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PATIENT STRATIFICATION BY DISEASE PREDICTION FROM A WIDE-RANGING DATABASE PROGRAM

J.M.Sheela Lavanya[#1] R.Abinaya*[2] , R.Abitha ben*[3] T.Karthika*[4].
[#1]Assistant Professor, *[2,*3,*4]UGScholar, Department of computer science and Engineering.
Kings Engineering College,Chennai

Abstract-In the age of Web 2.0, community user contributed questions and answers provide an important alternative for knowledge acquisition through web search. Question retrieval in current community-based question answering (CQA) services do not, in general, work well for long and complex queries, such as the questions. The main reasons are the verboseness in natural language queries and the word mismatch between the queries and the candidate questions in the CQA archive during retrieval we implement question retrieval in hospital management system consisting of a prediction tool for classifying the risks/diseases It focuses at delivering a faster, direct solution to patients, automatically produces the respective health advisory including the name of the disease and the associated risk. For risk classification a medical related database is to be used for this project. (i.e., a dataset of 3000 Entries on symptoms and its related data). The Patient enters the details about the problem, Duration of Symptom, Frequency, affected place etc. The system analyzes the details and classifies the problem and risk. When the risk exceeds a certain threshold, i.e., when the cases are critical and need immediate medical attention, a list of available doctors with respect to the illness is provided and the patient can fix appointments. For some cases, the Doctor may need to recommend some tests and diagnosis in laboratory. The laboratory feature/module allows the patient to view the recommended tests suggested by doctors. Also, the lab results can be communicated to both doctor and patient by lab personnel through this functionality.

I.INTRODUCTION

HUGE amounts of Electronic Health Records (EHRs) collected over the years have provided a rich base for risk analysis and. An EHR contains digitally stored healthcare information about an individual, such as observations, laboratory tests, diagnostic reports, medications, procedures, patient identifying information, and allergies. A special type of EHR is the Health Examination Records (HER) from annual general health check-ups.our proposed work focuses at delivering a faster, direct solution to patients, automatically produces the respective health advisory including the name of the disease and the associated risk. For risk classification a medical related database is to be used for this project. (i.e., a dataset of 3000 Entries on symptoms and its related data). The Patient enters the details about the problem, Duration of Symptom, Frequency, affected place etc. The system analyzes the details and classifies the problem and risk. When the risk exceeds a certain threshold, i.e., when the cases are critical and need immediate medical attention, a list of available doctors with respect to the illness is provided and the patient can fix appointments. For some cases, the Doctor may need to recommend some tests and diagnosis in laboratory. The laboratory feature/module allows the patient to view the recommended tests suggested by doctors. Also, the lab results can be communicated to both doctor and patient by lab personnel through this functionality.

II. LITERATURE SURVEY

Privacy preserving patient centric clinical decision support system using naive Bayesian classifier. By taking the advantage of emerging cloud computing technique, processing unit can use big medical dataset stored in cloud platform to train naive Bayesian classifier, and then apply

the classifier for disease diagnosis without compromising the privacy of data provider. In addition, the patient can securely retrieve the top-k diagnosis results according to their own preference in our system. Since all the data are processed in the encrypted form, our system can achieve patient-centric diagnose result retrieval in privacy preserving way. [1]

Firstly, health examination records are represented as a graph that associates all relevant cases together. This is especially useful for modeling abnormal results that are often sparse. Secondly, multi-typed relationships of data items can be captured and naturally mapped into a heterogeneous graph. Particularly, the health examination items are represented as different types of nodes on a graph, which enables our method to exploit the underlying heterogeneous subgraph structures of individual classes to achieve higher performance.Thirdly, features can be weighted in their own type through a label propagation process on a heterogeneous graph. These in-class weighted features then contribute to the effective classification in an iterative convergence process. [2]

The insights of communitybased health services. It then presented a sparsely connected deep learning scheme that is able to infer the possible diseases given the questions of health seekers. This scheme is constructed via alternative signature mining and pre-training in an incremental way. It permits unsupervised feature learning from other wide range of disease types. Therefore, it is generalizable and scalable as compared to previous disease inference using shallow learning approaches, which are usually trained on hospital generated patient records with structured fields. Classical deep learning architectures are densely connected and the node number in each hidden layers are tediously adjusted. In contract, our model is sparsely connected with improved learning efficiency, and the number of hidden nodes is automatically determined. [3]

An Efficient K-means Clustering algorithm has been proposed to clusters the PHR into several partitions. The EKMC algorithm consumes less time when compared to the traditional K-Means Clustering. The proposed DAD algorithm is used to reduce the cost of cloud storage to a great extent since we are dealing with huge records. The privacy of the patient's PHR is preserved through various data anonymization techniques. [4]

The searchable encryption (SE) scheme is a technology to incorporate security protection and favorable operability functions together, which can play an important role in the e-health record system, we introduce a novel cryptographic primitive named as conjunctive keyword search with designated tester and timing enabled proxy re-encryption function (Re-dtPECK), which is a kind of a time-dependent SE scheme. It could enable patients to delegate partial access rights to others to operate search functions over their records in a limited time period. The length of the time period for the delegatee to search and decrypt the delegator's encrypted documents can be controlled. Moreover, the delegatee could be automatically deprived of the access and search authority after a specified period of effective time. [5]

Even though technology is growing rapidly but any unauthorized user can exploit the vulnerability of cloud computing system. Different types of approaches are in progress to protect the privacy of this system. In this paper we used efficient encryption algorithm to secure E-Hospital management in cloud and provide segmentation to keep confidential medical image in cloud. [6]

The fact that cloud servers are partially trust worthy, in order to ensure security of PHR we are encrypting the data before we store it into the cloud environment. And also a patient-centric concept is used as a result of which patient has the complete control of their own privacy and a fine grained access is obtained. Here the use of different modules like admin, patient, hospital, doctor works in coordination and forms a complete and efficient HMS. And also the unique challenges brought by multiple PHR owners and users are addressed in that the complexity of key management is reduced when

number of owners and users in the system is large. [7]

A novel patient-centric framework and a suite of mechanisms for data access control to PHRs stored in semi-trusted servers is proposed. To achieve fine-grained and scalable data access control for PHRs, I leverage attribute based encryption (ABE) techniques to encrypt each patient's PHR file. The main focus is on the multiple data owner scenario, and divides the users in the PHR system into multiple security domains that greatly reduces the key management complexity for owners and users. It also enables dynamic modification of access policies or file attributes, supports efficient on-demand user/attribute revocation and break-glass access under emergency scenarios. [8]

A new PHR access control scheme based on Lagrange interpolation polynomial under Cloud computing environments. This proposed scheme provides legitimate authorities to access to PHR, and dynamically supports multi-users in Cloud computing environments with personal privacy[10] software library to support dual policy ABE, incorporating ciphertext and key-policy ABE schemes. We show how our system enables several realistic use cases such as genetic testing data, treatment of minors and advanced directives. These cases require complex policies, and we have built a policy engine that provides automated support for policy generation. Once policies are species, ABE keys are used to encrypt yields in the EMRs to enforce restrictions on who can read the data. [9]

Patient stratification

This project involves implementing a hospital management system consisting of a prediction tool for classifying the risks/diseases. It focuses at delivering a faster, direct solution to patients, automatically produces the respective health advisory including the name of the disease and the associated risk. For risk classification a medical related database is to be used for this project. (i.e., a dataset of 3000 Entries on symptoms and its related data). The Patient enters the details about the problem, Duration of Symptom, Frequency, affected place etc. The system analyzes the details and classifies the problem and risk. When the risk exceeds a certain threshold, i.e., when the cases are critical and need immediate medical attention, a list of available doctors with respect to the illness is provided and the patient can fix appointments. For some cases, the Doctor may need to recommend some tests and diagnosis in laboratory. The laboratory feature/module allows the patient to view the recommended tests suggested by doctors. Also, the lab results can be communicated to both doctor and patient by lab personnel through this functionality.

The key differentiators, which I believe, achieved through this project are,

A new efficient iterative algorithm is designed based on Health and modified SVM algorithms to produce more accurate recommendations

This personalized healthcare model would certainly help in reducing the Re-admission rates in the hospitals, thus enabling the cost savings for both healthcare provider and patient

III. PROPOSED SYSTEM

Modified Support Vector Machine

In high dimensional space support vector machines are very effective.

When number of dimensions is greater than the number of samples in such cases also it is found to be very effective.

Memory efficient because it uses subset of training points as decisive factors for classification.

The main advantage of our modified SVM Algorithm is, if any error is occurred in the mid of the execution it will skip that step and it will execute the remaining steps and produce the accurate output.

The speed of the working efficiency is same for all the small amount data and for large amount data.

IV. MODULES DESCRIPTION

A. Admin module

In this module, admin create the general disease dataset about the Hospital Healthcare Management. That may contain disease names and its five symptoms. Then the Admin will

upload the dataset to the Hospital Management System (Cloud) database.

B. **Patient module**

In this module Patient can register in the Hospital Management System. After registration patient can login, Then Patient enters their Symptoms and dataset automatically will generate the Disease name with the symptoms for the disease. If the patient is not satisfied with that, then patient can enter the full details about their disease information, then he/she can send the information to the available doctors.

C. Doctor module

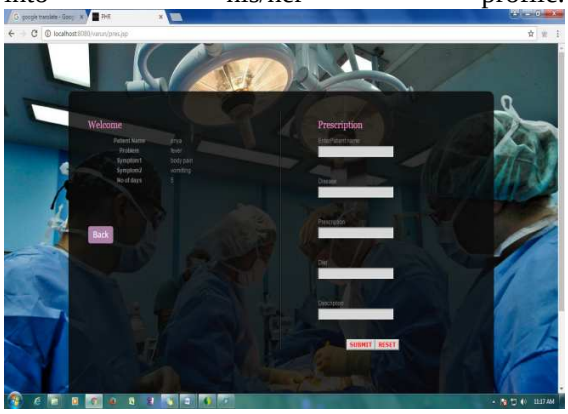
In this module, the doctor checks the general disease dataset about his/her Hospital Healthcare Management and adds the disease details in that dataset. And check the patient list is there any patient are registered today, after checking the new patient entry; the doctor will send the solution for the patient problems immediately through online or email and if the patient is under the critical stage doctor will advice to the patient to take lab tests.

D. Lab Doctor Module

In this module, the lab doctor checks the patient details to take the necessary tests as mentioned by the doctor's prescription. If any test has to be taken for the particular patient, then Doctor will take the test and send the lab report through mail to the patient and update the lab report to the specified doctor.

E. Final Prescription

In this module doctor will check the patient full details about the disease and their scan report, after checking all the details about the patient, doctor will send the final report to the patient through mail and update their details into his/her profile.



V.CONCLUSION

We implement question retrieval in hospital management system consisting of a prediction tool for classifying the risks/diseases. It focuses at delivering a faster, direct solution to patients. That is, if patient were to give the symptom, and other related factors the model automatically produces the respective health advisory including the name of the disease and the associated risk. In addition to this model, the application also consists of modules/features that aim at providing a more personalized healthcare solution. Our proposed framework is favored for online applications which have computation or memory limitation

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