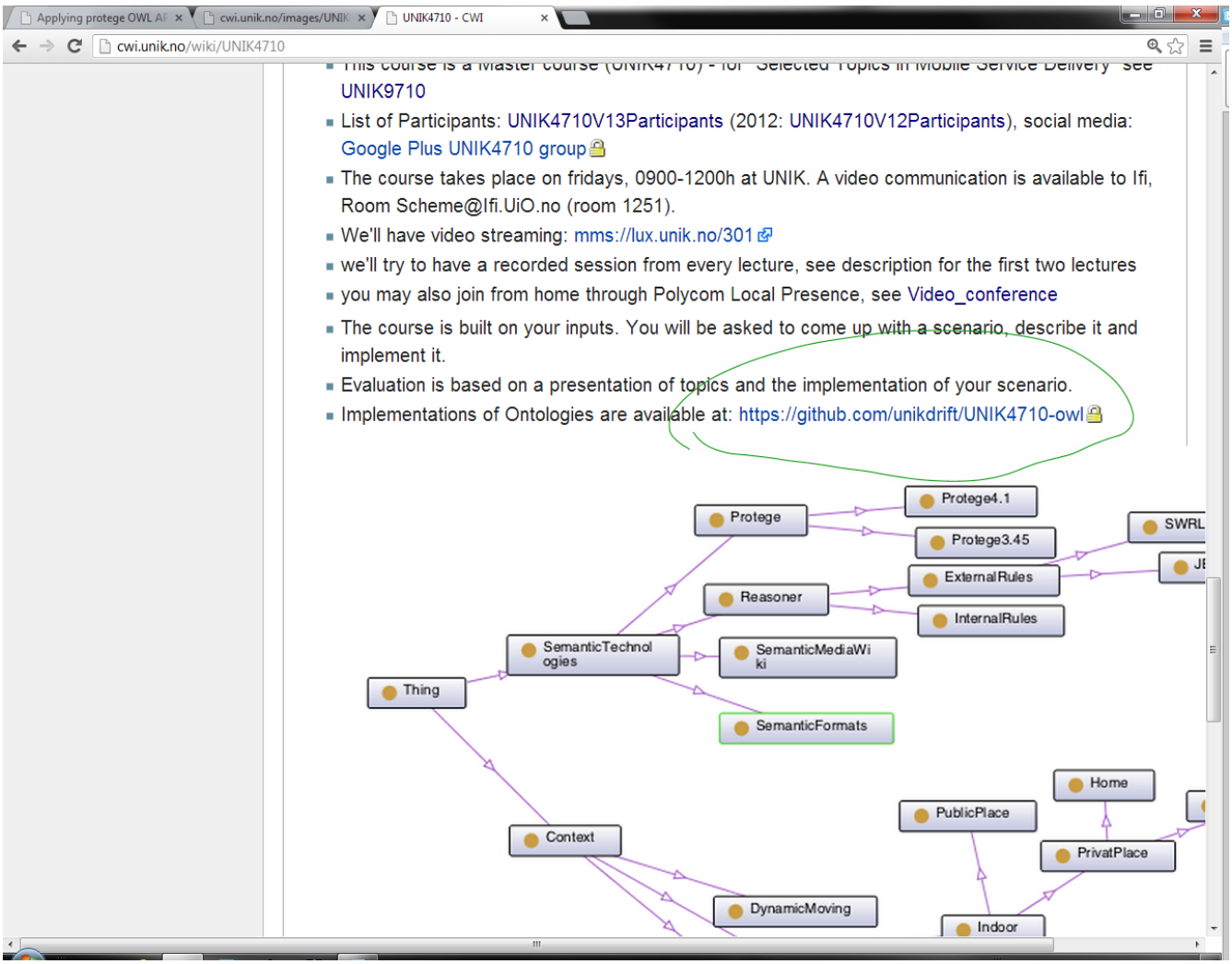
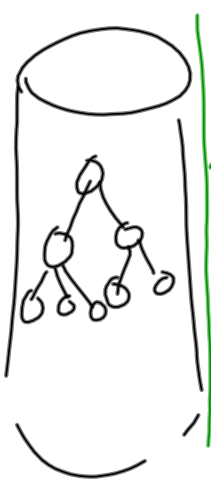
- JAVA program export
- OWL API (2012)
- 5 min idea about your appl.


Applying protege OWL AF
cwi.unik.no/images/UNIK
UNIK4710 - CWI
cwi.unik.no/wiki/UNIK4710
UNIK9710
List of Participants: UNIK4710V13Participants (2012: UNIK4710V12Participants), social media: Google Plus UNIK4710 group
The course takes place on fridays, 0900-1200h at UNIK. A video communication is available to Ifi, Room Scheme@Ifi.UiO.no (room 1251).
We'll have video streaming: mms://lux.unik.no/301
we'll try to have a recorded session from every lecture, see description for the first two lectures
you may also join from home through Polycom Local Presence, see Video_conference
The course is built on your inputs. You will be asked to come up with a scenario, describe it and implement it.
Evaluation is based on a presentation of topics and the implementation of your scenario.
Implementations of Ontologies are available at: https://github.com/unikdrift/UNIK4710-owl
Protege
Protege4.1
Protege3.45
SWRL
ExternalRules
Reasoner
InternalRules
SemanticTechnologies
SemanticMediaWiki
Thing
SemanticFormats
Home
PublicPlace
Context
PrivatPlace
DynamicMoving
Indoor

Challenges



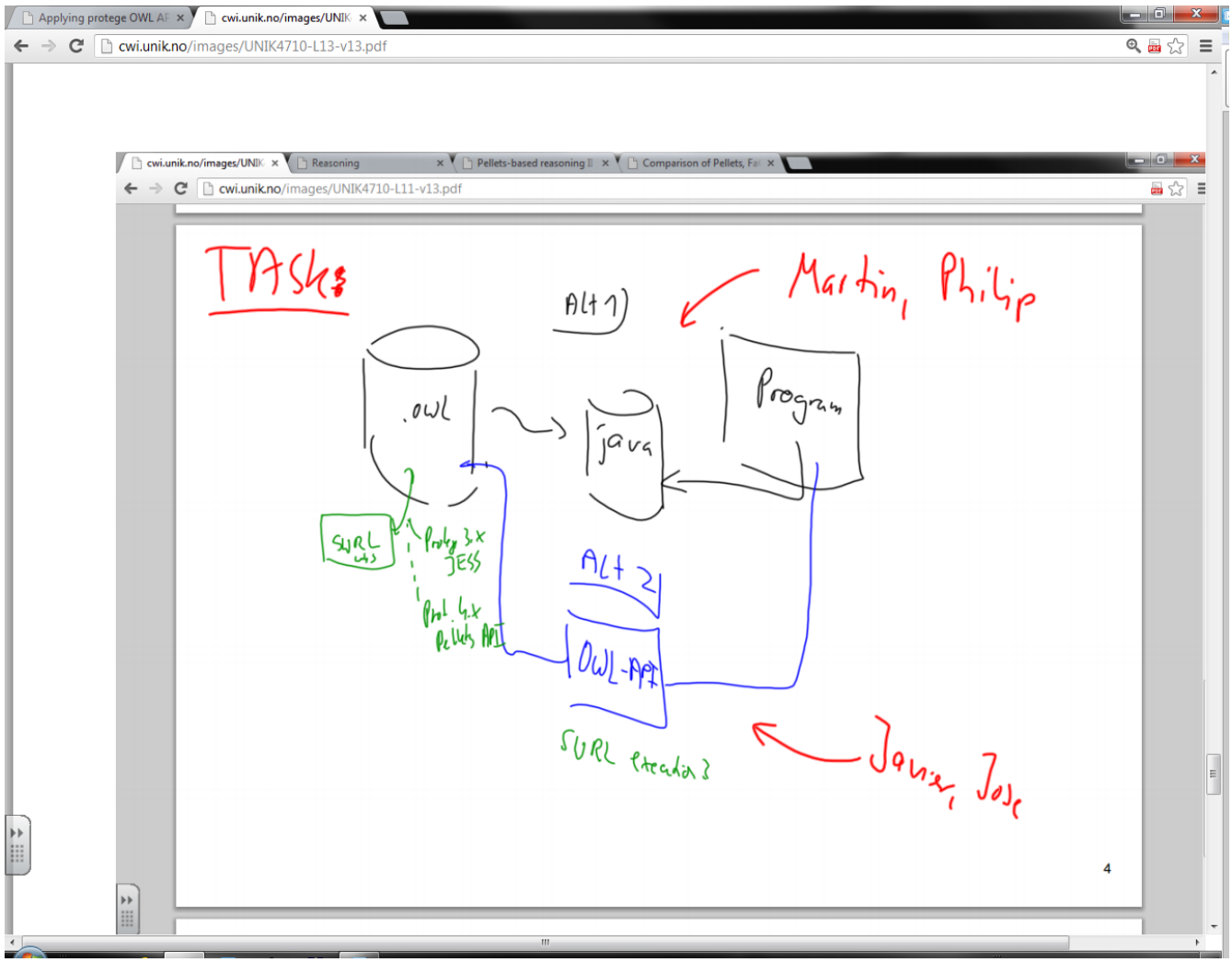
SQWRL

SWRL

API

Rules

- Math. operations on OWL
  count → average
- Writing back knowledge into OWL
  Can do
  in Prot. 5.1
  Does Pyrite as interface
- Query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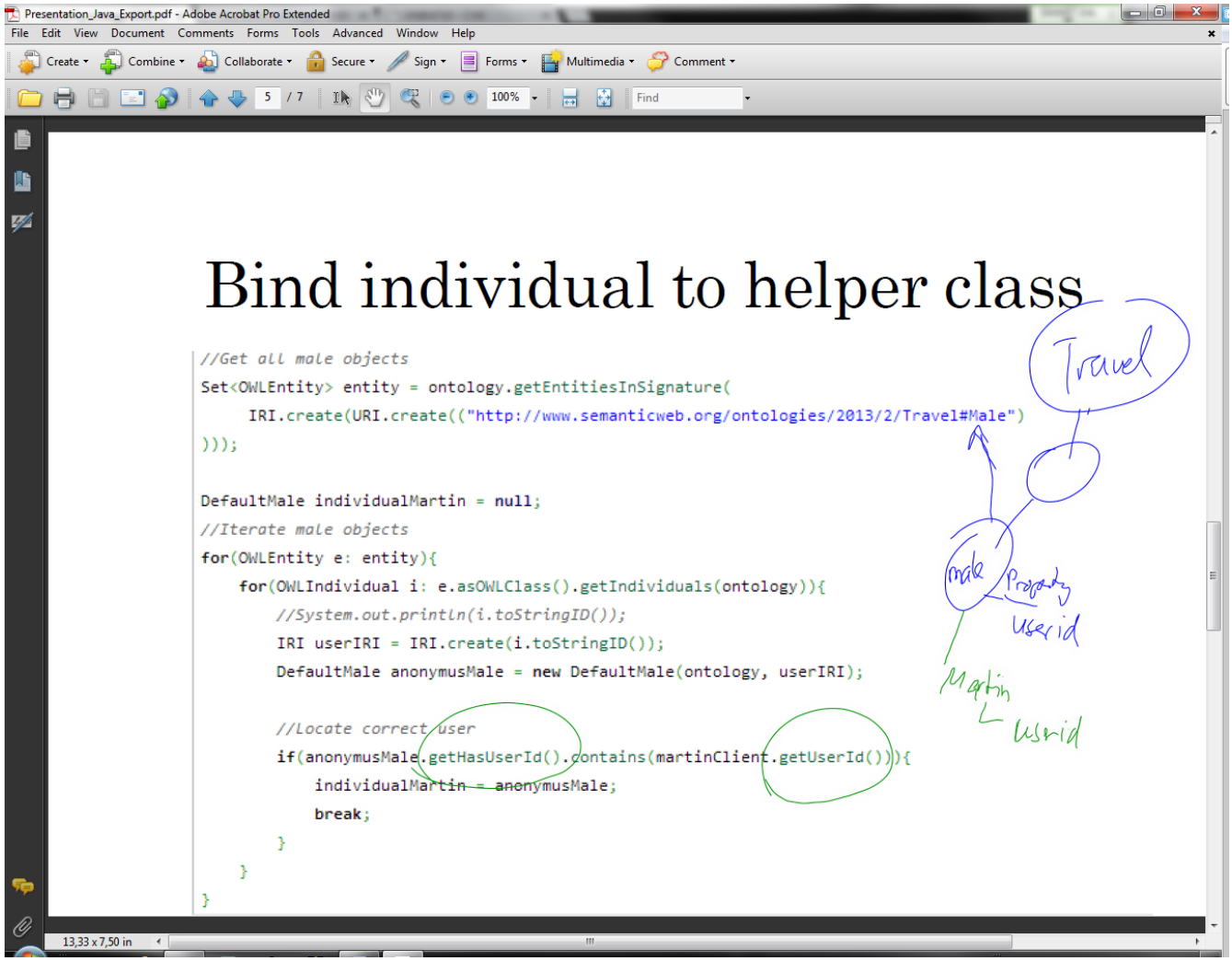
Reasoning
Pellets-based reasoning II
Comparison of Pellets, Fa
cwi.unik.no/images/UNIK4710-L11-v13.pdf
TASKS
Alt 1)
Martin, Philip
.owl
java
Program
SWRL Libs
Protégé 3.x JESS
Prot. 4.x Pellets API
Alt 2)
OWL-API
SWRL reasoning
Jamie, Jose
4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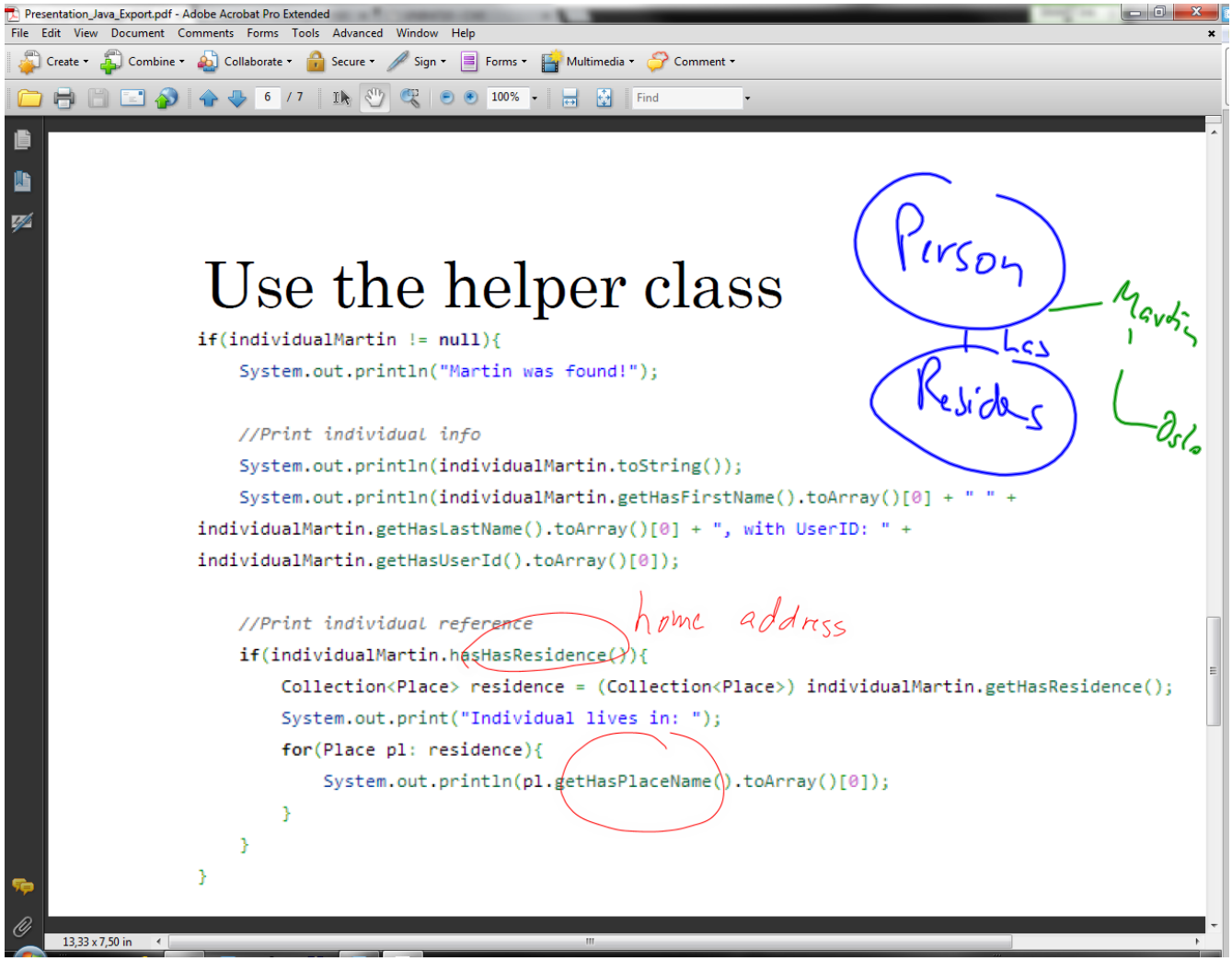
5 / 7
100%
Find
Bind individual to helper class
//Get all male objects
Set<OWLEntity> entity = ontology.getEntitiesInSignature(
IRI.create(URI.create(("http://www.semanticweb.org/ontologies/2013/2/Travel#Male")
)));
DefaultMale individualMartin = null;
//Iterate male objects
for(OWLEntity e: entity){
for(OWLIndividual i: e.asOWLClass().getIndividuals(ontology)){
//System.out.println(i.toStringID());
IRI userIRI = IRI.create(i.toStringID());
DefaultMale anonymusMale = new DefaultMale(ontology, userIRI);
//Locate correct user
if(anonymusMale.getHasUserId().contains(martinClient.getUserId())){
individualMartin = anonymusMale;
break;
}
}
}
Travel
male
Property
userid
Martin
userid
13,33 x 7,50 in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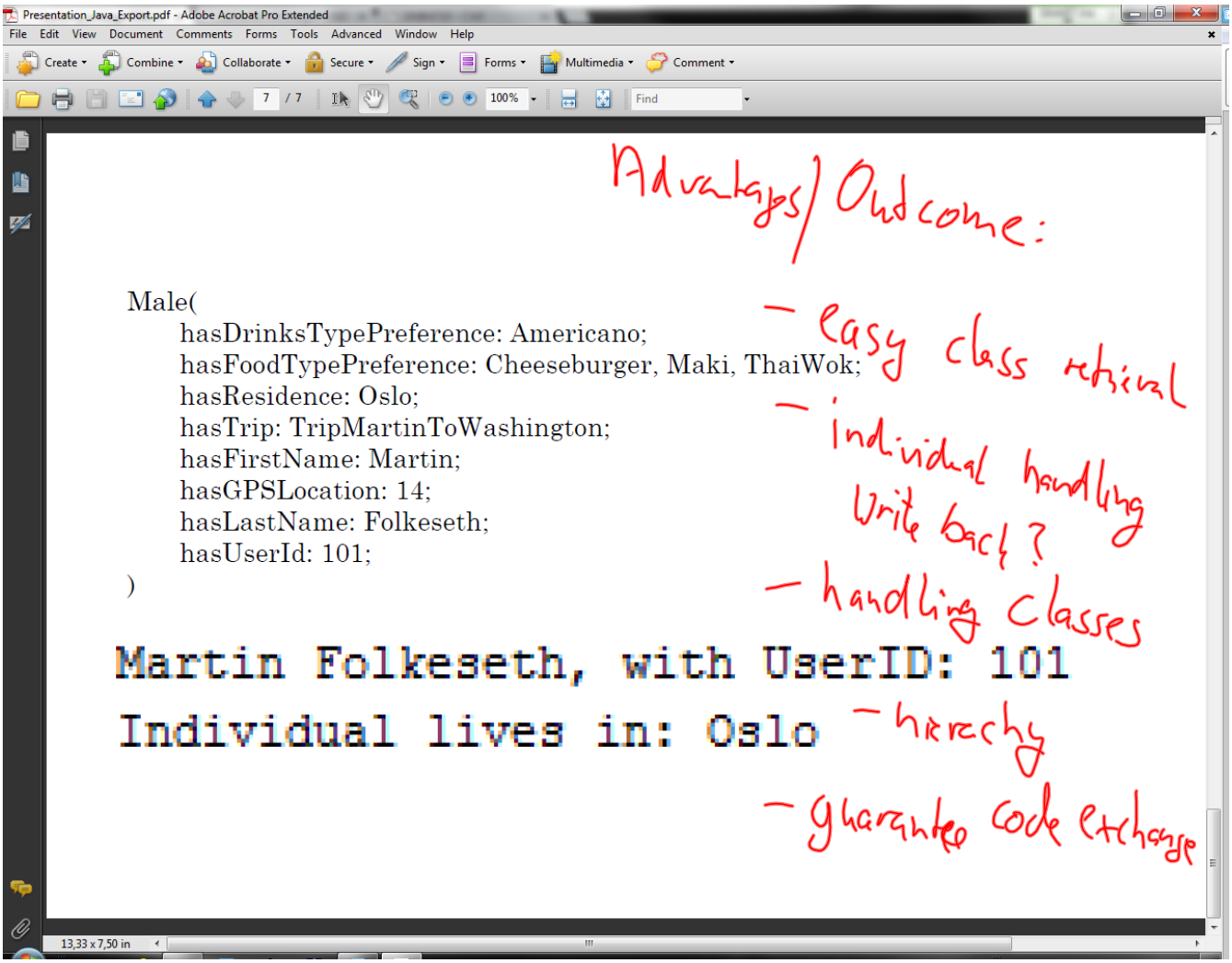
100%
Find
Use the helper class
if(individualMartin != null){
System.out.println("Martin was found!");
//Print individual info
System.out.println(individualMartin.toString());
System.out.println(individualMartin.getHasFirstName().toArray()[0] + " " +
individualMartin.getHasLastName().toArray()[0] + ", with UserID: " +
individualMartin.getHasUserId().toArray()[0]);
//Print individual reference
if(individualMartin.hasHasResidence()){
Collection<Place> residence = (Collection<Place>) individualMartin.getHasResidence();
System.out.print("Individual lives in: ");
for(Place pl: residence){
System.out.println(pl.getHasPlaceName().toArray()[0]);
}
}
}
Person
Martin
has
Resides
Oslo
home address
13,33 x 7,50 in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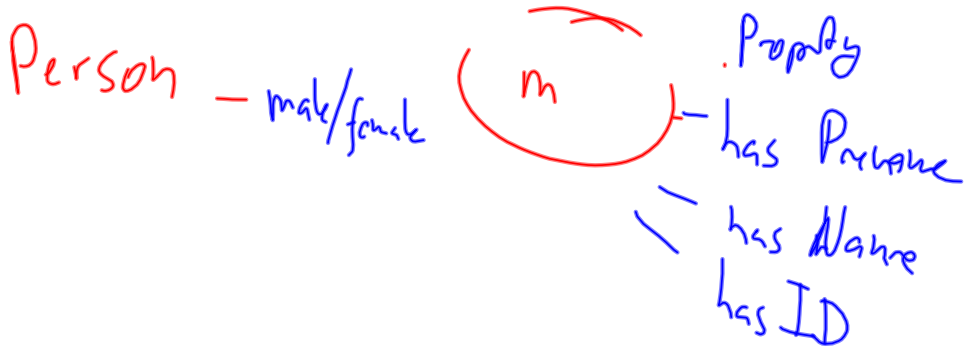
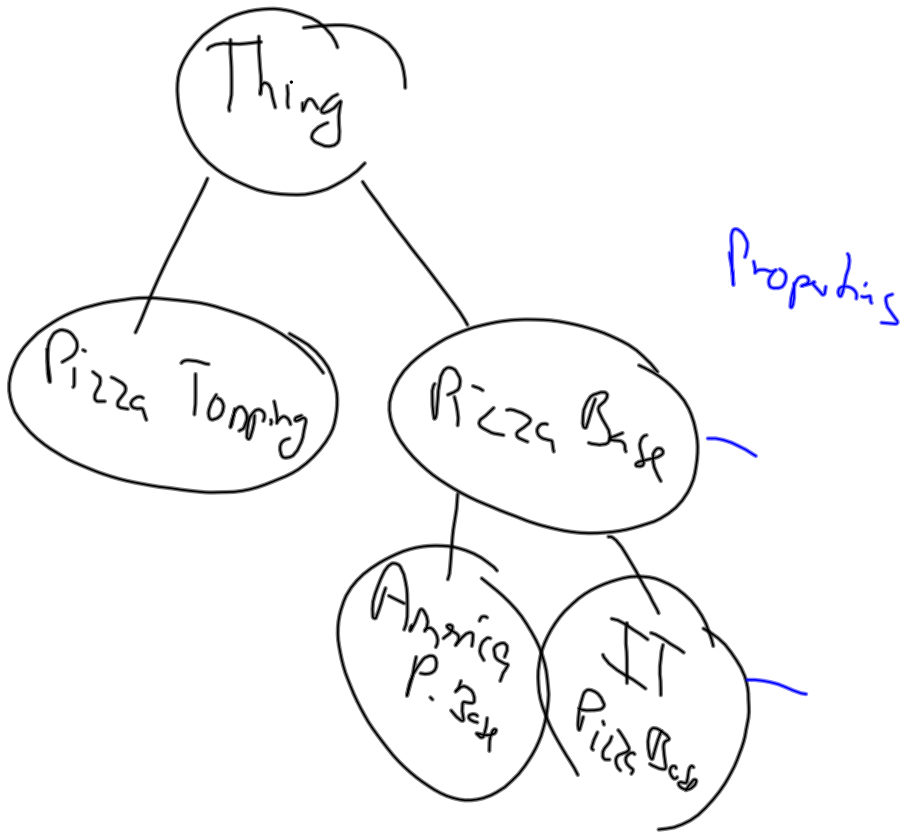
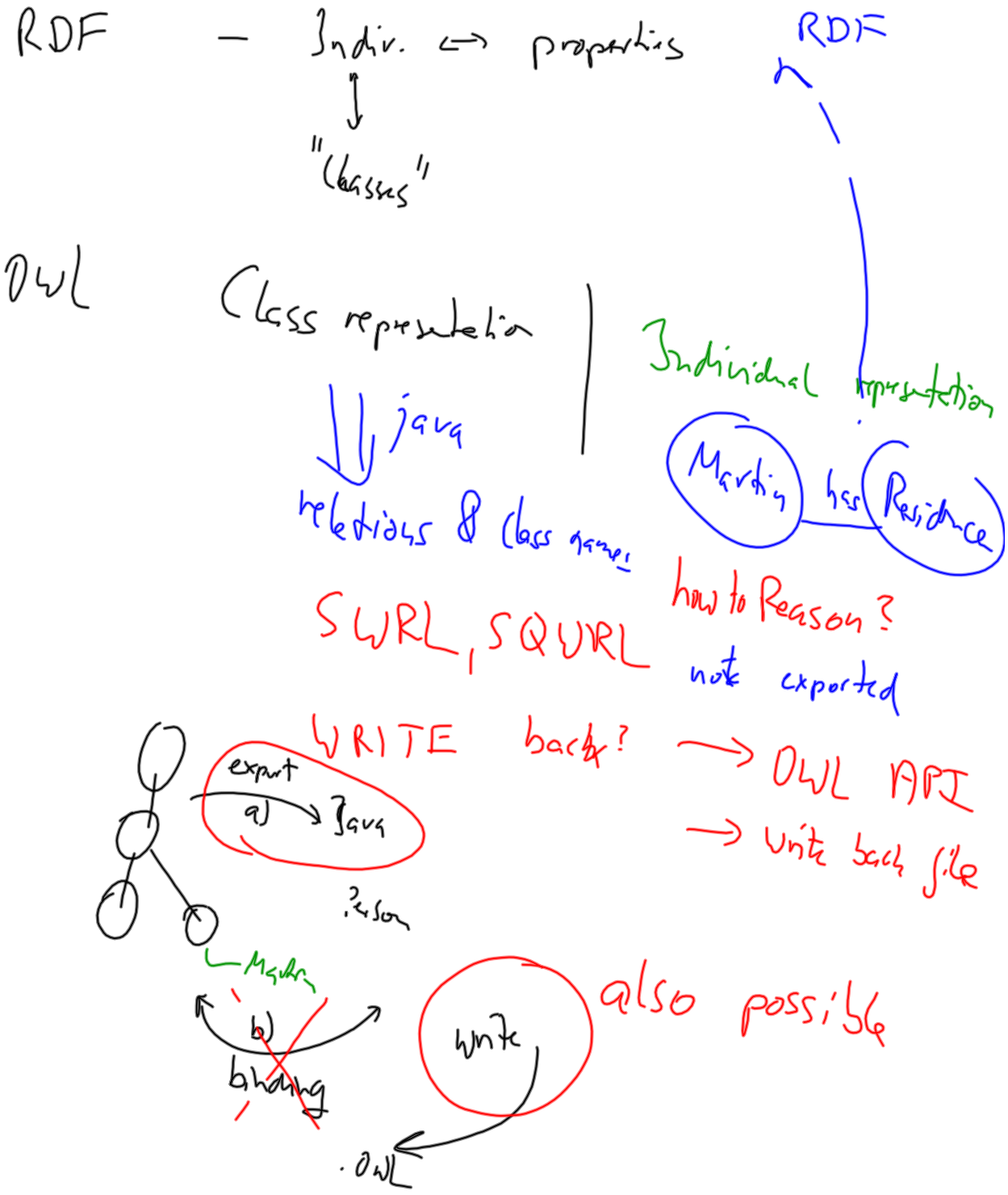
Advantages/Outcome:
Male(
hasDrinksTypePreference: Americano;
hasFoodTypePreference: Cheeseburger, Maki, ThaiWok;
hasResidence: Oslo;
hasTrip: TripMartinToWashington;
hasFirstName: Martin;
hasGPSLocation: 14;
hasLastName: Folkeseth;
hasUserId: 101;
)
- easy class retrival
- individual handling
Write back?
- handling classes
Martin Folkeseth, with UserID: 101
Individual lives in: Oslo
- hierachy
- guaranteed code exchange


Person
- male/female
m
Property
has Prename
has Name
has ID


Thing
Pizza Topping
Pizza Base
Properties


RDF
Indiv.
properties
"Classes"
RDF
OWL
Class representation
Individual representation
java
methods & class names
Marvin
has
Residence
SWRL, SQWRL
how to Reason?
not exported
WRITE back?
OWL API
write back file
export
as
Java
reason
Marvin
b)
change
write
also possible
.owl

Reason through Java
- consistency
- inherit knowledge
- OWL API → write back into OWL
  → exact SWRL
- "forget about SWRL"

Instead: Reason through Java Expressions
- might be inefficient
+ negation, "not"
  count, or
+ time

OWL2-API-Arne-Song.pdf - Adobe Acrobat Pro Extended

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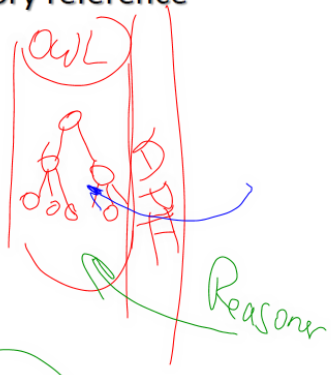
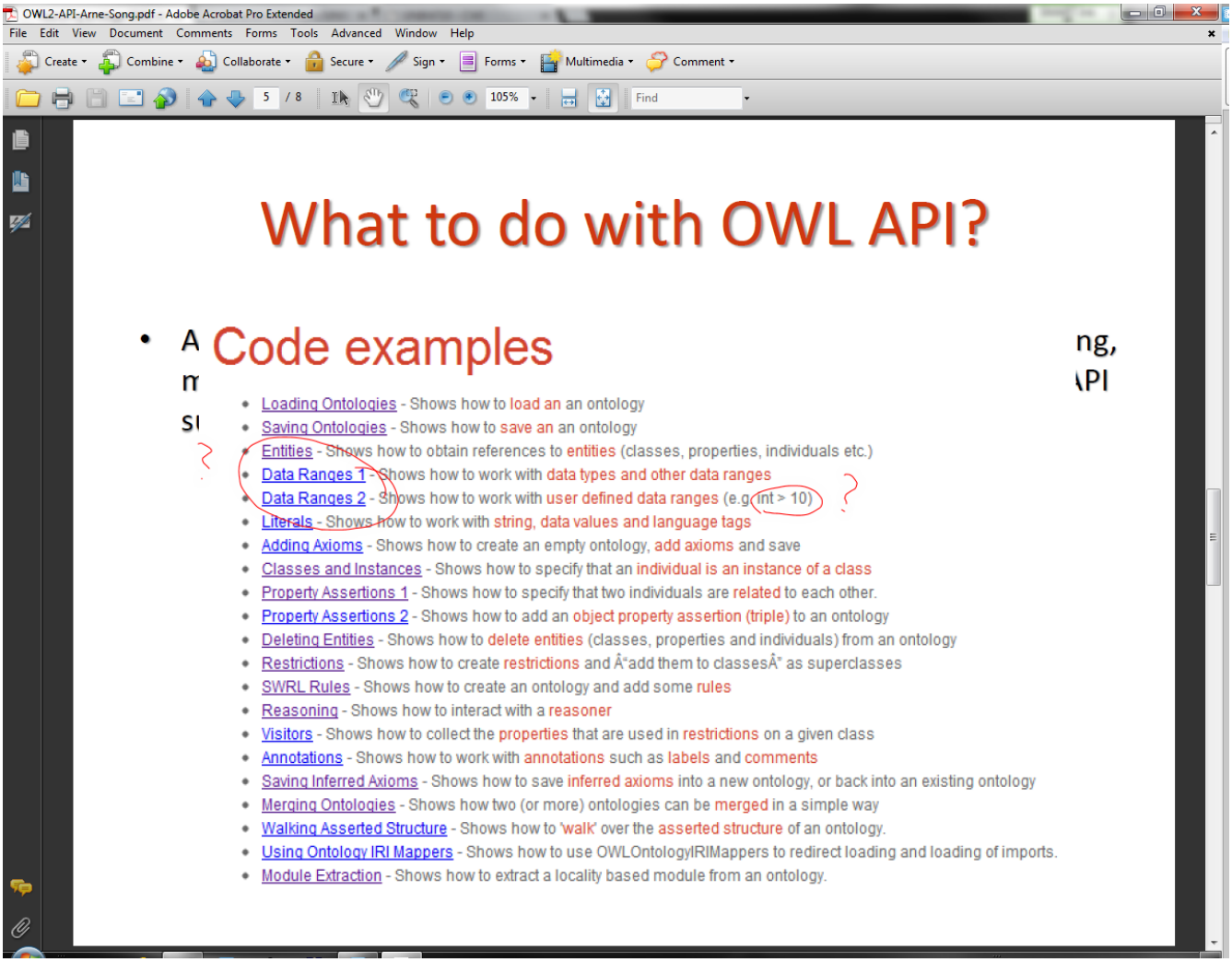
2 / 8 105% Find

The OWL API includes the following components:

- An API for OWL 2 and an efficient in-memory reference implementation;
- RDF/XML parser and writer.
- OWL/XML parser and writer.
- OWL Functional Syntax parser and writer.
- Turtle parser and writer.
- KRSS parser.
- OBO Flat file format parser.
- Reasoner interfaces for working with reasoners such as FaCT++, HermiT, Pellet and Racer.

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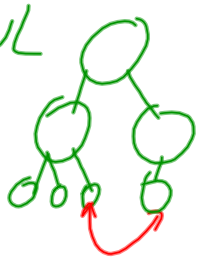
105%
Find
What to do with OWL API?
Code examples
Loading Ontologies - Shows how to load an an ontology
Saving Ontologies - Shows how to save an an ontology
Entities - Shows how to obtain references to entities (classes, properties, individuals etc.)
Data Ranges 1 - Shows how to work with data types and other data ranges
Data Ranges 2 - Shows how to work with user defined data ranges (e.g. int > 10)
Literals - Shows how to work with string, data values and language tags
Adding Axioms - Shows how to create an empty ontology, add axioms and save
Classes and Instances - Shows how to specify that an individual is an instance of a class
Property Assertions 1 - Shows how to specify that two individuals are related to each other.
Property Assertions 2 - Shows how to add an object property assertion (triple) to an ontology
Deleting Entities - Shows how to delete entities (classes, properties and individuals) from an ontology
Restrictions - Shows how to create restrictions and Â"add them to classesÂ" as superclasses
SWRL Rules - Shows how to create an ontology and add some rules
Reasoning - Shows how to interact with a reasoner
Visitors - Shows how to collect the properties that are used in restrictions on a given class
Annotations - Shows how to work with annotations such as labels and comments
Saving Inferred Axioms - Shows how to save inferred axioms into a new ontology, or back into an existing ontology
Merging Ontologies - Shows how two (or more) ontologies can be merged in a simple way
Walking Asserted Structure - Shows how to 'walk' over the asserted structure of an ontology.
Using Ontology IRI Mappers - Shows how to use OWLOntologyIRIMappers to redirect loading and loading of imports.
Module Extraction - Shows how to extract a locality based module from an ontology.

OWL API

Facts

- code example
- communicate with OWL
- thinks OWL



Criteria

- more logic // business process oriented

Evaluation

Recommendation

Java export

- easy export // user friendly
- creates structure for java prg
- allows to "think" java
- just classes and relations
- don't need to think OWL
- implicit knowledge
- programming, object oriented
- does not need OWL knowledge

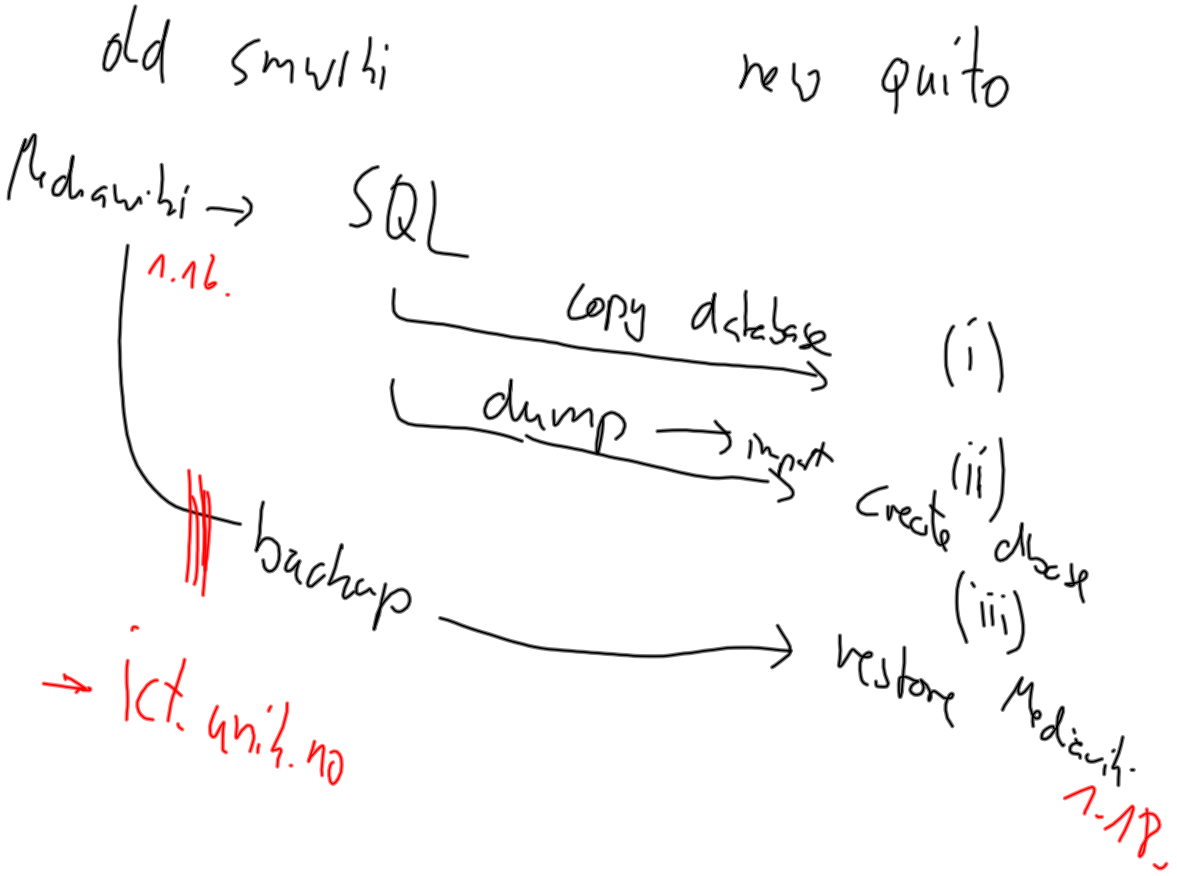
Javier: → Android App ⇝ Java

⇝ Java API

José —— // ——

Philip "at home with Java" →
consider Python with own rules
↳ with Sem. Web

Martin .net OWL API ↳ Clark. Java


old smvlki
new quito
Mdamvlki → SQL
1.16.
copy database
(i)
dump → import
(ii)
create db
backup
(iii)
restore Mdamvlki
1.18.
→ ict. unik. no