

Designing a Data Subject Access Rights Tool

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



Art. 12 GDPR

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.

Art. 15 GDPR

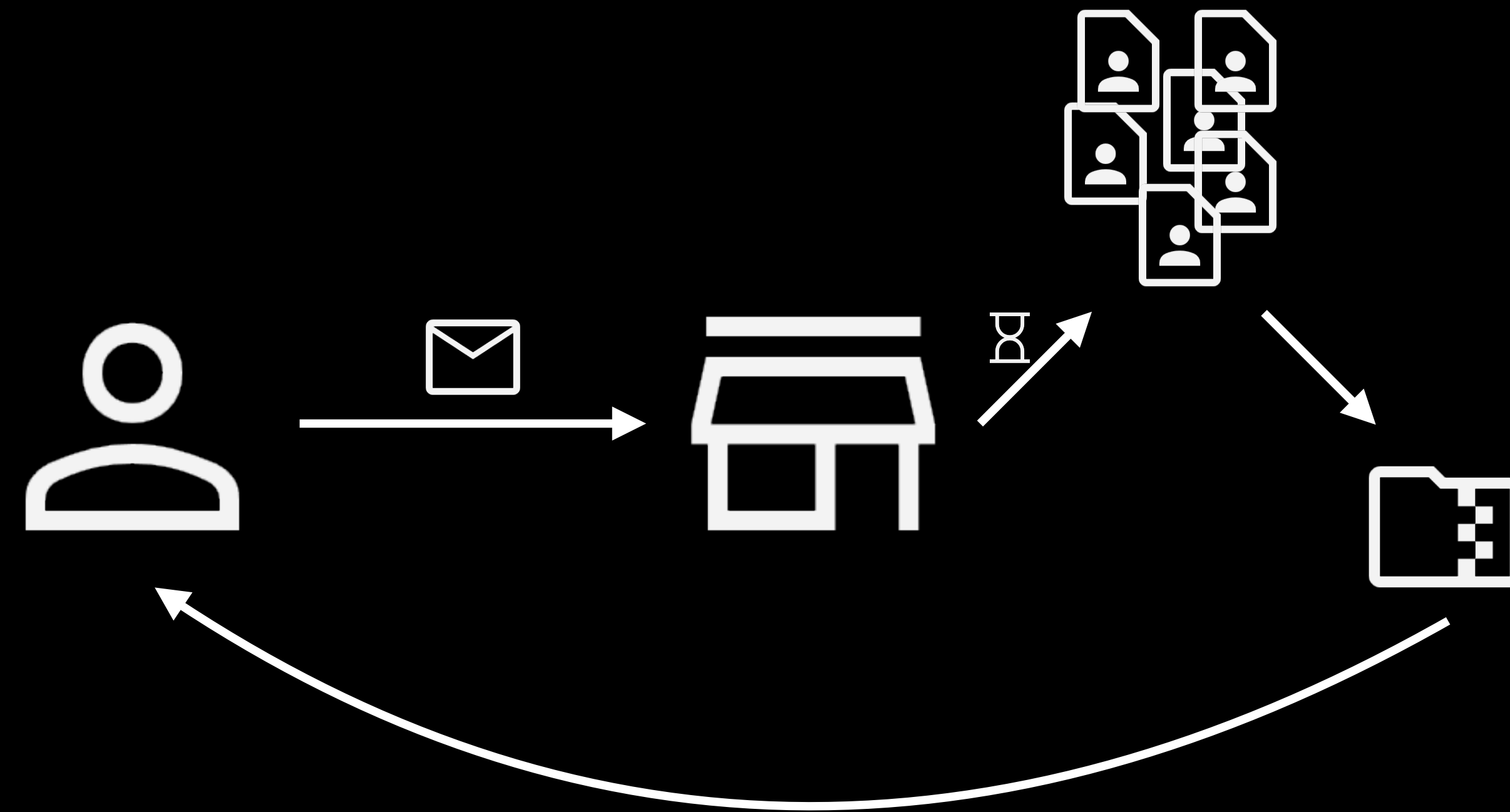
Right of access by the data subject

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:

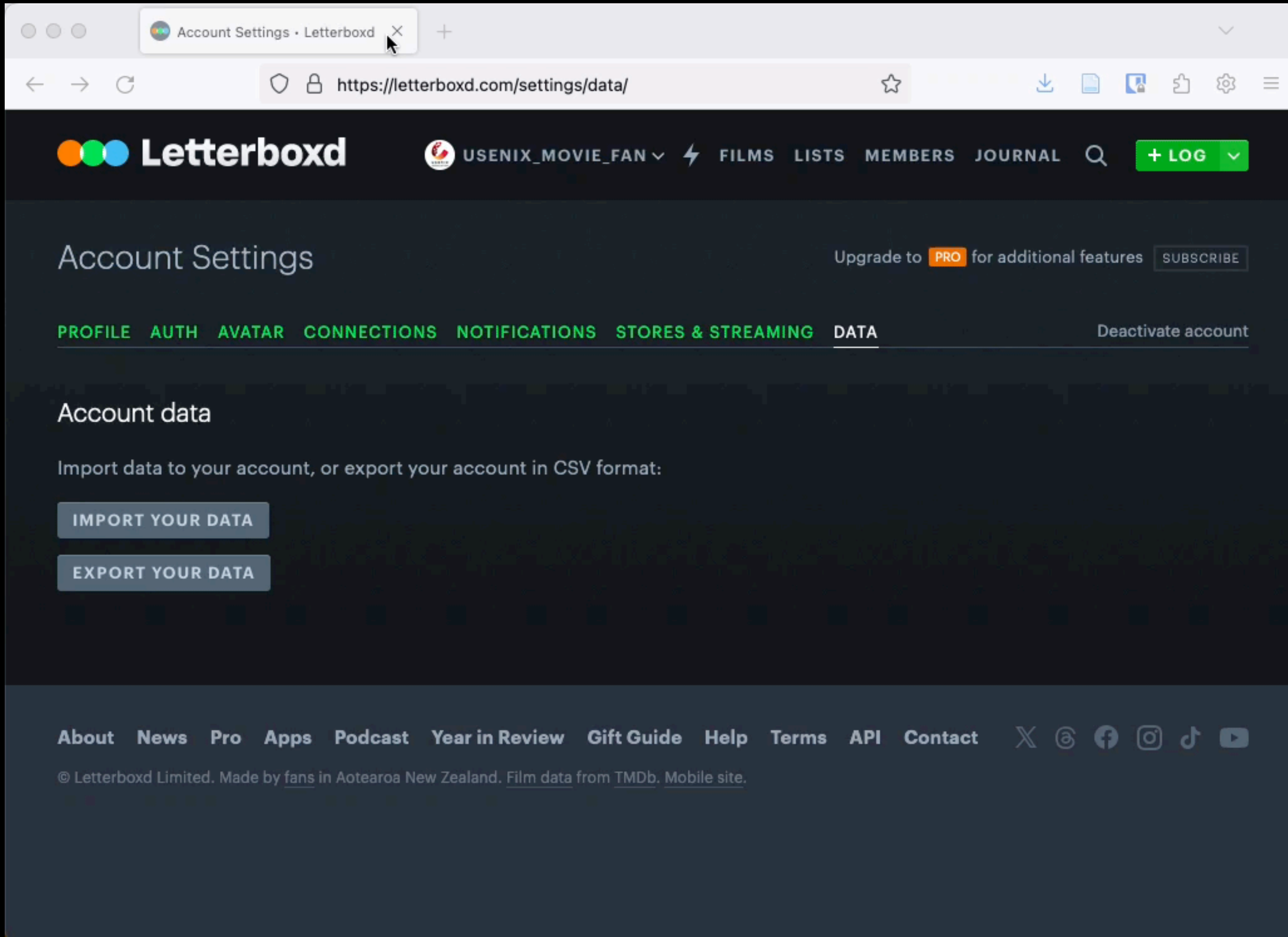
- (a) the purposes of the processing;
- (b) the categories of personal data concerned;
- (c) the recipients or categories of recipient to whom the personal data have been or will be disclosed, in particular recipients in third countries or international organizations;
- (d) ...



Data Subject Access Requests (DSAR)



Data Subject Access Requests (DSAR)



Account Settings • Letterboxd

https://letterboxd.com/settings/data/

Letterboxd USENIX_MOVIE_FAN FILMS LISTS MEMBERS JOURNAL + LOG

Account Settings Upgrade to PRO for additional features SUBSCRIBE

PROFILE AUTH AVATAR CONNECTIONS NOTIFICATIONS STORES & STREAMING DATA Deactivate account

Account data

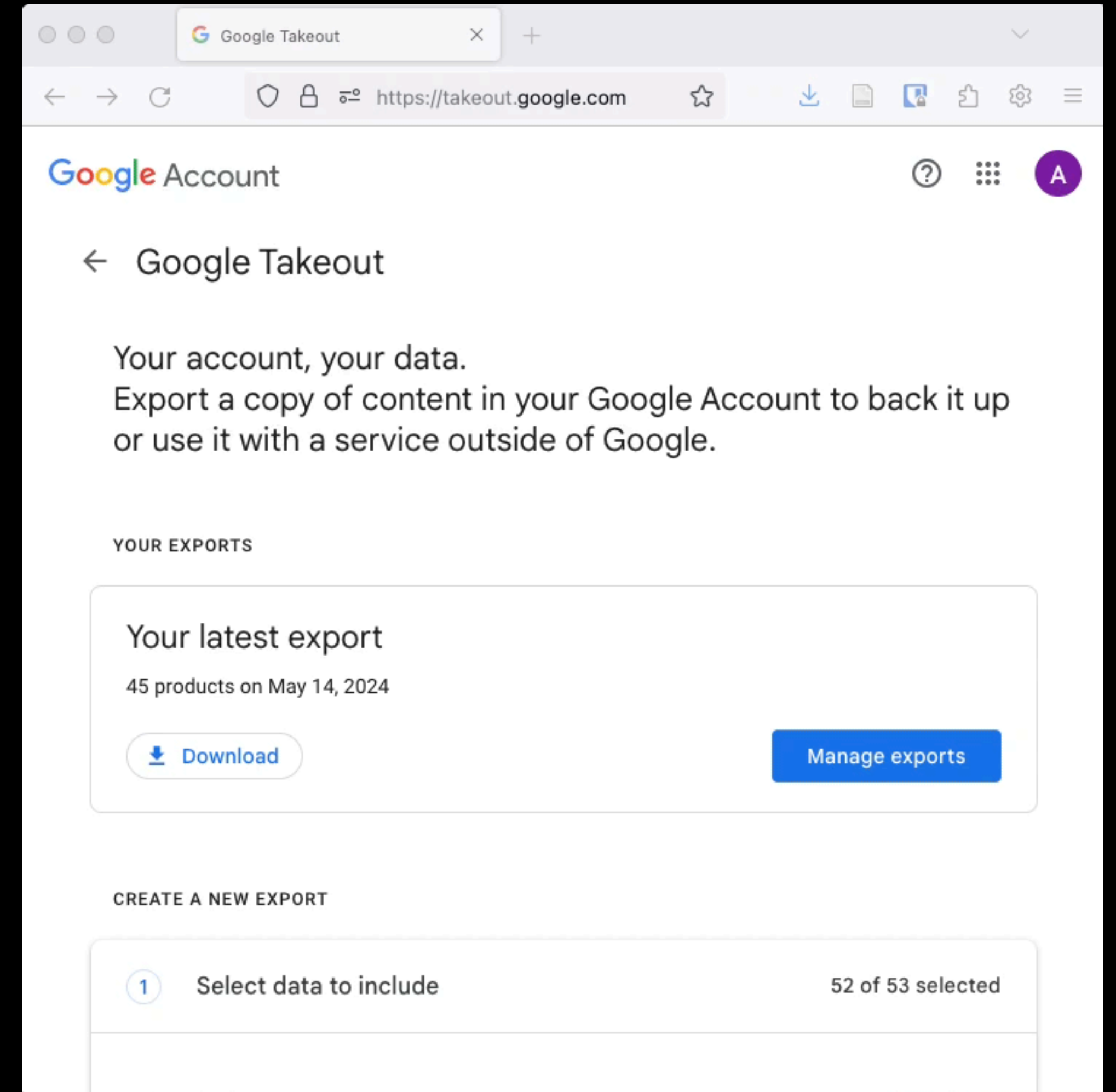
Import data to your account, or export your account in CSV format:

IMPORT YOUR DATA

EXPORT YOUR DATA

About News Pro Apps Podcast Year in Review Gift Guide Help Terms API Contact

© 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 browser window displaying a Google Data Export Archive for the user arthurborem@uchicago.edu. The archive was created on May 14, 2024, at 11:42:42 AM PDT, and contains 3.1 GB of data. The interface lists various Google services and their export status:

- 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: (partially visible)

The Google Play Store section indicates that 3 files were exported successfully. Below this, a list of exported files is shown:

- Library.json
- Play Settings.json
- Purchase History.json

Overlaid on the right side of the browser window is a file explorer window titled "Takeout". It displays a list of files and folders with columns for Name, Date Modified, Size, and Kind. The file "transactions_561481080046.csv" is highlighted in blue. A yellow emoji with a thinking expression and glasses is positioned over the file explorer window.

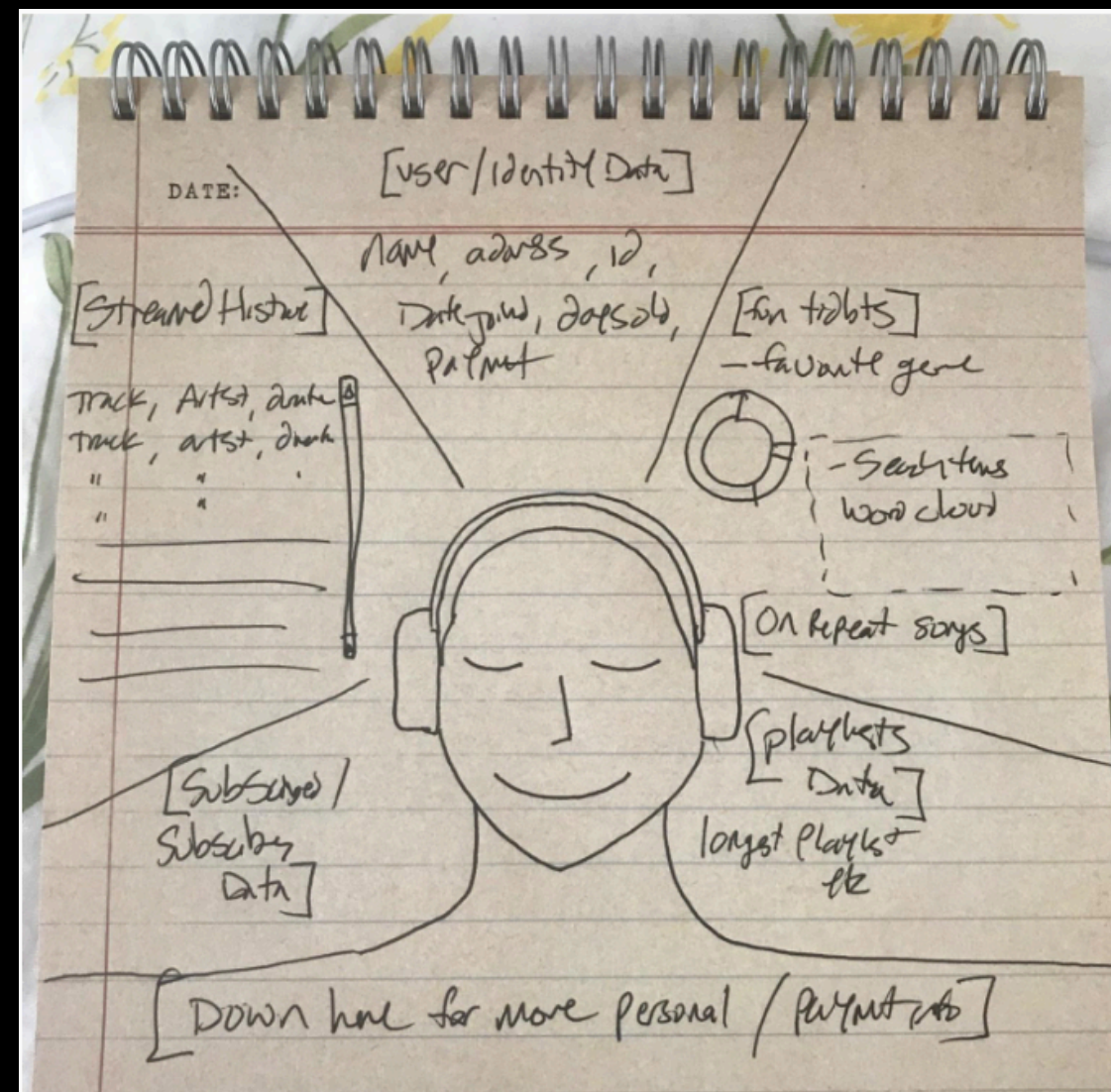
Name	Date Modified	Size	Kind
> Google Account	Today at 3:20 PM	--	Folder
> Google Business Profile	Today at 3:20 PM	--	Folder
> Google Chat	Today at 3:20 PM	--	Folder
> Google Finance	Today at 3:20 PM	--	Folder
> Google Pay	Today at 3:20 PM	--	Folder
> Google transactions	Today at 3:20 PM	--	Folder
transactions_561481080046.csv	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

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.

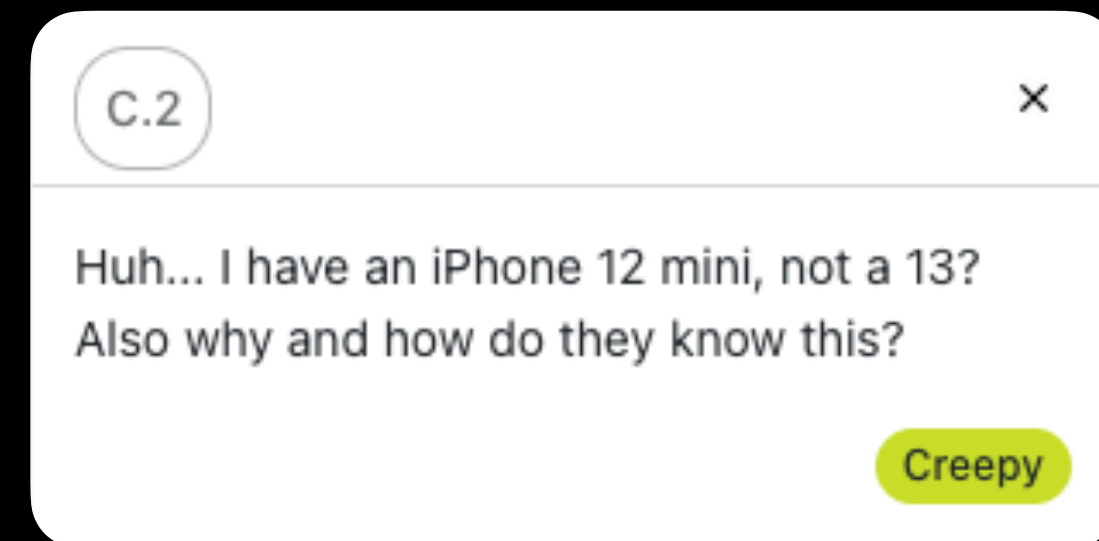


Data format

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...

👉 3. *How* data is being **used**.

Users want to know...

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

Barriers to Accessibility and Clarity in Data Exports

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2023_2.json x | v

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 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

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

Instructions

Your notes Add note

C.2 x
Huh... I have an iPhone 12 mini, not a 13?
Also why and how do they know this?
Creepy

C.1 x
Wow, one of my favorite albums!
Interesting

All notes ↑ Submit

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

```

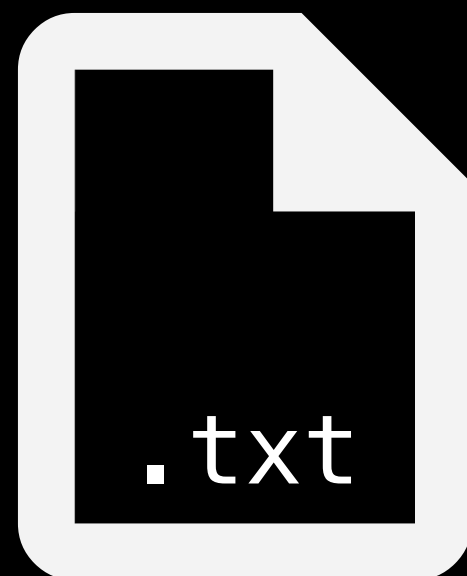
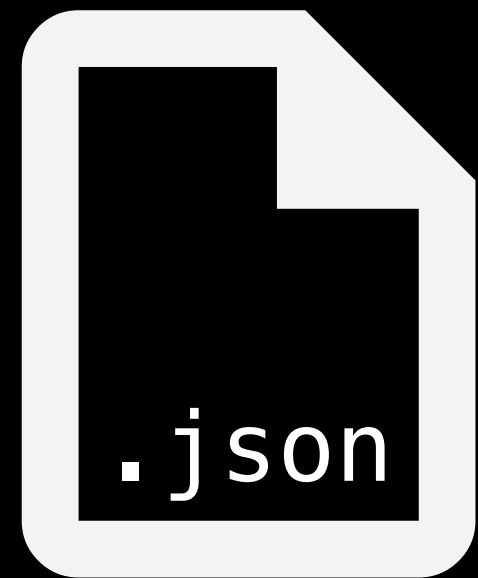
Settings.json
UNREGISTERED

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": "2021-03-17T21:28:14.000Z",
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": 90,
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 }

```

```
Settings.json UNREGISTERED
Settings.json x
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": "2021-03-17T21:28:35.806Z",
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      "observedPlaceVisitsFor30PercentOfTheLast7d": true
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 }
```

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



Data Explorer

Data Illuminator Downloading My Data

2023_2.json

Upload zip file Clear all data Search for a term... 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 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

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

All notes Submit

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:1wNz8Jnby57eQMTThNoMDB4",  
  "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)	✕
▼ 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:1wNz8Jnby57eQMTNoMDB4",
  "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)	

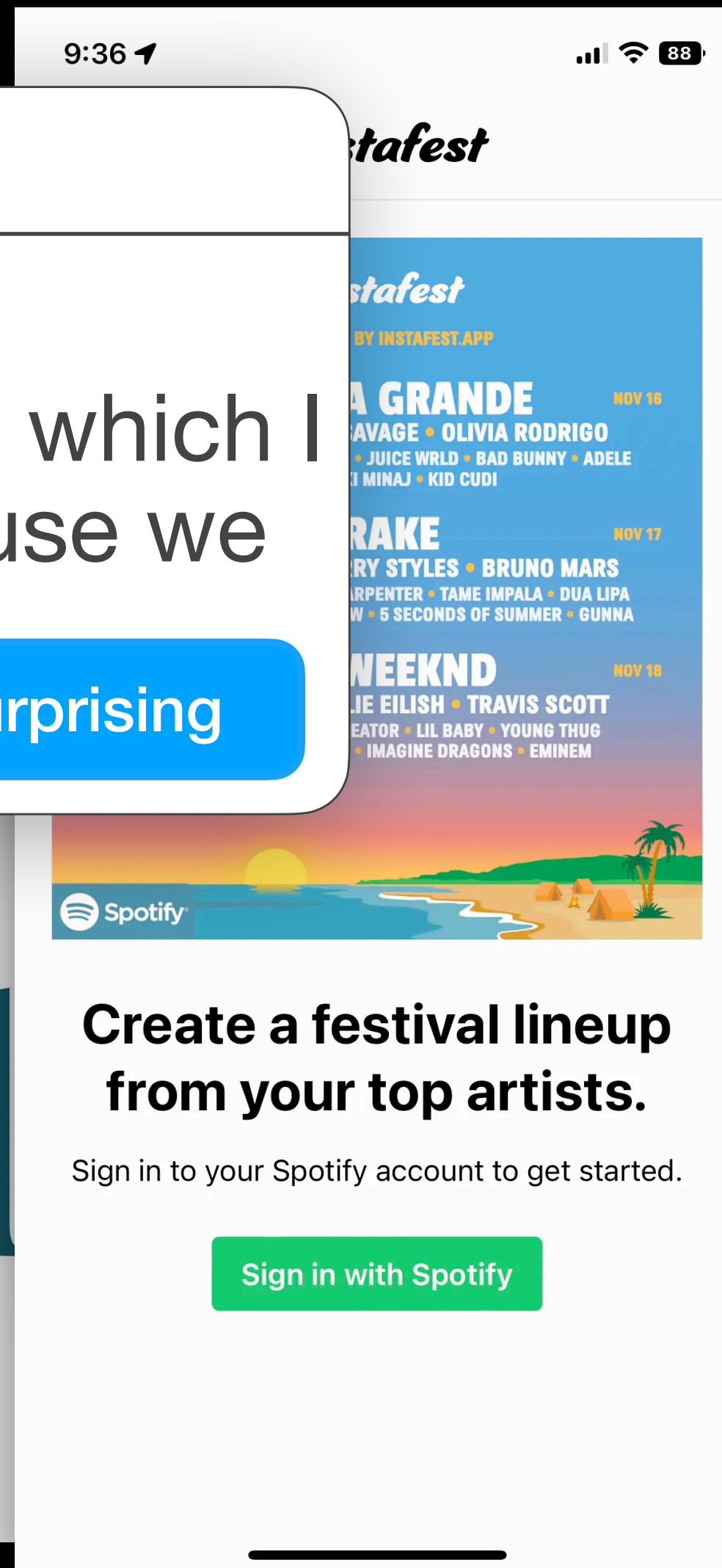
3. Data deletion/ modification in-band

Would people even want to make DSARs?

P27-FB

"I love... [that] I found a childhood friend of mine which I put as brother in FB 'cause we were very close."

surprising



4. Rich and meaningful interactions



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.

arthurborem@uchicago.edu

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