YIDDISH

Vol 13 Issue 03,Oct 2023
ISSN NO: 0364-4308

A Strategy for Identifying Relevant Web Services

Rahul P. Mirajkar [#1], Nikhil D. Karande [*2], Surendra Yadav [#3]
[#1] Research Scholar, School of Engineering and Technology, Career Point University, Kota
[#2] Associate Professor, Department of Information Technology

Abstract— The increasing diversity of available online services makes it harder to locate those that answer a user's specific question. It's a lot of work for someone who needs a service to figure out which one is best for them. Web services are becoming more integral to the lives of Internet users as they become increasingly reliant on the web for routine chores. To put it simply, a web service is a service provided by one electronic device to another electronic device by way of the Internet. certain the abundance of options, it might be challenging to zero down on the one service that would fulfill a certain need. Researchers in the area of services computing have sought to tackle a difficult problem, namely, how to rapidly discover the appropriate ones based on user queries, in light of the growing number of Web services and service users. Many earlier reports have pointed in this way. The article explains how to put into practice a method for finding suitable online services that takes into account the preferences of potential users.

Keywords- *Knowledge Engineering, Web Service Exploration, and Web Data Mining*

INTRODUCTION

online service discovery is the process of locating desired online services, which may be either functional or nonfunctional depending on the needs of the end user. There is a need for a new web service discovery technique since web service search engines also have certain limits or challenges in deploying these ideas in reality. Finding a web service that closely matches the functional needs of the user is crucial. The web service is then made available in a repository, albeit the sheer volume of services being published there has caused the repository to balloon in size.

To increase the degree of similarity between two online services, one may use a technique called Similar Word Mining (SWM). When applied to web services, SWM's topic modeling capabilities shine. These online resources provide consistent probability across a wide range of subjects. SWM allows for size customization. Using a user's query, a topic model may predict how widespread that query's topics will be. Then, questions are rated according to how they pertain to SWM. Web services that are highly scored by SWM are more likely to be useful. Topic-related online services may be obtained using Similar Word Mining. Each time a user does a service inquiry, they must go through the whole procedure again. Web services that the user has previously looked for will be made available via User History. Discovering new online services will be quicker thanks to user activity logs.

Therefore, it is necessary to build a web service search engine that use constraint based clustering through a must-link and cannot-link strategy to extract relevant web services and that also makes use of user preferences to speed up the search process. Standards like UDDI, SOAP, WSDL, etc. are used in the development of web services. Using UDDI, several providers create and distribute their own versions of Web services. It's the system that allows web services to be listed and found. The WSDLdocument describes the specifics of a web service.

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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:

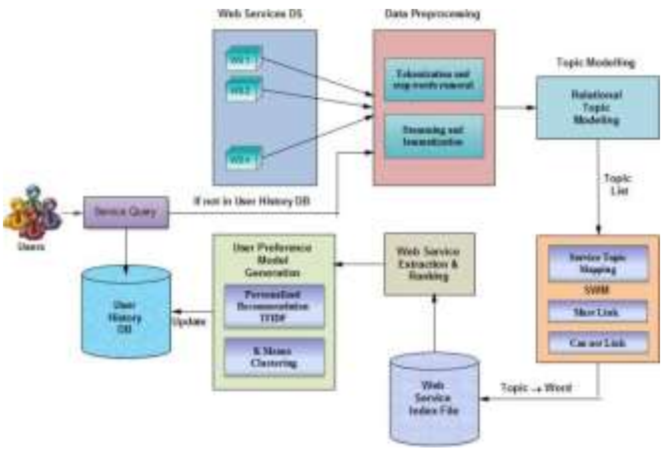


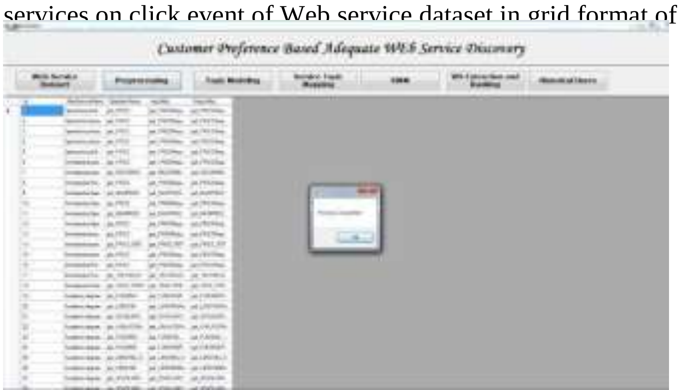
Figure 1. Proposed Architecture

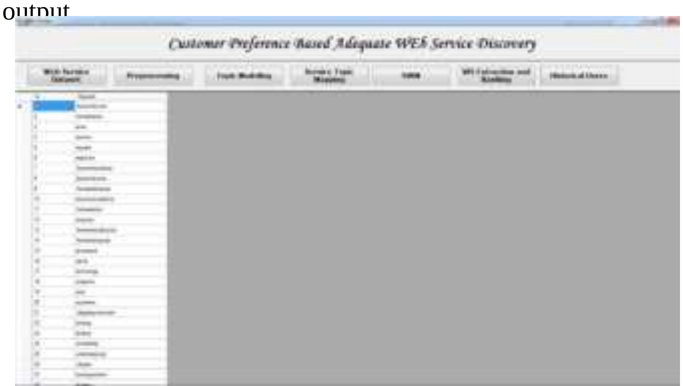
LOGIN PAGE:

This is the architecture of proposed modules and login page.

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.

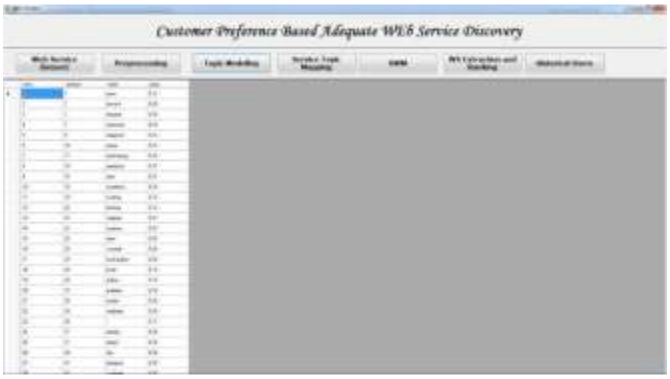




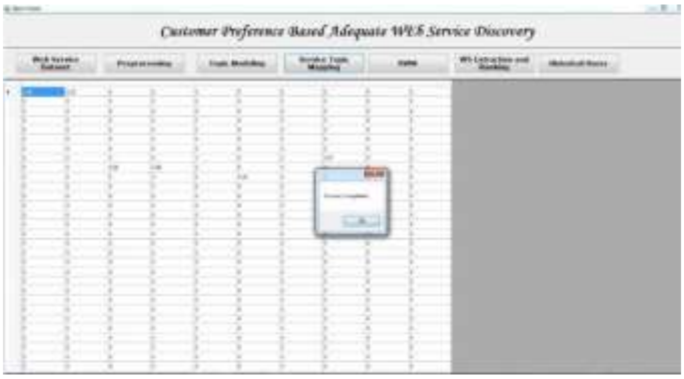
 Vol 13 Issue 03,Oct 2023
ISSN NO: 0364-4308

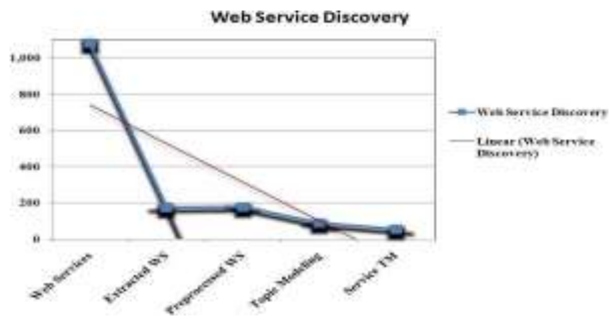
In this module, four functions named tokenization, stemming (bringing to its original form), stop word removal (removing useless words) & lemmatization (checking vocabulary) are implemented. Then id & keywords are displayed as output. Here we found total 175 results.

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

In this paper, we have presented implementation of first four modules of our proposed architecture. In remaining modules we are going to implement Similar Word Mining using must not link & cannot link approach, Web Service Extraction & Ranking and Historical user preference modules. The results of work done so far displayed below.

REFERENCES

[1] Jian Wang, Member, IEEE, Panpan Gao, Yutao Ma, Member, IEEE, Kequing He, Senior Member, IEEE and Patrick C.K. Hung, Member, IEEE "A Web Service Discovery Approach Based on Common Topic Groups Extraction" 2016.

[2] M. Aznag, M. Quafafou, and Z. Jarir, "Leveraging Formal Concept Analysis with Topic Correlation for Service Clustering and Discovery," in Proc. 2014 IEEE International Conference on Web Services, pp. 153–160, IEEE Computer Society Press, New York, 2014.

[3] K. Elgazzar, A. E. Hassan, and P. Martin, "Clustering WSDL documents to bootstrap the discovery of web services," in Proc. 2009 IEEE International Conference on Web Services, pp. 147–154. IEEE Computer Society Press, New York, 2009.

[4] G. Cassar, P. Barnaghi, and K. Moessner, "Probabilistic methods for service clustering," in Proc. 4th International Workshop on Semantic Web Service Matchmaking and Resource Retrieval, p. 1. CEUR Workshop Proceedings, Aachen, 2010.

[5] L. Chen, Y. Wang, Q. Yu, et al., "WT-CTG: User Tagging Augmented RTM for Web Service Clustering," in proc. ICSOC2013. LNCS, vol. 8274, pp. 162–176. Springer, Heidelberg, 2013.

[6] X. Liu, S. Agarwal, C. Ding, and Q. Yu, "A LDM-SVM Active Learning Framework for Web Service Classification," in Proc. 2016 IEEE International Conference on Web Services, pp. 49–56. IEEE Computer Society Press, San Francisco, 2016

[7] Rahul P. Mirajkar, Nikhil D. Karande and Surendra Yadav , "A Study on Different Web Service Discovery Approaches", International Journal of Computer Sciences and Engineering , Vol.-6, Issue-9, Sep 2018, E-ISSN: 2347-2693

[8] Rahul P. Mirajkar, Nikhil D. Karande and Surendra Yadav, "Adequate Web Service Discovery Approach", International Conference on Innovations in

Computer Technology and Applications (IC2TA-2019), January 4-5, 2019, Thane, Mumbai

[9] J. Wu, L. Chen, Z. Zheng, M. R. Lyu, and Z. Wu, “Clustering Web Services to Facilitate Service Discovery,” International Journal of Knowledge and Information Systems, vol. 38, no. 1, pp. 207–229, 2014

[10] A. Segev and Q. Z. Sheng, “Bootstrapping Ontologies for Web Services,” IEEE Transactions on Services Computing, vol. 5, no. 1, pp. 33–44, 2012.

[11] Z. Chen and B. Liu, “Mining topics in documents: standing on the shoulders of big data,” in Proc. 20th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, pp. 1116–1125. ACM Press, New York, 2014.

[12] Chih-Hua Tai, *Member, IEEE*, Zheng-Han Tan, and Yue-Shan Chang, *Member, IEEE,”* Systematical Approach for Detecting the Intention and Intensity of Feelings on Social Network*”*2016

[13] K R Remesh Babu, Philip Samuel, “Concept Networks for Personalized Web Search Using Genetic Algorithm”, International Confere nce on Information and Communication Technologies (ICICT 2014)

[14] A Siddiqui, S. Aljahdali “Web Mining Techniques in E-Commerce Applications”, International Journal of Computer Applications2013

Bo Cheng, Member, IEEE, Shuai Zhao, Changbao Li, and Junliang Chen, “A Web Services Discovery Approach Based on Mining Underlying Interface Semantics” 2017