0.4, PR(B) = 0.2, PR(C) = 0.4.

Exercise



Link Building

- 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.

Link Building

- 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.

Tracking 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

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"

SEO: The White and Black

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 in an that is SEO friendly. When it comes to looking for a web development company in Bend, Orector you need to make sure they are experienced in web design and SEO. Because experience in web up on the 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.

Cloaking: search fake content to search engine spider

https://www.youtube.com/embed/QHtnfOgp65Q?enablejsapi=1

SEO: The White and Black

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

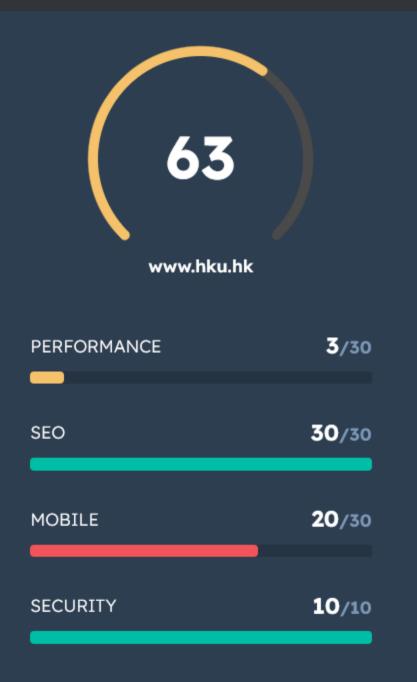


Google Panda is an algorithm used to reward high-quality websites and diminish the presence of low-quality websites in Google's organic search engine results.

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.

Hubspot Website Grader



PASS PASS BROWSER CACHING MINIMAL PAGE REDIRECTS Image: Comparison of the second seco

Wowee. Your web caching is world class.

Browser caching speeds up your website by storing frequently used content in local memory.

Straight to the point.

Multiple redirects can make your site load slower. Aim for no more than one redirect. IMAGE SIZE



Out of place.

Images can take a long time to load. Use responsive images or SVGs to optimize your images for different screen sizes.

FAIL

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.

RESPONSIVE

PASS



Fantastic! You're ready to face the future.

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

ahrefs: https://ahrefs.com/backlinkchecker/?

Similar Web: https://www.similarweb.com/

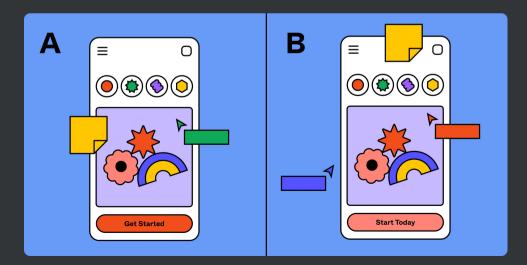
A/B Testing

A/B testing

Suppose that you have two (or more) versions of a website, and you do not know which one is better. What should you do?

A/B testing

We randomly assign users into two groups, A and B. Then, we see how users in different groups respond differently to the two designs, and compare their outcomes.



Example of A/B test: Speed matters.

A faster website is always better. However, a faster website is also more costly. What is the value of a faster website?

Example of A/B test: Speed matters.

While we may not be able to speed up the connection, it is rather easy to slow down. Consider the following two groups:

- Group A: The original speed
- Group B: Intentionally slow down by 100 msec.

We then compare the performance of the two groups to see the effect of speed.

Example of A/B test: Speed matters.

At Amazon, a 100 msec slow down experiment decreased sales by 1% (Linden 2006).

An experiment at Bing revealed that a 100 msec slowdown is associated with a 0.6% change in revenue (Kohavi et al. 2013).

	WEB IMAGES VIDEOS MAPS SHOPPING LOCAL NEWS MORE
bing	flowers
ino bea	358,000,000 RESULTS
	Flowers at 1-800-FLOWERS® Ads 1800Flowers.com Fresh Flowers & Gifts at 1-800-FLOWERS. 100% Smile Guarantee. Shop Now
	FTD® - Flowers
(Get Same Day Flowers in Hours Duy Now for 25% Off Best Sellers.
	Send Flowers from \$19.99
	Send Roses, Tulips & Other Flowers. "Best Value" -Wall Street Journal.
	proflowers.com/article/http://on Bizrate (1307 reviews)
	50% Off All Flowlers www.BloomsToday.com
	All Flowers on the Site are 50% Off. Take Advantage and Buy Today!
	WEB IMAGES VIDEOS MAPS SHOPPING LOCAL NEWS MORE
	flowers
	358,000,000 RESULTS
	FTD® - Flowers Get Same Day Flowers in Hours Ads www.FTD.com Buy Now for 25% Off Best Sellers. Ads
	Flowers at 1-800-FLOWERS® 1800flowers.com ® 1800Flowers.com Fresh Flowers & Gifts at 1-800-FLOWERS, 100% Smile@Guarantee, Shop Now
	Send Flowers from \$19.99 Send Roses, Tulips & Other Flowers, www.ProFlowers.com "Best Value" -Wall Street Journal. proflowers.com is rated ***** on Bizrate (1307 reviews)
	<u>\$19.99 - Cheap Flowers - Delivery Today By A Local Florist</u> www.FromYouFlowers.com Shop Now & Save \$5 Instantly.

Nobody thought this simple change, among the hundreds suggested, would be the best revenue-generating idea in Bing's history! The feature was prioritized low and languished in the backlog for more than six months until a software developer decided to try the change, given how easy it was to code. An engineer implemented the idea and began evaluating the idea on real users, randomly showing some of them the new title layout and others the old one.

A few hours after starting the test, a revenue-too-high alert triggered, indicating that something was wrong with the experiment. The Treatment, that is, the new title layout, was generating too much money from ads.

Bing's revenue increased by a whopping 12%, which at the time translated to over \$100M annually in the US, without hurting key user-experience metrics. The experiment was replicated multiple times over a long period.

Amazon placed a credit-card offer on the home page. It was highly profitable but had a very low click-through rate (CTR). What would you do to make it more effective?

The team ran an experiment to move the offer to the shopping cart page that the user sees after adding an item, showing simple math highlighting the savings the user would receive.

You could sa	ve \$30 today with the Amazon Visa® Card:
A COLORED AND A	Your current subtotal: \$32.20 mazon Visa discount:- \$30.00 Your new subtotal: \$2.20
Save \$30 off your first purchase, earn 3% rewards, get a 0% APR*, and pay no annual fee.	