FRIEDRICH-ALEXANDER-UNIVERSITÄT ERLANGEN-NÜRNBERG
TECHNISCHE FAKULTÄT - INSTITUT FÜR INFORMATIK
LEHRSTUHL FÜR INFORMATIK VI (DATENBANKSYSTEME)

Master Thesis
(equiv. "Diplomarbeit (DA)")

Title	Master Thesis in Multimedia Database Systems
Subject	MPEG-7 compatible storage layer for the MultiMonster Media Server
Background	MPEG-7 is an emerging industry standard for describing multimedia content providing means to support interpretation of the information meaning by a device or a computer code. The MPEG-7 covers ten parts, namely: systems, description definition language, visual, audio, multimedia description schemes, reference software, conformance, extraction and use of descriptions, profiles and finally schema definition. MultiMonster is the multimedia database and server developed at the FAU. The server part consists of three layers: client interface, transformation and management, persistence. The prototype of the architecture is implemented as a proof-of-concept in Java/J2EE/EJB. The client side is also modeled and the two implementations are provided: web front-end (java servlets) and stand-alone client (Java/JMF). Main characteristics are: provision of media transformation (transcoding), pluggable components (extensibility), use of settings (QoS, adaptability). There are few advantages to bring the two together. First, the use of MPEG-7 standard will allow attaching well defined descriptions (according to part 5 - MM Description Schemas) to the stored media objects. Secondly, more detailed information about content gives more sophisticated search possibilities. And thirdly, the media-specific futures defined by MPEG-7 may help in the media transformation process.
Task	There are four main work packages, which can be distinguished: - analysis – the student has to research the possibilities to store MPEG-7 data in a database, where it can be imported, retrieved and queried along with the multimedia content it describes taking into consideration MultiMonster persistence layer. Also, a set of requirements is to be established. - design - then, the student has to describe in detail and specify the proposed system to fulfill the requirements by using modeling language like UML (similar as in MultiMonster design). - implementation - the student has to implement the design, and integrate it into the persistence layer and the transformation and management layer of MultiMonster. - testing - the final solution shall be tested for correct functioning and fulfilled requirements – the scope of the test should be documented however it will be defined after implementation.
Requirements	good knowledge of English interest in multimedia area very good knowledge in XML, Java knowledge about MPEG-7 would be nice
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