Semantic Web

OWL - Web Ontology Language

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27.11.2008

Exercise 1: OWL

Create an OWL ontology that models the following concepts:

1. There should be three classes: *Customer*, *Shop* and *Product*.
2. Customer and Shop should be equipped with properties *name* (xsd:string) and *email* (xsd:string), which are equivalent to *foaf:name* and *foaf:mbox*.
3. Each Product should have an *order number* (xsd:int). An order number can be unambiguously assign to a Product.
4. A Shop should have a property *sells* (range: Product) and a Product should have a property *soldBy* (range: Shop) respectively.
5. Instances of class Shop that sell more than 100 products should belong to a new class *BigShop*.
6. A Product must not be a Customer.
7. Instances that are both, Shop and Customer should belong to a class *PurchaseAndSale*.

Exercise 2: OWL

Answer the following questions (explain your answer):

1. Which OWL dialect is used by the ontology created in exercise 1?
2. What modifications are required to make the ontology an *OWL DL* ontology?
3. What modifications are required to make the ontology an *OWL Lite* ontology?
4. The properties *name* and *email* should be replaced by *foaf:name* and *foaf:mbox*. Which modifications does this cause?
5. Draw the RDF graph of the definition of class *PurchaseAndSale*.