Ontology and Database Systems
Ontology-based Systems

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Overview of the Part on “Ontology-based Systems” I

1. Modeling information through ontologies
   1. Introduction to ontologies
   2. Using logic for representing knowledge
   3. Ontology languages
   4. UML class diagrams as FOL ontologies

2. Description Logics
   1. Brief introduction to computational complexity
   2. Introduction to Description Logics
   3. Description Logics and UML Class Diagrams

3. Query answering in databases and ontologies
   1. Querying databases and ontologies
   2. Query answering in Description Logics

4. Ontology-based data access
   1. The DL-Lite family of tractable Description Logics
   2. Linking ontologies to relational data
Overview of the Part on “Ontology-based Systems” II

5 Reasoning in the DL-Lite family
   1 TBox reasoning
   2 TBox & ABox reasoning and query answering
   3 Beyond DL-Lite

6 Reasoning in the ALC family
   1 Properties of ALC
   2 Reasoning over ALC concept expressions
   3 Reasoning over ALC knowledge bases
   4 Extensions of ALC
   5 Reasoning in extensions of ALC
   6 SHOIQ and SROIQ

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