e- HDAS: e- HEALTHCARE DIAGNOSIS & ADVISORY SYSTEM

Velivela Gopinath[1], DS Bhupal Naik[2], Y akhila[3], J Pavani[4]

[1, 3]M.Tech Scholor, [2]Asst.Prof, CSE,Vignan University, A.P, India
[4]B.Tech Student, CSE, VLITS, A.P, India
velivela.gopi@gmail.com, dsbupal@gmail.com, akhilachowdary.yetukuri@gmail.com, vanikrishnajyothula@gmail.com

Abstract

To make the essentials of good health practices accessible to everyone, individually e- HDAS is provided to you functions as a mediator in bringing various health services to your door step .'Online HealthCare Diagnosis and advisory system' is a computer based online Healthcare Information System. The application aims to fulfill the common patient needs without visiting the hospitals. The project (e-HDAS) aims to provide the basic knowledge about disease from which the patient is suffering from, by providing the precautions. The application is developed in such a way that the system will automatically do the diagnosis and as well as generate proper advises to the patients. This system helps the users to identify certain disease level by answering certain questions asked by the system. Based on the diagnose received the user will be getting some suggestion of medicines that are available at the local chemist without prescription with an advice to visit the doctor. Diagnosis is done by asking various questions regarding disease and advises is given based on the reports. The diagnosis concludes in the 3 ways -whether the disease is in initial stage or the disease is in intermediate stage or the disease is in serious stage. Based on these three, the reports are generated. The reports consist of generic medicines, list of hospitals and an advice to visit the doctor if it is more serious. So patients can rely on this application. Technically the society is to be educated regarding the diseases. Web-based applications gained popularity and global acceptance because of its usability in terms of better functionality and mobility and access to information available throughout the world. We follow the dictum that at any given time in life 'Prevention is better than cure'.

Keywords: *Healthcare Information system, diagnosis, advisory system, generic medicine*

----------***----------

1. INTRODUCTION

Now a day's diseases are spreading widely. There is no proper awareness regarding diseases and their precautions. Human life style is changing as for new era of developing environment. Day wise people ignore the small problem (headache, pain in their body, etc.) and these small problems takes face of hazardous disease which is injurious to health. So there is a need of the software which is web based and the patient or any non-member can register on this and by giving reply of question related to health, he/she can know about the disease from which he/she is suffering and the medicine would also suggested (or if medicine not works or not effective then provides him/her the reference of nearest hospital). This software suggests the patient (member) generic medicine which could be available at the local medical store. So there is a need of an online application which aims in helping people maintain healthy life style by having correct medicine for the disease from which the patient is suffering.

To make the essentials of good health practices accessible to everyone, individually e- HDAS is provided to you functions as a mediator in bringing various health services to your door step. Whether you are based locally or make Health Care of the best standards completely accessible to you. Health advisor for you will help you in early diagnosis, treatment of illnesses i n time so that you are saved from the distress in the very first place. We follow the dictum that at any given time in life 'Prevention is better than cure'. Our core strength and expertise is in providing efficient health care services. The many differences that exist in terms of health conditions and healthcare systems make it impossible to define a universal methodology. However, just as in the case of individual medicines, our experience over time enables us to determine "what works" and "what does not work". The present and the future are already – and will be increasingly – characterized by rapid technological change, ever more affordable prices and increasingly user-friendly solutions. But these positive trends will be genuinely beneficial and sustainable only to the extent that a framework for action, at the political, health, technological, economic and social levels, is up and running within each country

2. RELATED WORK

Several works have been done regarding healthcare systems. Hospital management system is software which deals with the hospitals and its management. I.e. hospital management system mainly deals with the requirements of the hospitals like billing, inpatient and outpatient details etc. it does not deals with the diagnosis of the patients. Doctor will do the task. Another one we have the system namely healthcare

management system. Here the software concentrates on patient profile maintenance, health tips, health news, healthy life style ways and list of hospital details nearby. The system doesn't directly deals with the diagnosis and advisory system.
Several industries have tried to propose the diagnosis & advisory system due to overcome the heavy busy styles of human. Now a day's internet has comes to our doorsteps. For every time patient can't go to hospitals. If there is a system in such way that the system will automatically do the diagnosis and give advices. So several ideas were implemented, But the reliably and efficiency of medical reports place vital role. If anything wrong with system, it may leads to death of the patient. And operation feasibility must meet .so inference rules are used to diagnosis. The rules are designed in sophisticated way. So there is system which can meet these needs. So' IBM-Great Mind Challenge 12' included this system into their list of projects [5].

3. STRUCTURAL DESIGN & ACTION SERIES

This structure utilizes a Multi-client architecture and it is the key component for being a web-based frame. The structure allows the functionalities of three sets of HDAS users: patient, general user and admin. From the user's view, the computer browser is a merely mechanism to facilitate the HDAS users, to connect and interact with the HDAS server. In the HDAS-server resides the business logic of the structure. By analyzing the client's call, the HDAS-server generates a suitable reply. The registered patient has the privileges of checking health condition[6].

From the administrator point of view the system is resource allocator. The system must able to provide the necessary information to users. The administrator has the privileges of updating, adding and deleting.

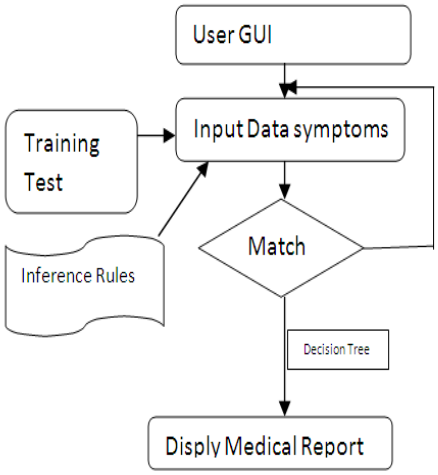

Fig 1. Architecture Design

The architecture of the system is depicted in the above figure. By using the inference rules the questions are generated. Inference engine is used to generate inference rules. Based on the patients responses decision is made by decision tree algorithm. The algorithm takes the decision and generates the medical reports.

Lastly the database coordinates with the server and stores every detail given by clients. The communication among every set and the automated along with physical procedures maintained by it are displayed[7].

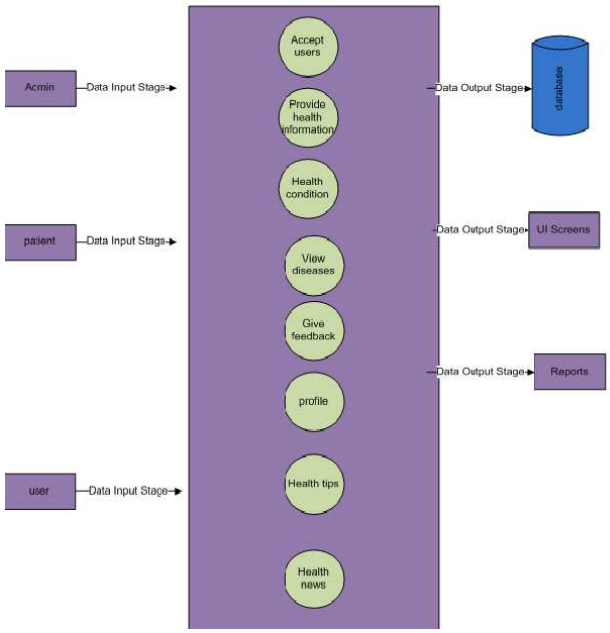

Fig 2. Structural Design

4. CONSTRUCTION & EXECUTION

It is clear that HDAS-users shall utilize the browsers (IE/Netscape/Firefox/Chrome) to connect and interact with the HDAS-server as HDAS is a web-based frame. The next procedure is providing authentication credentials to registered users and recognized as patients. The system must provide the diseases information .if patient needs the diagnosis is provided to patient. The diagnosis result is declared as health record. Diseases are list out with accordance with the organic system. At the client end, HDAS provides functionality to the general users to register to the system. The server side scripting language used is JAVA and J2EE for the best and secured performance.

The HDAS utilizes couple of important java classesnamelyMultiRequest and MultiRequestServlet [3]. As HDAS utilizes JSP as the mediator server code, a JSPmanager (can be a servlet manager) is required and has to be installed at

server. As HDAS runs on JSP server, JSP has the facility to include the java code into the HTML code and no separate plain java code or plain HTML code is required. This serves the half purpose of complexity. As an automated internal Java code is generated by the JSP server. HDAS runs on Tomcat server and the generation of java code is managed by the Tomcat server. The system also makes utilization of an asynchronous client cum server managed language named AJAX, in-order to make the functionality and performance the best.

The database manager and server utilized is Oracle. As HDAS has a limited count of users, but needs a best database performance manager that can smartly match up with languages like Java/C/C++ and user friendly one and Oracle is an apt for the requirements. When an inline SQLquery is shot to the database, the SQL is traversed and the result is sent to the JSP manager and respective class of Java works on the actions fro the result provided by the database.

5. e-HDAS ACTION SERIES

5.1 Data Entries through Interaction with MySQL

The first and foremost step of any successful architecture is to provide an attractive and user friendly GUI (Graphical User Interface) which is displayed on the user's browsers. This is the key point for the web-based frames. The failed web-based systems consists the bad GUI as one of the major reasons for their failure. Today there are many automated tools for the required designs. HDAS is designed with a sketch and a plan considering all the test cases according to the user's convenience.

The initial step for the patients is to register to the system and login through the system with authentication credentials. The respective java classes imports all the patient privileges provided details and transfers them to the JSP manager. When all the constraints are satisfied, the manager interacts with the database using the query coded according to the entry and places the provided values into the query. First the database returns whether the connection is established between the manager and the database, and then accepts the query and executes it. If the execution is positive it provides the success value to the manager indicating the entry is been done.

Along with the storage of the patient's details and depending on the entry of the record the database server automatically generates an Id for the entry of record and denotes the patient's details with that Id. This Id is unique for every entry this makes the removal of redundancy of Data. The generated Id is in return sent back to the JSP manager which is stored in its buffer.

Later in the confirmed entries the same unique Id is utilized in-order to check whether the entered details are previously registered are not. This step is taken in-order to avoid the fake registrations. Here the Java classes utilize the help of AJAX in order to communicate with the database server and returns the value spontaneously at that point to the client side and alerts the client as success or failure.

5.2 Registration Acceptance Action

General user visits the system which has very limited privileges. There is an option of registration to the general user. The new user signup form is available in JSP. The user fills the form and submits to the system. The administrator of the system accepts the request of registration or else discards after checking. If the administrator accepts the request then the user login through credentials and access the system.

After successful acceptance of the system, the user logins and have user profile .The detailed user profile is maintained by the system. List of diseases with description is given along with precautions. The user access the information. If the patient has any disease and he may select the disease and check the health condition.

5.3 Diagnosis of Health condition Action

The Patient Diagnosis is one of the major parts of the e-HDAS. The diagnosis of the system is designed in form of Question and Answer Perspective.

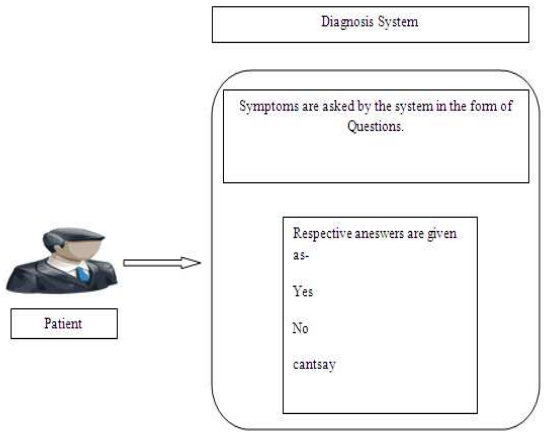

Fig 3 Diagnosis System

5.4 Get Advisory Report Action

After the completion of successful diagnosis, medical advises are to be generated to the user. i.e. Patient. Advisory mechanism is classified as serious stage, intermediate stage and initial stage. In accordance with the stage the prescription is to be prescribed. The prescription is of three ways.

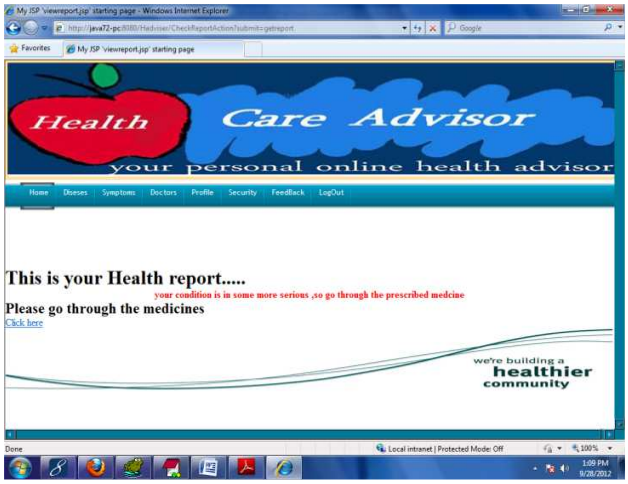

Fig.4 Medical Report.

If the patient condition is serious, the system advises the patient to visit the doctor immediately. If the patient condition is intermediate, the system advises the patient to go the medicines or else if the patient condition is at initial, then the patient is prescribed with prescriptions. Once the medical reports are generated, the report should be printable or else in a standard format. So the system offers .XLS format and .PDF format. On the patient convince patient may take printout also.

5.5 Feedback Action

The registered user has an option to give the feedback to the system. By providing the facility of feedback the systems accuracy and efficiency is measured. The system is further modified by viewing in mind that the feedback is given. Each registered user can give the feedback.

The feedbacks straight away go to the administrator's desk. The administrator can view the feedback and enhance the system as per feedback given by the patients.

CONCLUSIONS

The 'e-HDAS, Healthcare Diagnosis & Advisory System' was successfully designed and is tested for accuracy and quality. During this project we have accomplished all the objectives and this project meets the needs of the organization. This application software has been computed successfully and was also tested successfully by taking "test cases". The system helps the patients regarding illness and also advises the remedy for the cause. The system gives medicines details and a list of hospitals and doctors information. The system is designed by the proverb 'Prevention is better than cure' .so list of precautions are also available. The patient has an option to take the printouts of the medical report after diagnosis. So the designed system helps the patients in some extent.

ACKNOWLEDGEMENTS

The efforts were guided and supported relatively by faculty of Computer Science and Engineering department, Vignan University, Vadlamudi, A.P, India.

REFERENCES

[1]. R. Snodgrass. Summary of Conference Management Software. http://www.acm.org/sigs/sgb/summary.html
[2]. API and UI Reference Site, http://api.jqueryui.com/
[3]. MultiRequest and MultiRequestServlet, www.geocities.com/jasonpell
[4]. Jim Keogh , J2EE: The Complete Reference, http://books.google.co.in/books/about/J2Ee_The_Complete_Reference.html?id=9xk_Qq4rf_gC
[5]. IBM-Great Mind challenge List 2012.
[6]. Elmasr, Navathe, 'Fundamentals of Database systems' 4th ed.Pearson Education
[7]. Software engineering A Practitioners Approach-Roger s.Pressman, sixth edition, Mc Graw Hil