

Formal Specification of Web Services Applications for Digital Reference Services of Library Information System

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Abstract : This paper discusses the formal specification of web services applications for digital reference services (WSDRS). Digital reference service involves a user requesting for help from a reference librarian and a reference librarian responding to the request of a user all by electronic means. In most cases users do not get satisfied while using digital reference service due to delay of response of the librarians. Another may be due to no response or due to librarian giving an irrelevant solution to the problem submitted by the user. WSDRS is an informal model that claims to reduce the problems of digital reference services in libraries. It uses web services technology to provide efficient way of satisfying users' need in the reference section of libraries. But informal model is in natural language which is inconsistent and ambiguous that may cause difficulties to the developers of the system. In order to solve this problem we decided to convert the informal specifications into formal specifications. This is supposed to reduce the overall development time and cost. Formal specification can be used to provide an unambiguous and precise supplement to natural language descriptions. It can be rigorously validated and verified leading to the early detection of specification errors. We use Z language to develop the formal model and verify it with Z/EVES theorem prover tool.

Keywords : formal, specifications, web services, digital reference services

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