

# Towards Provenance Capturing of Quantified Self Data

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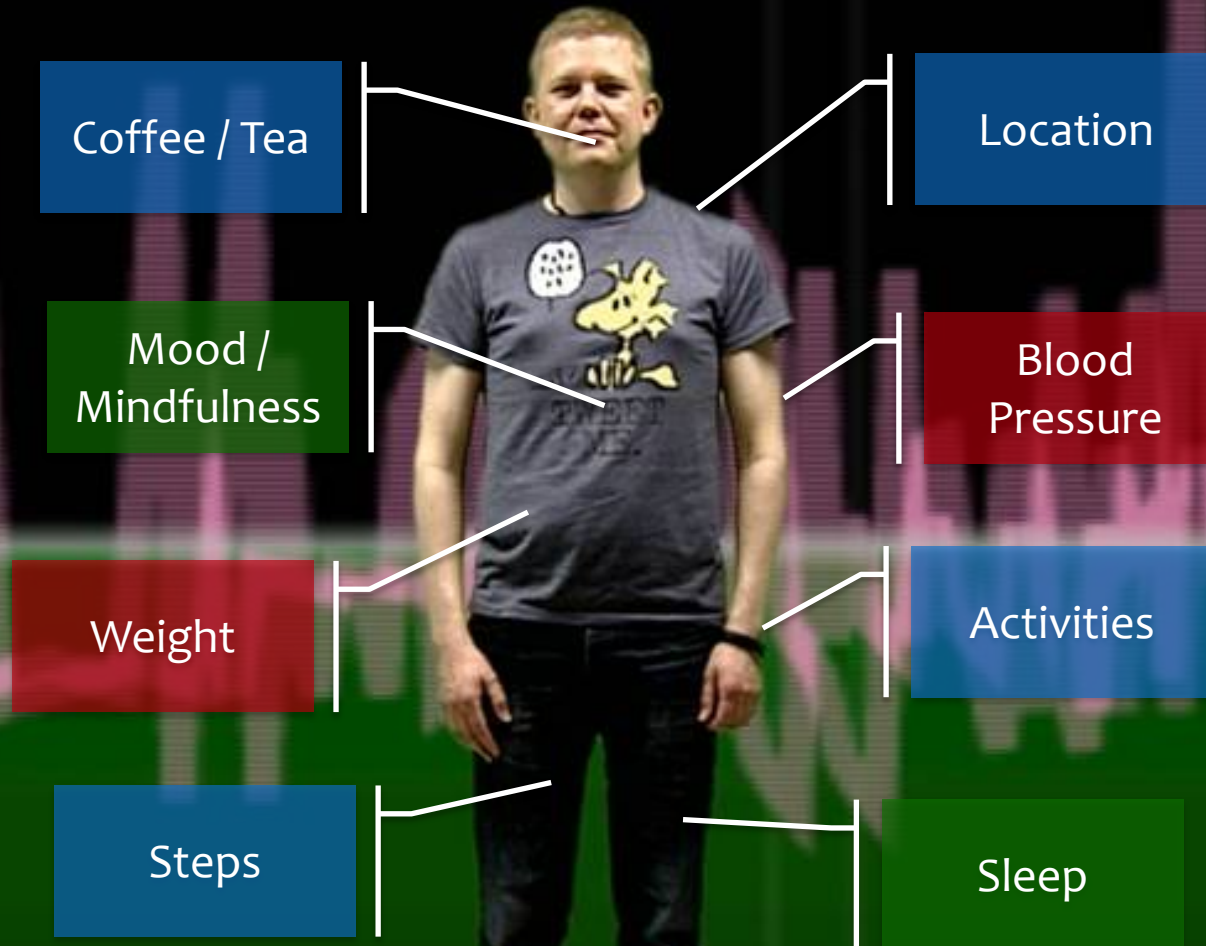
Knowledge for Tomorrow





Quantified Self

# Quantified Self – Self Tracking



# Technology: Wearables – Apps – Services



## Wearable Devices

- Wearable, implantable, attachable, ingestible
- Embedded systems with sensors, Internet-of-things

## Apps

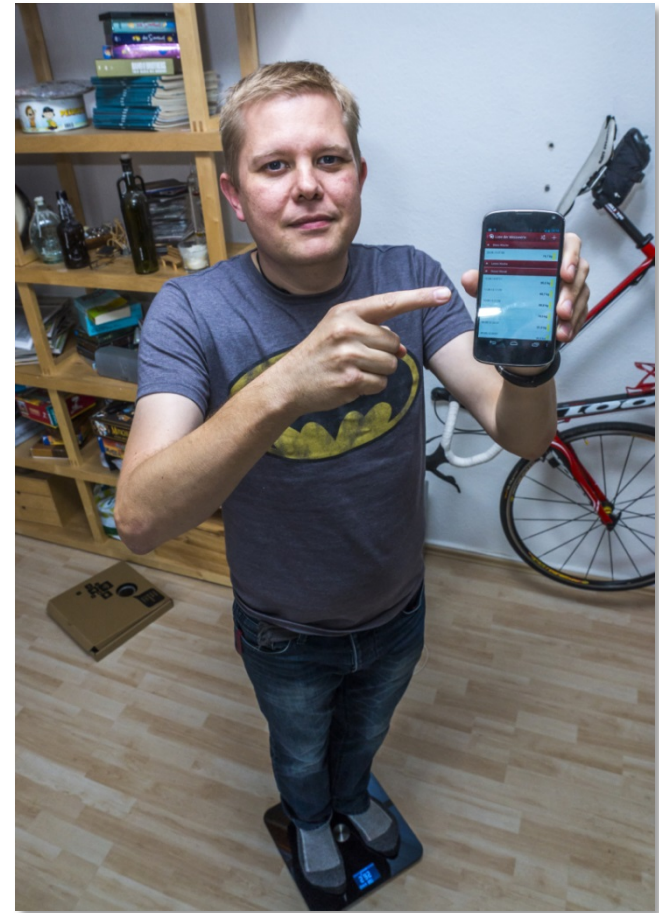
- Smartphone, desktop, web-based apps
- Aggregation portals

## Services

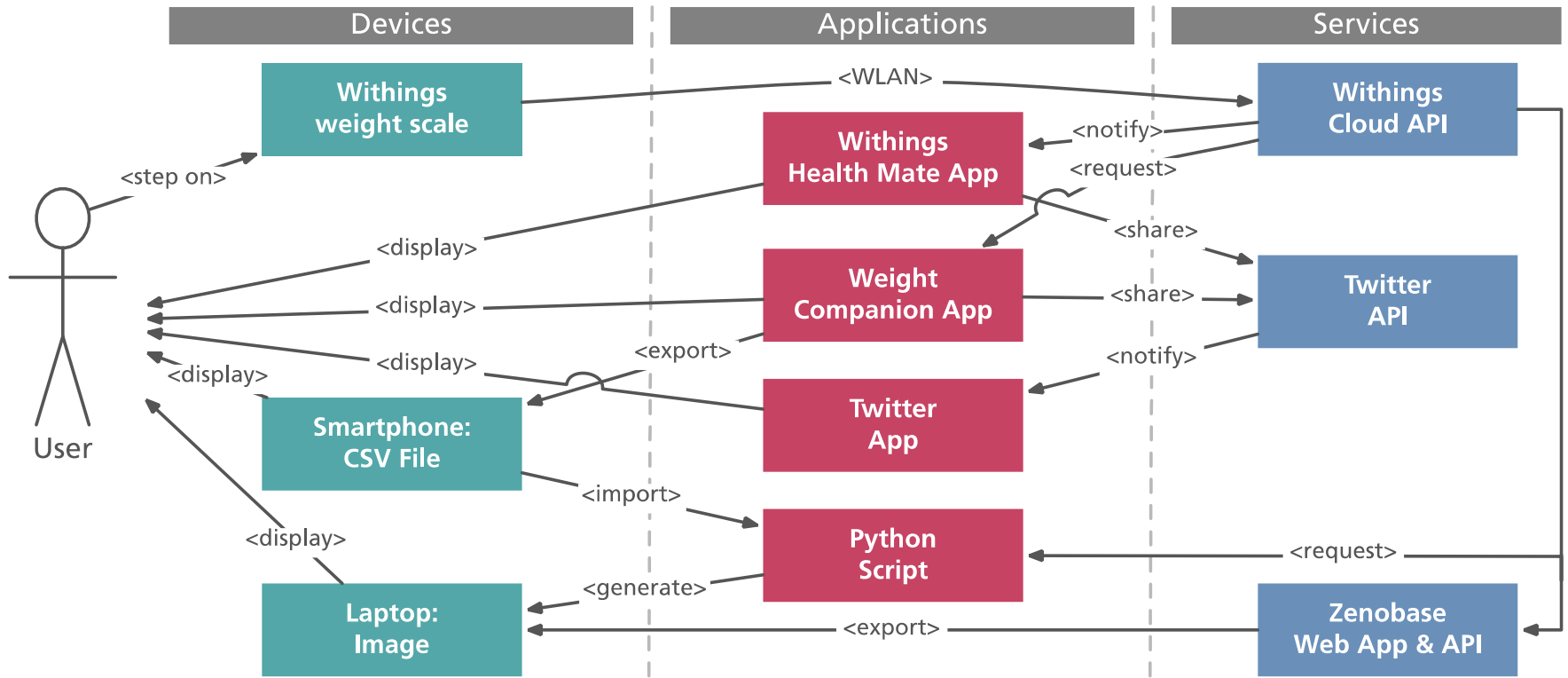
- Web-services, cloud-services
- Provided by hardware vendors



# Example: Weight Tracking



# Weight Tracking



# Questions

Entity-  
focused

- What data about the user were created during the activity X?
- What data about the user were automatically generated?
- What data about the user were derived from manual input?

Activity-  
focused

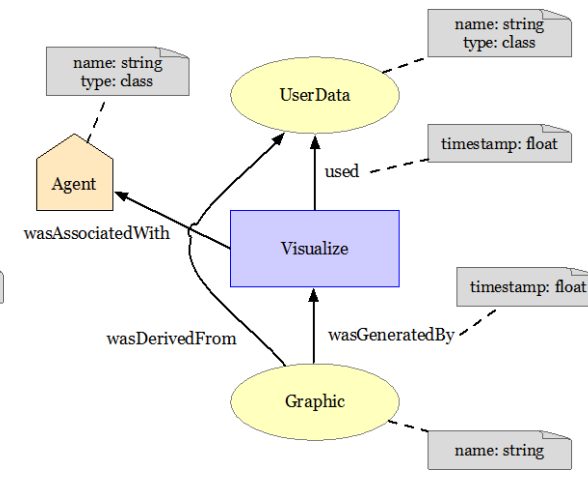
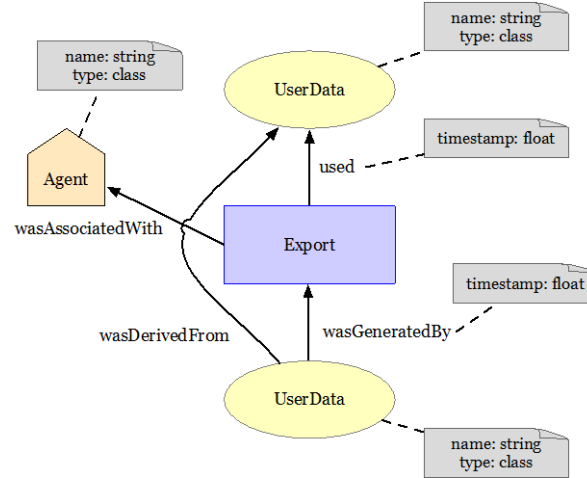
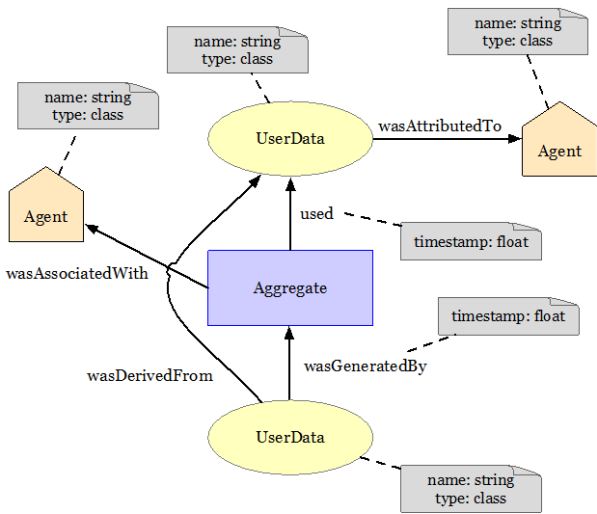
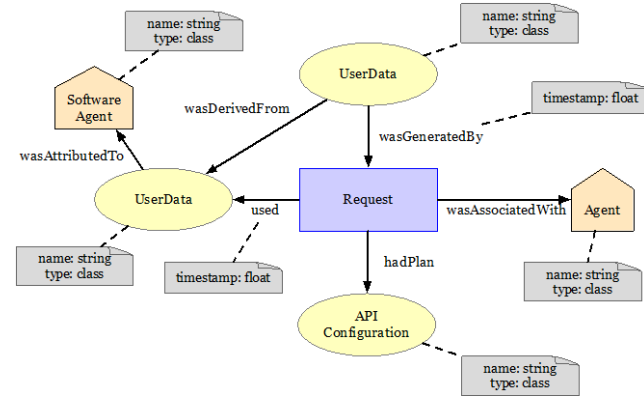
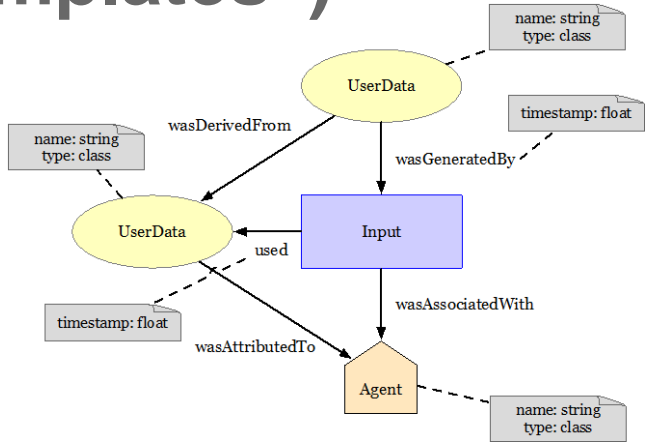
- Which activities support visualization of the users data?
- In which activities can the user input data?
- What processes are communicating data?

Agent-  
focused

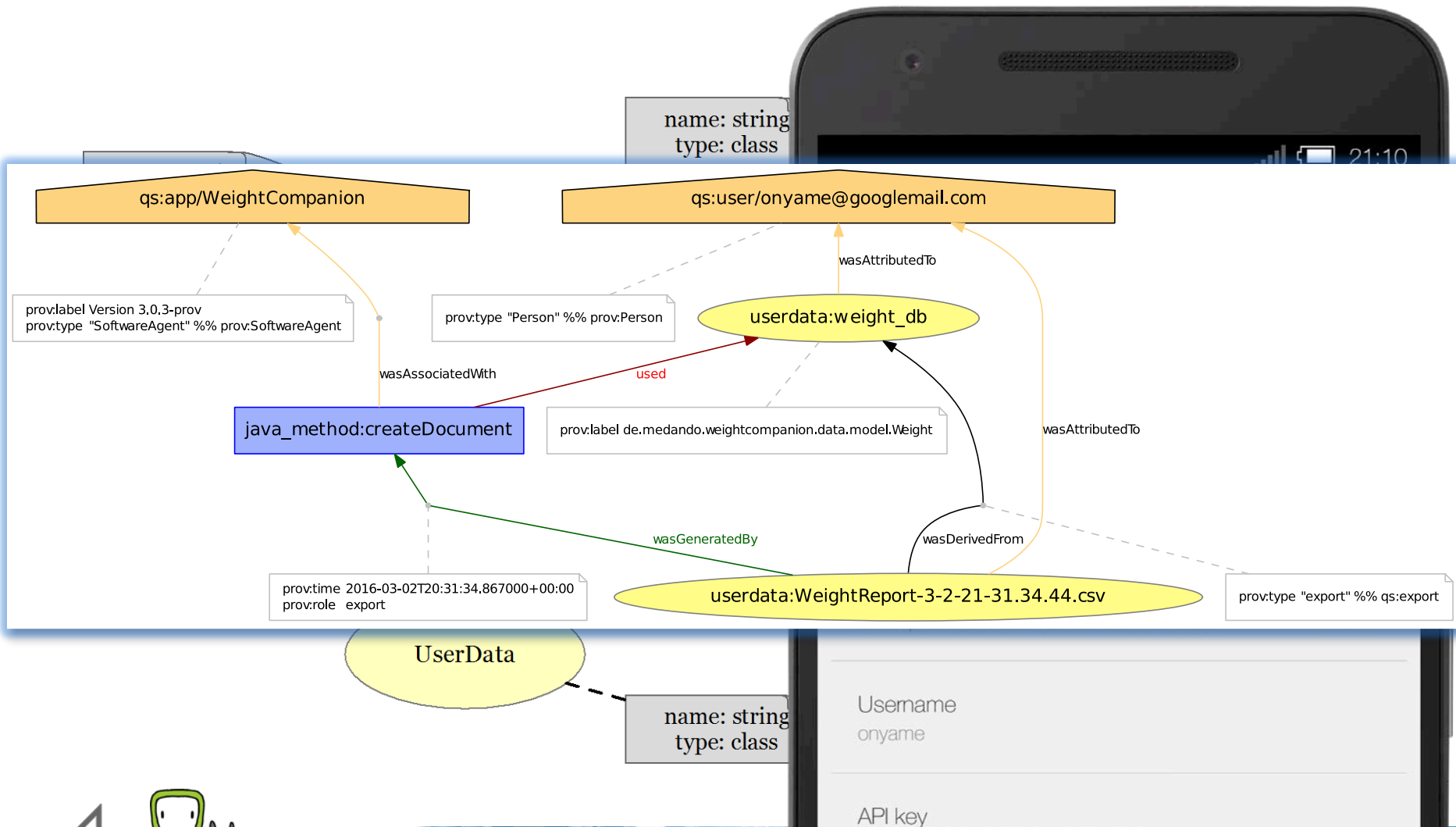
- What parties were involved in generating data X?
- What parties got access on data X?
- Can other parties see user's data X?



# PROV Model for the Quantified Self („Templates“)

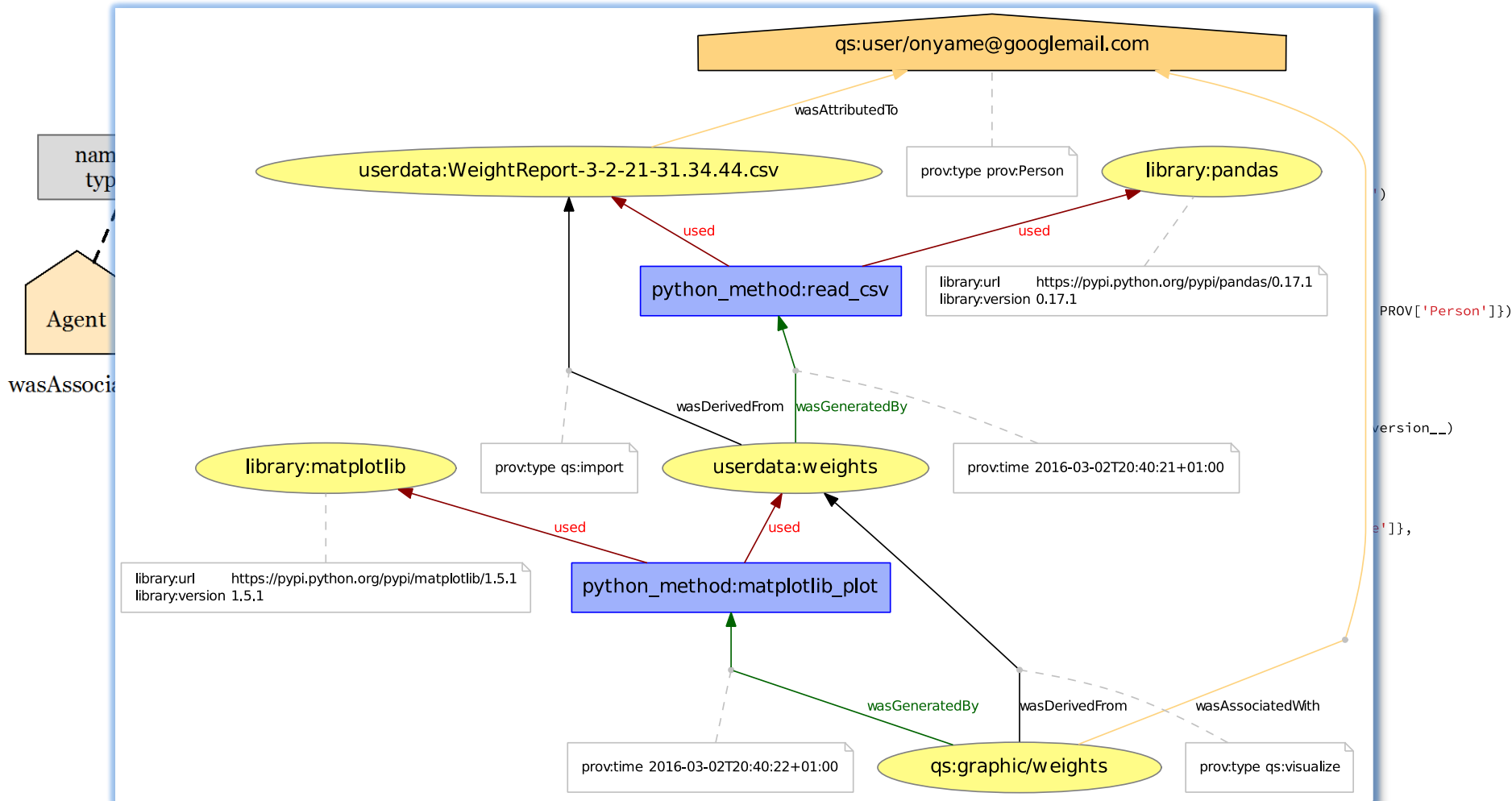


# Android App *WeightCompanion*

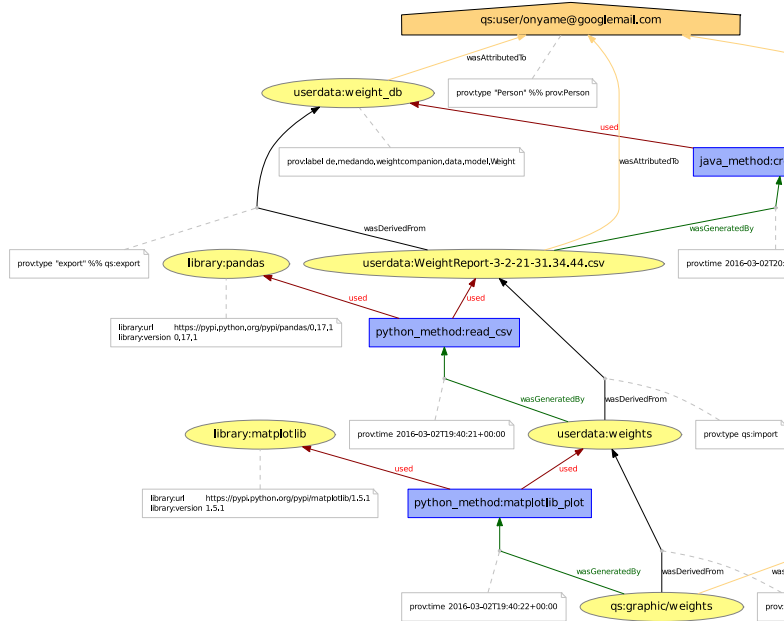




# Python Script



# Merging & Storing: ProvToolbox & ProvStore



**ProvStore** Home Public Documents Login Sign Up Help

**Gewichtsbericht-06.06.16-19.04.39.csv.provn** Data Process Responsibility

Created on 07 Jun 2016 at 00:04 by onyame 8 views

```

document
  prefix userdata <http://software.dlr.de/qs/userdata/>
  prefix qs <http://software.dlr.de/qs/>
  prefix app <http://software.dlr.de/qs/app/>
  prefix user <http://software.dlr.de/qs/user/>
  prefix method <http://www.java.com/>

  wasAssociatedWith(method:export, qs:app/WeightCompanion, -)
  wasDerivedFrom(userdata:Gewichtsbericht-06.06.16-19.04.39.csv, userdata:weights, -, -, -)
  used(method:export, userdata:weights, -)
  wasAttributedTo(userdata:weights, qs:user/onyame@gmail.com)
  agent(qs:user/onyame@gmail.com, [prov:type="Person" %q:prov:Person, prov:label="Andreas Schreiber"
  entity(userdata:Gewichtsbericht-06.06.16-19.04.39.csv) %q:prov:SoftwareAgent, prov:label="Versio
  entity(userdata:weights, [prov:label="de.medando.weightcompanion.data.model.Weight"])
  activity(method:export, -, -)
  wasGeneratedBy(userdata:Gewichtsbericht-06.06.16-19.04.39.csv, method:export, 2016-06-07T00:04:39.
endDocument
    
```

Assertions	#
used	1
wasGeneratedBy	1
wasAssociatedWith	1
activity	1
agent	2
wasDerivedFrom	1
entity	2
wasAttributedTo	2

Bundles  
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# Thank You!

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