

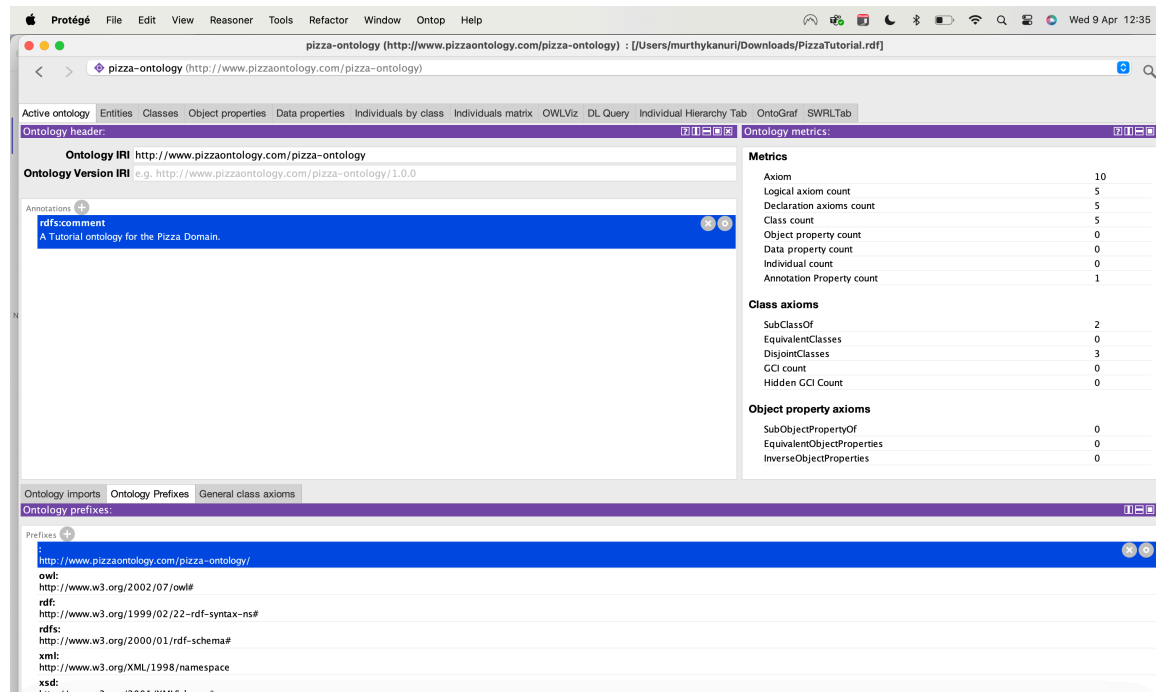
Knowledge Representation and Reasoning

Unit 8: Modelling with Protégé

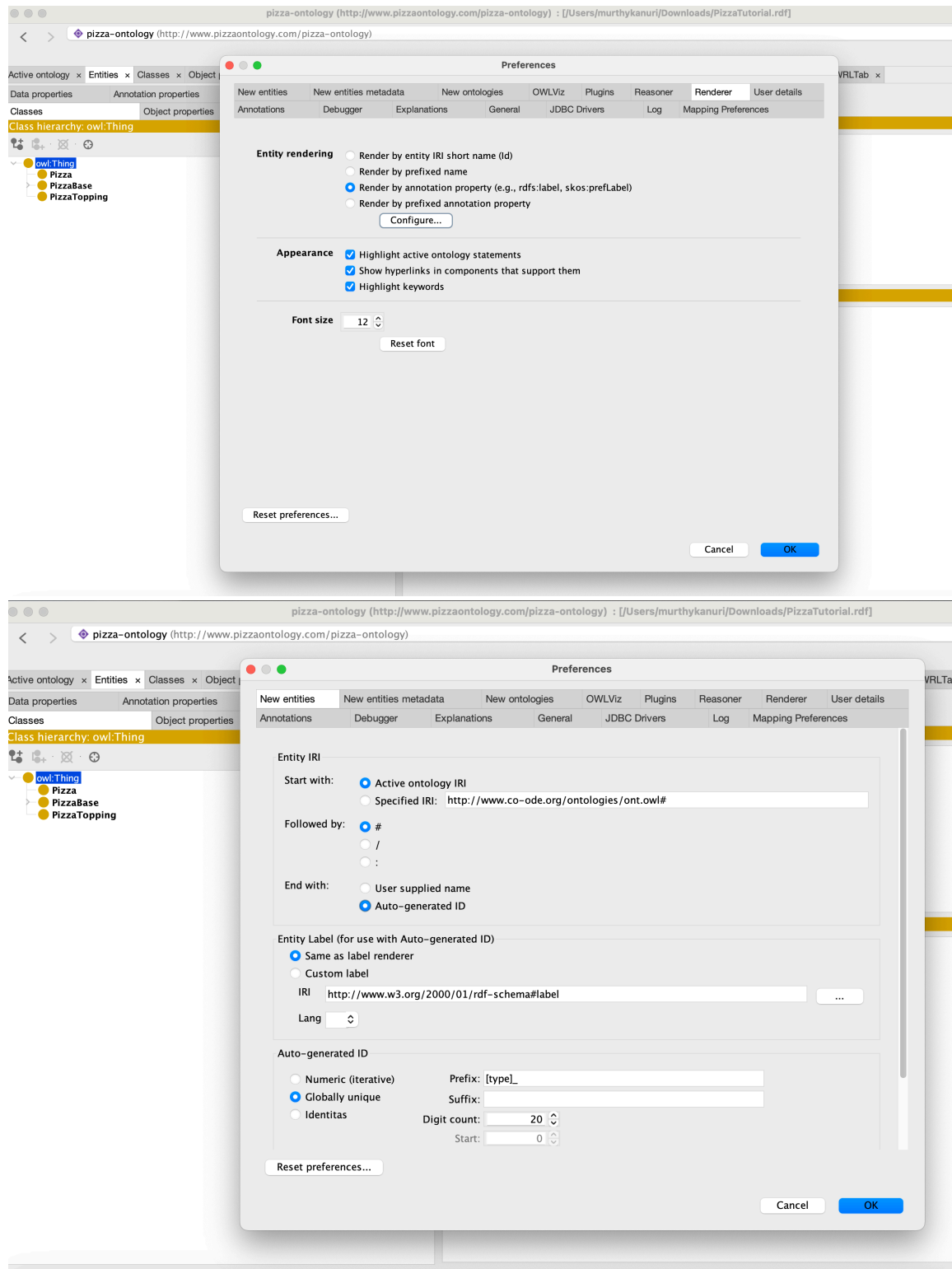
Formative Activities

Exercise 1: Create a New OWL Ontology

- Open **Protégé 5.5** and create a new OWL ontology.
- Set a name like pizza-ontology and define a base IRI, e.g., <http://www.pizzaontology.com/#>.
- Save your file with the .owl extension.



Exercise 2: Set the Preferences for New Entities and Rendering



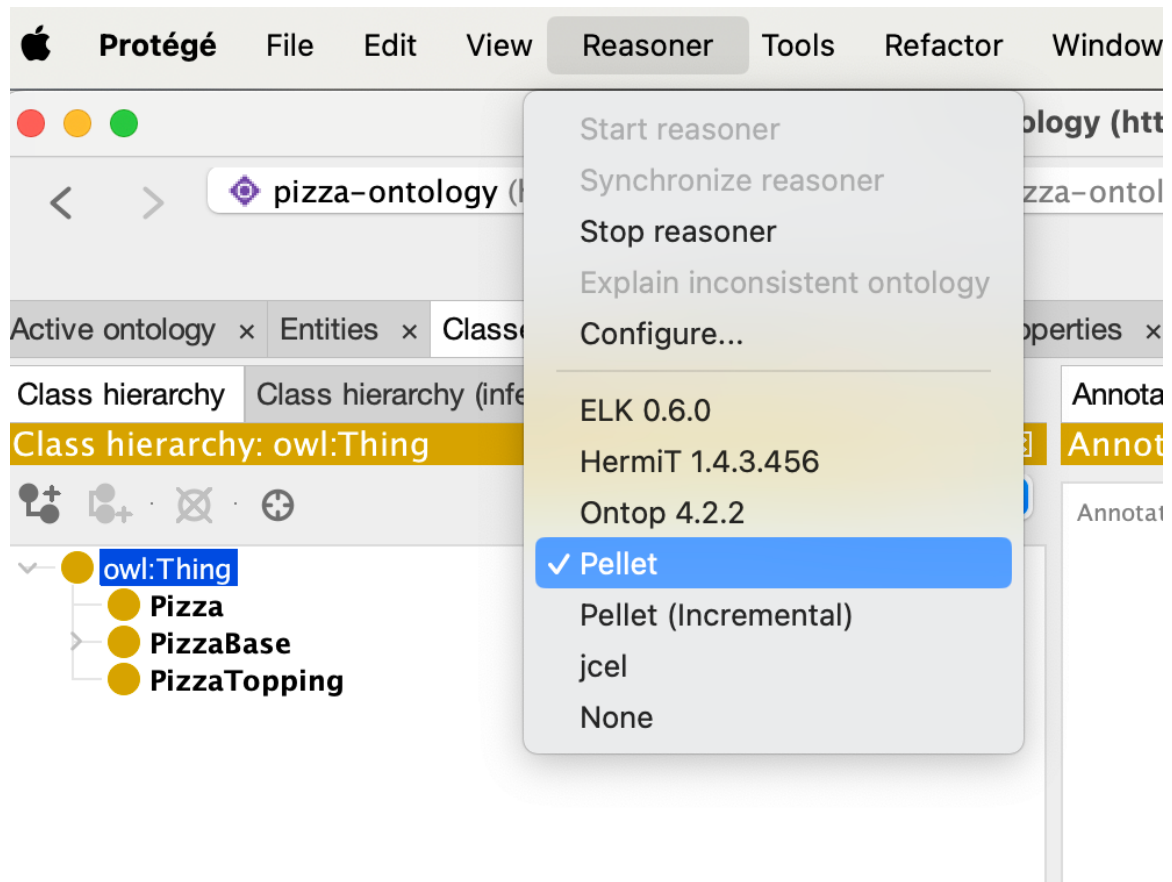
Exercise 3: Add a Comment Annotation to Your Ontology

The screenshot shows the Protege editor interface for the 'pizza-ontology' (http://www.pizzaontology.com/pizza-ontology). The 'Ontology header' section displays the ontology IRI and version IRI. The 'Annotations' section shows a comment annotation: 'A Tutorial ontology for the Pizza Domain.' The 'Ontology metrics' section lists various counts. The 'Ontology Annotation' dialog box is open, showing the 'Literal' tab with the value 'A Tutorial ontology for the Pizza Domain.' and the 'Datatype' set to 'xsd:string'.

Exercise 4: Create classes: Pizza, PizzaTopping, and PizzaBase

The screenshot shows the Protege editor interface for the 'pizza-ontology' (http://www.pizzaontology.com/pizza-ontology). The 'Class hierarchy' section shows the hierarchy: 'owl:Thing' (parent) with children 'Pizza', 'PizzaBase', and 'PizzaTopping'. The 'Annotations: owl:Thing' section shows the 'Description: owl:Thing'.

Exercise 5: Install and Run the Pellet Reasoner



Exercise 6: Make Pizza, PizzaTopping, and PizzaBase disjoint from each other

The screenshot shows the 'pizza-ontology' web interface. The top navigation bar includes tabs for 'Active ontology', 'Entities', 'Classes', 'Object properties', 'Data properties', 'Individuals by class', 'Individuals matrix', and 'OWLVi'. The 'Classes' tab is active, and the 'Class hierarchy' sub-tab is selected. The class hierarchy for 'Pizza' is displayed on the left, showing a tree structure starting from 'owl:Thing' and branching into 'Pizza', 'PizzaBase', 'DeepPanBase', 'ThinAndCrispBase', and 'PizzaTopping'. The 'Pizza' class is highlighted. On the right, the 'Annotations: Pizza' section is visible, showing a list of annotations. The 'Description: Pizza' section is also visible, showing a list of properties and their values. The 'Disjoint With' property is set to 'PizzaBase' and 'PizzaTopping'.

Active ontology x Entities x **Classes** x Object properties x Data properties x Individuals by class x Individuals matrix x OWLVi

Class hierarchy Class hierarchy (inferred) Annotations Usage

Class hierarchy: Pizza Annotations: Pizza

Asserted

Annotations +

owl:Thing

- Pizza
- PizzaBase
 - DeepPanBase
 - ThinAndCrispBase
- PizzaTopping

Description: Pizza

Equivalent To +

SubClass Of +

General class axioms +

SubClass Of (Anonymous Ancestor)

Instances +

Target for Key +

Disjoint With +

- PizzaBase
- PizzaTopping

Disjoint Union Of +

Exercise 7: Use the Create class hierarchy tool to create subclasses of PizzaBase

