Practice Number 1: Taxonomy, vocabulary and predicate logic exercises

1.   Learning object is any digital or non-digital entity that can be used for learning. Give taxonomies (e.g., subject area and type), which can be used in classifying (annotating) learning objects of computer science.

2.   Design a vocabulary to model (parts of) your workplace. For example, if you are at university, design a vocabulary about courses, teaching staff, rooms, publications, and so on. Designing a vocabulary means representing a conceptual schema (e.g., by ER-modeling, RDFS or by UML) of the domain, writing corresponding XML-Schema (or DTD) and writing sample XML-documents.

3.   Suppose that a database contains facts about the following base predicates:
    mother (x, y)   x is the mother of y
    father (x, y)   x is the father of y
    male (x)   x is male
    female (x)   x is female

Now we can infer (define) further relationships using appropriate rules, e.g., we can define predicate *parent:*
    parent is either a father or a mother, i.e.,
    mother (x,y) à parent (x,y)
    father (x,y)à parent (x,y)

a)   Define a brother to be a male person sharing a parent
b)   Define an uncle to be a brother of a parent
c)   Define a grandmother to be the mother of a parent
d)   Define ancestor to be either a parent or an ancestor of a parent.