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Implementing Web Based Medismart Telemedicine System Using Cfa Approach

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ABSTRACT— *In this project, we consider a three-fold strategy namely CFA approach that provide large data archive of medical records to generate a high performance telemedicine database system. This is a MediSmart approach that tends to decrease data communication, increases system throughput, reliability and data availability. It defines a site that participates in the medical transactions involving databases at two or more sites that reduce the workload of administrators. This type of distribution reduces the number of medical data exchanges required for query processing in terms of retrieval and update transactions. The potential benefits of our system is seen to be cost saving as it provide services in terms of man-hours of verbal instruction by medical experts, the support in terms of objectives and consistent decision making. We put forth load balancing as the major feature that is monitored by the Telemedicine server. In the event of receiving multiple requests simultaneously, load balancing is done by our MediSmart telemedicine system to get optimal resource utilization and decrease computing time that attain greater degree of fault tolerance, which allows the service to continue even in the face of server down time due to server failure or server maintenance. The proposed CFA approach is internally validated by measuring the impact of using computing techniques on various performance features. The external validation is achieved by comparing the performance of our MediSmart system to that of other systems that implement existing techniques.*

Keywords - Telemedicine, MediSmart and CFA (Clustering Fragmentation Allocation).

1, INTRODUCTION

The Telemedicine System is a solution aimed to present architecture Integration Framework using MediSmart Architecture Development Method. In the advancing process of hospital information, the popularity and partial using of HIS (Hospital Information System) has made the hospital achieve certain degree of information. In this paper, we propose architecture and a scheme of smart hospital based on Internet of Things in order to overcome the disadvantages of the present hospital information system MediSmart is a comprehensive Hospital Management package specially designed for healthcare sector. This web application is mainly developed to meet the requirements of Hospitals in serving the patients in a best way. MediSmart is comprehensive enterprise-wide software that covers all aspects of management and operations of a hospital. It is designed to help in achieving the best clinical outcomes, optimal financial performance and most importantly patient and employee satisfaction. All the subsystems are enterprise-wide and offer their functionality throughout the Hospital in multiple modules.

We propose a three-fold approach that manages the computing web services that are required to promote telemedicine database system performance. The main contributions are:
Develop a fragmentation computing service technique by splitting telemedicine database relations into small disjoint fragments. This technique generates the minimum number of disjoint fragments that would be allocated to the web servers in the data distribution phase. This in turn reduces the data transferred and accessed through different websites and accordingly reduces the communications cost. Introduce a high speed clustering service technique that groups the web telemedicine database sites into sets of clusters according to their communications cost. This helps in grouping the websites that are more suitable to be in one cluster to minimize data allocation operations, which in turn helps to avoid allocating redundant data. Propose a new computing service technique for telemedicine data allocation and redistribution services based on transactions' processing cost functions. These functions guarantee the minimum communications cost among websites and hence accomplish better data distribution compared to allocating data to all websites evenly. Develop a user-friendly experimental tool to perform services of telemedicine data fragmentation, websites clustering, and fragments allocation, as well as assist database administrators in measuring WTDS performance. Integrate telemedicine database fragmentation, websites clustering, and data fragments allocation into one scenario to accomplish ultimate web telemedicine system throughput in terms of concurrency, reliability, and data availability.

The data request is initiated from the telemedicine database system sites. The requested data is defined as SQL queries that are executed on the database relations to generate data set records. Some of these data records may be overlapped or even redundant, which increase the I/O transactions' processing time and so the system communications overhead. To solve this problem, we execute the proposed fragmentation technique which generates telemedicine disjoint fragments that represent the minimum number of data records. The web telemedicine

database sites are grouped into clusters by using our clustering service technique in a phase prior to data allocation.

2, PROBLEM STATEMENT:

Many researchers have focused on designing web medical database management systems that satisfy certain performance levels. Such performance is evaluated by measuring the amount of relevant and irrelevant data accessed and the amount of transferred medical data during transactions' processing time. Several techniques have been proposed in order to improve telemedicine database performance, optimize medical data distribution, and control medical data proliferation. These techniques believed that high performance for such systems can be achieved by improving at least one of the database web management services, namely—database fragmentation, data distribution, websites clustering, distributed caching, and database scalability. However, the intractable time complexity of processing large number of medical transactions and managing huge number of communications make the design of such methods a non-trivial task. Moreover, none of the existing methods consider the three-fold services together which makes them impracticable in the field of web database systems. Additionally, using multiple medical services from different web database providers may not fit the needs for improving the telemedicine database system performance. Furthermore, the services from different web database providers may not be compatible or in some cases it may increase the processing time because of the constraints on the network.

There also has been lack in the tools that support the design, analysis and cost-effective deployments of web telemedicine database systems. To improve the performance of medical distributed database systems, we incorporate data fragmentation, websites clustering, and data distribution computing services together in a new web telemedicine database system. Although there are various schemes describing data partitioning, few are known for the efficiency of their algorithms and the validity of their results.

3, SYSTEM ANALYSIS

3.1 Existing System

Existing forums provide a convenient way for patients to obtain medical information and connect with physicians and peers outside of clinical settings. There are a growing number of waiting lists, rising pressure on medical professionals and accountability for medical negligence. However, the intractable time complexity of processing large number of medical transactions and managing huge number of communications make the design of such methods a non-trivial task. Moreover, none of the existing methods consider the three-fold services together which

makes them impracticable in the field of database systems. The disadvantage of the existing system is that large quantities of unstructured and diversified content generated on this system make it difficult for users to digest and extract useful information. Understanding user intents would enable forums to find and recommend relevant information to users by filtering out threads that do not match particular intents.

4, MAIN FEATURES OF WEB BASED TELEMEDICINE

The main contributions are:

4.1 Develop a fragmentation computing service technique by splitting telemedicine database relations into small disjoint fragments. This technique generates the minimum number of disjoint fragments that would be allocated to the web servers in the data distribution phase. This in turn reduces the data transferred and accessed through different websites and accordingly reduces the communications cost.

4.2 Introduce a high speed clustering service technique that groups the web telemedicine database sites into sets of clusters according to their communications cost. This helps in grouping the websites that are more suitable to be in one cluster to minimize data allocation operations, which in turn helps to avoid allocating redundant data.

4.3 Propose a new computing service technique for telemedicine data allocation and redistribution services based on transactions' processing cost functions. These functions guarantee the minimum communications cost among websites and hence accomplish better data distribution compared to allocating data to all websites evenly.

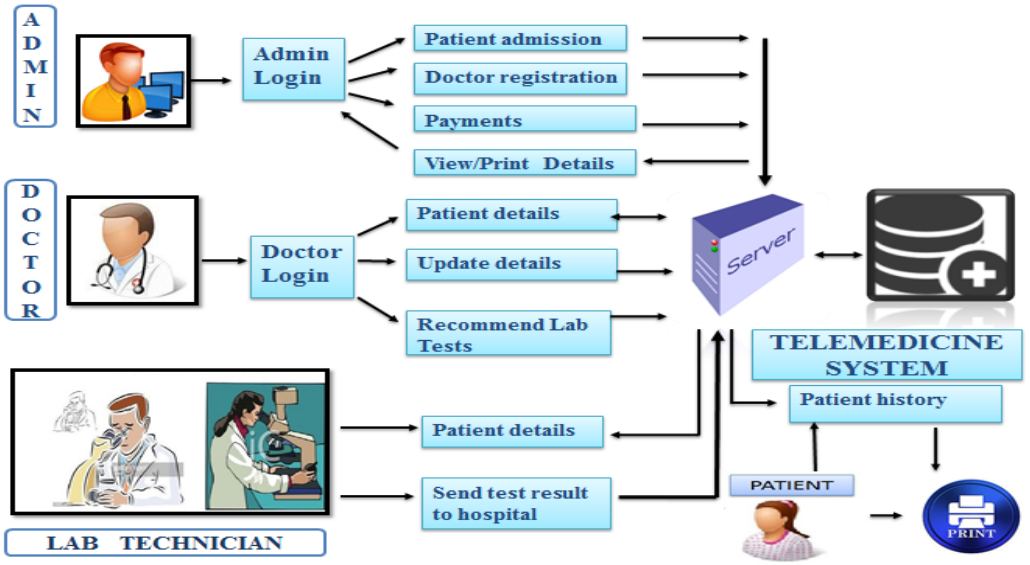

Figure. 1 Architecture Diagram

4.4 Develop a user-friendly experimental tool to perform services of telemedicine data fragmentation, websites clustering, and fragments allocation, as well as assist database administrators in measuring WTDS performance.

4.5 Integrate telemedicine database fragmentation, websites clustering, and data fragments allocation into one scenario to accomplish ultimate web telemedicine system throughput in terms of concurrency, reliability, and data availability. We call this scenario Clustering- Fragmentation -Allocation (CFA) approach.

5, MEDISMART IMPLEMENTATION

Modules:

1. Administration process
2. User interface design
3. Doctor process
4. Lab module
5. Updating patient's result

6, IMPLEMENTATION OF MEDISMART

Administration process

To connect with server admin must give their id and password then only they can able to connect the server. In administration process admins can register the patient details and generate the id and password for patient login.

Admins can register new doctor details and monitor all details about user and doctors. Patient details search and doctor search are there in admin page. It will search the query and display the query.

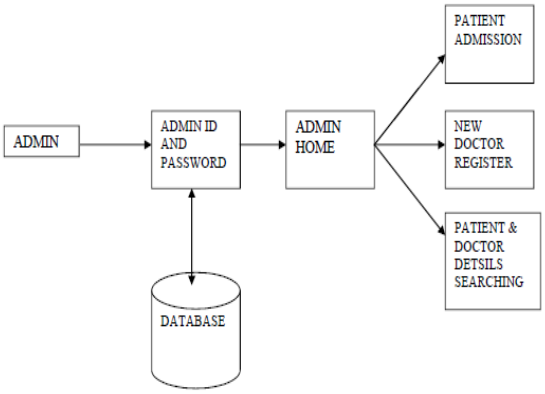

Figure.2 Administration Process

User interface design

To connect with server user must give their id and password then only they can able to connect the server. If the user already exits directly can login into the server else user must register their details such as username, password, Email id, City and Country into the server. Database will create the account for the entire user to maintain upload and download rate. Name will be set as user id.

Logging in is usually used to enter a specific page. It will search the query and display the query.

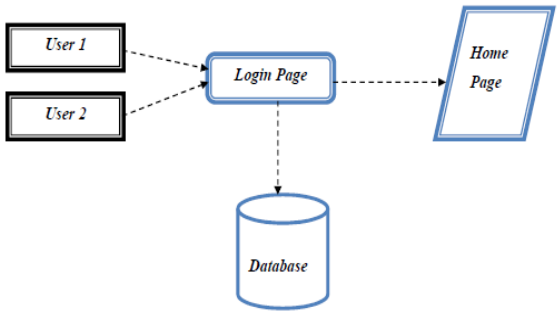

Figure.3 User Interface Design

Doctor process

To connect with server doctor must give their doctor id and password then only they can able to connect the server. Doctor can view full details about patient by using their id. Doctor need to update the patient results inside the doctor page. If any test require for patient then the patient details will be send to the lab by doctor.

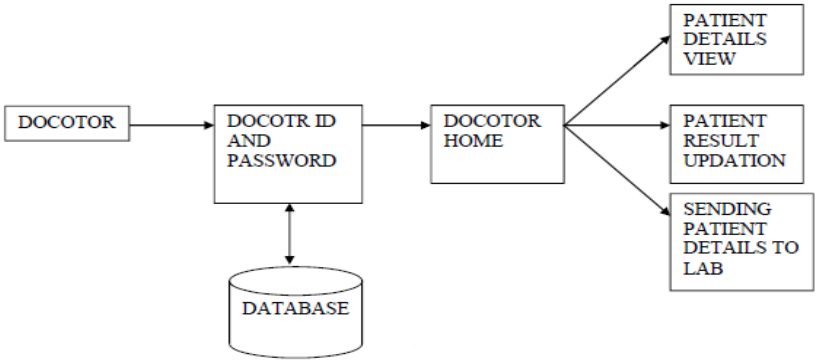

Figure.4 Doctor Process

Lab module

Lab admins need to login their lab page to access the patient details. After finishing the lab test, that test result will be send to the particular doctor. They will not send the result to the patient. Only alert will be send to the patient. To know the result, patients need to visit their consulting doctor.

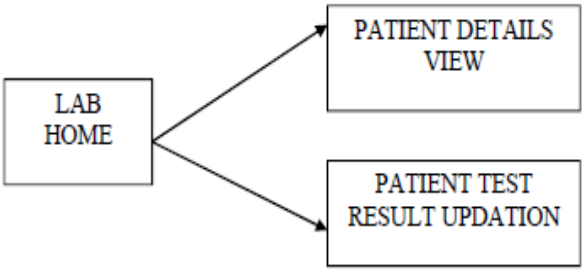

Figure.5 Lab Module

Updating patient's result

To connect with server user must give their id and password then only they can able to connect the server. User can access their details and medical results through this web page at any time.

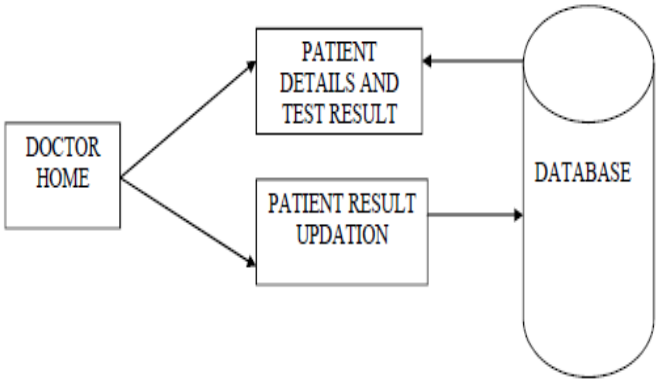

Figure.6 Updation of results

VIII. CONCULSION AND FUTUREWORK

From an information retrieval perspective, knowledge of intents is extremely important because it allows threads with certain intents to be filtered out, thereby reducing the search space. This technique can be applied to a variety of applications such as thread search and recommendation, and also benefit many existing works such as treatment trust worthiness, Comparative Effectiveness Research (CER), and drug outcome clustering.

Our main contributions in this work are threefold. First, we derived an intent taxonomy to capture information needs of online health forum users. We showed in our derivation that the classes map directly to the common motivations of users who search for health information online. Second, we demonstrated that a classifier trained on novel pattern features is capable of identifying intents of forum posts with high precision. Third, we showed, with statistical significance, that a hierarchical classifier that uses both pattern and word features outperforms one that uses only word features. Finally, we find that the performance of our classifier is capable of classifying posts from forums not seen during training with high accuracy. This proves that our classifier can be trained and tested on posts from different forum topics.

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We perform both external and internal evaluation of our integrated approach. In the internal evaluation, we measure the impact of using our technique and web service performance measures like communications cost, response time and throughput. In the external evaluation, we compare the performance of our approach to that of other techniques in the literature.

The results show that our integrated approach significantly improves services requirement satisfaction in web systems. This conclusion requires more investigation and experiments. Therefore, as future work we plan to investigate our approach on larger scale networks involving large number of sites over the cloud. We will consider applying different types of clustering and introduce search based technique to perform more intelligent data redistribution. Finally, we intend to introduce security concerns that need to be addressed over data fragments.

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