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STUDY OF QOS WITH THE USE OF SERVICE PRE-ALLOCATION METHOD BASED ON WSR RESULTS

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Abstract - The use of web services is increased nowadays in huge amount. The increasing acceptance of web services needs the effective recommendation from large number of available web services. The potential Quality-of-Service (QoS) preferences taken from web service usage history are considered in recommending web services. This will increase the QoS of recommendation result. From the usage history of the user we are mining the patterns which will generate the patterns from usage history. In the recommendation results the similar kind of web services may be repeated so it will decrease the recommendation result, when we discover the large information space then QoS will be increased. This recommendation result we will give to the server which will use for the pre-allocation of the services which reduce the web service response time.

Keywords—QoS, Web Service Recommendation,pre-allocation.

I. INTRODUCTION

Use of web services is significantly increased in recent years. Web services are made available from business's server to web connected users. The increasing presence and adoption of web services on the worldwide web demand effective recommendation which recommend the optimal web services to service users from large number of available web services.

We should consider the QoS criterion for user potential QoS preferences which is mined from his service usage history for predicting the QoS values which is used for current user historical Web service QoS data from other similar users and similar Web services. Similar service users have similar historical QoS experience on the same data of Web services with the current user. For real service recommendation Preference of the QoS for services is important which is measured the QoS utility [3].

Additionally we have existing service recommendation approaches like unneeded similar services in the recommendation list. But our default assumption that all results are independent of each other is not always true. Recommendation list is short so the user satisfaction degree is decrease in their experience of selection in to the recommended list. Recommendation list contain redundant service list which is limited. The user's view point is that the recommended services similar functionality are redundant and other services that are interesting to the active user should also be incorporated as many as possible in the only limited recommendation list.

The QoS is user independent & have the same values for different user, so it is limited only for some QoS consideration. So the user potential QoS preferences are not mined on the base of large discovery of information space. From this the recommendation list is generated which contains the Results which may be the similar. Generated recommendation list is comes with the limited number of similar recommendation. The similar results of recommendation may decrease the value of recommendation result. These similar results it will not discovered the large information space. To increase the QoS we need to discover large information space. The large information space avoids the similarity into the recommendation result.

Since real- world Web service evaluation in the client side is usually required for measuring performance of the user-dependent QoS properties of Web services. For reducing the response time for requested service the server side pre-allocation of the services is needed. At the server side the pre-allocation is based on the probability calculation of recommended services. Pre-allocating the services is contains the arrangement of services, processing and resource allocation for the requested services.

II. LIETRATURE REVIEW

The author's Y. Jiang, J. Liu, M. Tang, X. Liu[2] proposed a technique Personalized hybrid collaborative filtering method which considered the personalization of service item and the personalization of service user. In web service recommendation techniques the main component is computation of measurement of similarity in web services. User based collaborative filtering uses the Pearson correlation coefficient (PCC). User based Pearson correlation coefficient (UPCC) is based on User based collaborative filtering and item based collaborative filtering.

G. Kang, J. Liu, M. Tang, B. Cao[1] proposed method for Selection of multiple requests for the same functional web services Current methods of service selection usually focus on a single service request at a time and the selection of a service with the best QoS at the user's own discretion. The selection does not consider multiple requests for the same functional web services. Usually, there are multiple service requests for the same functional web service in practice. In such situations, conflicts occur when too many requesters select the same best web service This papers propose that Solving the conflicts and developing global optimal service selection method for multiple related service requesters there by optimizing service resources and improving performance of the system.

Z. Zheng, H. Ma, M. Lyu, I. King [3] Propose a collaborative filtering approach for predicting QoS values of Web services and making Web service recommendation by taking advantages of past usage experiences of service users. First propose a user-collaborative mechanism for past Web

service QoS information collection from different service users. Then, based on the collected QoS data, a collaborative filtering approach is designed to predict Web service QoS values. Then a prototype called WSrec is implemented and conducting real world experiment.

L. Liu, F. Lecue, N. Mehandjiev [5] proposed the Semantic content based approach.This approach analyze the context of intended service use to provide effective recommendation in condition of limited user feedback .it is based on realistic set of semantic service.

F. Lecue [6] proposed the system Coupling classic collaborative filtering methods and semantic content based method. End user interest is considered and fit for dynamically offering services. System proposed here hybrid approach coupling classic collaborative filtering methods and semantic content based methods. On the one hand former methods are used to automatically recommend services depending on other similar user profile, preference and user historical experience. Alternative ways is semantic content based approach perform description logic based reasoning on semantic description of services but this is restrict to the potential result and then ensuring semantic recommendation of services.

L. Yao, Q. Z. Sheng, A. Segev [7] proposed the method for Dynamically recommends web services based on filtering user interest. This proposed a novel approach that dynamically recommends web services that filtering user interest. Hybrid in the sense that combines collaborative filtering & content based recommendation. It uses three way aspects model that systematically combines classically combines classic collaborative filtering and content based recommendation. It considered similarities of user ratings and semantic web service content. mined on the base of large discovery of information space. From this the recommendation list is generated which contains the Results which may be the similar.

Generated recommendation list is comes with the limited number of similar recommendation. The similar results of recommendation may decrease the value of recommendation result. These similar results it will not discovered the large information space. To increase the QoS we need to discover large information space. The large information space avoids the similarity into the recommendation result.

This Recommendation is only facilited to user side. To improve the quality of service the server side recommendation facility is more useful. It also reduces the service recommendation time which automatically improves the quality of service. This proposed system is shown into figure 1.1.

The main objective which covered is as follows:

- To design system which performs the web services request log analysis to retrieve the patterns.
- To implement recommendation system based on current user request and pre-computed patterns.
- To implement the service pre-allocation based on recommendation system and improve quality of service (QoS)

III. PROPOSED SYSTEM

The QoS is user independent & have identical values for different user, so it is limited only for some QoS consideration. so the user potential QoS preference are not

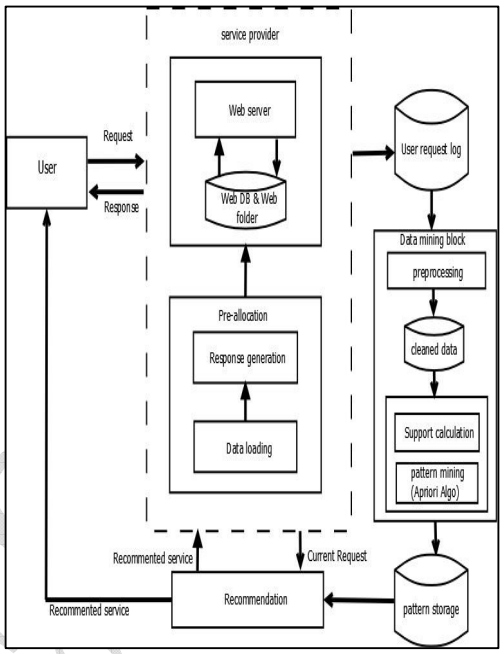

Fig: 1.1 System architecture

Phase-1 preprocessing

Real world data is many times in the form of incomplete data and lack of interested data so the data preprocessing is necessary.

A. Data cleaning:

Data cleaning is the process of removing the incomplete noisy data from real world data. Error within the real world data also removed. After data cleaning the noise, error free data is remains.

B. Data transformation

In data transformation the data values are transforming in to the standard data values. Source data is converted into the suitable format such as structure database data is converted into the text format to support the multiple platforms.

C. Support calculation

The support is the percentage of transactions hat demonstrate the rule.

Item separation:

Here we consider each web service page as an item. Each web service page is one item.

Occurrence Computation:

Dataset contains the items which may be in the repeated format. So the occurrence of each item is computed on the basis of how many times each item is occurred into dataset.

Confidence:

The confidence is the conditional probability that, given **X** present in a transition, **Y** will also be present.

Phase-III pattern based recommendation

Recommendation system is the filtering system which

Filter the preferences that would given by user to the item.

Recommendation Algorithm

```
Recommendation Algorithm
Input:-Frequent_pattern, current_item Ci
Output:-Recommended_service, Recommended_item
Steps-
set RS=ϕ;
set RI=ϕ;
for each itemS Frequent_pattern follow step 4 to 8;
  set IS=items.split("→");
     for each i from IS
  if i.Service=Ci.Service
    RS.null;
  Else
    RS=i.service;
  if i.item=Ci.item
   RI=i.NextItem;
  End if;
 End for;
End for;
return(RS,RI);
```

Phase II-pattern mining

Pattern mining is the process of finding relevant patterns in the database where the data is stored in the form of sequence.

Apriori algorithm:

Apriori algorithm is known as level-wise search, where k-itemsets are used to search (k+1)-itemsets. First, the set of frequent 1-itemsets is found by scanning the database to collect the count for each item, and collecting those items that satisfy minimum support. Apriori algorithm is used to find the groups of pages occurring frequently.

Phase IV-Pre-allocation

Process of the pre-allocation is Data loading with the help of possible recommendation for the user service provider calculate support for each possible recommendation and perform data loading and response generation for most probable recommendation for the user.

```
Pre-allocation Algorithm
Input:- Recommended_service RS
        Recommended_item RI
Output:-
        Allocated process(ap)
        Memory pointer(mp)
Steps-
set ap=ϕ;
set mp=ϕ;
ap=Runtime.execute(RS);
 if(ap.started)
      set rt=create new Runtime;
      set ms=Allocated memory;
 Else
      set rt=ap.Runtime;
 End if;
      set ms=ap.memoryspace;
rt=load(RS.bytecode);
RS=start(ap);
mp=RS.get_mempointer();
return(ap,mp);
```

Result of pre-allocation is improvement of the quality of service at the server side recommendation facility is more useful. It also reduces the service recommendation time which automatically improves the quality of service.

IV. CONCLUSION

In this paper, we present the web service recommendation approach with the use of web usage log mining. From the web log mining the user can get next service which is appropriate for the current user. It will discover the large information space and reduce the similarity in the recommendation result. Which helps to improve the quality of service (QoS) Further this service recommendation methodology also useful for servers to perform advance allocation of the service using pre-allocation methodology. This reduces the service response time.

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