Conceptual and ontological modeling in information systems

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Abstract

Conceptual modeling of application domain constitutes an important stage of information system design that results in its conceptual model synthesis. In the last years for the information system development a significant attention is devoted to re-use of the information resources and providing semantic access to them. Methods and technologies of ontological modeling are also being actively developed. In the current work the problems and prerequisites of conceptual modeling of application domain development in the technologies of data bases and information systems are discussed. The well-known approaches to conceptual modeling and the respective languages supporting them as well as the respective instrumental facilities are considered, various treatments of the role of conceptual modeling of application domain are analyzed, the state of instrumental facilities for conceptual modeling produced by the software industry is evaluated. A relationship between conceptual schemes of application domain and ontologies is analyzed, their similarities and differences are characterized. Some terminological problems as well as advanced research directions in the areas of conceptual and ontological modeling are considered. The extensive bibliography is presented.