Debugging & Optimizing The User Experience

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Data Meets Experience



Toby Walker
Data Scientist

Azure



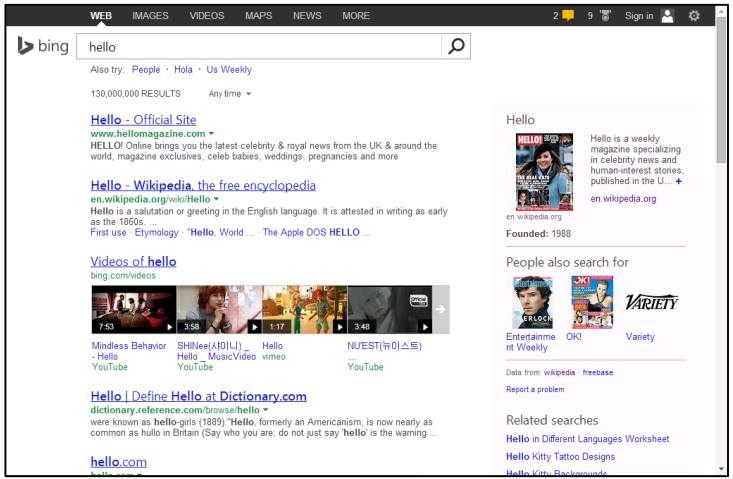
Sarvesh Nagpal
UX Engineer

Bing

Clarity

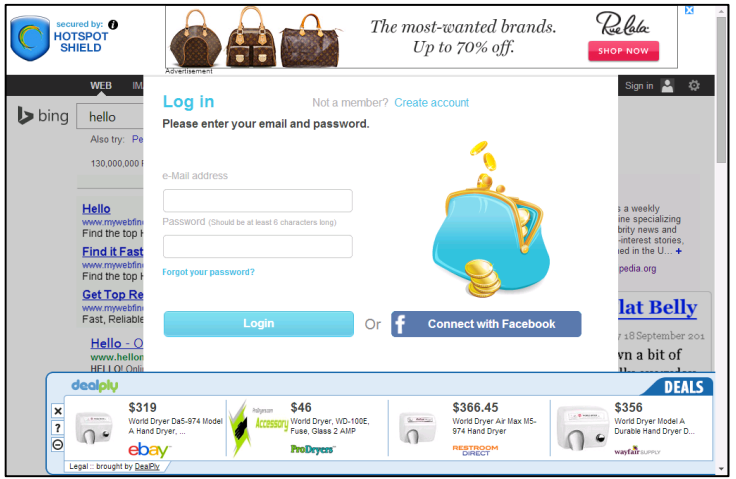
“analytics that puts users first”

availability ≠ usability



You **expect** this

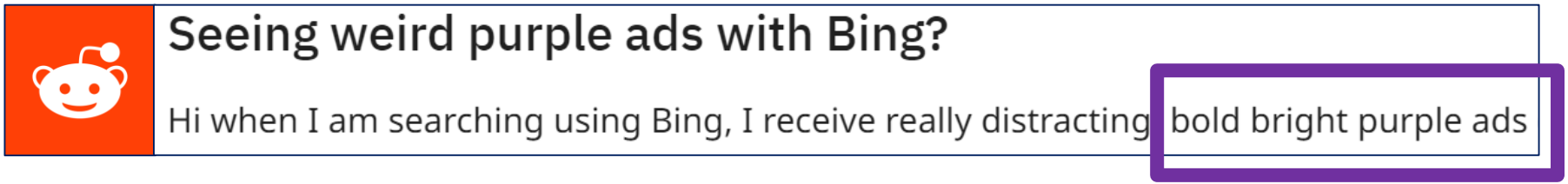




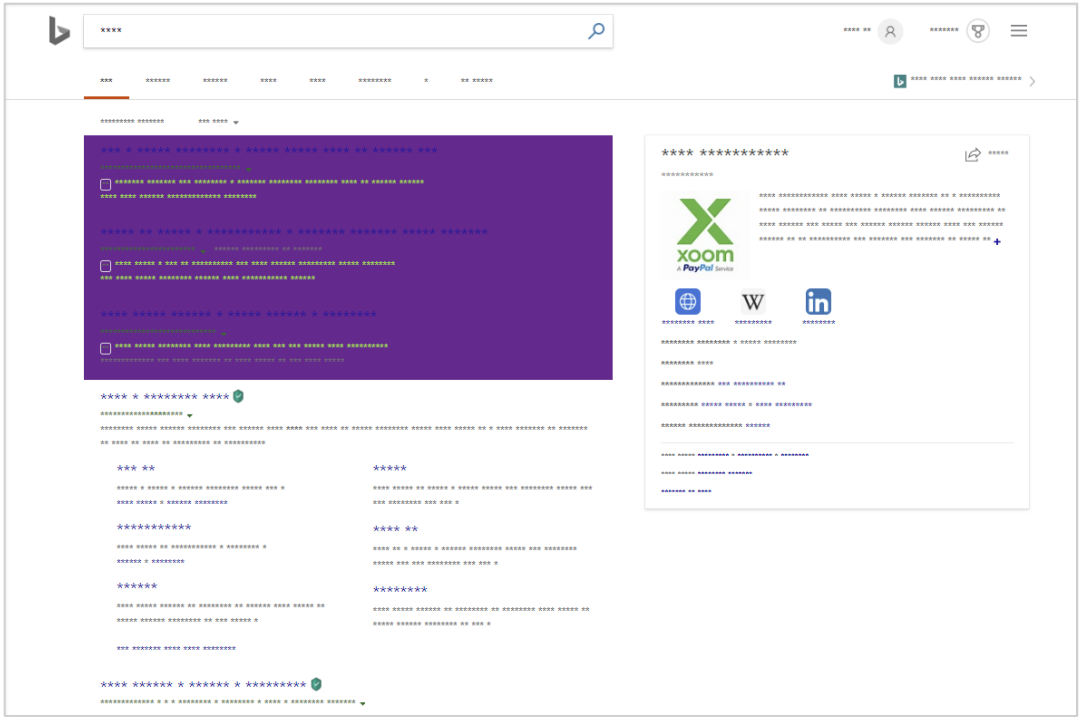
User **sees** this

Solving experience mysteries

The Mystery: Reddit Problem Report



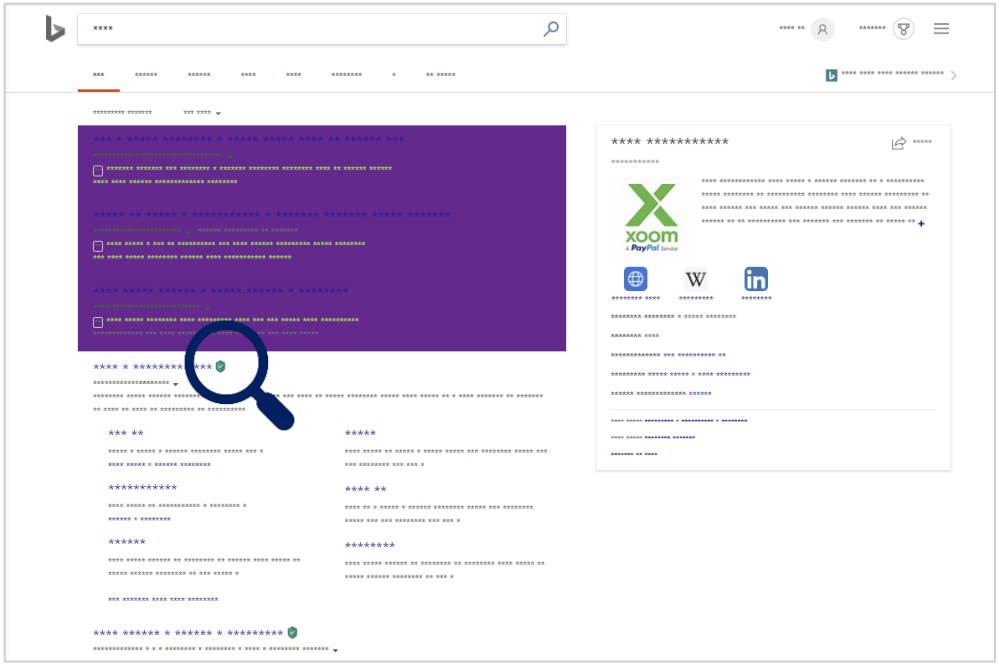
Finding purple ads

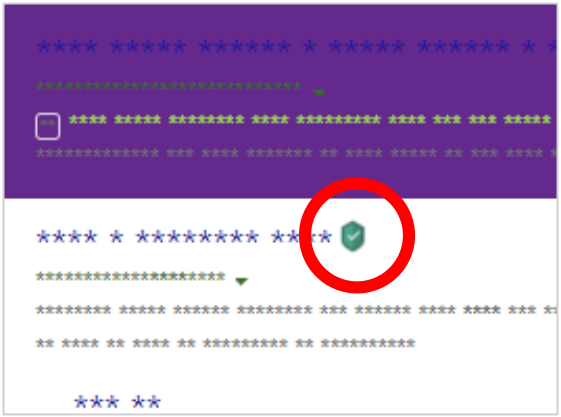


Search for sessions where:

- Ads are present
- Ads background color is not default

Find a clue in some examples





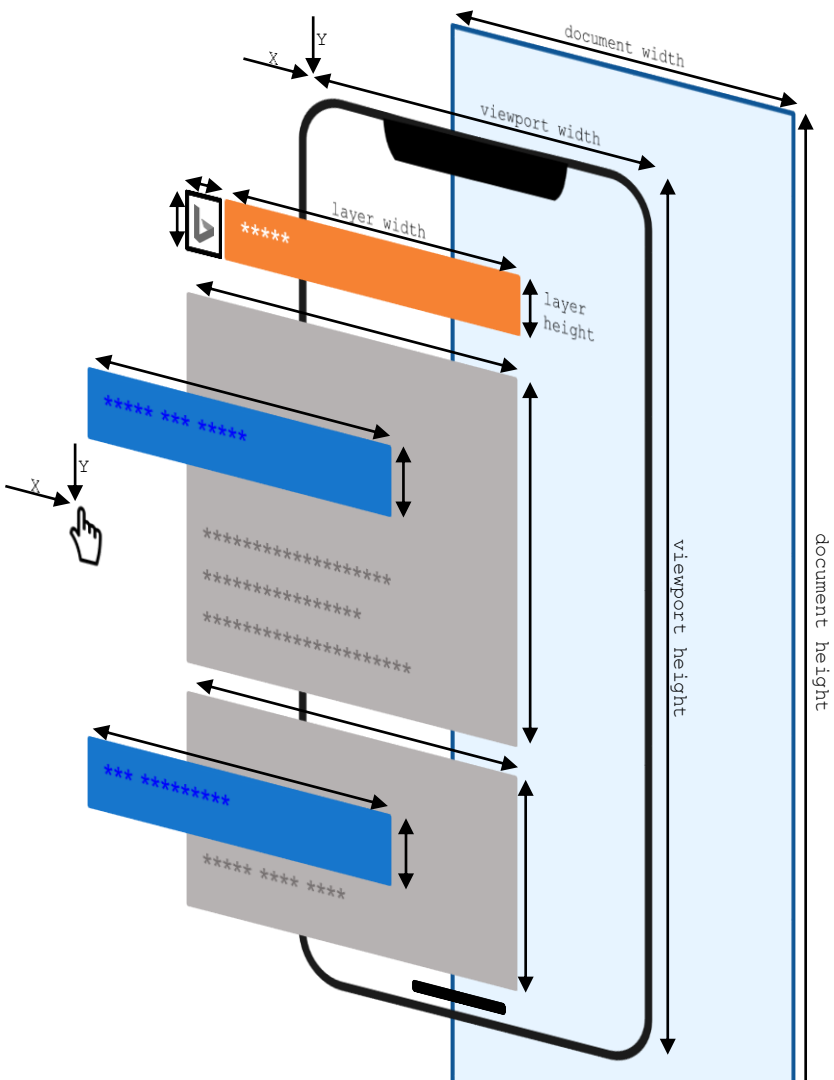
Mystery solved:

KASPERSKY lab

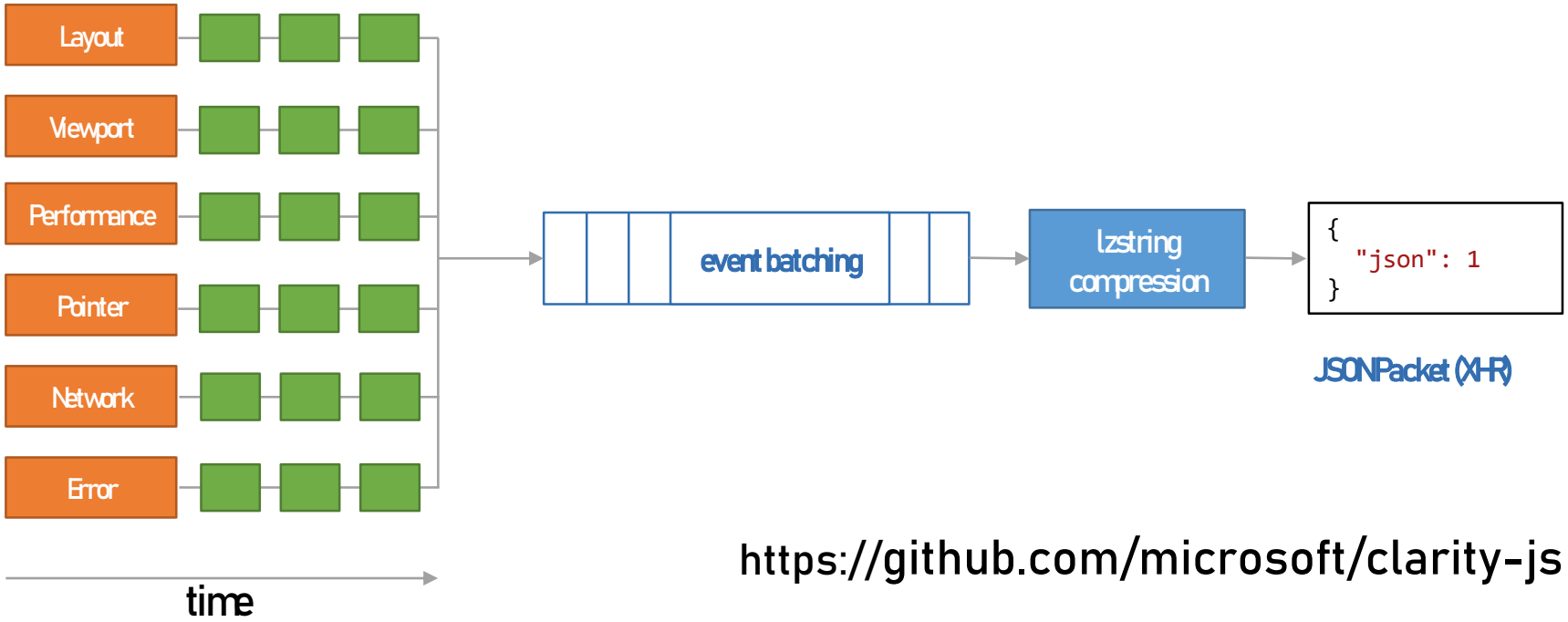
Capturing the **real** experience

Experience As Data





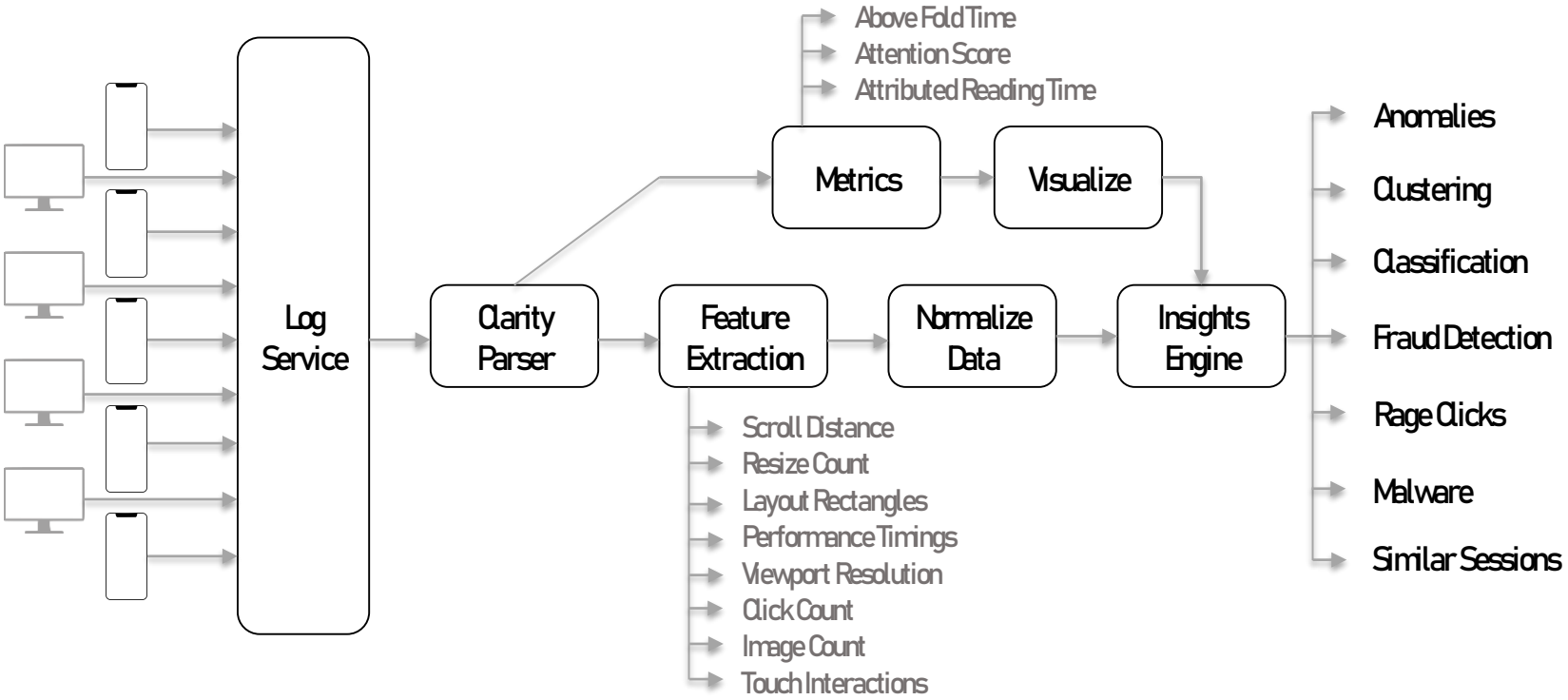
Modular Framework to Instrument the Experience



https://github.com/microsoft/clarity-js

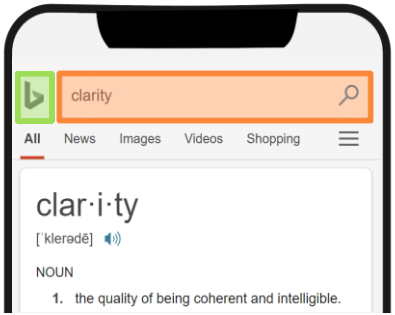

But watching every **user session** is no fun

Clarity Analytics

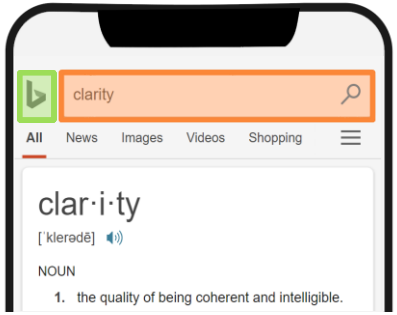


Finding the unexpected

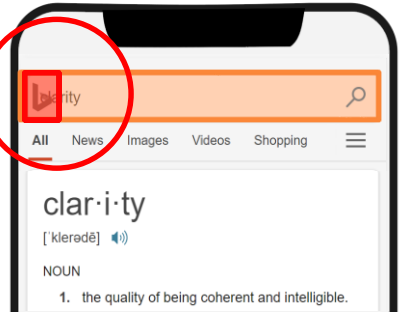
Detecting Layout Anomalies



Left	Top	Width	Height
10	18	22	40
48	18	300	40

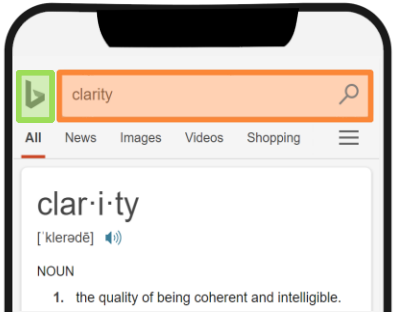


Left	Top	Width	Height
10	18	22	40
48	18	300	40



Left	Top	Width	Height
10	18	22	40
10	18	338	40

Layout Anomaly Detected

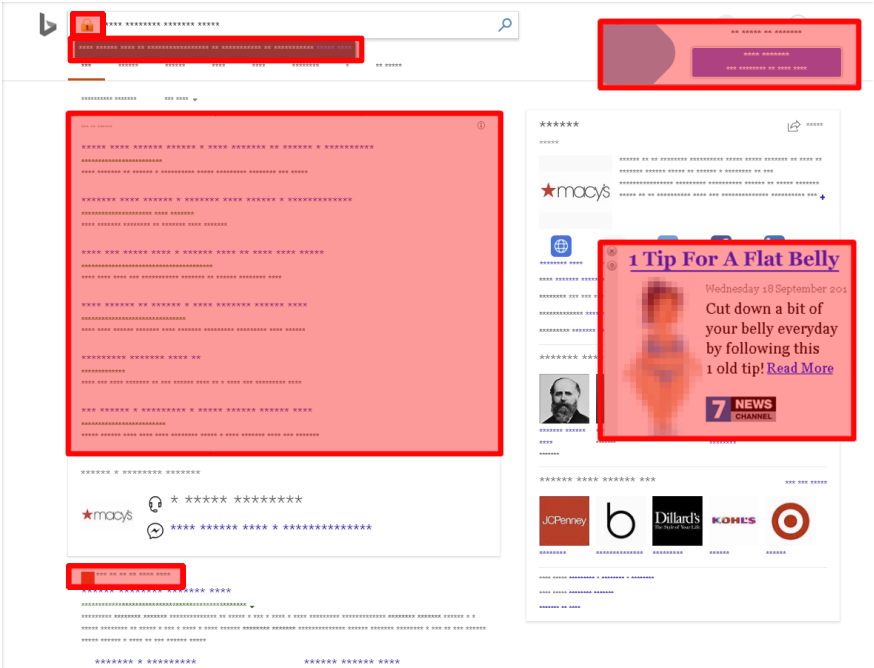


Left	Top	Width	Height
10	18	22	40
48	18	300	40

Finding Unexpected Content on Bing

Bing layout anomalies:

- External ads displacing results
- Graphic ads blocking viewport
- Scripts hijacking search box

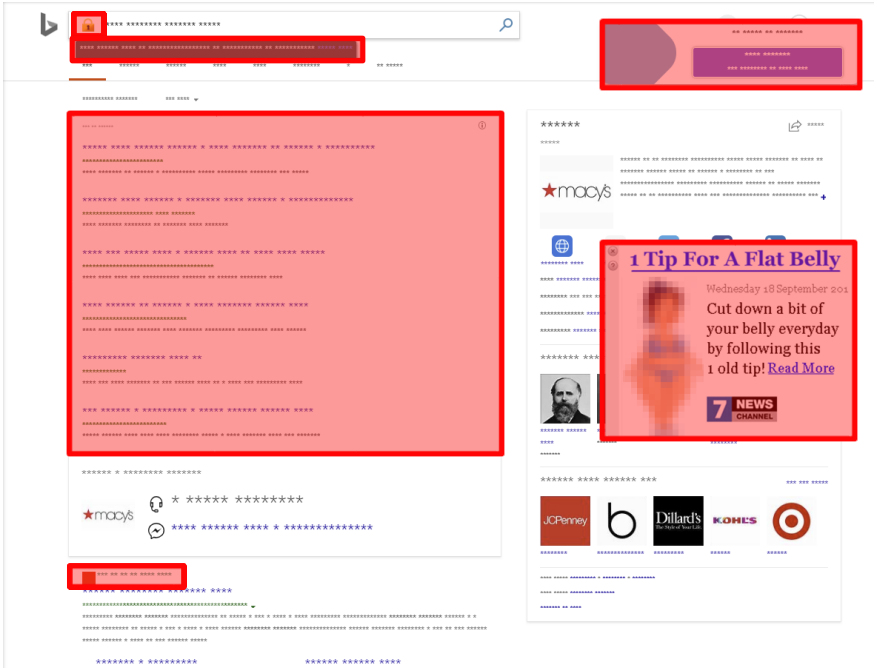


How many users are impacted?

Debugging Malware

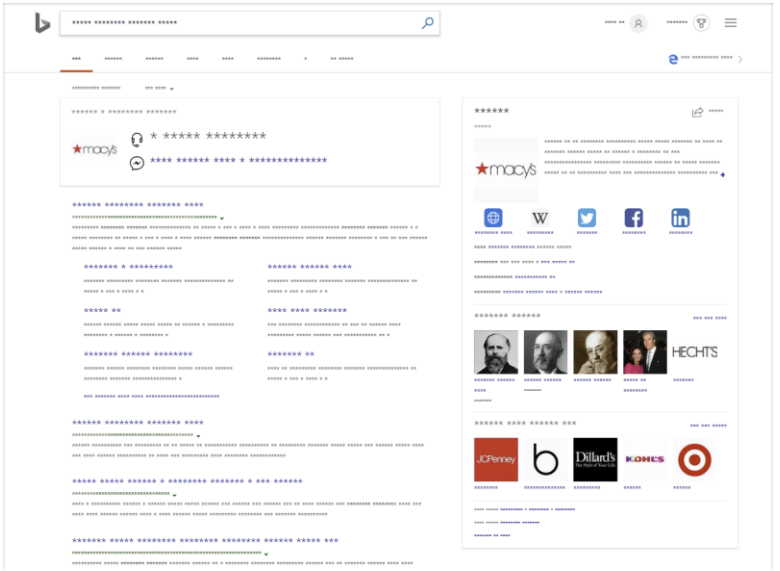
Clarity observations:

- 5%+ users were impacted
- Pages loaded 50% slower
- 10X more script errors



Fixing Malware





Helps Our Users and Business



Product improvements:

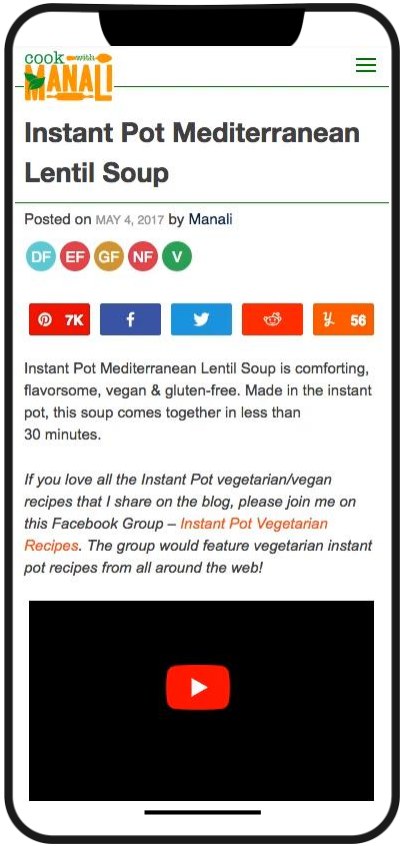
- 10% increase in user engagement
- Multi-million $$ in revenue
- 50% faster page views

One of the most successful experiments in the Bing history.

Understanding metrics

Food Blog Basics

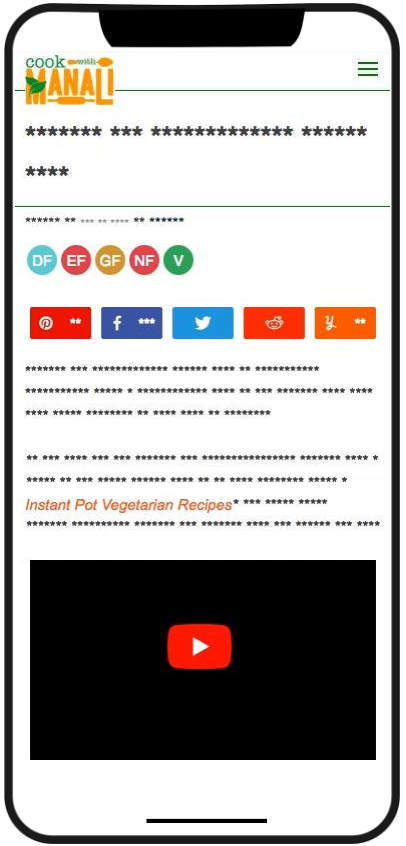
- Blog posts on recipes are long
- Bloggers are passionate and motivated
- Readers are in a hurry to cook the dish



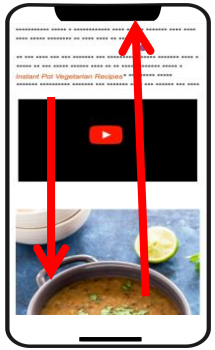
Understanding User Abandonment

Clarity observations

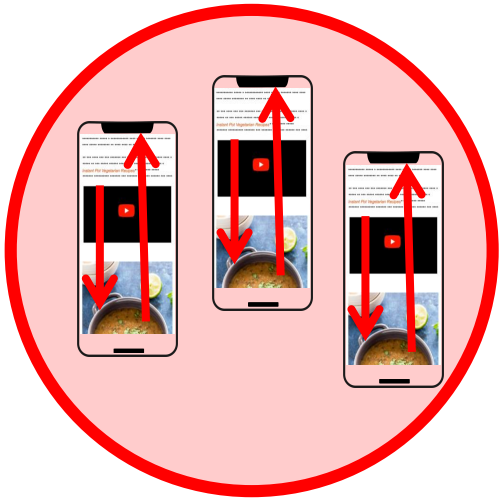
- Users abandon before seeing the recipe
- Scrolling patterns (up & down) reflect confusion
- Dwell time is less than 30 seconds



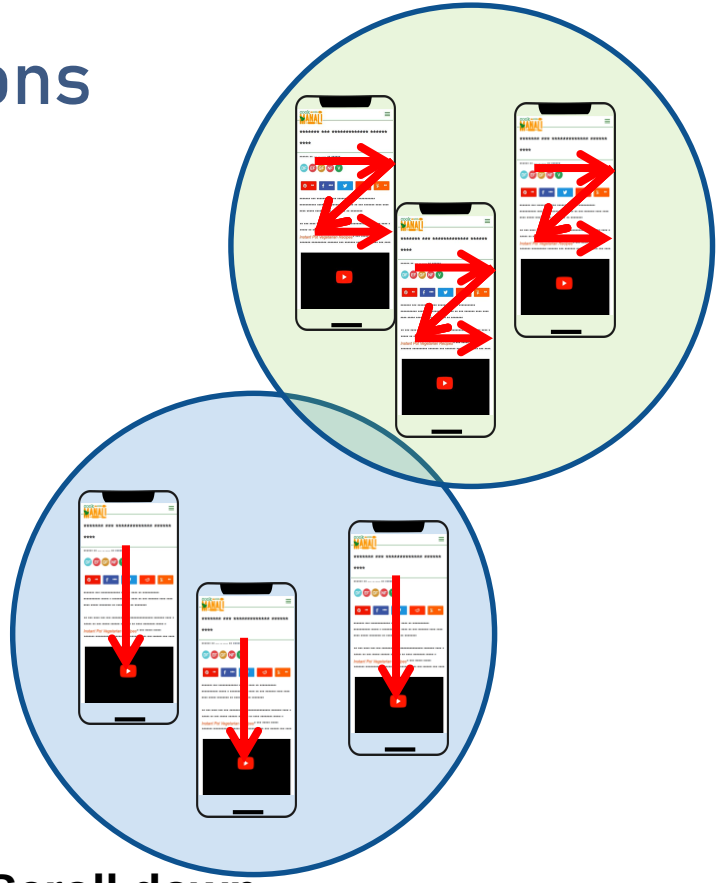
Finding Similar Abandoned Sessions



Example



Scroll down and up

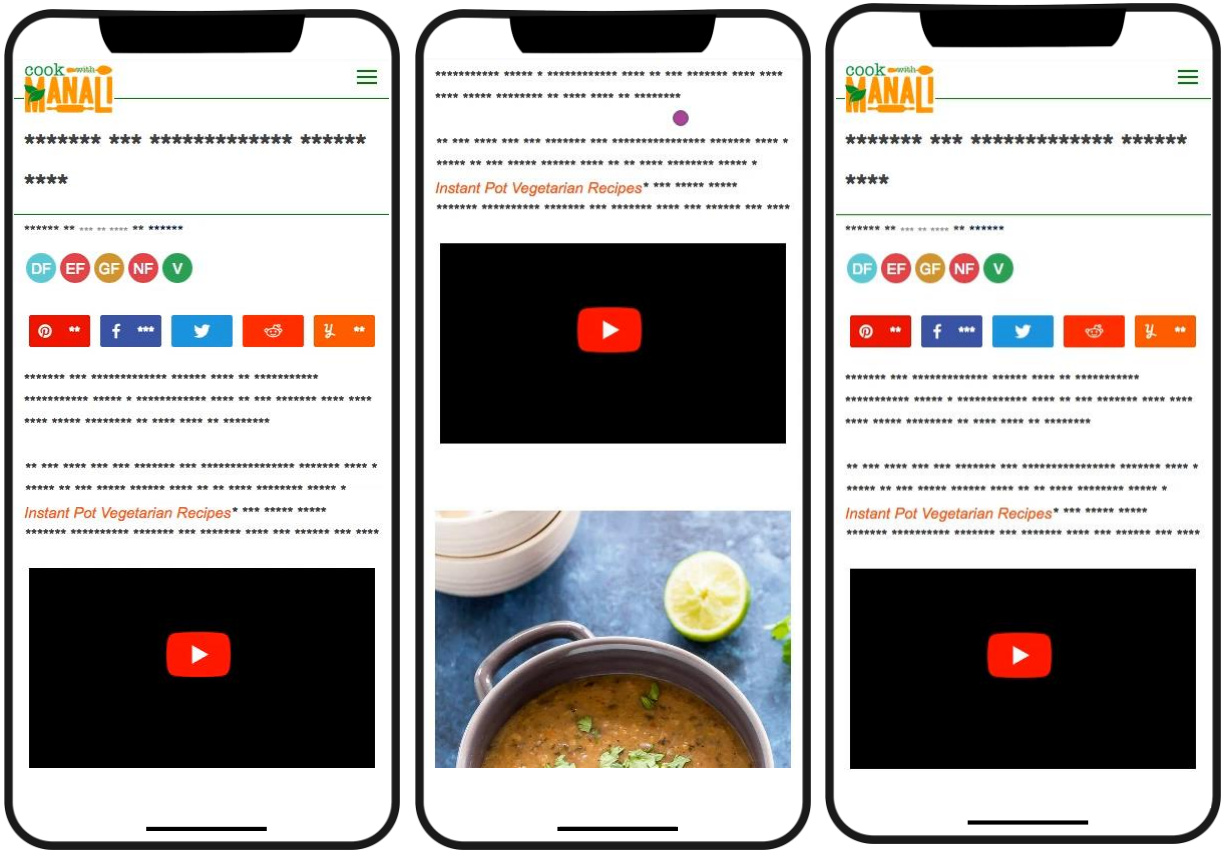


Scroll down

Finding Coverage Through Similar Sessions

Stats:

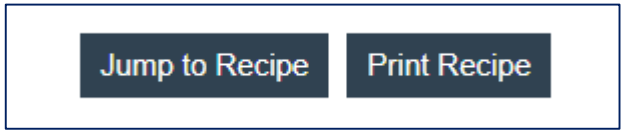
- 30% users
- Mobile > Desktop
- Impacts new users

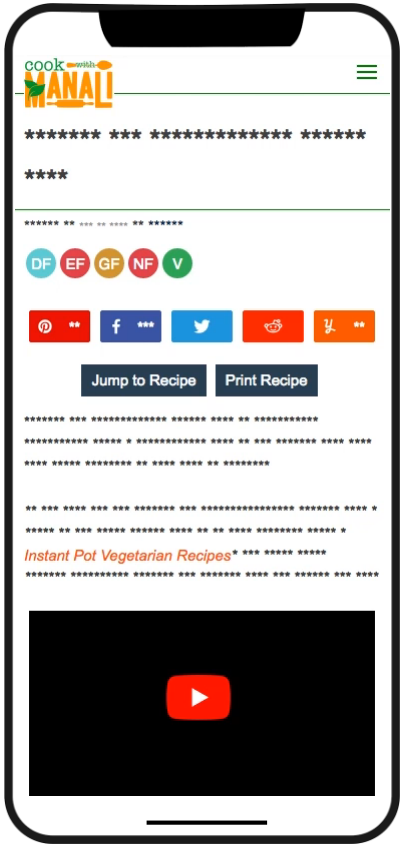


Fixing User Abandonment

Product improvements:

- Added a "Jump to Recipe" button
- Abandonment goes down from 30% -> 15%
- Boost in organic search rankings





User Delight



[redacted] 2.9k points · 2 months ago

I came across a recipe once that had a little link at the top of the life story to take you directly to the recipe and I've never wanted to hug a stranger more in my life than I did that person.

Reply Share Report Save

Capturing common mistakes

The confused clicker



Users click on things that are not links.

Confused Clicks on Bing



Bad: Why on text that's not a link?

Good: Classic F-Shape heatmap pattern.

Take action for your user experience

Improving your user experience

- Usability means more than availability
- Capture data about your user's experience
- Use that data to debug and optimize your experience.
- Want to learn more?
  - Try it: https://www.clarity.ms
  - Contribute: www.github.com/Microsoft/clarity-js



Thank you