

Books Ontology

The purpose of this ontology is to observe how a bookstore service works. A bookstore must contain books, books contain various topics such as romance, biography, magazines/newspapers, science fiction, personal development and much more. Who comes for the books? Of course, readers, can make a reservation for various titles, leave reviews of various titles, and purchase a book.

But let's talk about books, they are written by the author, then the author needs a publishing house to print his creation in several copies, and the copyright. With us, they receive grades (A, B, C, D, F) depending on the feedback, recommendations, sales. Magazines and newspapers created by the publishing house are also available for reading or buying. They are grouped by size, time, cover type and content. A short description diagram of ontology presented is shown below in Figure 1, and a fully detailed UML diagram is present in the zip archive among the report an owl ontology file.

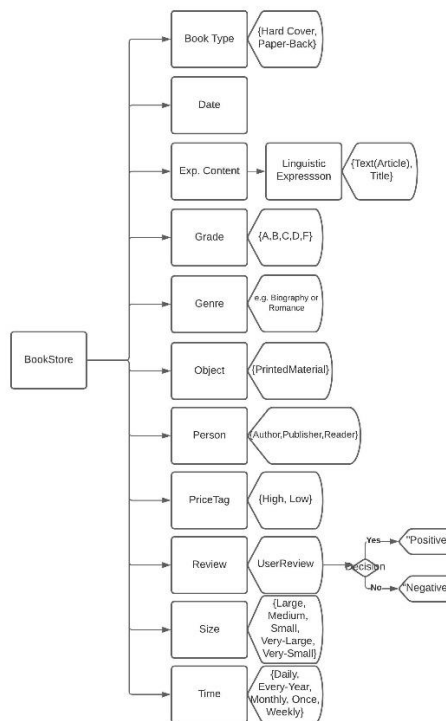


Figure 1: A general perspective of ontology



Figure 2: Detailed UML of ontology

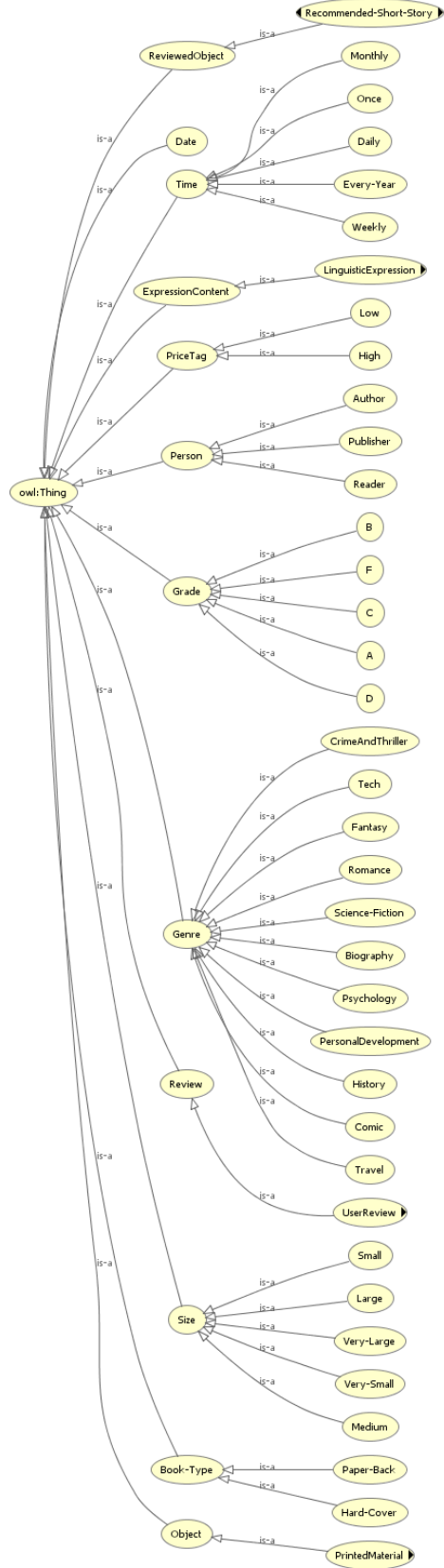


Figure 3: Asserted Hierarchy



Figure 4: Inferred Hierarchy

The screenshot displays a software interface with several panels. On the left, a 'Class hierarchy: owl:Thing' tree shows a hierarchy starting from 'owl:Thing' and branching into 'Book-Type', 'Date', 'ExpressionContent', 'LinguisticExpression', 'Text', 'Article', 'Title', 'Genre', 'Biography', 'Comic', 'CrimeAndThriller', 'Fantasy', 'History', 'PersonalDevelopment', 'Psychology', 'Romance', 'Science-Fiction', 'Tech', 'Travel', 'Grade', 'Object', 'PrintedMaterial', 'Publication', and 'Monograph'. The 'Individuals: Steve_Jobs' panel lists several individuals, with 'Steve_Jobs' highlighted. Below this, a 'Description: Steve_Jobs' panel shows various properties and their values, such as 'contains only Hard-Cover', 'datePublished some Date', 'hasGenre some Biography', 'hasGrade only C', 'hasName only Text', 'hasPrice only Low', 'hasReview only Positive', 'hasSize only Medium', 'hasType some Journals', 'Journals', 'publishedBy only Publisher', 'timePublished some Once', and 'writtenBy only Author'. On the right, a 'Property assertions: Steve_Jobs' panel shows object property assertions like 'isTitled Steve_Jobs' and data property assertions like 'BooksAvailability', 'ISBN', 'Rewards', and 'RecommendedFromReaders'.

Figure 5: Individuals

SPARQL Queries:

The screenshot shows a SPARQL query interface. The top bar indicates the active ontology is 'books (http://127.0.0.1:3001/ontology/books.owl)'. The 'Active ontology' tab is selected. The 'Superclass hierarchy' panel shows a hierarchy starting from 'owl:Thing' and branching into 'Book-Type', 'CorpuscularObject', 'Date', 'ExpressionContent', 'Genre', 'Grade', 'Object', 'Person', 'Review', 'ReviewedObject', 'Size', and 'Time'. The 'Class hierarchy' panel shows a hierarchy starting from 'owl:Thing' and branching into 'Book-Type', 'CorpuscularObject', 'Date', 'ExpressionContent', 'Genre', 'Grade', 'Object', 'Person', 'Review', 'ReviewedObject', 'Size', and 'Time'. The 'SPARQL query' panel contains the following query:

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX books: <http://127.0.0.1:3001/ontology/books.owl#>
SELECT ?class
WHERE { ?class rdfs:subClassOf books:Genre }
  
```

The 'Execute' button is visible. The results panel shows a list of classes: 'Romance', 'Biography', 'History', 'Science-Fiction', 'Tech', 'Comic', 'Travel', 'PersonalDevelopment', 'CrimeAndThriller', 'Psychology', and 'Fantasy'. The bottom status bar indicates 'Reasoner active' and 'Show Inferences' is checked.

Figure 6: Shows all books topics

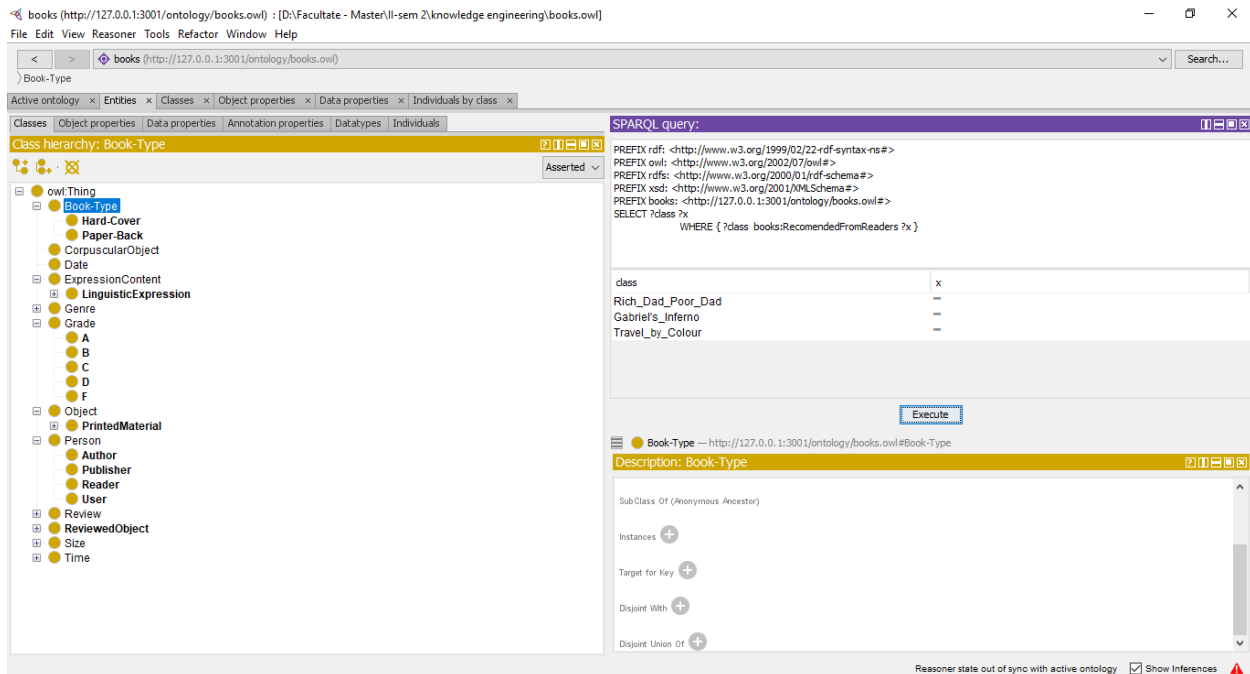


Figure 7: Show books recommended by readers

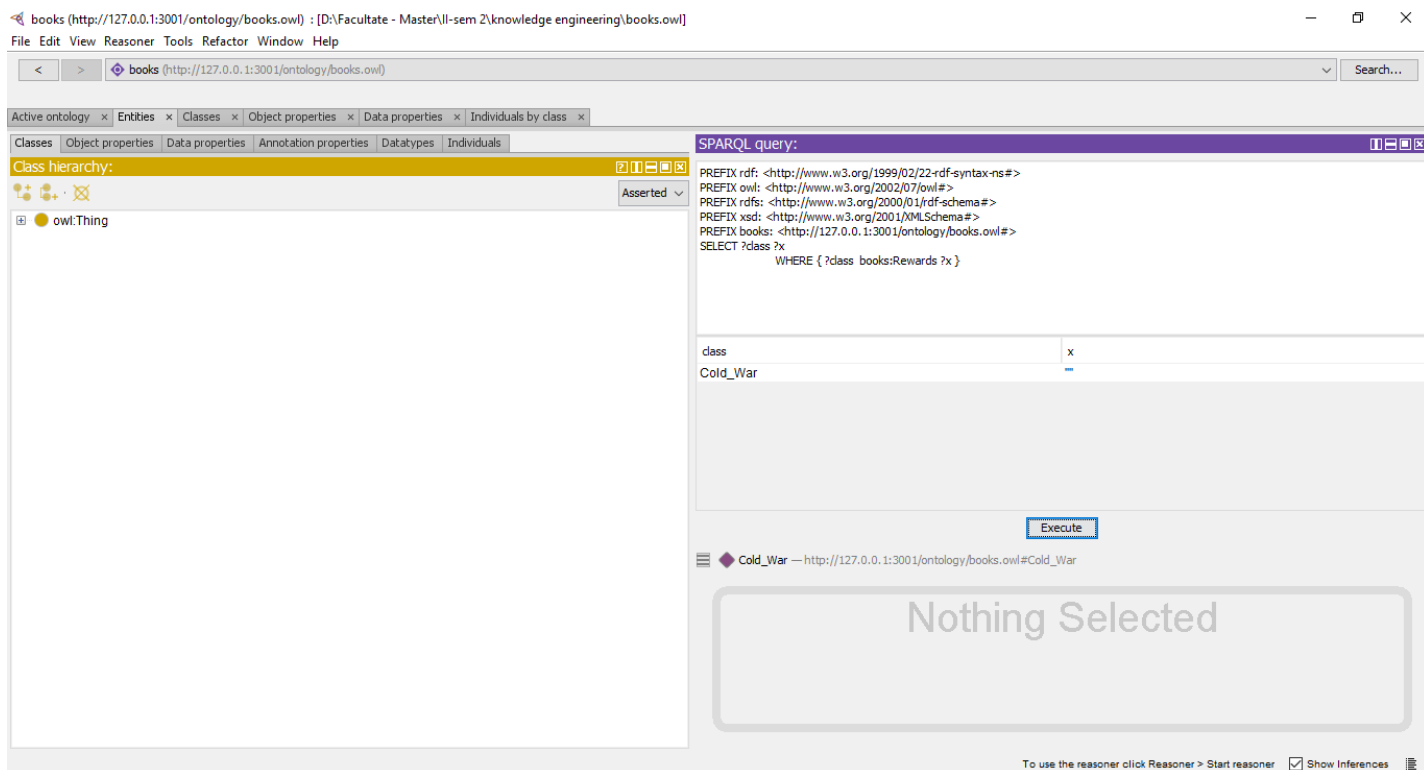


Figure 8: Show book(s) with rewards

SPARQL query:

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX books: <http://127.0.0.1:3001/ontology/books.owl#>
SELECT ?class ?x
    WHERE { ?class books:New_Appearances ?x }
```

class	x
The_Long_Story	—
Internet_of_Things	—
Travel_by_Colour	—
Walt_Disney's_Donald_Duck:_The_Daily_Newspaper_Comics_Volume_2	—

Figure 9: Show last books arrived in the library

SPARQL query:

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX books: <http://127.0.0.1:3001/ontology/books.owl#>
SELECT ?class ?x
      WHERE { ?class books:ISBN ?x }
```

class

Travel_by_Colour

Rich_Dad_Poor_Dad

Walt_Disney's_Donald_Duck:_The_Daily_Newspaper_Comics_Volume_2

Gabriel's_Inferno

Steve_Jobs

The_Long_Story

Cold_War

A_Year_at_the_Chateau

Internet_of_Things

Figure 10: Show the books that have ISBN