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A Strategy for Identifying Relevant Web Services

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Abstract— It is becoming more challenging for users to identify relevant internet services due to the proliferation of these resources. Finding the most suitable service requires a lot of effort on the part of the one in need of it. As people rely more and more on the web to carry out mundane tasks, online services assume a more central role in their daily life. A web service, in its simplest form, is an Internet-based service given from one electronic device to another. certain the variety of possibilities, it may be difficult to narrow in on the specific service that would best meet a certain need. Given the proliferation of both Web services and service consumers, researchers in the field of services computing have worked to address the challenge of quickly discovering the most relevant services in response to user queries. There have been several reports pointing in this direction. The article details a process for locating applicable web services that takes user preferences into consideration and describes how to put it into reality.

Keywords- *Incorporating Web Data Mining, Web Services Research, and Knowledge Engineering*

INTRODUCTION

Discovering desired online services, which may or may not be functioning depending on the demands of the end user, is the task of online service discovery. Since web service search engines have their own set of limitations and difficulties in putting these concepts into practice, a new approach to web service discovery is necessary. It is essential for the user to locate a web service that precisely meets his or her functional requirements. The web service is then made public in a repository, however the sheer amount of services being published there has led the repository to inflate in size.

Using a method called Similar Word Mining (SWM), one may enhance the similarities between two web-based services. The subject modeling features of SWM really shine when used with web services. These digital sites provide reliable probability calculations for a broad variety of topics. SWM enables sizing flexibility. A topic model may estimate the potential reach of a user's query by analyzing the query's terms. The relevance of each question to SWM is then graded. SWM gives a higher probability of usefulness to web services that get a higher score. Similar Word Mining may be used to find relevant web resources for any given topic. A customer must repeat the whole process every time they have a question about a service. User History will provide access to online resources that the user has already seen. User activity records will make it easier to locate useful resources on the web.

Therefore, it is important to create a web service search engine that utilizes user preferences to speed up the search process and uses constraint based clustering to extract relevant web services via a must-link and cannot-link technique. Web service development makes use of protocols and specifications such as UDDI, SOAP, WSDL, and many more. Multiple vendors build and disperse their own Web services using UDDI. It's the apparatus that makes cataloging and locating online services possible. A web service's finer qualities are laid down in the WSDLdocument.

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LITERATURE SURVEY

Quickly finding the suitable web service according to customer/user queries is very challenging Existing service discovery approaches rely on either UDDI based or Web service search engines to locate matching services But Registries like UDDI are no longer available on internet. Oppositely, the web service search engine or web service directories increase rapidly but web service search engines that rely on keyword matching always suffer from a lack of sufficient keywords in Web service descriptions or from using synonyms of predefined keywords.

WSDL (Web Service Description Language) used to perform service matching and discovery. Limitation related to WSDL is keyword based service matching which gives low accuracy.

Aznag et al. [2] Organized hierarchical clusters to find web services based on correlated topic models by extracted topics from web service descriptions. Elgazzar et al. [3] clustered those web services that share similar features in to various group using extracted feature from WSDL documents. Cassar et al. [4] Using Probabilistic Latent Semantic Analysis (PLSA) learned latent topics from web service description and then grouped web services according to their latent factors. Chen et al.

[5] explain web service clustering approach through augmented Common Topic Group (CTG) by combining WSDL documents with service tags. Liu et al. [6] presented an active learning framework to classify large scale services with CTG based topic models combined with a SVM (Support Vector Machine) classifier.

OBJECTIVES

We develop a web service search engine tool for

mining web service discovery approach by implementing must-link and cannot link approach. We also make the use of user preferences according to historical usage thus improving overall searchtime.

METHODOLOGY

In proposed architecture, first we will take some Web Services Datasets. Then data preprocessing will give feature words from web service description documents using some steps like tokenization, stop words removal, stemming & lemmatization. The extracted feature words will be used to form a vector space. Topic modeling will use Relational Topic Modeling (RTM) technique which will give topic list from feature words. That means the topic distribution of query is estimated. This topic list will give to the SWM model. Using service topic mapping, SWM is generated where we will apply must link and cannot link approach. The results will be stored in web service index file & will be given to Web Service extraction & Ranking model. Then service query of user will matched with web service from web service index file.

User will search service query first in User history. If some part of service query or service query will present in user history, then only web service extraction and ranking is performed. Otherwise it will be added to database as updated service query by performing steps as shown in proposed architecture.

IMPLEMENTATION

ARCHITECTURE:

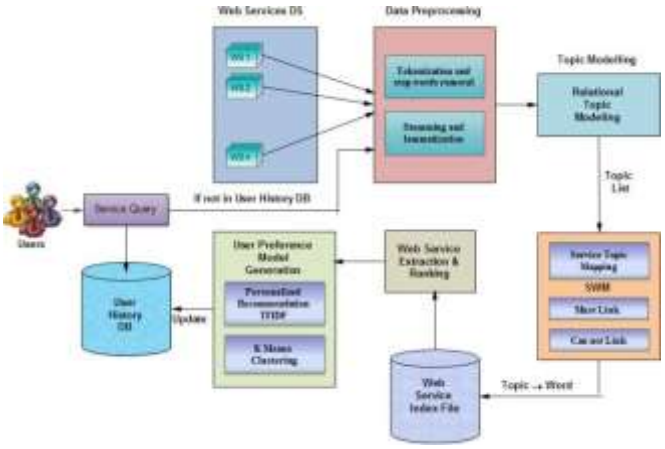

Figure 1. Proposed Architecture

This is the architecture of proposed modules and login page.

LOGIN PAGE:

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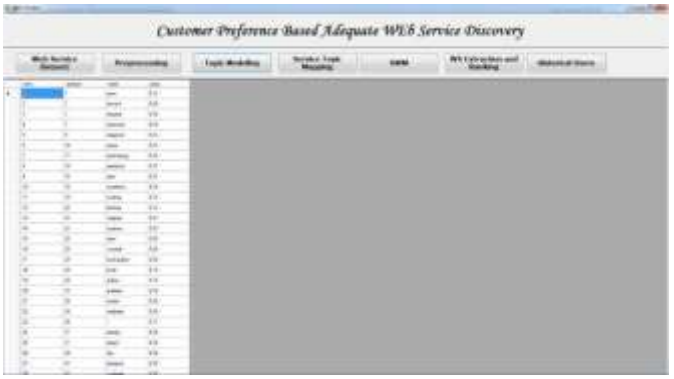
MODULE 1: WEB SERVICE DATASET

In this module, we have considered total 1080 web services as input dataset and total 172 records are extracted as web services on click event of Web service dataset in grid format of output.

MODULE 2: PREPROCESSING

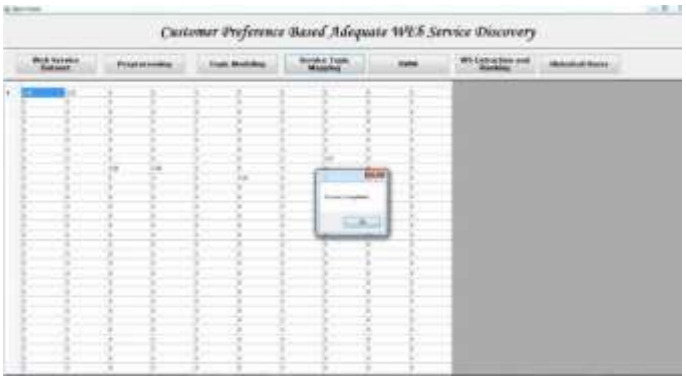
In this module, four functions named tokenization, stemming (bringing to its original form), stop word removal (removing useless words) & lemmatization (checking vocabulary) are implemented. Then id & keywords are displayed as output. Here we found total 175 results.

MODULE 3: TOPIC MODELING



In this module, we display dockey, respective words & probability of each word in the last column. Here we found total 87 results which is <= 175.

MODULE 4: SERVICE TOPIC MAPPING



In this module, we display table consisting of multiple rows & columns. Each row contains different possible services& each column contains different topics. Thus it shows different probabilities of topics in various services. E.g. service 1 & topic 1 has probability 0.08, service 9 & topic 3 has probability 0.06. Here we found total 53 results which is <= 87.

In graphical representation it is found that total web services as inputs are 69%. Extracted Web Services are 11%.

Preprocessed Web Services are 11% Topic Modeling results are 6%. And Service Topic Modeling Results are 3%.

CONCLUSION

The first four modules of our suggested architecture have been implemented and are given in this article. In remaining modules we are going to build Similar Word Mining utilizing must not link & cannot link technique, Web Service Extraction & Ranking and Historical user preference modules. What follows is a summary of the work completed thus far.

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