Automated query classification based web service similarity technique using machine learning

B. Saravana Balaji1 · S. Balakrishnan2 · K. Venkatachalam3 · V. Jeyakrishnan4

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Abstract
With the tremendous growth of the internet, services provided through the internet are increasing day by day. For the adaptation of web service techniques, several standards like ebXML, SOAP, WSDL, UDDI, and BPEL etc. are proposed and approved by W3C. Most of the web services are operating as a query—response model. The user has to submit query according to the standard adapted, and services are supporting natural language queries nowadays. The given inputs are processed by web services server can find few similarities in sentence like nouns. The keyword for nouns is filtered accurately and saved in the list as table for each domain. Same time input query words are stored in the domain. The words stored in the domain is matched with the given input queries, later used to find the similarity between the queries. In this paper, an automated technique for finding web service similarity based on query classification proposed. The proposed method adapted machine learning approach called KNN, and the data maintained in a hash indexed storage tables. As a result, the relationships between the input query and stored database have been showed in precision, recall, F1-Score and Support.

Keywords Query classification · Web service similarity · Indexed storage · One hot encoding

1 Introduction
In web services discovery the major concern understands the given input user query. The queries are effectively mapped in different categories in matching engine. The domain details are stored in data engine. This provides the fast and efficient service during web search. The improvements can be seen in various applications such as travel planner, advertising, and web search. To provide the improved performance and better accuracy in searching platform the novel method of classification is introduced. The task is very challenging in widely used web search engine. The major challenge can be viewed in real time service retrieval and also handling traffic.

1.1 Web service discovery
Web service can be classified based on the services they used are shown in Fig. 1. The given query is processed by web service discovery tools. The tools will read the URLs of XML file for given web services. The corresponding URL is located in web server so that it saves the related services document in local storage was proposed by (Han et al. 2015). The challenging task is processing the requested service and finding the exact result to user’s inspire of having huge web services and suppliers. The main interest of user is quality of requested service although they not need provider information.

The every web service provider has to register their service details such as descriptions and information regarding their services like details of trade, technical and services they provide for users. Classification of services was discussed by (Venkatachalam et al 2016a, b), through Fig. 1. The services which are frequently used by users are stored in the