

Spotting the Sneaky Stuff: A Developer's Guide to Identifying Dark Patterns



Google Developer Groups



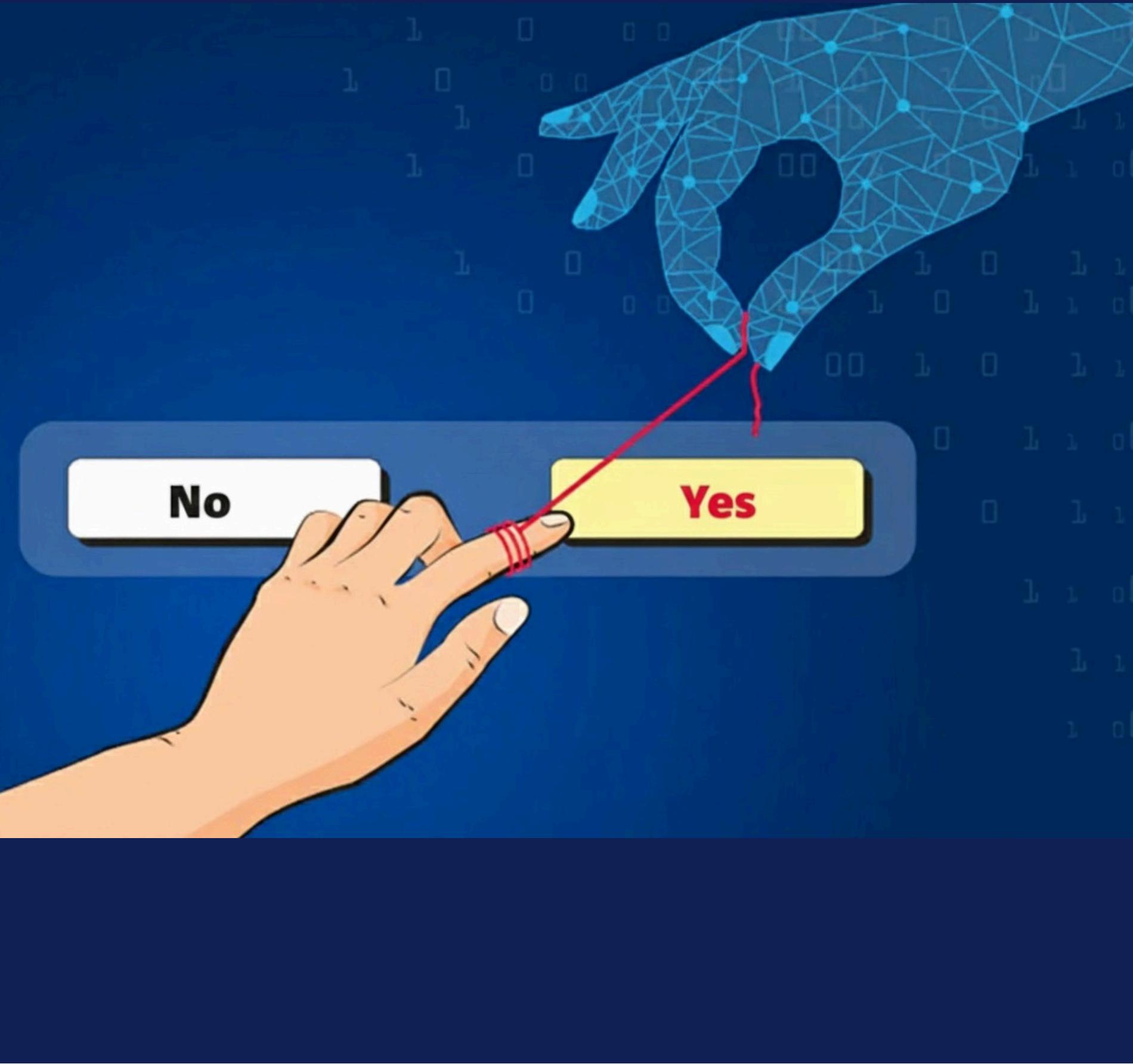
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What are dark patterns?

Dark patterns are **deceptive design tactics** used in user interfaces to trick or manipulate users into making decisions they might not otherwise make, often benefiting the company at the user's expense.



Why should developers care?

Sneaking

Sneaking is a strategy that hides, disguises, or delays the display of important information, tricking users into unintentionally taking an action they would reject.



Sneak into Basket

When buying something, during your checkout, a website adds some additional items to your cart.

Hidden Costs

At the last stage of your checkout process, you would see some additional charges that were added to your final bill without mentioning them in previous steps.

Trick Wording

The user is misled into taking an action, due to the presentation of confusing or misleading language.

Preselection

The user is presented with a default option that has already been selected for them, in order to influence their decision-making.

Hidden Subscription

Undesired auto-renewal due to a confusing or hidden cancellation process.

Ticket reseller “Stubhub”

1. Towards the start of the user's journey on stubhub.com, they are shown a price.

112
Row Y

You'll pay
\$310 each

2. The user proceeds through multiple steps in which they must enter their name, phone number, email and postal address. Only then are they shown the total price. In this case it is a 29% increase.

Ticket Price	1 x US\$ 310.05
Service Fee	1 x US\$ 86.13
Fulfillment Fee	1 x US\$ 4.95
TOTAL PRICE	US\$ 401.13

Ryanair, 2010 to 2013

RYANAIR.COM

Search » Select » Services » Payment » Itinerary

Passenger Details - All passenger names must match those in the passport/accepted travel document

1 Title First name Last name 0.00 GBP
Beat the queues, buy priority boarding: Yes No 0.00 GBP
Buy AXA travel insurance View policy benefits 0.00 GBP
If you do not wish to buy insurance select No Travel Insura 0.00 GBP

Please select a country of residence: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Romania. This is the default

SMS Confirmation
Click Yes to receive a text message confirming your Reservation Number and flight details (Click for inform) 0.00 GBP
Your mobile phone number will be entered on the following page.

Ryanair Approved Cabin Bag
Samsonite This is how you opt out! 0.00 GBP
The Samsonite Aspire cabin bag is approved for carriage on baggage weight and size restrictions below.
No Travel Insurance Required, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Romania. Free Delivery!

Sports Equipment/Musical Instruments/Infant Equipment
Please check box if one or more passengers wishes to carry sports equipment, a musical instrument or infant equipment. □

Special Assistance
Please check box to reserve special assistance at the airport for members of your party. Failure to prebook special assistance may result in the service being unavailable. □

Important - Please check box to continue
I have read and accept Ryanair's Terms and Conditions of Travel and Website Terms of Use. All travel is offered in accordance with Ryanair's General Conditions of Carriage for Passengers and Baggage. I will advise Ryanair of any changes to my contact details including my email address to a local Ryanair reservations centre.
The e-mail address provided at the time of reservation will be used to notify passengers of any flight time changes, in response to general correspondence, or to send other important travel information. Evidence of e-mail dispatch will be accepted as evidence of receipt.

Flights
Going Out: 18/07/2010 16:45hrs Aberdeen - Dublin 1 x Adult 79.99 GBP 31.96 GBP 1 x Web Check in 5.00 GBP Coming Back: 29/07/2010 16:50hrs Dublin - Aberdeen 1 x Adult 29.99 GBP Taxes/Fees 0.00 GBP 1 x Web Check in 5.00 GBP Total 151.94 GBP Excluding administration fee (if applicable)

Obstruction

Obstruction is a strategy which slows a user's task flow, making an interaction more difficult than it naturally needs to be, discouraging a user from taking an action.



Roach Motel

It makes signing up easy but intentionally difficult to cancel by hiding options, requiring a service call, or using an overly complex process, causing users to give up and continue paying.



Comparison Prevention

The user struggles to compare products because features and prices are combined in a complex manner, or because essential information is hard to find.



Privacy Mazes

Privacy Mazes deliberately use complex, multi-page flows to hide privacy information and controls, preventing informed user consent.



Nagging

The user tries to do something, but they are persistently interrupted by requests to do something else that may not be in their best interests.

T-Mobile

The screenshot shows the T-Mobile website's cell phone plans page. It features three main plan cards:

- Magenta® MAX**: \$85/mo. (\$90/mo. for 1 phone line with AutoPay). Includes all Magenta benefits + unlimited premium data on a 5G plan. **Includes:** All the great benefits shown above, Taxes & fees included, Unlimited premium data¹, Netflix on Us (1-screen), 40GB high-speed mobile hotspot. [View full plan details >](#) [Select phone plan](#)
- Magenta®**: \$70/mo. (\$75/mo. for 1 phone line with AutoPay). Enjoy all our unlimited phone plan benefits, plus more great stuff, like added entertainment and travel perks. **Includes:** All the great benefits shown above, Taxes & fees included, 100GB premium data¹, 5GB high-speed mobile hotspot, Unlimited 5G & 4G LTE/100GB premium data¹. [View full plan details >](#) [Select phone plan](#)
- Essentials**: \$60/mo. (\$65/mo. for 1 phone line with AutoPay). Get an unlimited phone plan with all the essential benefits you need including 5G access. **Includes:** All the great benefits shown above, 50GB premium data¹, Unlimited 3G mobile hotspot data incl., Unlimited 5G & 4G LTE/50GB premium data¹. [View full plan details >](#) [Select phone plan](#)

At the bottom, there are two buttons: [Compare plan details](#) and [Lowest priced plan](#).

Reddit

The screenshot shows the Reddit mobile application interface. At the top, it displays the time (10:08), signal strength, battery level (29%), and a search bar. Below the header, the navigation bar includes a menu icon, a user icon, and a search icon.

The main content area shows a feed of posts from different subreddits:

- r/toronto** • 3h ago: A year ago Toronto's budget was a dumpster fire. Now the city's running a surprise surplus. What happened? [Join](#)
- r/hockey** • 3h ago: Worst Take of All Time? [Join](#)
- r/interestingasfuck** • 5h ago: Modern Turing test [Join](#)

Below the feed, there are links to "See Reddit in..." (Reddit App, Safari) and a "Continue" button.

Misdirection

It is a type of deceptive design where a flow or UI element is intentionally designed to trick the user's attention and distract them from their desired action.



2



Manipulating Choice Architecture

The visual design and interactive layout of the user interface are technically altered to intentionally steer the user toward a specific, often unfavorable choice.

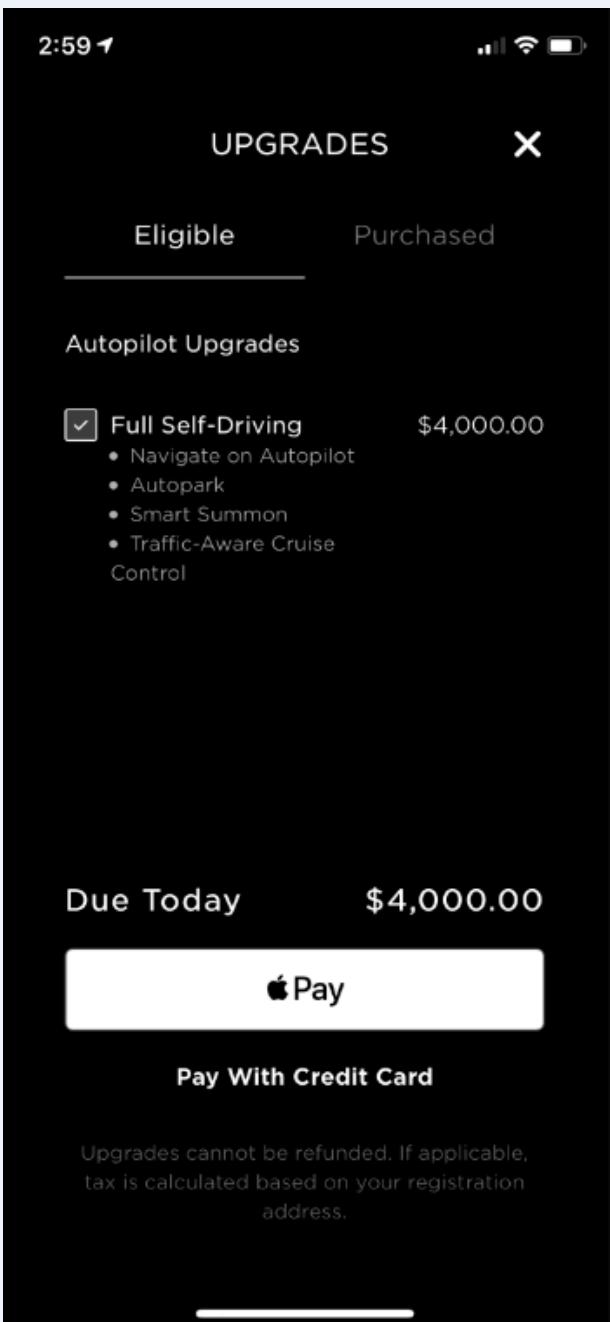
Emotional Manipulation

Using attractive cues (like a cute robot interface) to foster undue trust, making the user inaccurately assess interaction risks.

Disguised Ads

The user mistakenly believes they are clicking on an interface element or native content, but it's actually a disguised advertisement.

Tesla, 2019



Edge Browser ad, Microsoft

A screenshot of a Microsoft Edge browser window. The address bar shows "softpedia.com/get/Multimedia/Video/Video-Players/VideoLAN-Client.shtml". The main content is a Softpedia page for "VLC Media Player 3.0.18". It features a large blue "DOWNLOAD NOW" button. To the right of the button is a rating of "4.4/5 3,351" and a "2 Easy Steps:" guide. Below the download button is a green "DOWNLOAD" button. Further down, there's a "SOFTPEDIA REVIEW" section with a 5-star rating and a "FREE DOWNLOAD" button. A sidebar on the left provides details about the software, including its version (3.0.18), editor's pick status, and download links. A "PORTABLE VERSION" link is also present. At the bottom of the page, there's a note about media file formats and a "fiverr." advertisement for a service that "delivers".

Forced Action

It is a strategy that makes users complete an extra, irrelevant step just to continue using a feature.



Grinding

Grinding uses Gamification to require repeated, labor-intensive actions over time to unlock functionality, which is designed to motivate the user into making in-app purchases to skip the work.



Forced Registration

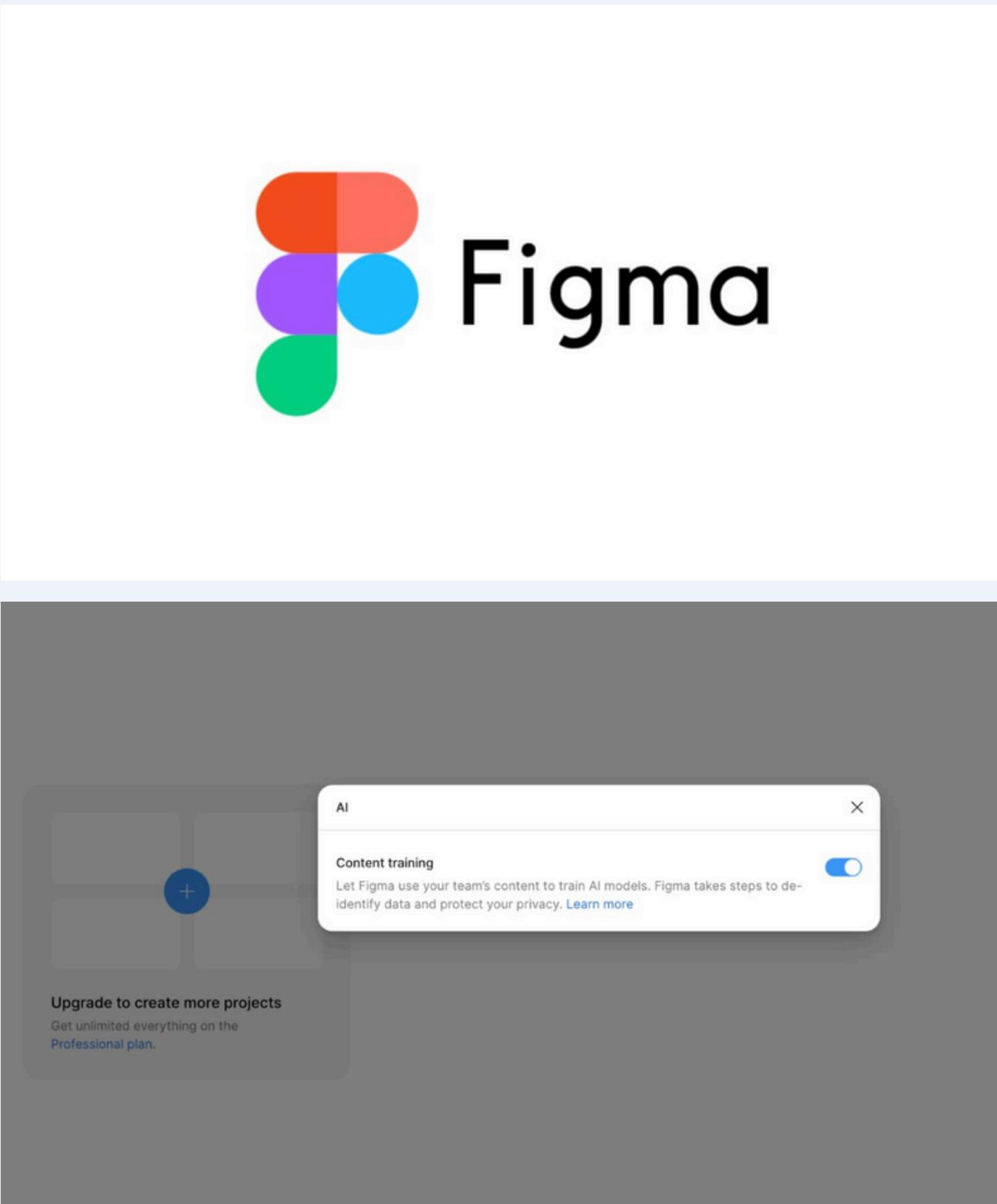
It tricks the user into thinking an account is required to complete an action, compelling them to share unnecessary personal data.



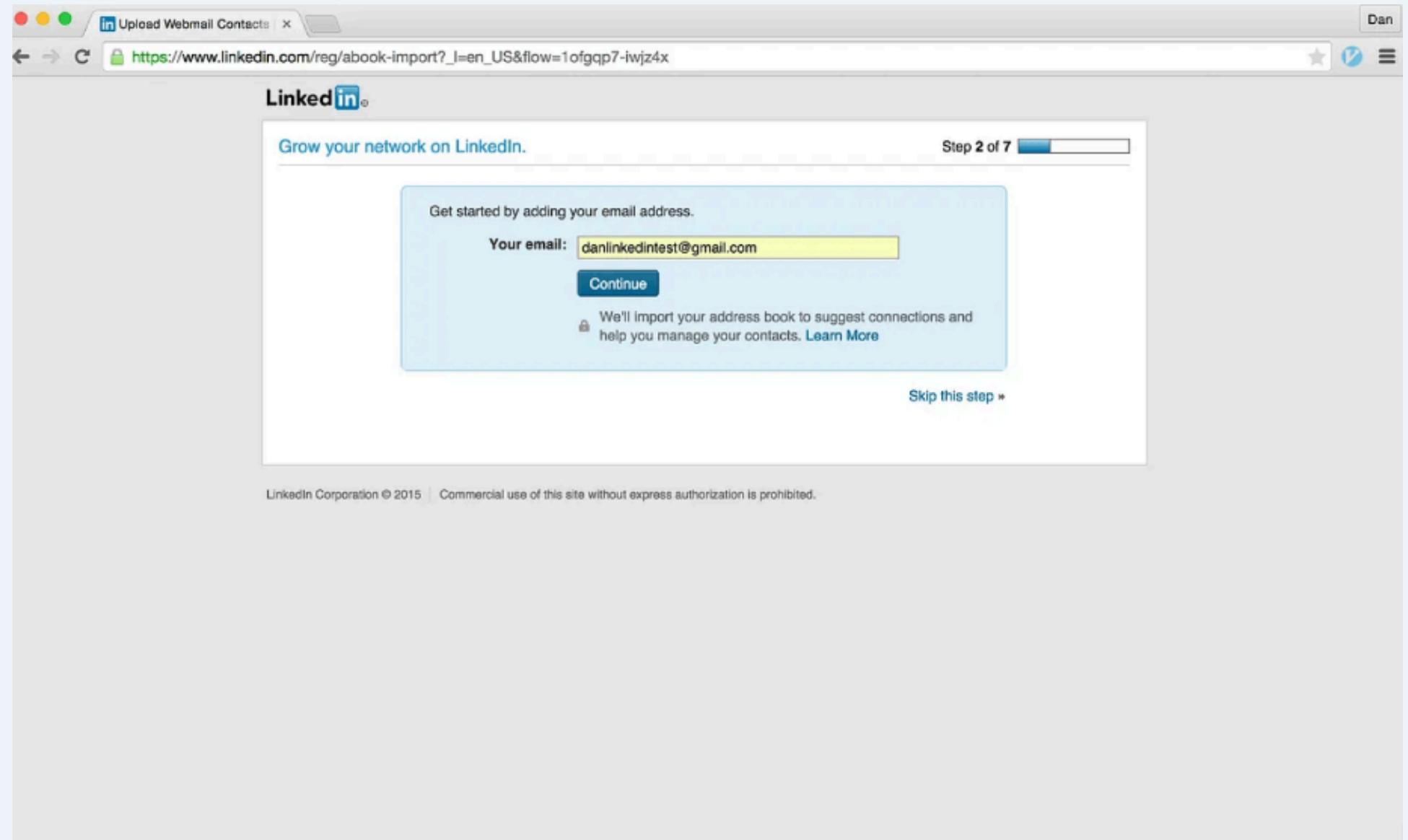
Privacy Zuckering

A service or a website tricks you into sharing more information with it than you really want to.

Figma, 2025



LinkedIn, 2015



Social Engineering

It is a strategy that uses a user's psychological or social biases to make them perform a specific, desired action.

- 1 **Fake Scarcity**
The user is pressured into completing an action because they are presented with a fake indication of limited supply or popularity.
- 2 **Fake Social Proof**
The user is misled into believing a product is more popular or credible than it really is, because they were shown fake reviews, testimonials, or activity messages.
- 3 **Fake Urgency**
The user is pressured into completing an action because they are presented with a fake time limitation.
- 4 **Confirmshaming**
When a product or a service is guiltling or shaming a user for not signing up for some product or service.

The Shopify app “Sales & Stock Counter”

A screenshot of a Shopify product page for a "Tshirt". The product image shows a white t-shirt with the word "SHANGHAI" printed on it. The price is listed as \$250.00 USD. A dropdown menu for size "S" is open. Below the product image, a red-bordered notification box displays "Only 3 Left In Stock" with a fire emoji and "12 Sold Just Today". Below the notification are two buttons: "ADD TO CART" and "BUY IT NOW". A detailed product description follows: "The Shanghai T-Shirt is cut in soft stretch cotton jersey to a fitted silhouette with a contrast heat-pressed. Ribbed crewneck with a center-back slit. Short sleeves. Slim fit. 95% cotton, 5% elastane."

A screenshot of the HeyMerch Sales & Stock Counter app interface. The left sidebar includes links for Home, Orders, Products, Customers, Analytics, Marketing, Discounts, and Apps (selected). Under Sales Channels, Online Store is shown. The main area contains two sections: "Low Stock Counter" and "Sales Counter". Both sections have configuration fields for emoji, number color, number size, text before count, text color, text size, and data generation. A red box highlights the "Data" section where users can choose to "Use the real stock data" or "Generate stock data between 3 and 5".

"Sales Pop".

A screenshot of the Sales Pop app interface. At the top, a smartphone screen shows a "FEATURED COLLECTION" with four shoe products. A notification overlay is displayed, featuring a flame icon and the text "9 customers have bought Fire Wood Stack together with Reebok Crossfit". Below the notification, there is a "Add a custom notification" section. This section includes a dropdown for "Product" (set to "Products") with a red arrow pointing to it, a text input for "Location" (set to "Manually select locations"), a text input for "Customer location (separated by new line)" containing "Eg: San Francisco, United States New York, United States" with a red arrow pointing to it, and three checkboxes: "Popup show at specific pages", "Custom notifications will have random 'time ago' within 12 hours after they are created" (with a red arrow pointing to it), and "There will be 0 new notification(s) created". A "Create now" button is at the bottom.

The Shopify app “Hurrify”

Hurry up! Sale ending in:

00 11 59 46

Days Hrs Mins Sec

Sale Ends Once The Timer Hits Zero!

The screenshot shows the Hurrify app's interface. On the left is a sidebar with icons for Timer Look, Campaigns, Banners, Help me, and Privacy Policy. The main area has tabs for All Campaigns and New Campaign. A 'Campaign Type' dropdown is set to '1. Simple Text'. Below it is a rich text editor with bold, italic, underline, and strikethrough buttons, and font size and style options. A placeholder text 'Hurry up! Sale ending in:' is present. A note at the bottom says: 'Please note that Progress bar is not supported in the 'Custom Texy Only' option. If you want to display a progress bar, please choose a different option.' The 'Campaign Period' section includes a 'Timer Type' dropdown (set to 'Countdown Amount'), a 'Display Timer?' toggle (on), and a time input field with fields for Days (0), Hours (12), Minutes (0), and Seconds (0). An 'Action When Timer ends' dropdown is at the bottom.

eCommerce website mimedic.com sells first aid packs and medical supplies.

MyMedic would like to send you notifications.

You'll be notified about the latest tips, sales, and discounts, so you and everyone you know can stay alive.

[no, I don't want to stay alive](#) [Allow](#)

My Medic Gear is a huge value for the dollar, my kits has more gear than other competitors that cost much more.

Why It Matters | Laws Regulating Dark Patterns



Digital Services Act (DSA)

Article 25 specifically prohibits online platforms from designing interfaces that deceive, manipulate, or materially impair a user's ability to make free and informed decisions.



General Data Protection Regulation (GDPR)

Dark patterns often violate the principles of fairness and transparency (Art. 5) and make it impossible to obtain freely given, specific, informed, and unambiguous consent (Art. 4, 7), such as using pre-ticked boxes or tricky consent banners.



Unfair Commercial Practices Directive (UCPD)

It prohibits misleading and aggressive commercial practices, making it applicable to dark patterns such as Fake Urgency and Hidden Costs .



Federal Trade Commission (FTC)

The FTC targets deceptive practices like the "Roach Motel" and Hidden Fees, and Unauthorized Transactions, and has issued a policy statement specifically targeting dark patterns found in subscription models.

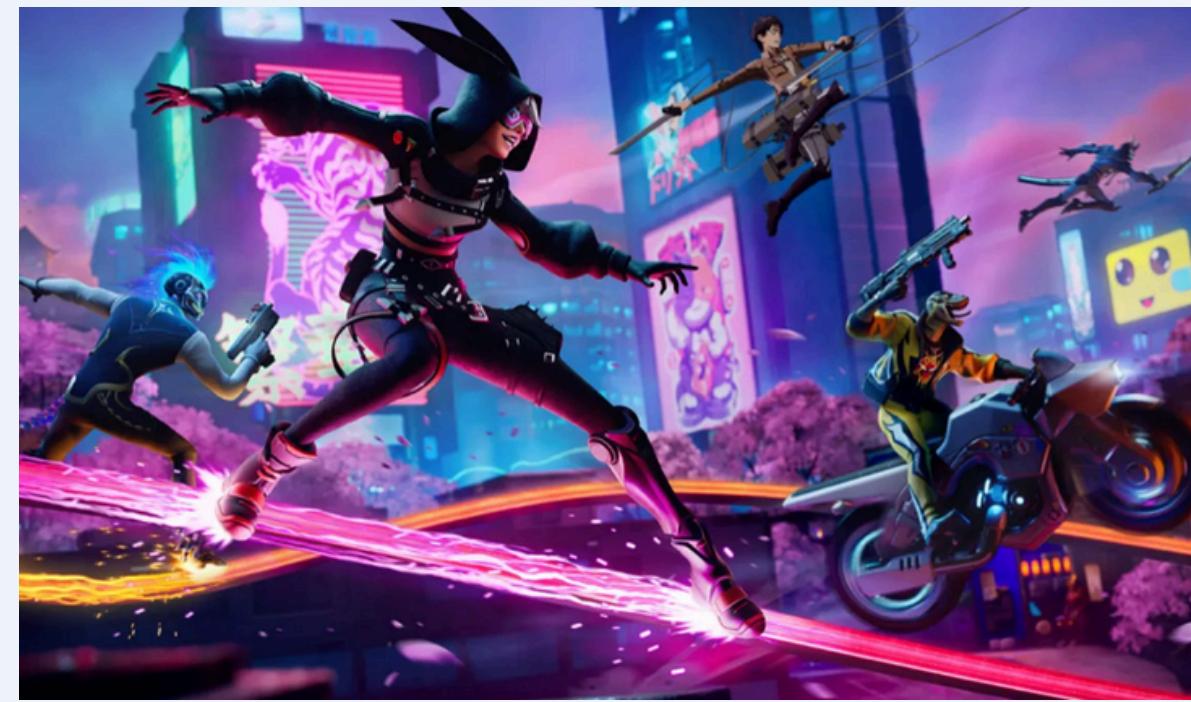


The Amazon Prime "Iliad" Case

Amazon used **Obstruction (Roach Motel)** to make the cancellation process for Prime subscription excessively difficult. Amazon internally codenamed the cancellation flow "Iliad," referencing the long, arduous journey of Homer's epic poem.

Outcome:

Amazon agreed to a massive **\$2.5 billion** settlement (\$1 billion civil penalty and \$1.5 billion in consumer refunds) with the FTC. - 2025

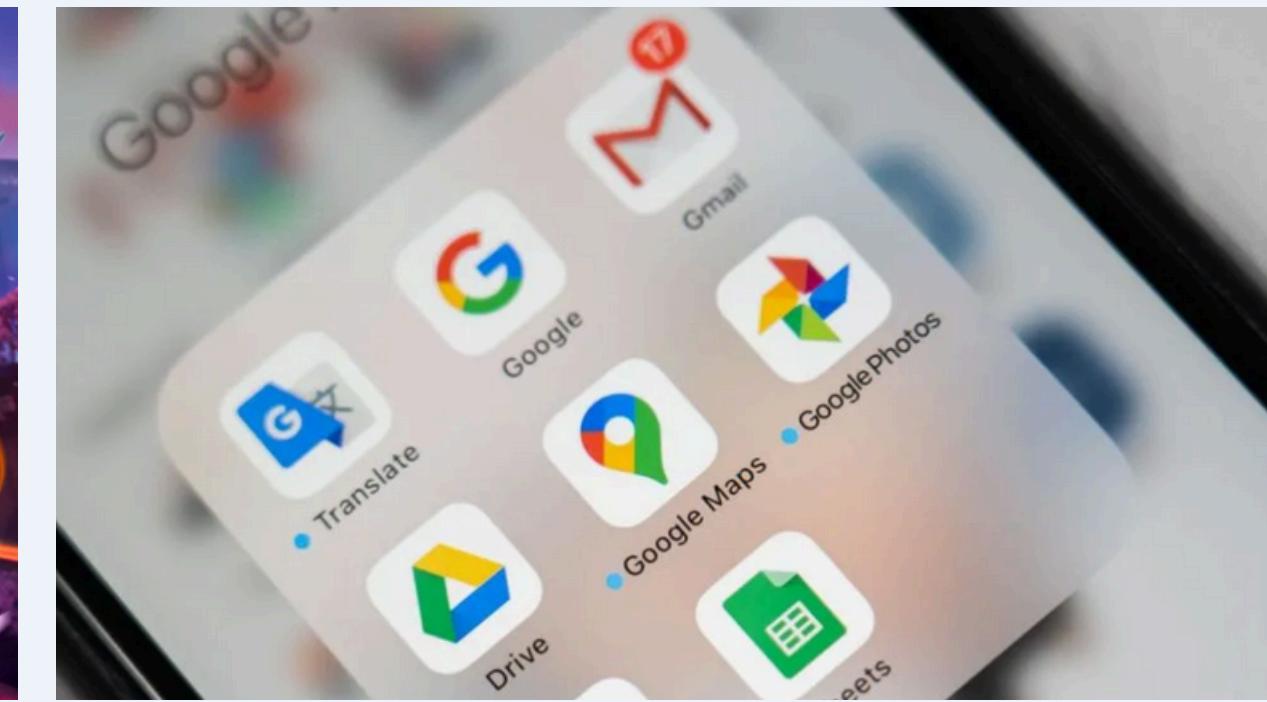


Epic Games (Fortnite) In-Game Purchase Manipulation

Epic Games used **Forced Action** meant players made accidental, instant purchases due to confusing controller buttons; and **Obstruction (Roach Motel)** made the refund process for these unintentional purchases nearly impossible.

Outcome:

Epic Games was fined **\$245 million** by the FTC to be used for customer refunds.
- 2023



Google Deceptive Location Tracking

Google used **Misdirection** and **Confirmshaming** to hide tracking. The company used confusing settings to gather data even after users said no, and it repeatedly pushed users to enable services using false excuses. The settlements ordered UX/UI changes for better transparency.

Outcome:

Google has agreed to pay nearly **\$392 million** in a settlement with 40 states. - 2022

Any Questions?

