

Find Your Book – Ontology

Books Ontology: An ontology used in classification of books in a library.

Tools & Technologies used:

1. Protégé Desktop tool
2. Eclipse – OWL API, Java, Servlets
3. WebStorm – Angular JS, HTML & CSS

Below are the details of the books stored (Subclasses of Books).

1. Name
2. Author
3. ISBN
4. Year
5. Category

To relate the sub classes in books, *object properties* are created. Below are the list of object properties used:

1. WrittenBy: This is a *Functional* property which is used to relate Name and Author
 - a. Domain: Name
 - b. Range: Author
2. PublishedIn: This is a *Functional* property which is used to relate Name and Published Year
 - a. Domain: Name
 - b. Range: Year
3. CategorizedAs: This is a *Functional* property which is used to relate Name and Category
 - a. Domain: Name
 - b. Range: Category
4. hasIsbn: This is a *Functional* property which is used to relate Name and ISBN
 - a. Domain: Name
 - b. Range: ISBN

Similarly four *inverse* properties for above properties are created and are *Inverse Functional*. For all the above properties restricted the range values using some values from property.

Created a conference rooms class which has four rooms as subclasses. Defined a Connects property which connects these rooms which is also a *Symmetric* and *Transitive* property. Defined a *Dataproperty* OpenTimings which has relates each room with specific open hours.

The above Ontology is created using Protégé Desktop tool. Then using *OWL API* loaded this Books Ontology and developed a web application to query and get the results.

Used *JFact++* reasoner to obtain the relations between the classes and to determine if a class is consistent or not.

Application:

Through the web application user can select author or category or published year with any combination, results are displayed using the set operator *intersectionOf()* classes.

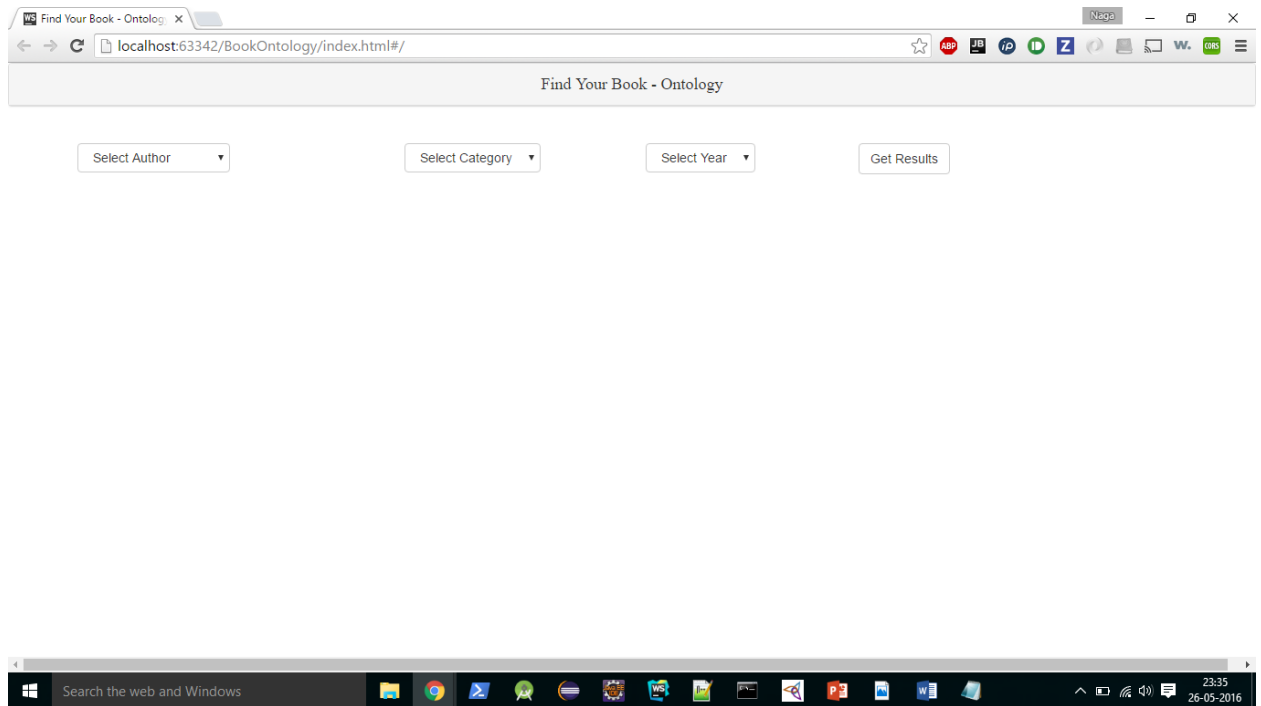


Figure 1: Home Page

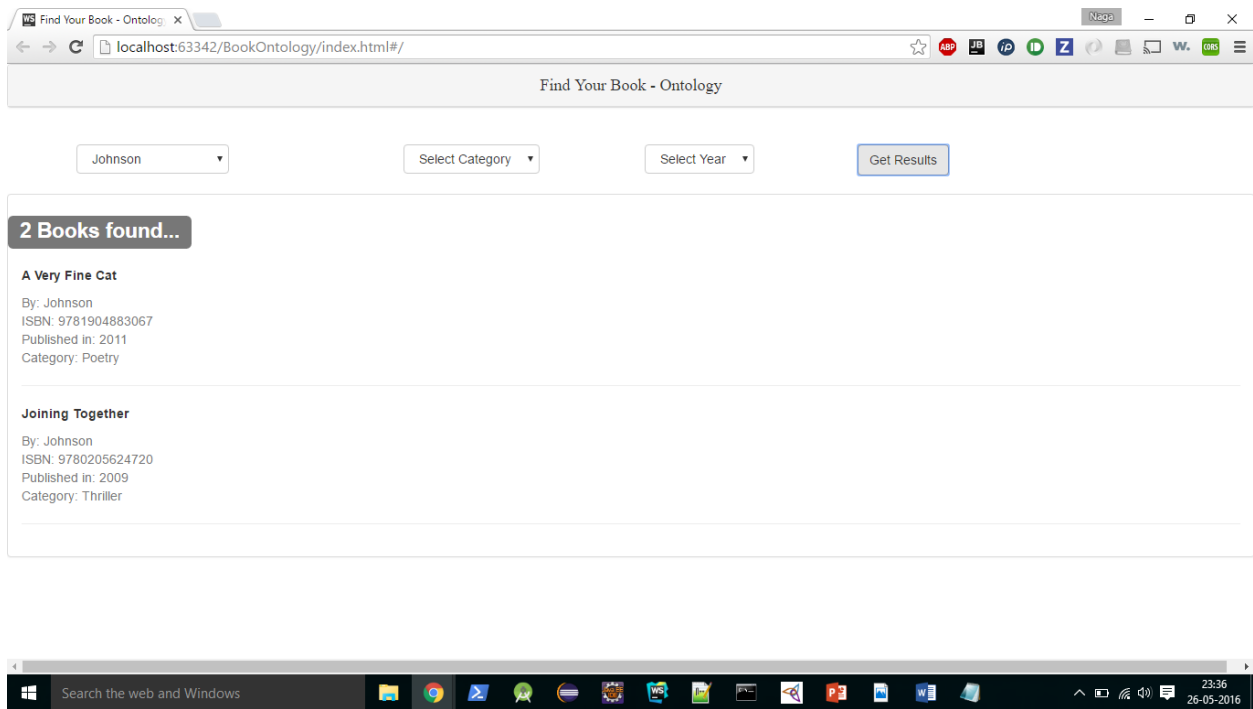


Figure 2: On Selecting Author – Johnson

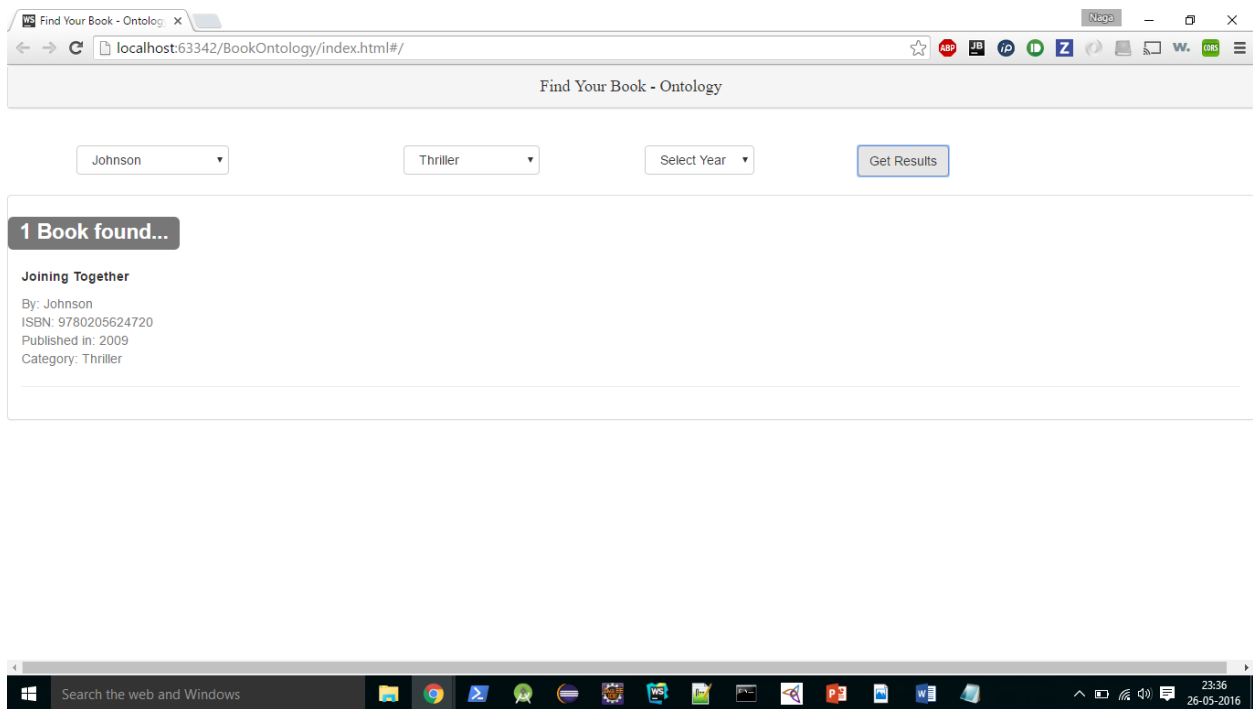


Figure 3: Selecting both Author as Johnson and Category as Thriller

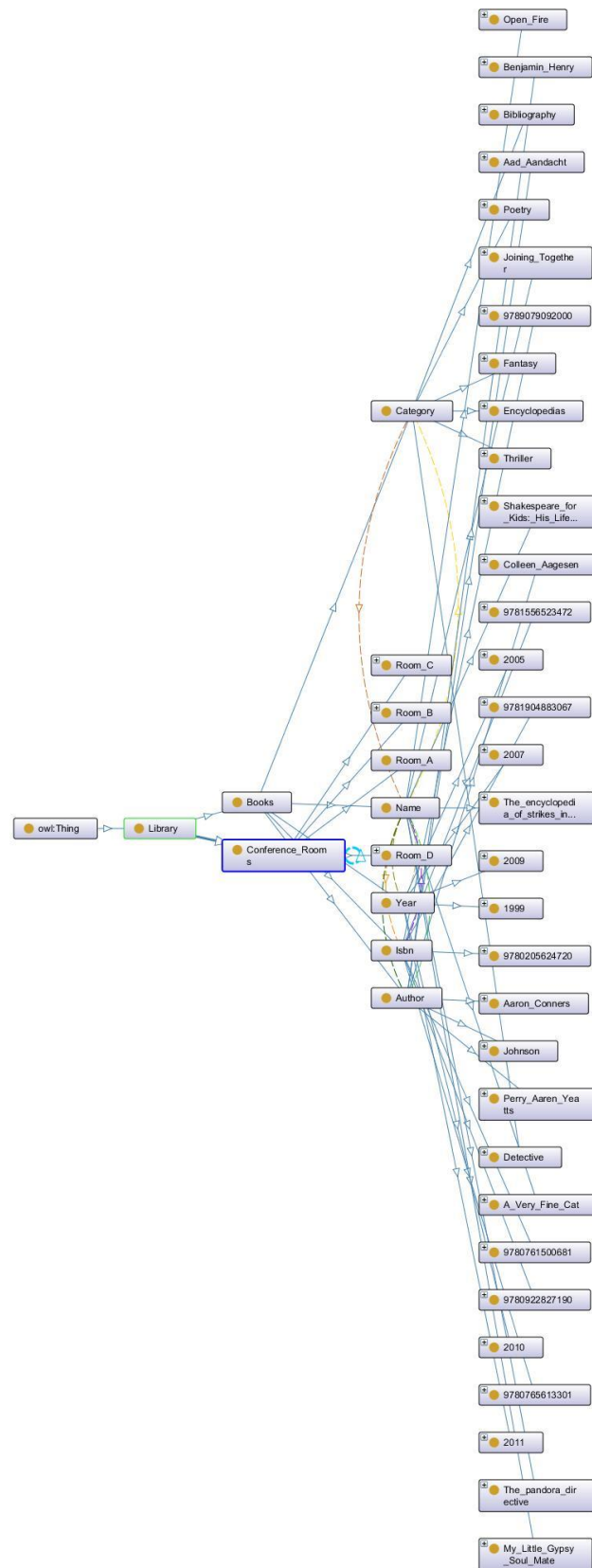


Figure 4: Books Ontology

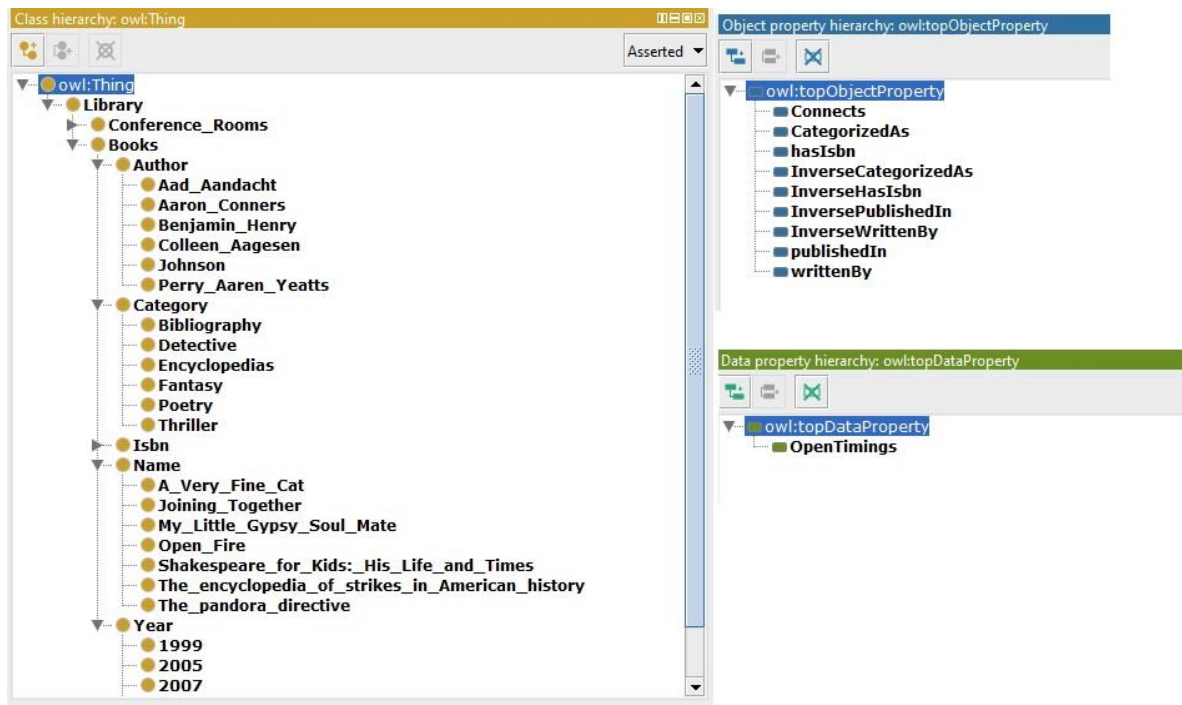


Figure 5: Classes, Object Properties & Data Properties