Banking Ontology - Team 10

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Assignment 1

Concepts

- Selected the main domain to work upon
- Came up with broad categories
- Came up with concepts within these categories
- Removed unnecessary concepts and retained only important concepts
- Eg. Under category “Machine”, ATM, etc

Roles

- Made a matrix with rows and columns as the concept names
- Filled roles between any related concepts in the matrix
- Removed many unimportant roles and kept the very important roles

Role Matrix

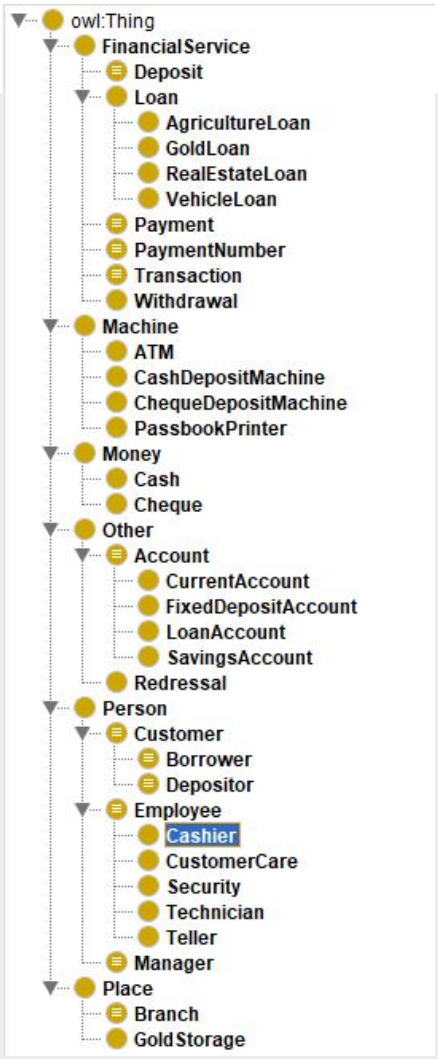
	Customer	Branch Manager	Employee	Cashier	Teller	Person	Borrower	Technician	Securities	Customer care	Branch
People											
Customer										askQuery	
Branch Manager			oversees								manage
Employee		worksUnder									worksAt
Cashier		worksUnder									
Teller											
Person											
Borrower											
Technician		worksUnder									
Securities		worksUnder									
Customer care	answersQuery	worksUnder									
Places											
Branch											
Gold storage (storage vaults)											
Money											
Cash											
Amount											
Loan(Personal, gold, house, car)											

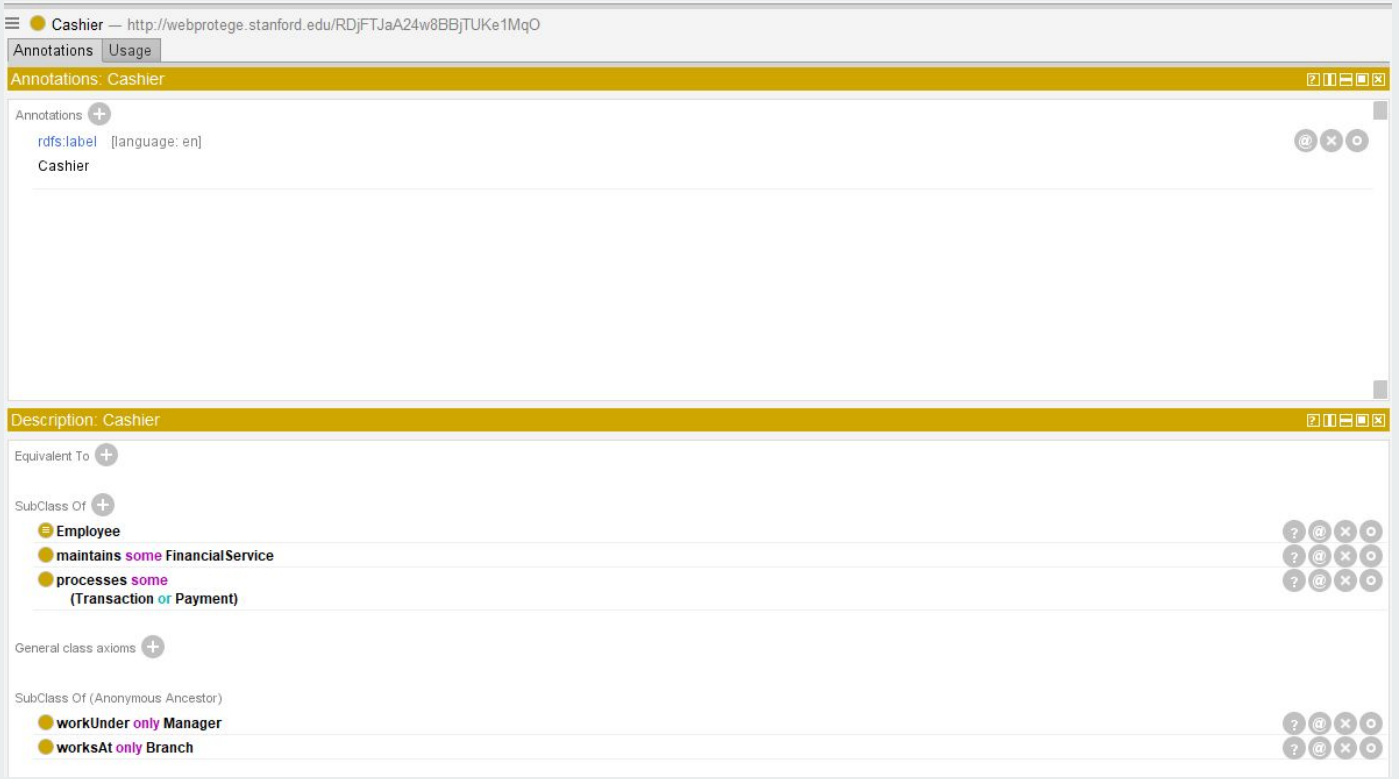
TBox

- Defined complex concepts using basic concepts using ⊑ or ≡
- Eg. Cashier ≡ Employee ⊓ ∃ maintains.(FinancialService)
    - Cashier is a Employee who maintains atleast 1 Financial Service

Assignment 3

- Made some small updates to TBox
- Used Protege tool to make OWL Ontology
- Entered Concepts (complex concepts inside categories)
- Connected concepts using roles (subclass, all, some, etc)
- Ran default HermiT Reasoner in Protege on the Ontology (No Errors)
- Generated final .owx file


owl:Thing
FinancialService
Deposit
Loan
AgricultureLoan
GoldLoan
RealEstateLoan
VehicleLoan
Payment
PaymentNumber
Transaction
Withdrawal
Machine
ATM
CashDepositMachine
ChequeDepositMachine
PassbookPrinter
Money
Cash
Cheque
Other
Account
CurrentAccount
FixedDepositAccount
LoanAccount
SavingsAccount
Redressal
Person
Customer
Borrower
Depositor
Employee
Cashier
CustomerCare
Security
Technician
Teller
Manager
Place
Branch
Gold Storage


Cashier — http://webprotege.stanford.edu/RDjFTJaA24w8BBjTUKe1MqO
Annotations
Usage
Annotations: Cashier
Annotations
rdfs:label [language: en]
Cashier
Description: Cashier
Equivalent To
SubClass Of
Employee
maintains some FinancialService
processes some
(Transaction or Payment)
General class axioms
SubClass Of (Anonymous Ancestor)
workUnder only Manager
worksAt only Branch

Assignment 4

Assignment 4 - XML Data

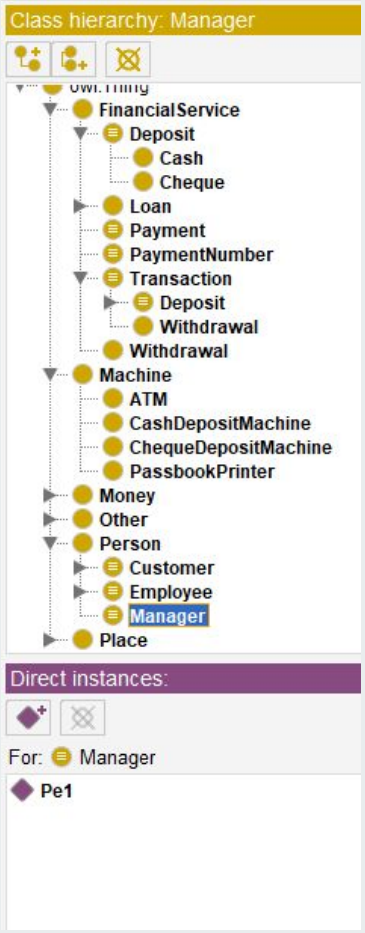
- Loaded XML Data using python xml ElementTree package
- Converted data into RDF Triples as (subject, predicate, object) and used rdflib python package
- Save RDF Triples as xml

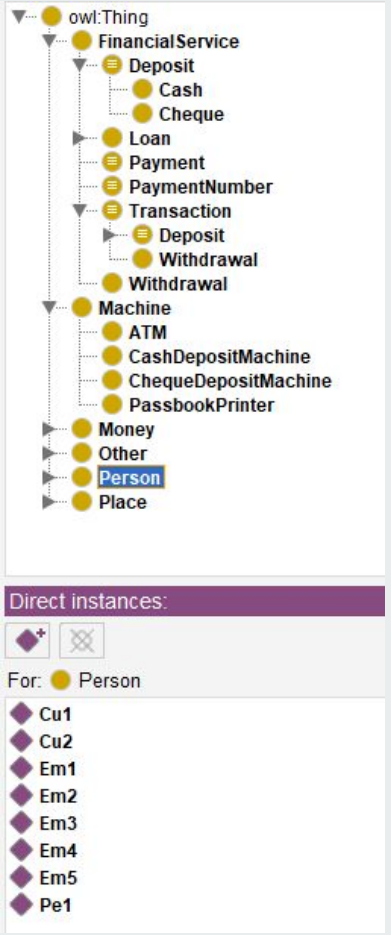
Assignment 4 - OWL Ontology

- Loaded .owx Ontology using owlready2 python package onto a “World”
- Can convert this into RDF Triples using a function given

Assignment 4 - Combine

- Load OWL Ontology using owlready2 onto a “World”
- Load the RDF Triples of XML Data also onto same “World”
- Run owlready2 Reasoner on the World
  - It uses both the ontology and the XML data for reasoning
  - No Errors in reasoning
  - Few additional triples are inferred and added to the same World
- Displayed the additional triples inferred


Class hierarchy: Manager
owl:Thing
FinancialService
Deposit
Cash
Cheque
Loan
Payment
PaymentNumber
Transaction
Deposit
Withdrawal
Withdrawal
Machine
ATM
CashDepositMachine
ChequeDepositMachine
PassbookPrinter
Money
Other
Person
Customer
Employee
Manager
Place
Direct instances:
For: Manager
Pe1


owl:Thing
FinancialService
Deposit
Cash
Cheque
Loan
Payment
PaymentNumber
Transaction
Deposit
Withdrawal
Withdrawal
Machine
ATM
CashDepositMachine
ChequeDepositMachine
PassbookPrinter
Money
Other
Person
Place
Direct instances:
For: Person
Cu1
Cu2
Em1
Em2
Em3
Em4
Em5
Pe1