



openHPI Course: Digital Identities – Who am I on the Internet?

Data Collection of Online Services

Prof. Dr. Christoph Meinel

Hasso Plattner Institute University of Potsdam, Germany

Data Inquiry by Online Services



Anyone of the rapidly increasing number of online services is interested in your data

- Consumer Protection Laws provide users more transparency
 - Europe: General Data Protection Regulation (GDPR)
 - USA: California Consumer Privacy Act (CCPA)
- Consumer have the rights to know
 - what personal data is stored by an online service and
 - what is this data used for
 - and to request deletion of that data
- Consumer may also request a copy of their stored data
 - in a common electronic format
 - data that is stored by the user as well as
 - data that is stored about the user

Data Inquiry by Online Services Example: Google (1/3)



takeout.google.com



- Data of 51 different google products are covered
- Delay of the data takeout request depends on the number of products effected and ranges from minutes up to a day

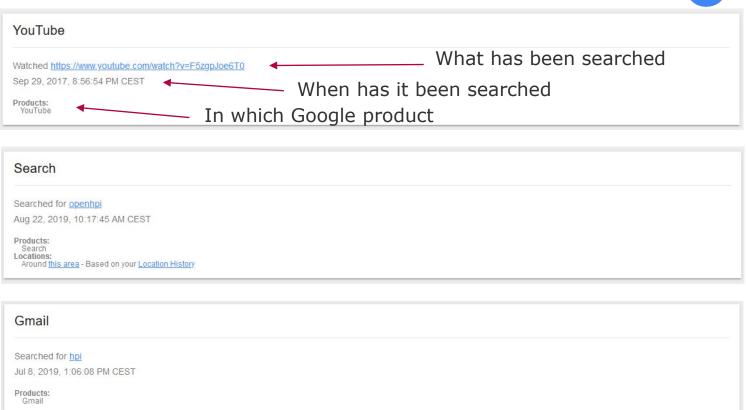
By the user	About the user			
Calendar	My activity			
Gmail	Location History			
Drive	Payment History			
•••	•••			

Data Inquiry by Online Services Example: Google (2/3)



My activity





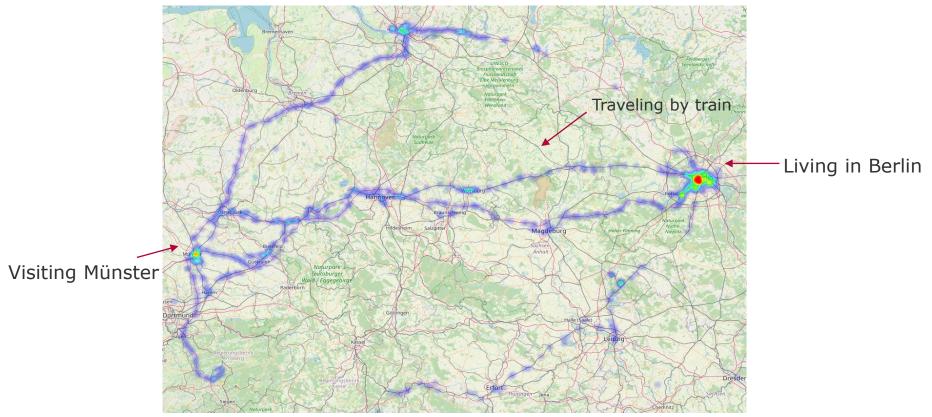
Data Inquiry by Online Services Example: Google (3/3)



Location History

Can reveal a lot about a user ...





Generated using github.com/luka1199/geo-heatmap

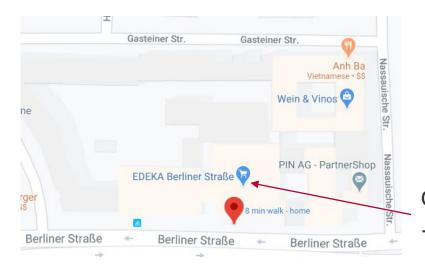
Data Inquiry by Online Services Example: Google Pay



When and where, how much payment has been made ...







Google doesn't store payment participants

→ but easily inferred from GPS data

Data Inquiry by Online Services Example: Facebook (1/2)



facebook.com/your_information

- Relationship between friends is **not** available
 - → Harder for competitors to use data takeout



By the user	About the user		
Posts	Logins		
Comments	Search History		
Pictures	Off-Facebook Activity		

Data Inquiry by Online Services Example: Facebook (2/2)



Account Activity



Session upda	ated
Time	Mar 6, 2020, 8:04 PM
IP Address	95.90.241.49
Browser	Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:73.0) Gecko/20100101 Firefox/73.0
Cookie	vB4a***********

Off-Facebook Activity

Also other websites share data with Facebook

Activity received from faz.net					
ID	494203564082803				
Event	VIEW_CONTENT				
Received on	November 1, 2019 at 9:26 AM				

Data Inquiry by Online Services Fitbit



- Stores all data in the cloud
- Due to consumer protection laws, this data has to be made available to the user
 - included are data that has been stored about users but hidden behind a "paywall"
- Request duration: multiple days!





4	Α	В	С	D	E	F	G	Н	1
1	sleep_log	timestamp	overall_score	composition_score	revitalization_score	duration_score	deep_sleep_in_minutes	resting_heart_rate	restlessness
2	2.64E+10	2020-03-20T00:32:00Z	61	13	20	28	11	65	0.16737589
3	2.64E+10	2020-03-18T07:53:00Z	69	15	20	34	45	65	0.10631229
4	2.64E+10	2020-03-17T07:51:30Z	66	13	22	31	11	64	0.09198423
5	2.63E+10	2020-03-16T07:47:00Z	71	16	21	34	54	65	0.12169312

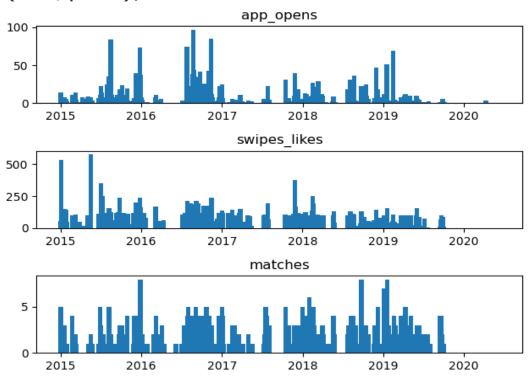
Data Inquiry by Online Services Tinder



 All messages and, in particular, all activities are stored



- Opening of the app, sending of messages
- Swipes (like/pass), Matches



Please check, what data is stored by an service from you and your usage of that service



- There are many different data sources and formats
- open-source tools are available for visualization
 - Beware: Keep an eye that these tools don't reuse/monetize your data
- Interesting what can be discovered about services



What did you find out about your data?