Abstract

Web service became one of the important methods for communication through the internet and its usage increased in the levels of users and developers. Semantic web service represents the second generation of web services that contains more description and information about its contents. Searching and dealing with web service is done through process called web service discovery which returns a Semantic Web Service Description Language file (SWSDL) for each web service. This research aims to expand the semantic web service usage through adding the multilanguage capability to the web service's discovery process and through recommending other web services to the user based on his history in using web services. These aims were achieved by modifying the web service discovery model through adding two important techniques the Cross Language Information Retrieval (CLIR) technique and the data mining association rules technique. This research proposed two sub models, the first sub model proposed the application of CLIR techniques and information retrieval method to support Bilingual Web service discovery process the second language that proposed here is Arabic. Text mining techniques were applied on SWSDL content and user’s query to be ready for CLIR methods, this sub model was tested on a curated catalogue of Life Science Web Services.
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http://www.biocatalogue.org/ and achieving 99.38% accuracy and 87.23 precision of the effectiveness of the monolingual system. The second sub model proposed a process of web service recommendation by applying the data mining techniques to suggest another web service beside the one he got from the discovery process based on the user’s history. This sub model was tested on the mention curated web services site and the results were 65% of users chose services from the services that recommended by the proposed sub model.

References

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**Index Terms**

Computer Science  
Web Services

**Keywords**

Semantic web services discovery; Cross Language Information Retrieval; Text Mining

BioCatalogue

Data Mining

and Recommendation System.