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Software Engineering Course Project Proposal

Course Code: CSE-434

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1. Introduction : Our project is to make a recommendation system that will recommend doctors according to patients' symptoms. This system will recommend specialist doctors according to the patient's disease and also gives out information about the specific doctor.

2. Project Title : Suitable doctor recommending system

3. Goals and Objectives : Our main goal is to build a recommending system that will recommend doctors according to patient's disease that they will give information about in our system. This will also help the patients in emergency cases where they will need immediate help.

4. Motivation : Patients nowadays are more aware and look for answers to health-care problems online. This has resulted in a dire need of an effective reliable online system to recommend the physician that is best suited to a particular patient in a limited time.

This system will also recommend trustworthy doctors. This system will save the time and efforts of the patients.

5. Description of the project activities : For our project, we sought help from some articles and journal.

In first paper, they describe an integrated recommender framework for seeking doctors in accordance with patients' demand characteristics, including their illness symptoms and their preference. In the proposed method, a users' matching model is firstly suggested for finding the similarities between users' consultation and doctors' profiles. Second, to measure doctors' quality, doctors' experiences and dynamic user's opinions are considered. Finally, to combine the results of the relevance model and the quality model, an AHP based integrated method is suggested for doctor recommendation[1].

In second paper, a doctor recommendation algorithm is proposed based on the doctor performances model and the patient preferences model, which aims at relieving the problem of doctor information overload and "reservation imbalance" The algorithm is designed via adding the characteristic of patient preferences to the framework of the doctor performances model, which is built with the Analytic Hierarchy Process method[2].

In third paper, an unified extraction system with stanford parser is used for extraction of medical terms.Then K-means clustering algorithm clusters the diseases and a filtering method to find out the desired medication[4].We can use this method as an example to build our own model.

In fourth paper, they proposed two label selection methods for multi-label classification: clustering-based sampling(CBS) and frequency-based sampling (FBS). They applied proposed multi-label classification methods as an innovative 5G application to predict doctor labels for doctor recommendations[6].

In fifth paper, The proposed eHealth Recommendation Service System (eHeaRSS) is to recommend health service information to patients whenever and wherever.To do this, it is necessary to classify the data into symptoms, diseases, departments and doctors related data types. To consider hierarchies or subsume relationships among them, eHeaRSSOntology (eHeaRSS-Ont) is developed through integration of 4-static ontology (4-Ont) which is comprised of symptom-, disease-, department- and doctor-Ont to create tailored recommendations depending on patient-context. For the recommendation service, Case-based reasoning (CBR) is applied. The extracted cases using 4-Ont are integrated by eHeaRSS-Ont depending on the patientcontext. For customization, it is necessary to reconfigure the case using eHeaRSS Constraints Value Compatibility Map (eHeaRSSCVCM). To prove the significance and efficiency of theeHeaRSS,we experimented using ontology-based data processing and proved the superiority of eHeaRSS with the provision of better recommendation than other DB-based systems[8].

In our model we first have a registration page for our patients/users where they can register and fill in their information , then we have a model that will take the patient's symptoms and the doctors details as input. This model has to be trained. Then we will classify the diseases using a classifier and when we give our test data it will predict

suitable doctor according to doctor's information about that disease. The flow chart of our proposed method is given below :

Figure 1 : Flow chart of proposed system

Here in doctor's details we will add their qualification, their field of speciality (example : eye specialist, heart specialist etc.), their contact info etc.

So our proposed method has four functions :

☐Registering the patients. They are the users of our system and they will interact with the system by registering into the system.

☐Train the model with different symptoms of diseases.

☐Classifying the model according to diseases.

☐Recommending suitable doctor according to disease and doctor's information.

6. Environment and Implementation Plan :

☐Project environment: Personal Computer based.

☐Languages: Python.

☐Software tools: Anaconda,PyQt5,Sci-kit learn

7. Issues and Challenges of the Implementation : The main issue of our project is to acquire suitable data-sets containing the information about the doctors and also the symptoms of the diseases. There may be some missing or wrong information in the system that will weaken the decision making our recommending system.

Another challenge is to train the system in such a way that it takes as less as possible time to give a decision. If the patient does not give proper information then it will cause a challenge for our system.

8. Timeline :

● Expected Timeline of the Proposed project to be implemented is two and a half months.

9. Estimated budget: The only requirement of our project is a personal computer and internet/browsing bills. Other than that no additional cost is needed.

10. Conclusion : In conclusion, our project would be very helpful for the people who does not have any idea or knowledge about how to approach a good doctor. This system will give them this opportunity. This system will also be socially and economically impactful for the patients.

11. References :

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