



Faculty of Science

Department of Computing and Information Systems (COIS)

COIS 2830

Multimedia and Design

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Agenda

- SEO
- Testing Strategies

SEO

- User input text and the goal is to understand/interpret the results
- SEO is basically making your website accessible to web crawlers
- SEO is *search engine optimisation*

Advertising and SEO

- Note that at the top of search results are usually paid search results
- For Google this is done through “Google Ads” (what used to be Adwords)
- Web advertising is basically a real time auction system where you pay to be at the top of the search list
- Advertising is distinct from SEO in that SEO should be reasonably neutral, Ads, are well, Ads.

Web Advertising

- Pay Per click
- Cost Per Acquisition (basically you pay based on how many people do what you want, that could be buy something, sign up, click etc.)
- Google basically allows you to bid on keywords/concepts/phrases

Text and Search

- Discoverability – the ability for users to find your stuff online is a really big problem
- Choosing your words carefully is the difference between good search results and bad

Example Google.ca

Bengal →

Bengal - Wikipedia
<https://en.wikipedia.org/wiki/Bengal> ▼
Bengal is a geopolitical, cultural and historical region in South Asia, specifically in the eastern part of the Indian subcontinent at the apex of the Bay of Bengal.

Bengal Presidency: 1765–1947 CE **Bengal Subah:** 1565–1717 CE
Bengal Sultanate: 1338–1576 CE **Nawabs of Bengal:** 1717–1765 CE

Bengalis
Bengalis also rendered as the Bengali people, Bangalis and ...

History of Bengal
The history of Bengal is intertwined with the history of the broader ...

Bengal tiger
The Bengal tiger is a *Panthera tigris* population in the ...

[More results from wikipedia.org »](#)

Bengal cat
The Bengal is a domestic cat breed developed to look like ...

Bay of Bengal
The Bay of Bengal is the northeastern part of the Indian ...

Bengali Muslims
Bengali Muslims (Bengali: বাঙালি মুসলমান) are an ethnic, linguistic ...

Images for bengal



→ [More images for bengal](#)

[Report images](#)

Bengal | region, Asia | Britannica.com

<https://www.britannica.com/place/Bengal-region-Asia> ▼

Bengal, Bengali Bangla, historical region in the northeastern part of the Indian subcontinent, generally corresponding to the area inhabited by speakers of the ...

Videos



Bengal Carrier

The **Bengal Carrier** is one of the biggest Star Citizen Capital Ships that players could own. The **Bengal** is a persistent Capital Ship, which means that organizations will have to protect it 24/7. Join Star Citizen with my referral code : STAR-BJDM-D6GG. and gain 5000 UEC !

[Star Citizen Bengal Carrier - Capital Ships - YouTube](#)
[YouTube](#)

[Feedback](#)

Bengal cat

Cat breed



The Bengal is a domestic cat breed developed to look like exotic wild cats such as leopards, ocelots, margays and clouded leopards. [Wikipedia](#)

Scientific name: *Felis catus* × *Prionailurus bengalensis*

Rank: Hybrid

Higher classification: [Cat](#)

Origin: [India](#), [United States of America](#)

People also search for

[View 15+ more](#)



[Savannah cat](#)



[Maine Coon](#)



[Ragdoll](#)



[Siamese cat](#)



[Sphynx cat](#)

[Feedback](#)

See results about

[Bengal \(Region\)](#)

Official languages: [Bangladesh](#) – [Bengali](#) [West Bengal](#) – ...

Area: 236,322 km²



[Bengali language \(Spoken language\)](#)

Bengali, also known by its endonym [Bangla](#), is an Indo-Aryan language primarily spoken by the ...

Videos



[Star Citizen Bengal Carrier - Capital Ships](#)

[SquidofLove](#)
[YouTube](#) - Mar 7, 2018



[Star Citizen : Capital Ship : Bengal Carrier \(WIP\)](#)

[Pancake Boy](#)
[YouTube](#) - Jul 7, 2016



[Star Citizen MEGA Ships ! s2 ep 10 Bengal carrier !](#)

[Demo man](#)
[YouTube](#) - Jan 30, 2017

Bengal-class Carrier - Star Citizen Wiki

<https://starcitizen.tools/Bengal> ▼

Jun 6, 2018 - The RSI **Bengal-class Carrier** is one of the biggest and strongest UEE ships. The iconic **Bengal** is one of the most powerful warships available ...

Size: [Capital](#) **Length:** 990 m
Maximum crew: 755 **Manufacturer:** [Roberts Space Industries \(RSI\)](#)

[Specifications](#) · [Trivia](#) · [Gallery](#)

Bengal-class Carrier | Star Citizen Wiki | FANDOM powered by Wikia

https://starcitizen.fandom.com/wiki/Bengal-class_Carrier ▼

Ships by Roberts Space Industries, [Carrier Ships](#), [Capital Ships](#), ... The **Bengal-class Carrier** is the UEE's "tip of the spear.". The iconic **Bengal** is one of the most powerful warships available to the UEE Navy and its imposing presence has held off raiders and the Vanduul ...

← Bengal Carrier

What About the Content of Words

Synonym
Discovery/replacement is the
solution to
Synonym based
problems

Original Query	New Query with Synonyms	Intent
Examples of thesaurus-based synonym replacement		
basement window wells drainage billabong boardshorts sale bigger stronger faster documentary	basement window wells drain billabong boardshorts sales event larger stronger faster documentary	same
yahoo maryland judiciary case search free cell phone number lookup	hayseed maryland judiciary pillowcase search free cell earpiece number lookup	different
Examples of term-to-term synonym discovery		
airlines jobs area code finder acai berry	airlines careers area code search acai fruit	same
acai berry ace crest toothpaste coupon	acai juice hardware crest whitestrips coupon	different
Examples of concept based synonym discovery		
ae apartments_for_rent arizona time_zone	american_eagle outfitters apartment_rentals arizona time	same
cortrust bank credit_card david_beckham dodge_caliber	cortrust bank mastercard beckham dodge	different

Accessibility note this image is taken from a
source in the comments

Titles and Titles

- **Article Title:** "Changing Times"
- **Page Title:** Jill Abramson, New York Times' First Woman Executive Editor

The Wall Street Journal

- **Article Title:** "White House Party Crashers Cause a Hangover"
- **Page Title:** Obama Asks for Review After Michael and Tareq Salahi Crash White House State Dinner

Slate

- **Article Title:** "Deliverance"
- **Page Title:** U.S. Postal Service: Will It Survive?

Newsweek

- **Article Title:** "Citizen Cain"
- **Page Title:** Herman Cain's Unlikely Republican Rise
- **Meta Description:** Meet the rising GOP star who is confounding the pundits and much of black America.

The New York Times Magazine

- **Article Title:** "When Is a Flip Not a Flop?"
- **Page Title:** The Fate of the Republicans Who Supported Gay Marriage
- **Meta Description:** The four Republicans who broke with their party on New York's gay-marriage law were supposedly marked for electoral death. But that's not exactly how it is working out.

Titles and Titles

- Article titles are what people see
- Page titles are what search engines see
- Meta descriptions are things search engines will read and use to produce a snippet

SEO

- Different Search engines rank things differently, but broadly speaking Google tries to feed you data based on what you've clicked on in the past, and what other people have clicked on for similar queries, and what is linked to the most (Google is *stateful* if you are on a machine used regularly or if you are logged in)
- Some search engines (like duck duck go) try and be *stateless* where the only input other than the search terms itself might be user location data or time of day type stuff.

Some Basic Techniques

- Drive user 'engagement' (i.e. have people stay on your page longer)
- Have longer pages, but shorter paragraphs and sentences
- Make the site fast
- Title videos in a way that a search engine can understand video content
- Topics and answers to questions over keywords
- Theme content, and target an audience around a theme

Google and Bing

- Google has their SEO guide
- <https://support.google.com/webmasters/answer/7451184>
- And Bing has theirs
- <https://www.bing.com/webmaster/help/webmaster-guidelines-30fba23a>
- I wonder if every time someone clicks that bing guide someone gets an email. There 10's of us, 10's!.

Engagement

- Basically that's how long users spend on your page before backing out or clicking something else
- The longer you are there, the more likely the result was relevant

Improving Engagement: People Don't Read

- Short Paragraphs
- Short Sentences
- Sub-headers
- Bullet points

Same basic content left vs right

Knowledge of the existence of the Law of Attraction is a huge benefit in itself. Most people live their entire life and never realize that their thoughts are creating their reality. When one discovers this universal truth the entire world begins to open up. After much hard work and practice you will begin to see life-changing and long-lasting results from utilizing the techniques and strategies taught here. There are many ways to use the law including through daily affirmations, visualizations, goal setting, changing think patterns and of course tapping into the universal storehouse of information.

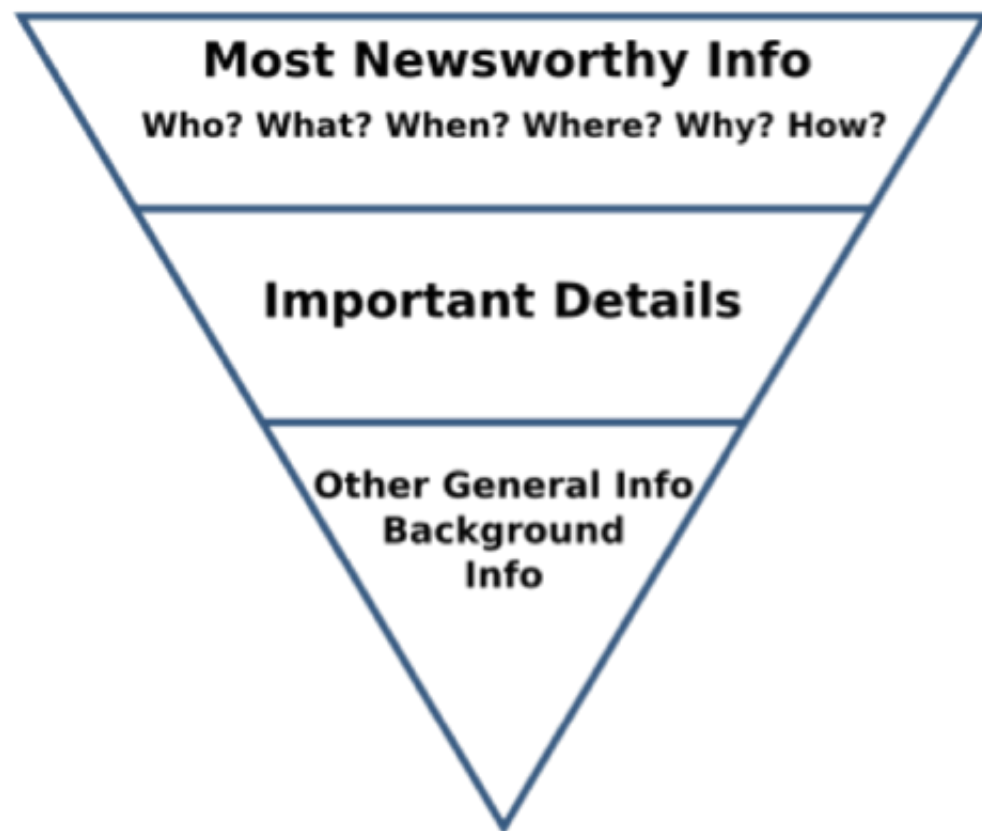
- Most people live their entire lives and never realize that their thoughts are creating their reality.
- After much hard work and practice you will begin to see life-changing and long-lasting results from utilizing the techniques and strategies taught here.
- Here are some ways you can use the law of Attraction to your benefit:
 - Daily affirmations
 - Visualizations
 - Goal settings
 - Changing link patterns

Use Images

- I mean... what do you want, a picture of a picture on a webpage?

Pyramid Style Writing

- Get to the point early



Meta Descriptions

- In a <head> of a page you have a
- <meta name =“description”=“content = “.....
- Those descriptions need to be understandable by both crawlers and people

Use “Breadcrumb lists”

- Breadcrumb list just a nav bar with a list of links to other pages
- I put this here just so you’re aware that in the context of SEO people use different terminology than general web design but it’s the same idea
- (You can have hidden breadcrumb lists to help SEO out but that aren’t visible to users, hence the distinction)

Careful Who You Link To

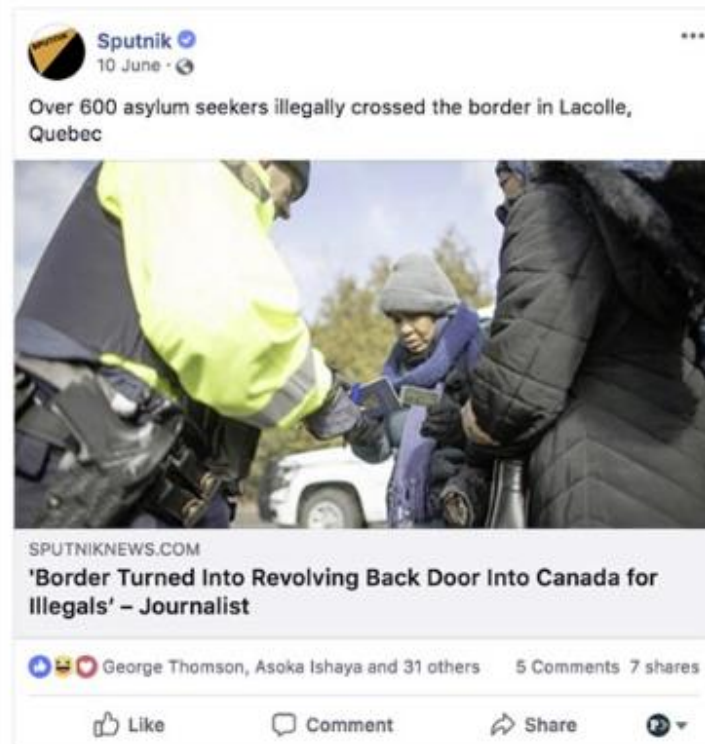
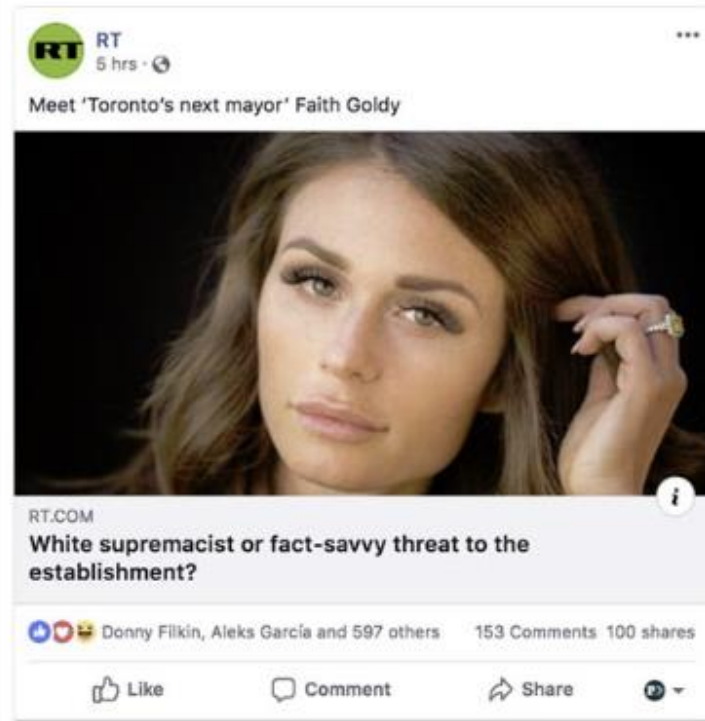
- Because page ranking depends on who is linked to who, if you're linking to 'bad' (in some sense) pages, that will negatively impact you
- Bad in this case can just be poorly optimised or unpopular pages

Some stuff not relevant to us

- Browser caching
- Content delivery networks
- Custom Compression tools to speed page loads
- Backlink optimisation (also manipulation, in a moment)
- HTTPS
- Acceleration services (Google AMP, which is a whole other discussion)
- File Structure on the server (crawlers work from the root out)

Corrupting Search Engine Results

- Optimisation is getting legitimate valid results to the top
- Corruption is getting nonsense to the top
- (This is certainly a 'fake news' sort of discussion but we're mostly interested in how it works rather than who is doing it)



- <https://pressprogress.ca/russian-propaganda-networks-are-promoting-white-nationalist-faith-goldys-run-for-toronto-mayor/>

That Isn't to Say Goldy was aware

MIDTERMS

We posed as 100 Senators to run ads on Facebook. Facebook approved all of them.



By **William Turton** Oct 30, 2018



One of Facebook's major efforts to add transparency to political advertisements is a required "Paid for by" disclosure at the top of each ad supposedly telling users who is paying for political ads that show up in their news feeds.

But on the eve of the 2018 midterm elections, a VICE News investigation found the "Paid for by" feature is easily manipulated and appears to allow anyone to lie about who is paying for a political ad, or to pose as someone paying for the ad.

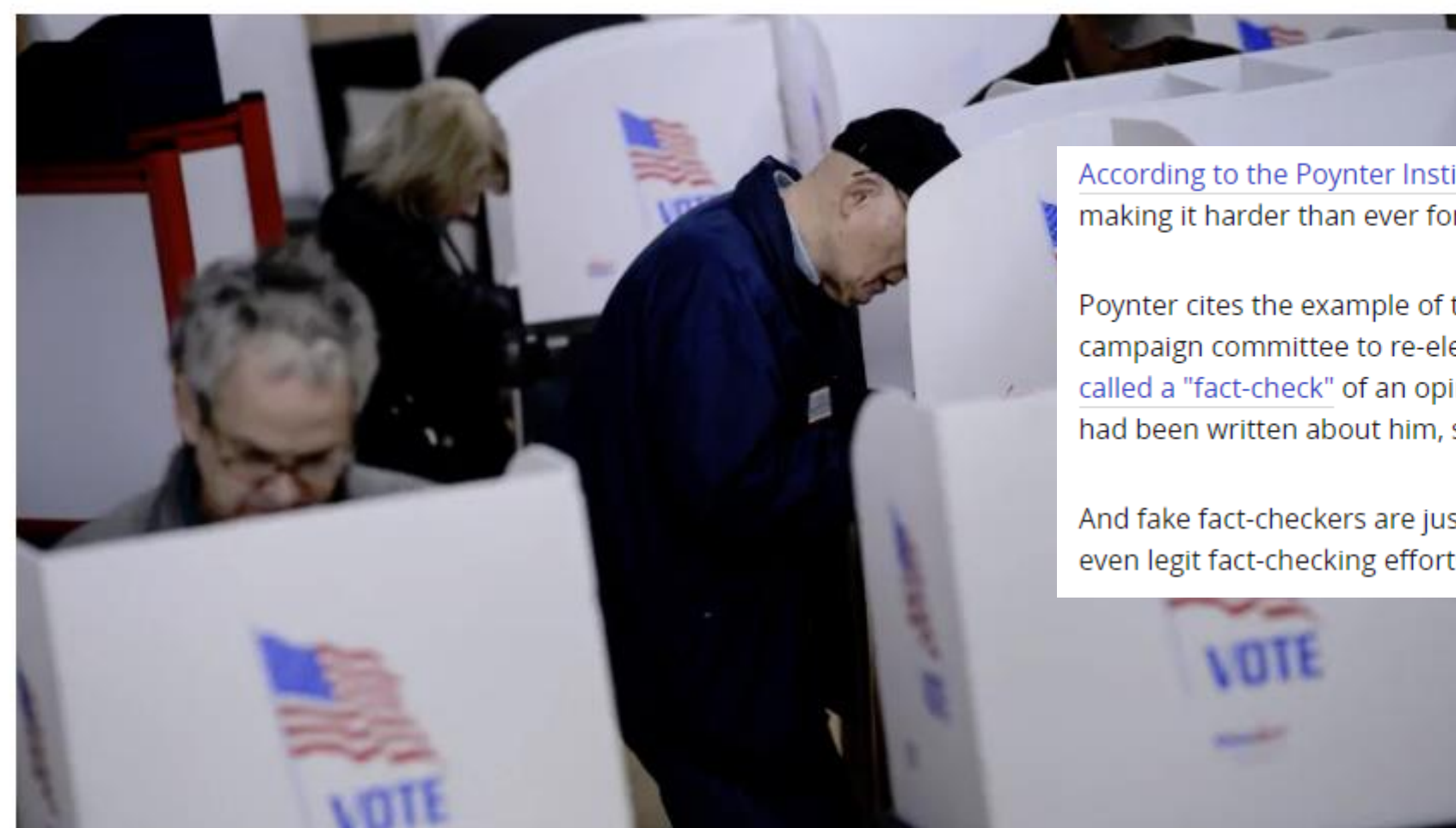
- https://news.vice.com/en_us/article/xw9n3q/we-posed-as-100-senators-to-run-ads-on-facebook-facebook-approved-all-of-them?utm_source=reddit.com – oct 30 2018

Fake news, even fake fact-checkers, found in run-up to U.S. midterms



Hasty headline-sharing makes us all prone to fall for hoaxes: we're not reading closely enough — if at all

Ramona Pringle · CBC News · Posted: Nov 06, 2018 4:00 AM ET | Last Updated: November 6



[According to the Poynter Institute for Media Studies](#), a growing number of fake fact-checkers are making it harder than ever for consumers to differentiate what is real from what is bogus.

Poynter cites the example of the pseudo-news site The California Republican, run by the campaign committee to re-elect U.S. Representative Devin Nunes, which [published what they called a "fact-check"](#) of an opinion article opposing Nunes. In other words, they didn't like what had been written about him, so they wrote their own rebuttal, framing it as a fact-check.

And fake fact-checkers are just one example of the proliferation of fake news derivatives; now, even legit fact-checking efforts might be giving [fuel to the false narratives](#).

People cast their ballots during early voting at a community centre in Potomac, Md., on Oct. 25, two weeks ahead of the U.S. midterm elections. (Brendan Smialowski/AFP/Getty Images)

When the results of today's U.S. midterm elections are tallied, people will have a clearer sense of how the American people really feel about the current administration. Or at least, how they feel based on the information they've read leading up to the election — not all of which was factual.

Media manipulators

The approach had become predictable, but the media seemed unable or unwilling to stop falling for it, boyd said. She even laid it out in a clean, bulleted list:

Media manipulators have developed a strategy with three parts that rely on how the current media ecosystem is structured:

1. Create spectacle, using social media to get news media coverage.
2. Frame the spectacle through phrases that drive new audiences to find your frames through search engines.
3. Become a “digital martyr” to help radicalize others.

boyd suggested there was a simple way to shut down the manipulations of these trolls. “Ignore their attention games and focus your reporting on the wide range of non-hateful political views in this country that aren’t screaming loudly to get your attention,” she advised.

- Trump is a master at getting attention
- That spectacle allows his army of followers to create an echo chamber of disinformation
- Conservatives in Canada are starting to use the same playbook (parties around the world all swap ideas that work for them with each other).

Cloaking

- Well outside the scope of what we can do in this course, you can generate pages from a database, rather than having static content
- That means you can basically do this
- If (User-Agent is crawler)
 - Show page V1
- If (User-Agent is person)
 - show page v2
- That allows you to make it look like your page has content it doesn't (this can to some extent be done in real time to adapt to search queries)

- Got here fall 2019

Link Spam

- Basically you just pay people for inbound links to your page
- For most low level uses it wouldn't work well. If we had everyone in the class link to the instructor's loki page it would still never show up on search results.
- This works much better at the State level, where legitimate (ish) government sponsored pages can basically create an echo chamber effect (See Russian propaganda and disinformation efforts).

Social Media Scheme

- Fairly straightforwardly, fake accounts that all follow each other creates a huge network effect
- That bot network can then be used to create legitimacy for whatever garbage is being peddled

Keyword Stuffing

- This used to be huge and it still sort of works
- Basically just have a pile of (usually hidden) keywords which have nothing to do with the actual content
- BMW got in trouble years ago for having hidden pages full of BMW/luxury car related keywords to bump up their rankings

Duplicate Content, Refresh hacking

- Ironically you're potentially going to make duplicate content for me. But you could easily have many copies of the same page style differently or with minor variations
- You can also do some technical stuff to force browsers to refresh/reload pages, which creates an appearance of extra clicks

Misleading Markup

- Pretty much what it sounds like
- Lie about what is a heading, or have a lot of markup which is irrelevant to the page it is on.

When You're Google...

The European Union has fined Google €2.42bn (£2.14bn) after a seven-year investigation into claims the technology giant abused its internet search monopoly.

The penalty is the biggest ever competition fine from the European Commission, doubling the previous record handed to Intel in 2009.

The EU said Google had broken EU competition law by exploiting the power of its search engine to promote its online shopping service, at the expense of other price comparison sites.

It said that when internet users searched Google for products such as clothes or electronics, the results would prominently and boldly feature Google's own price comparison service and relegate rivals.

- If your own service isn't the best, just put it at the top anyway
- Your competition can't be the best if no one knows they exist, right?

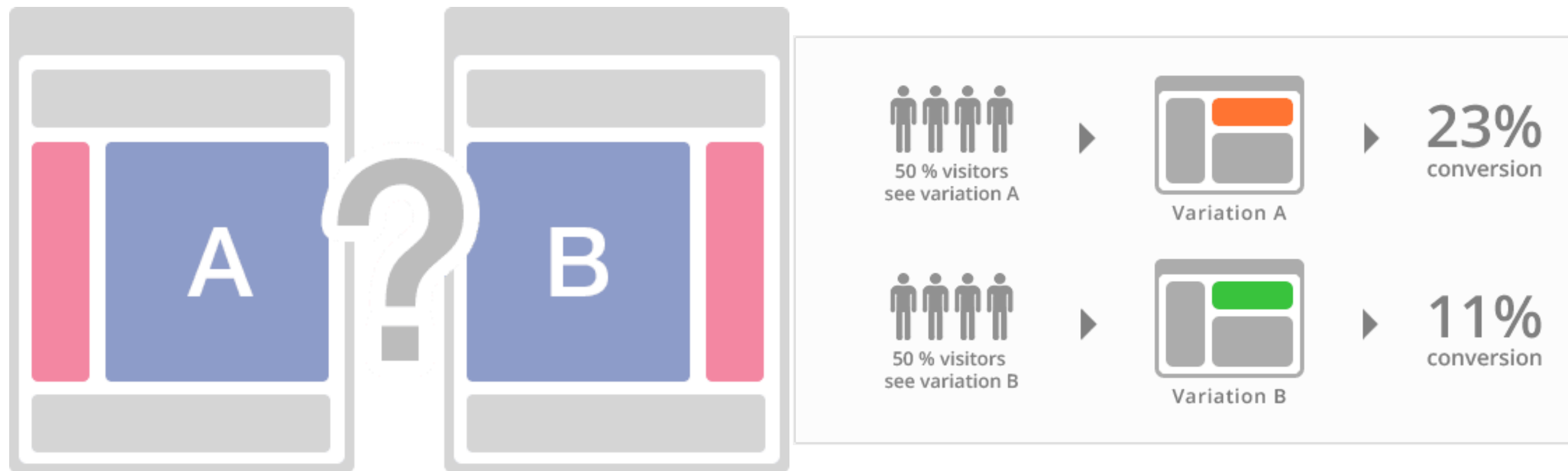
What Google Says to Not Do

- Automatically generated content
- Participating in link schemes
- Creating pages with little or no original content
- Cloaking
- Sneaky redirects
- Hidden text or links
- Doorway pages
- Scraped content
- Participating in affiliate programs without adding sufficient value
- Loading pages with irrelevant keywords
- Creating pages with malicious behavior, such as phishing or installing viruses, trojans or other badware
- Abusing rich snippets markup
- Sending automated queries to Google

Testing Strategies

- I'm not sure how much depth on this really belongs in 2830H since it's legitimate software testing stuff, but I'll just have a quick list
 - We'll do a quick lab on this as well (specifically expert review)
-
- A/B testing
 - Analytics
 - User Testing

A/B Testing

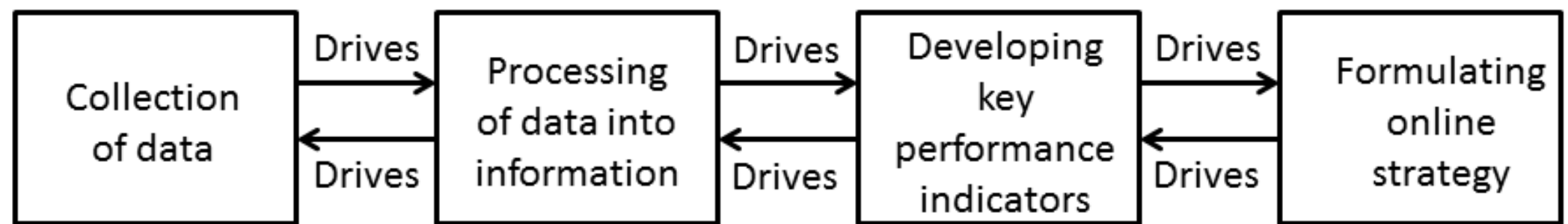


A/B Testing

- You actually see this a lot on major websites. They roll out a change for a small set of users, and if it works they try for everyone
- Obviously some maths geeks get rightly worked up for picking valid sample sets
- Obviously A/B testing requires you be able to prototype nearly complete features
- Variants of A/B testing for more than 2 cases are also possible

Web Analytics

Basic Steps of Web Analytics Process



Typically,
counts.

Basically,
data
collection

Examples:

- Time stamp
- Referral URL
- Query terms

Typically,
ratios.

Data
becomes
metrics.

Examples:

- Time on page
- Bounce rate
- Unique visitors

Counts and
ratios infused
with business
strategy.

Examples:

- Conversion rate
- Average order value
- Task completion rate

Online goals,
objectives, or
standards for
organization.

Examples:

- Save money
- Make money
- Marketshare

User Testing

- Some of that is the eye tracking stuff we saw earlier (see what users do with your page basically)
- You can use “hallway” testing – that is, random people
- You can use Remote testing, useful to find out where network bottlenecks are (One of Sri’s friends used to do that for Facebook)
- Expert Review

User Testing

- Paper Prototyping
- In this day and age use a digital mockup tool, it's less work



User Testing: Experiments

- We might talk about this in game design
- A **very** useful tool for usability is to basically set an untrained user off on a task while recording with a camera
- And make developers watch the video later

User Testing example

- Let's test this ad:
- How does a viewer decide if the content of this add is true/accurate/honest?
- <https://www.youtube.com/watch?v=el5yrTDUHEc>
- (Shri is just like me)

Internet Searches for Fact Check

- Is Shri just like me?
 - Is Shri just like me true? (true, truthful, honest, accurate)
 - Shri is just like me fact check
 - Are Shri Thanedar's ads true?
 - Shri Thanedar fact check
-
- (Observation: Some of these queries bring back results about an animal welfare issue at a company that went bankrupt)

Small Problem With Fact Checking

Consider some statements:

- _____ is the top student in the front row
- There are 365 days in a year
- Donald Trump won the popular vote in 2016
- The Ontario deficit is 15 billion or 6.7 billion (A: both at the same time) (2018)

Questionnaires and Interviews

- These are what they sound like
- As with any other field, picking the right questions and the right way to ask the questions is challenging