

Designing a Data Subject Access Rights Tool

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Collaborators: Elleen Pan, Olufunmilola Obielodan, Aurelie Roubinowitz, Luca Dovichi, Sophie Veys, Daniel Serrano, Madison Stamos, Margot Herman, Nathan Reitinger, Michelle L. Mazurek, and Blase Ur.



Transparent information, communication and modalities for the exercise of the rights of the data subject

1. ¹The controller shall take appropriate measures to provide any information referred to in Articles 13 and 14 and any communication under Articles 15 to 22 and 34 relating to processing to the data subject in a **concise, transparent, intelligible and easily accessible form, using clear and plain language**, in particular for any information addressed specifically to a child. ²The information shall be provided in writing, or by other means, including, where appropriate, by electronic means. ³When requested by the data subject, the information may be provided orally, provided that the identity of the data subject is proven by other means.

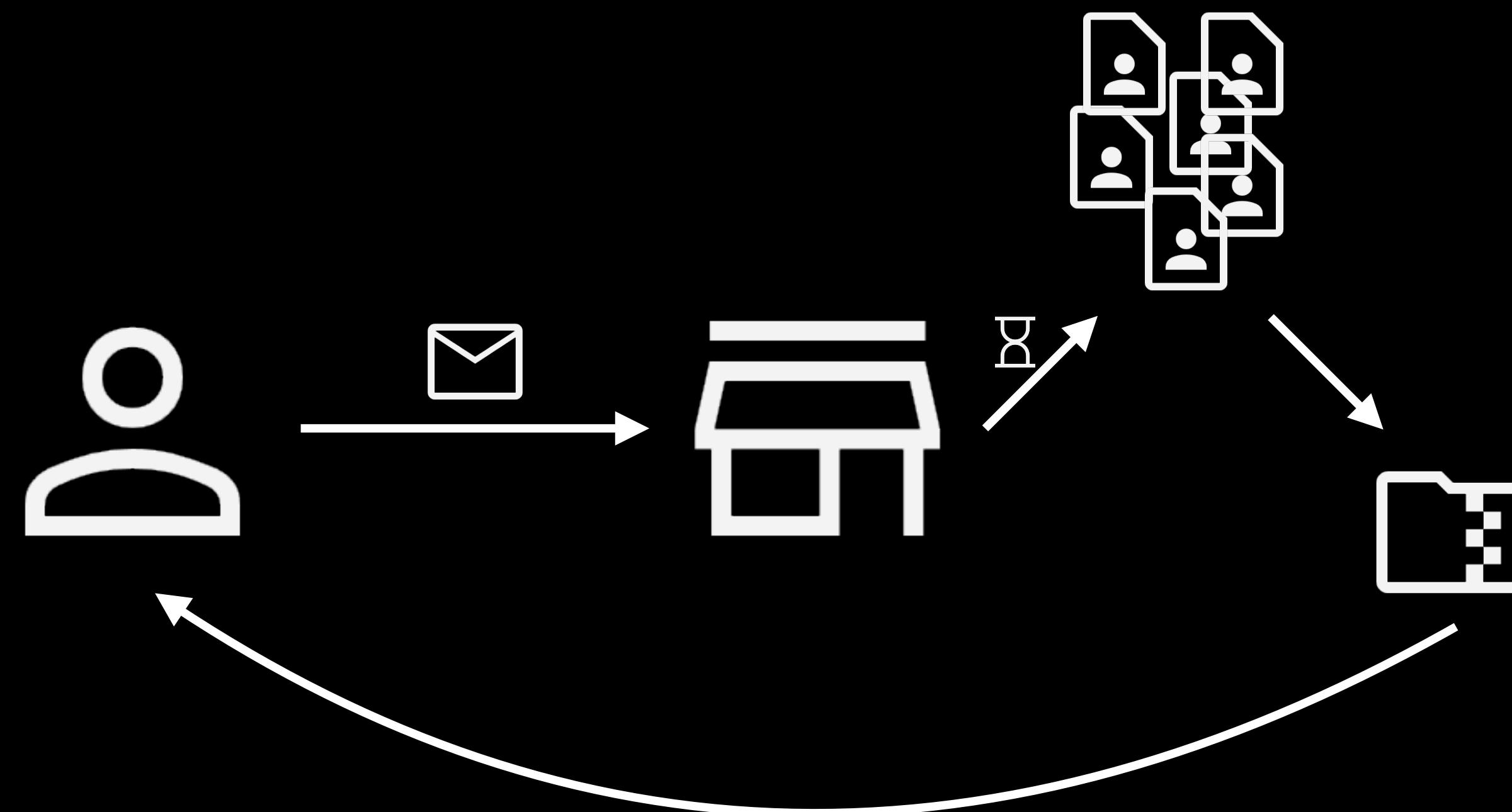
Right of access by the data subject

1. The data subject shall have the right to obtain from the controller confirmation as to whether or not personal data concerning him or her are being processed, and, where that is the case, **access to the personal data** and the following information:

- (a) the purposes of the processing;
- (b) the categories of personal data concerned;
- (c) the recipients or categories of recipient to whom the personal data have been or will be disclosed, in particular recipients in third countries or international organizations;
- (d) ...



Data Subject Access Requests (DSAR)



Data Subject Access Requests (DSAR)

The screenshot shows a web browser window for 'Account Settings • Letterboxd'. The URL is <https://letterboxd.com/settings/data>. The page title is 'Account Settings'. The top navigation bar includes 'LETTERBOXD' with a logo, a user profile for 'USENIX_MOVIE_FAN', and links for 'FILMS', 'LISTS', 'MEMBERS', 'JOURNAL', a search icon, and a 'LOG IN' button. Below the title, there's a message to 'Upgrade to PRO for additional features' with a 'SUBSCRIBE' button. The main navigation bar has tabs: PROFILE (green), AUTH, AVATAR, CONNECTIONS, NOTIFICATIONS, STORES & STREAMING, and DATA (underlined). To the right of the tabs is a 'Deactivate account' link. The main content area is titled 'Account data' and contains buttons for 'IMPORT YOUR DATA' and 'EXPORT YOUR DATA'. At the bottom, there's a footer with links for 'About', 'News', 'Pro', 'Apps', 'Podcast', 'Year in Review', 'Gift Guide', 'Help', 'Terms', 'API', 'Contact', and social media icons for X, ©, Facebook, Instagram, TikTok, and YouTube. A copyright notice at the bottom states: '© Letterboxd Limited. Made by fans in Aotearoa New Zealand. Film data from TMDb. Mobile site.'

Google Takeout

https://takeout.google.com

Google Account

← Google Takeout

Your account, your data.
Export a copy of content in your Google Account to back it up or use it with a service outside of Google.

YOUR EXPORTS

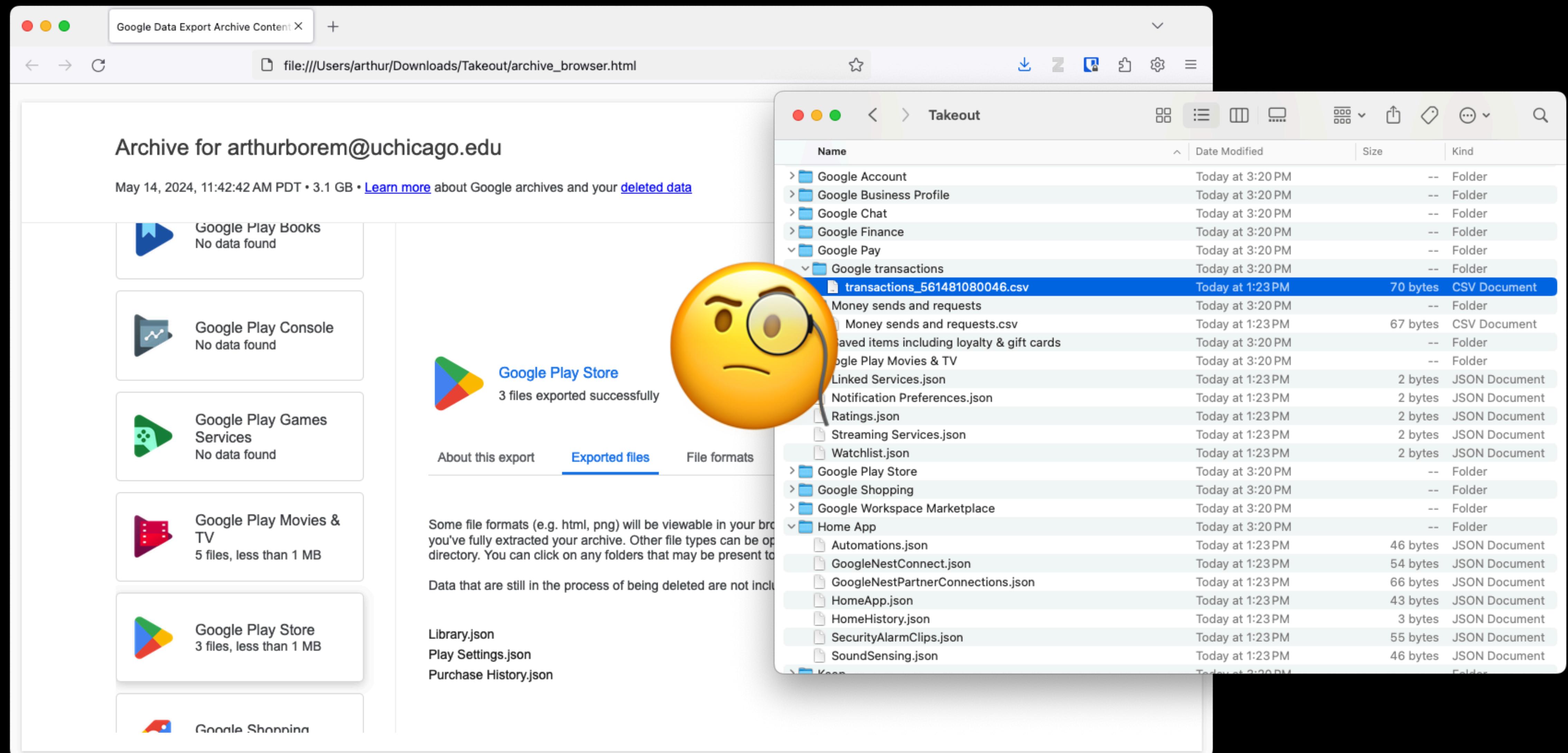
Your latest export
45 products on May 14, 2024

[Download](#) [Manage exports](#)

CREATE A NEW EXPORT

1 Select data to include 52 of 53 selected

Data Exports



The image shows a Mac desktop with a browser window and a Finder window side-by-side.

Browser Window (Google Data Export Archive Content):

- Archive for arthurborem@uchicago.edu**
- May 14, 2024, 11:42:42 AM PDT • 3.1 GB • [Learn more](#) about Google archives and your [deleted data](#)
- Google Play Books**: No data found
- Google Play Console**: No data found
- Google Play Games Services**: No data found
- Google Play Movies & TV**: 5 files, less than 1 MB
- Google Play Store**: 3 files, less than 1 MB
- Google Shopping**

Finder Window (Takeout):

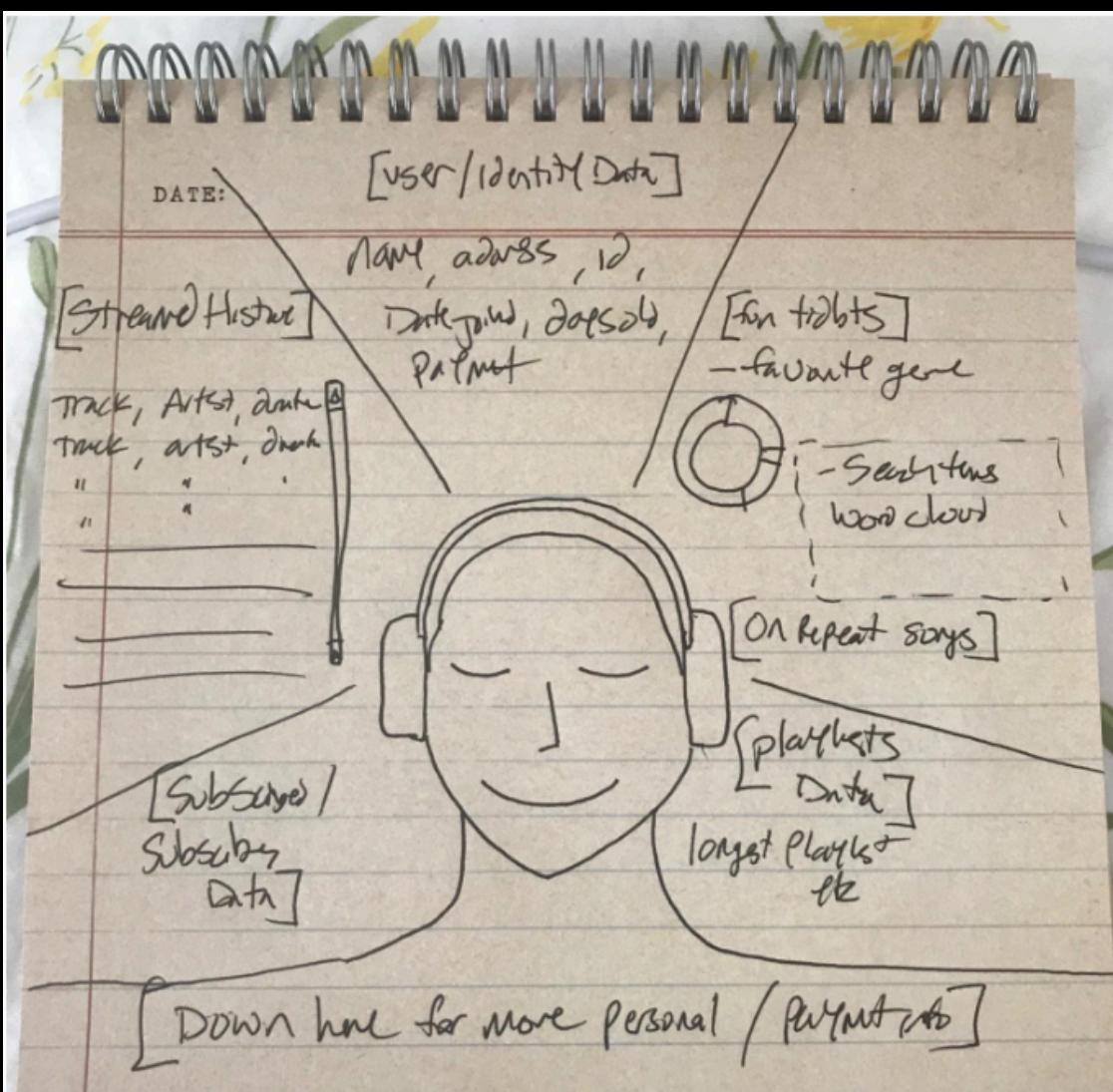
Name	Date Modified	Size	Kind
Google Account	Today at 3:20 PM	--	Folder
Google Business Profile	Today at 3:20 PM	--	Folder
Google Chat	Today at 3:20 PM	--	Folder
Google Finance	Today at 3:20 PM	--	Folder
Google Pay	Today at 3:20 PM	--	Folder
Google transactions	Today at 3:20 PM	--	Folder
transactions_561481080046.csv	Today at 1:23 PM	70 bytes	CSV Document
Money sends and requests	Today at 3:20 PM	--	Folder
Money sends and requests.csv	Today at 1:23 PM	67 bytes	CSV Document
Saved items including loyalty & gift cards	Today at 3:20 PM	--	Folder
Google Play Movies & TV	Today at 3:20 PM	--	Folder
Linked Services.json	Today at 1:23 PM	2 bytes	JSON Document
Notification Preferences.json	Today at 1:23 PM	2 bytes	JSON Document
Ratings.json	Today at 1:23 PM	2 bytes	JSON Document
Streaming Services.json	Today at 1:23 PM	2 bytes	JSON Document
Watchlist.json	Today at 1:23 PM	2 bytes	JSON Document
Google Play Store	Today at 3:20 PM	--	Folder
Google Shopping	Today at 3:20 PM	--	Folder
Google Workspace Marketplace	Today at 3:20 PM	--	Folder
Home App	Today at 3:20 PM	--	Folder
Automations.json	Today at 1:23 PM	46 bytes	JSON Document
GoogleNestConnect.json	Today at 1:23 PM	54 bytes	JSON Document
GoogleNestPartnerConnections.json	Today at 1:23 PM	66 bytes	JSON Document
HomeApp.json	Today at 1:23 PM	43 bytes	JSON Document
HomeHistory.json	Today at 1:23 PM	3 bytes	JSON Document
SecurityAlarmClips.json	Today at 1:23 PM	55 bytes	JSON Document
SoundSensing.json	Today at 1:23 PM	46 bytes	JSON Document
Kiosk	Today at 3:20 PM	--	Folder

Focus groups

Co-design

Ideation

Sophie Veys, Daniel Serrano, Madison Stamos, Margot Herman, Nathan Reitinger, Michelle L. Mazurek, Blase Ur. **Pursuing Usable and Useful Data Downloads Under GDPR/CCPA Access Rights via Co-Design.** In *Proc. SOUPS*, 2021.



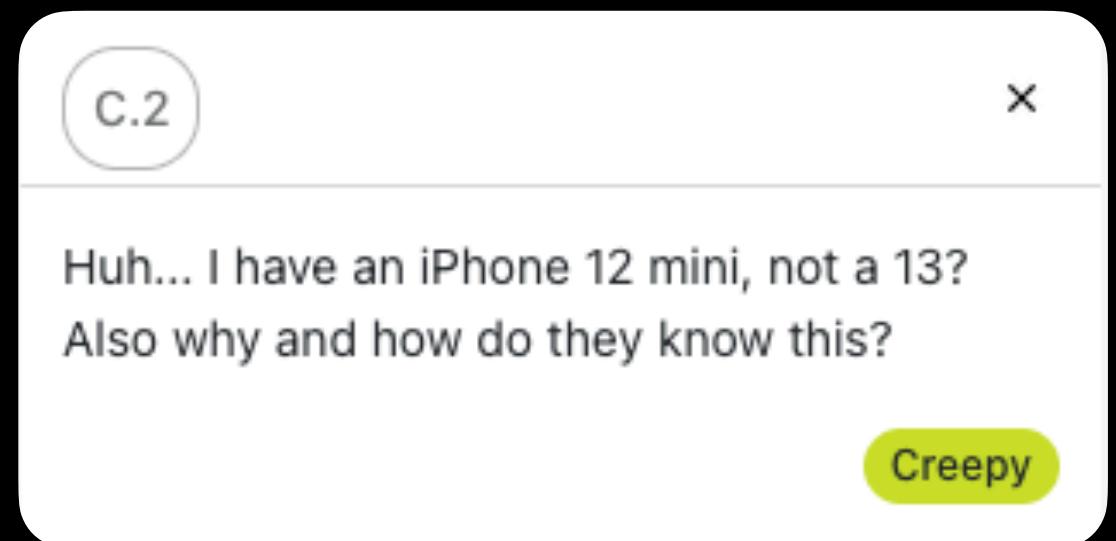
Data format

Data quantity

Data annotation tool

Survey

Data export aggregation



Arthur Borem, Elleen Pan, Olufunmilola Obielodan, Aurelie Roubinowitz, Luca Dovichi, Michelle L. Mazurek, Blase Ur. **Data Subjects' Reactions to Exercising Their Right of Access.** In *Proc. USENIX Security*, 2024.



What do Users Want From Data Exports?

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Users want to know...

- ♂ 1. *What* data is being stored.

Users want to know...

- ✓ 2. *How data is being stored.*

Users want to know...

- ④ 3. *How data is being used.*

Users want to know...

- ✖ 4. *High-level takeaways* from the data.

Barriers to Accessibility and Clarity in Data Exports

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💡 Data Illuminator Downloading My Data

About

2023_2.json

Upload zip file

Clear all data

Search for a term...

x

go

↑

↓

0 out of 0

ts: 2022-04-12T17:19:00Z

username: arthursbb

C.2 platform: iOS 15.4.1 (iPhone13,1)

ms_played: 218600

conn_country: US

ip_addr_decrypted: 172.58.141.134

user_agent_decrypted: unknown

C.1 master_metadata_track_name: Clube Da Esquina N° 2

C.1 master_metadata_album_artist_name: Milton Nascimento

C.1 master_metadata_album_album_name: Clube Da Esquina

spotify_track_uri: spotify:track:1sdW2whJr8CLa6bMA67LPQ

episode_name: null

episode_show_name: null

spotify_episode_uri: null

reason_start: trackdone

previous 1 2 3 4 5 6 7 ... 7458 7459 7460 next

Instructions

Your notes

Add note

C.2

Huh... I have an iPhone 12 mini, not a 13?
Also why and how do they know this?

Creepy

C.1

Wow, one of my favorite albums!

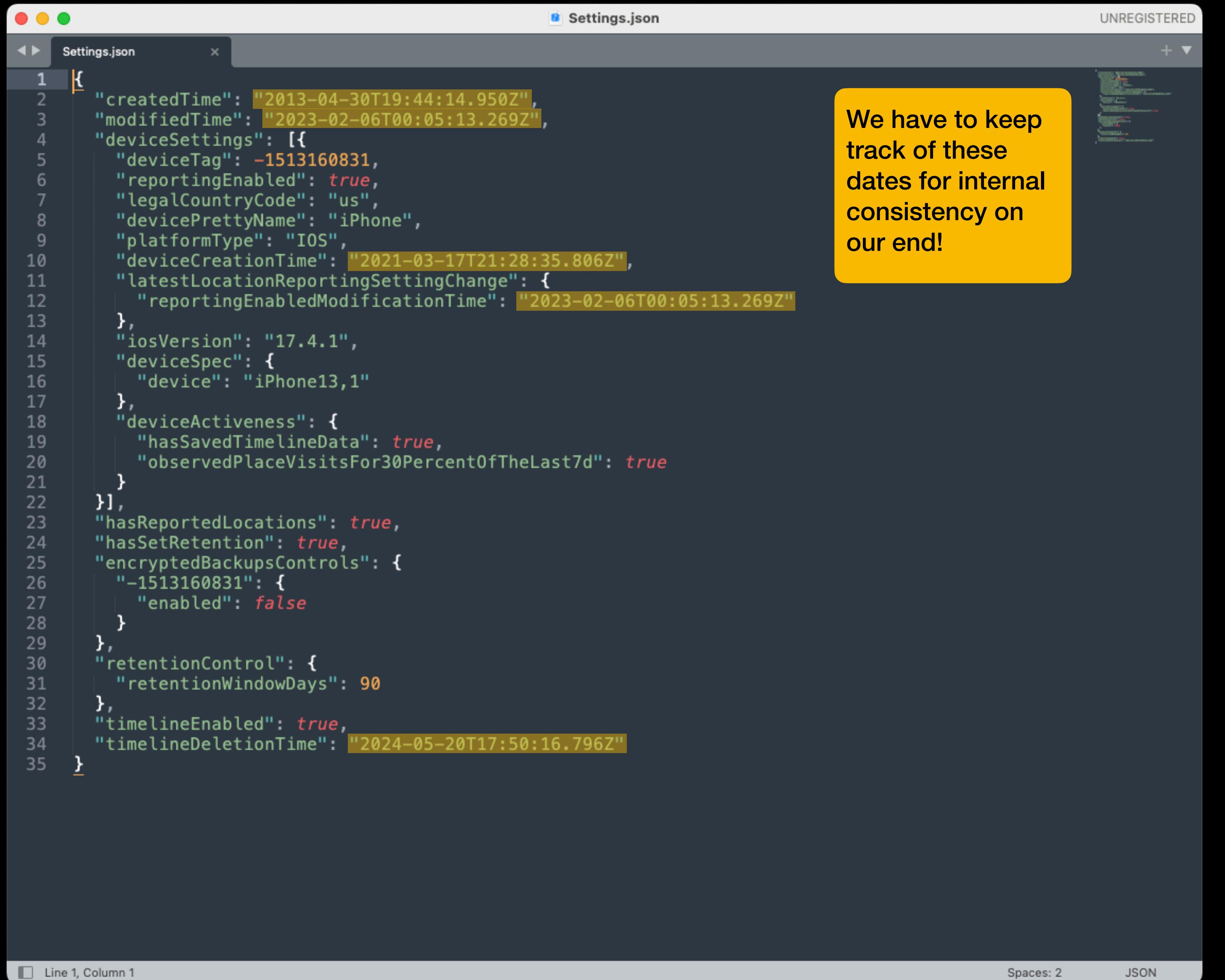
Interesting

Takeout 2

Name	Date Modified
Google Shopping	Today at 7:11AM
Google Store	Today at 7:11AM
Google Workspace Marketplace	Today at 7:11AM
Groups	Today at 7:11AM
Home App	Today at 7:11AM
Keep	Today at 7:11AM
Location History (Timeline)	Today at 7:18 AM
Records.json	Yesterday at 3:17PM
Semantic Location History	Today at 7:18 AM
2024	Today at 7:11AM
2024_APRL.json	Yesterday at 3:17PM
2024_FEBRUARY.json	Yesterday at 3:17PM
2024_MARCH.json	Yesterday at 3:17PM
2024_MAY.json	Yesterday at 3:17PM
Settings.json	Yesterday at 3:17PM
Tombstones.csv	Yesterday at 3:17PM
Mail	Today at 7:11AM
Maps	Today at 7:17 AM
Added dishes, products, activities	Today at 7:11AM
Electric vehicle settings	Today at 7:11AM
My labeled places	Today at 7:11AM
Labeled places.json	Yesterday at 3:17PM
Photos Contribution	Today at 7:11AM
Questions and Answers	Today at 7:11AM
Questions and Answers.json	Yesterday at 3:17PM
Requests for services	Today at 7:11AM
Suggested edits to business establishments	Today at 7:11AM
Your local followed places	Today at 7:11AM
Your personalization feedback	Today at 7:11AM

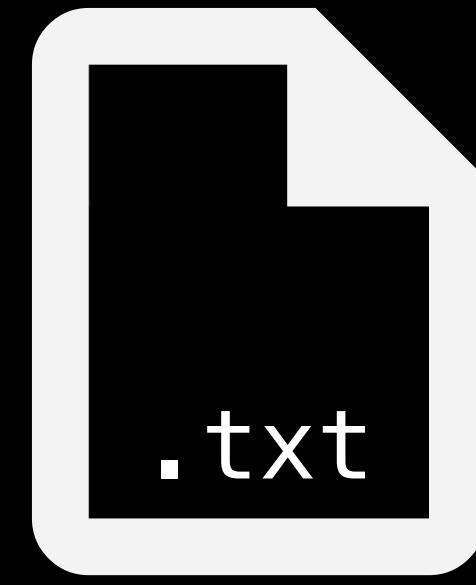
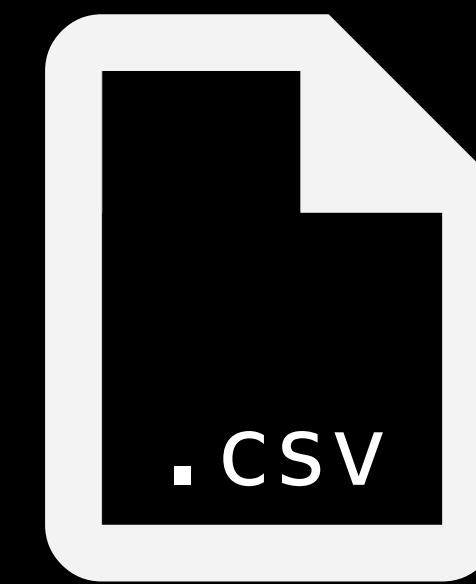
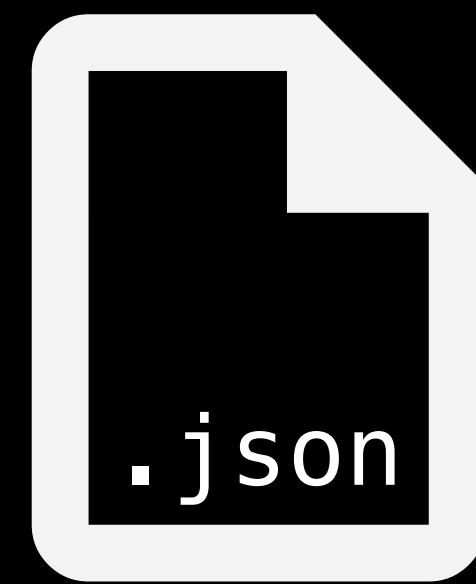
Settings.json

```
1  {
2   "createdTime": "2013-04-30T19:44:14.950Z",
3   "modifiedTime": "2023-02-06T00:05:13.269Z",
4   "deviceSettings": [
5     "deviceTag": -1513160831,
6     "reportingEnabled": true,
7     "legalCountryCode": "us",
8     "devicePrettyName": "iPhone",
9     "platformType": "IOS",
10    "deviceCreationTime": "2021-03-17T21:28:28.000Z",
11    "latestLocationReportingSettingChange": {
12      "reportingEnabledModificationTime": "2023-02-06T00:05:13.269Z"
13    },
14    "iosVersion": "17.4.1",
15    "deviceSpec": {
16      "device": "iPhone13,1"
17    },
18    "deviceActiveness": {
19      "hasSavedTimelineData": true,
20      "observedPlaceVisitsFor30PercentOfThe
21    }
22  ],
23  "hasReportedLocations": true,
24  "hasSetRetention": true,
25  "encryptedBackupsControls": {
26    "-1513160831": {
27      "enabled": false
28    }
29  },
30  "retentionControl": {
31    "retentionWindowDays": 90
32  },
33  "timelineEnabled": true,
34  "timelineDeletionTime": "2024-05-20T17:50:16.796Z"
35 }
```



```
1  {
2    "createdTime": "2013-04-30T19:44:14.950Z",
3    "modifiedTime": "2023-02-06T00:05:13.269Z",
4    "deviceSettings": [
5      {
6        "deviceTag": -1513160831,
7        "reportingEnabled": true,
8        "legalCountryCode": "us",
9        "devicePrettyName": "iPhone",
10       "platformType": "IOS",
11       "deviceCreationTime": "2021-03-17T21:28:35.806Z",
12       "latestLocationReportingSettingChange": {
13         "reportingEnabledModificationTime": "2023-02-06T00:05:13.269Z"
14       },
15       "iosVersion": "17.4.1",
16       "deviceSpec": {
17         "device": "iPhone13,1"
18       },
19       "deviceActiveness": {
20         "hasSavedTimelineData": true,
21         "observedPlaceVisitsFor30PercentOfTheLast7d": true
22       }
23     ],
24     "hasReportedLocations": true,
25     "hasSetRetention": true,
26     "encryptedBackupsControls": {
27       "-1513160831": {
28         "enabled": false
29       }
30     },
31     "retentionControl": {
32       "retentionWindowDays": 90
33     },
34     "timelineEnabled": true,
35     "timelineDeletionTime": "2024-05-20T17:50:16.796Z"
36   }
```

We have to keep track of these dates for internal consistency on our end!



File: 2023_2.json

ts: 2022-04-12T17:19:00Z

username: arthursbb

C.2 platform: iOS 15.4.1 (iPhone13,1)

ms_played: 218600

conn_country: US

ip_addr_decrypted: 172.58.141.134

user_agent_decrypted: unknown

C.1 master_metadata_track_name: Clube Da Esquina Nº 2

C.1 master_metadata_album_artist_name: Milton Nascimento

C.1 master_metadata_album_album_name: Clube Da Esquina

spotify_track_uri: spotify:track:1sdW2whJr8CLa6bMA67LPQ

episode_name: null

episode_show_name: null

spotify_episode_uri: null

reason_start: trackdone

Instructions

previous 1 2 3 4 5 6 7 ... 7458 7459 7460 next

All notes ↑ Submit

Your notes

C.2

Huh... I have an iPhone 12 mini, not a 13? Also why and how do they know this? Creepy

C.1

Wow, one of my favorite albums! Interesting

This screenshot shows the Data Illuminator interface with a JSON file named '2023_2.json' loaded. The interface displays various data fields with their values. Some fields are highlighted with colored backgrounds: 'platform' (green), 'master_metadata_*' fields (pink), and 'episode_*' fields (light blue). A sidebar on the right shows 'Your notes' with two entries: one from 'C.2' and one from 'C.1', each with a 'Creepy' and 'Interesting' tag respectively.

variable	type	description
deviceTag	integer	A unique, negative number for each of your devices
...

Key Features for Usable Data Exports

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Track	Album artist	Track start time	+
I Got the News	Steely Dan	04/19/2023 at 9:52 AM (CST)	
Midnight Sun	Nilüfer Yanya	04/19/2023 at 10:01 AM (CST)	
Salty Road Dogs Victory Anthem	Alabaster DePlume	04/19/2023 at 10:06 AM (CST)	

```
{  
  "ts": "2023-04-19T15:10:06Z",  
  "username": "arthursbb",  
  "platform": "osx",  
  "ms_played": 3882,  
  "conn_country": "US",  
  "ip_addr_decrypted": "98.206.160.59",  
  "user_agent_decrypted": "unknown",  
  "master_metadata_track_name": "Salty Road Dogs Victory Anthem",  
  "master_metadata_album_artist_name": "Alabaster DePlume",  
  "master_metadata_album_album_name": "Salty Road Dogs Victory Anthem",  
  "spotify_track_uri": "spotify:track:1wNz8Jnby57eQMThNoMDB4",  
  "episode_name": null,  
  "episode_show_name": null,  
  "spotify_episode_uri": null,  
  "reason_start": "clickrow",  
  "reason_end": "remote",  
  "shuffle": false,  
  "skipped": false,  
  "offline": false,  
  "offline_timestamp": 1681917002,  
  "incognito_mode": false  
},
```

This is a UNIX timestamp.
It's the same as April 19, 2023 at 19:58am (CST).
We keep it in milliseconds to maintain consistency across your devices.

RIVERDANCE	Beyoncé	04/19/2023 at 5:31 PM (CST)
Midnight Sun	Nilüfer Yanya	04/21/2023 at 3:11 PM (CST)

1. Definitions and explanations in-band

Search...

Track	Album artist	Track start time	+
▼ I Got the News	Steely Dan	04/19/2023 at 9:52 AM (CST)	
▼ Midnight Sun	Nilüfer Yanya	04/19/2023 at 10:01 AM (CST)	
^ Salty Road Dogs Victory Anthem	Alabaster DePlume	04/19/2023 at 10:06 AM (CST)	

```
{
  "ts": "2023-04-19T15:10:06Z",
  "username": "arthursbb",
  "platform": "osx",
  "ms_played": 3882,
  "conn_country": "US",
  "ip_addr_decrypted": "98.206.160.59",
  "user_agent_decrypted": "unknown",
  "master_metadata_track_name": "Salty Road Dogs Victory Anthem",
  "master_metadata_album_artist_name": "Alabaster DePlume",
  "master_metadata_album_album_name": "Salty Road Dogs Victory Anthem",
  "spotify_track_uri": "spotify:track:1wNz8Jnby57eQMThNoMDB4",
  "episode_name": null,
  "episode_show_name": null,
  "spotify_episode_uri": null,
  "reason_start": "clickrow",
  "reason_end": "remote",
  "shuffle": false,
  "skipped": false,
  "offline": false,
  "offline_timestamp": 1681917002,
  "incognito_mode": false
},
```

▼ RIVERDANCE	Beyoncé	04/19/2023 at 5:31 PM (CST)
▼ Midnight Sun	Nilüfer Yanya	04/21/2023 at 3:11 PM (CST)

2. Searching and filtering

Search...

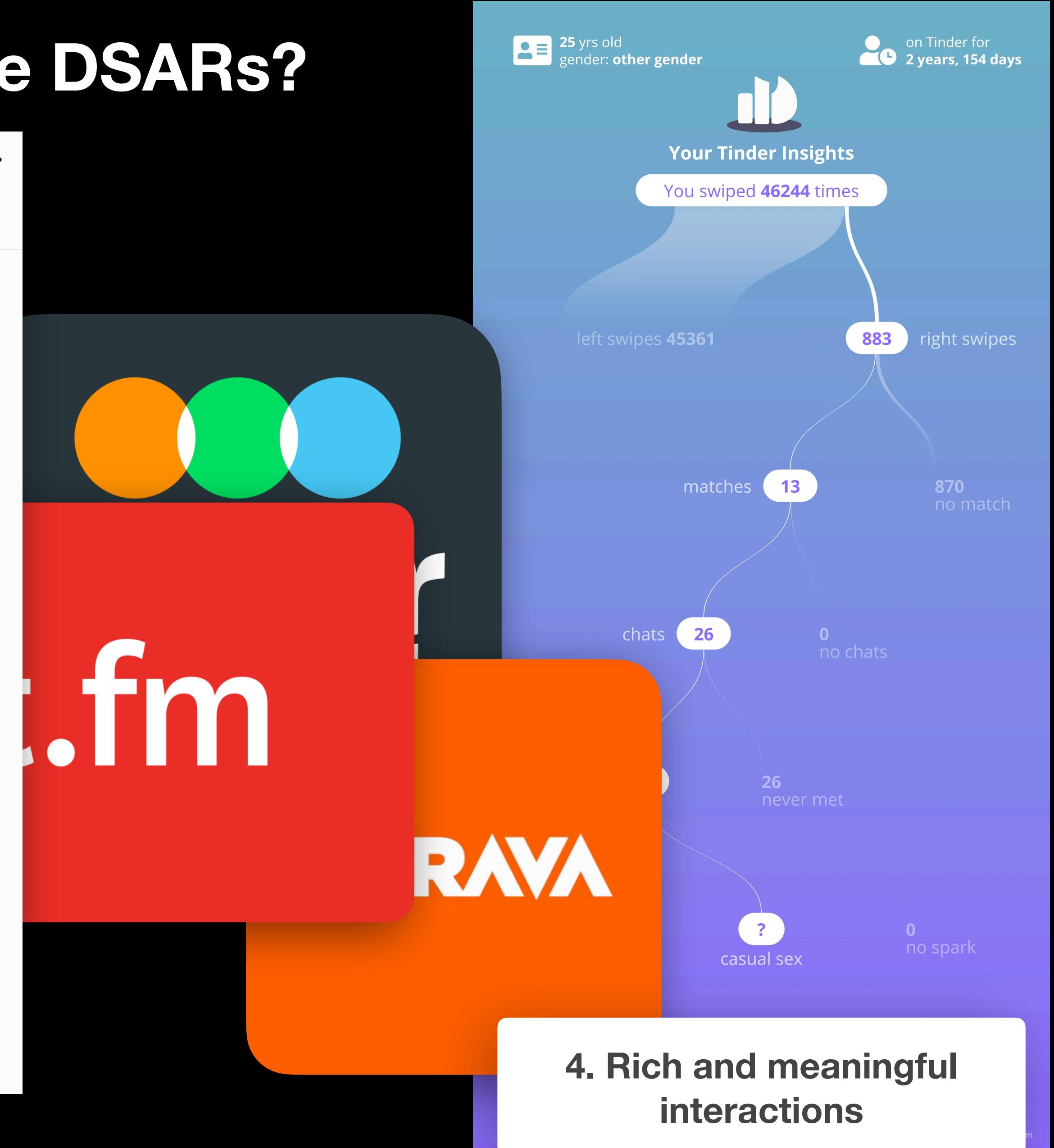
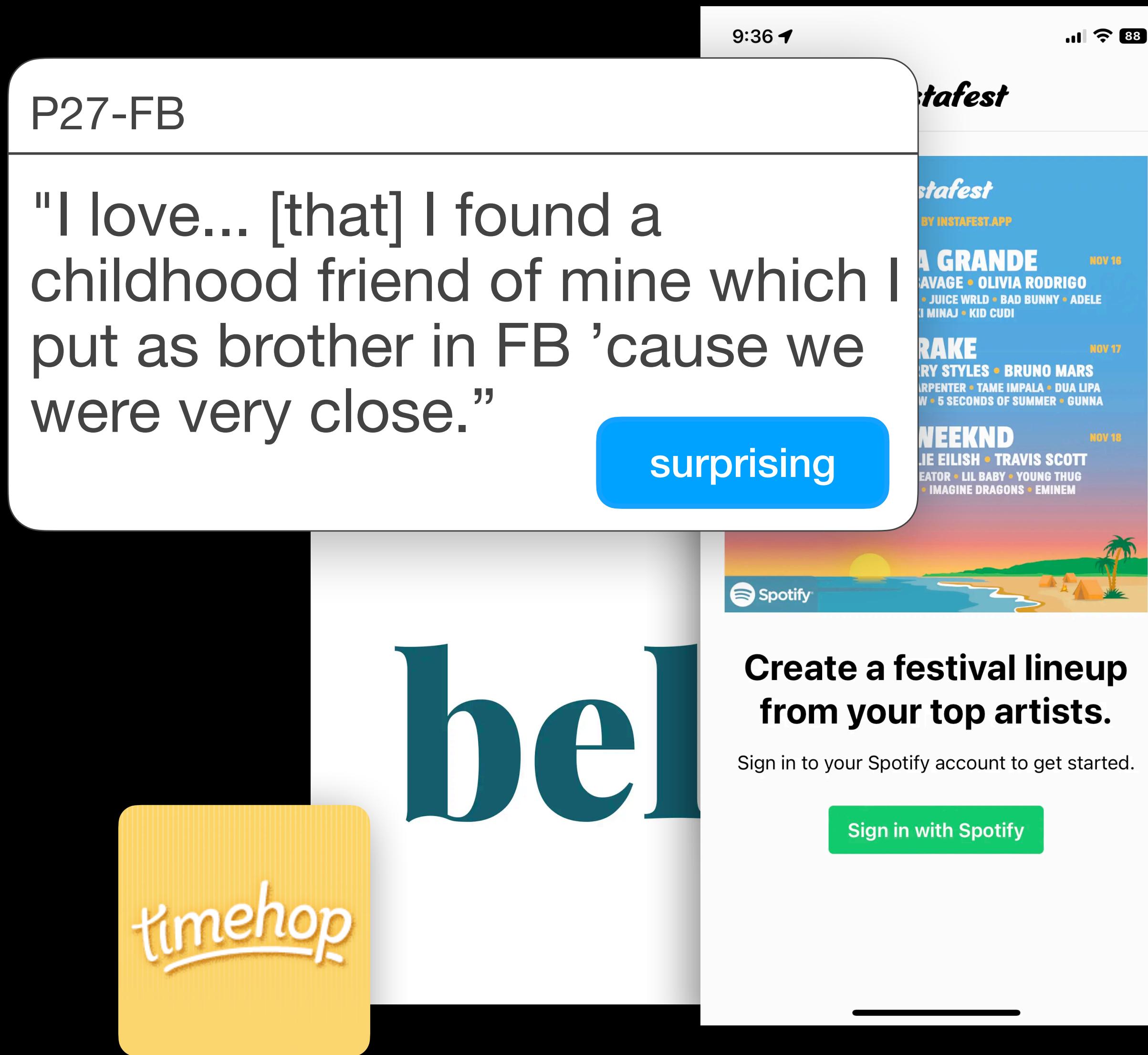
Track	Album artist	Track start time	+
▼ I Got the News	Steely Dan	04/19/2023 at 9:52 AM (CST)	<input checked="" type="checkbox"/>
▼ Midnight Sun	Nilüfer Yanya	04/19/2023 at 10:01 AM (CST)	<input checked="" type="checkbox"/>
^ Salty Road Dogs Victory Anthem	Alabaster DePlume	04/19/2023 at 10:06 AM (CST)	<input checked="" type="checkbox"/>

```
{
  "ts": "2023-04-19T15:10:06Z",
  "username": "arthursbb",
  "platform": "osx",
  "ms_played": 3882,
  "conn_country": "US",
  "ip_addr_decrypted": "98.206.160.59",
  "user_agent_decrypted": "unknown",
  "master_metadata_track_name": "Salty Road Dogs Victory Anthem",
  "master_metadata_album_artist_name": "Alabaster DePlume",
  "master_metadata_album_album_name": "Salty Road Dogs Victory Anthem",
  "spotify_track_uri": "spotify:track:1wNz8Jnby57eQMThNoMDB4",
  "episode_name": null,
  "episode_show_name": null,
  "spotify_episode_uri": null,
  "reason_start": "clickrow",
  "reason_end": "remote",
  "shuffle": false,
  "skipped": false,
  "offline": false,
  "offline_timestamp": 1681917002,
  "incognito_mode": false
},
```

▼ RIVERDANCE	Beyoncé	04/19/2023 at 5:31 PM (CST)	<input checked="" type="checkbox"/>
▼ Midnight Sun	Nilüfer Yanya	04/21/2023 at 3:11 PM (CST)	<input checked="" type="checkbox"/>

3. Data deletion/
modification in-band

Would people even want to make DSARs?



Thanks!

Users want to know:

- ✖ 1. *What* data is being stored.
- ✓ 2. *How* data is being stored.
- ✖ 3. *How* data is being **used**.
- ✖ 4. *High-level takeaways* from the data.

Key data export features:

- 1. Definitions and explanations in-band.
- 2. Searching and filtering.
- 3. Data deletion/modification in-band.
- 4. Rich and meaningful interactions.

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Collaborators: Elleen Pan, Olufunmilola Obielodan, Aurelie Roubinowitz, Luca Dovichi, Sophie Veys, Daniel Serrano, Madison Stamos, Margot Herman, Nathan Reitinger, Michelle L. Mazurek, and Blase Ur.