Advance Healthocare

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Abstract— Healthcare is one of the most crucial and one of the most concerned factor of our society. And there is no doubt that people are facing various problems due to lack of services in India which sometimes leads to their crucial health conditions. We want to build a system which will provide people the online consultancy of doctor whenever and wherever the people want to sort out their health issue completely or say up to some extent this is only when the person's health condition is too crucial to handle at a times.Our project aims at providing people with the online doctor consultancy, drug related information, symptoms related information ,financial support like donation feature if needed by the person who belong to economically weaker section. And for this Extensive study have been carried out by our team like knowing what kind of problems are mostly faced by people and by what they are suffering the most. Moreover to develop this app we are using decision tree algorithm.

Keywords: Appointment Booking, Selfcare, Donation

I. INTRODUCTION

Today's world is a world of digitalization where technology is like a blessing to people. Moreover in today's world health is the most concerned issue whether it's regarding the doctor's consultancy in case of emergency ,to consume OTC based drugs, getting hospital transport on time and much more. Many a times patient failed to get an emergency primary treatment in case of a critical emergency situations due to which patient's health may get worsen by the time he get proper consultancy of the concerned doctor. Secondarily if the patient has enough time to reach to the hospital there may occur a problem that the ambulance may not arrive at the right time which further may lead patient to a more critical condition. Apart from this problem many a times there occur a problem that there are no vacancies in government hospital (if the patient is financially weak.) and the patient require an urgent treatment so in that case we can move that to the private hospital having the vacancy and the required treatment facilities for the concerned patient .So by developing this application "ADVANCE HEALTHOCARE" we are trying to overcome all the above problems under one platform where the patient can get an online medical consultancy of the concerned doctor. The consultancy will be categorized into two 1.paid consultancy and 2.unpaid\charitable consultancy(with a point of view to the people having weak financial background) ,can get knowledge about the drugs ,can get a financial help if he/she is belonging to a weak financial background and much more. This app is inspired by other apps providing the online medical consultancy to it's users like Lilavati ,breach candy ,and other such well known hospitals providing similar kind of services to it's user. Apart from this , this application is also inspired by charitable trusts like Being human ,Dr Ashok johari medical trust and other government trusts like K.J.Mehta general hospital and college of medical sciences etc.

Problem definition, Objectives and Scope of our project are defined in chapter 2. We have read many research papers which shows different apps that are already constructed. They have some advantages but there are also disadvantages and limitations. Table 3.2 shows the list of research papers. Existing System are explained in chapter 3. Methodology for or system describes the logical explanation for our system. Algorithms and software that are used are also mentioned there in chapter 4. Chapter for research methodology also contains working, project planning, advantages, disadvantages and limitation of our system In this chapter I have mentioned in detail the problem statement, objectives and scope of my project. Problem definition defines our inspiration to build this software. Objectives are the pre-defined goals that we want to achieve from this system. Scope is the range or extent of our system that can be achieved in a limited time.

A. *Problem Statement*

- In most emergency cases people are failed to get the proper primarily based consultancy of the docter which will give rise to worsen their current health condition(health condition at that particular period of time)of the patient . Sometimes even failing to reach to the hospital to consult the concerned doctor, which unfortunately resulting into death of the patient.

B. *Objective*

- Through this app we will be able to provide primarily based doctor's consultancy which may be required by the user(patient) in case of critical emergency or in the case of bacterial based diseases like fever ,cold etc.
- Through this app we will also help people with weak financial background by funding them the required amount through the feature of donation or providing the required support by the patient.

C. *Scope*

- Our application will be beneficial to all android users who will require any type of medical based help . This application will be improved further based on the user's feedbacks .
- If implemented on large scale the rate of death of patient caused because of delay in reaching to the hospital and get the proper treatment on time must get reduced to some or let's hope to the great extent.

II. LITERATURE SURVEY

A. *Smart Doctors Appointment and Prescription System*

As mobile technologies continue to evolve and grow in popularity, the healthcare sector has to quickly adapt in order to meet the demands of the modern day's patient and

healthcare professional. We have developed android apps without purchasing and using another extra device and also no payment for this service. These apps will help patient and doctor to communicate each other for appointment and prescription at any time using mobile with internet. The objective of the research:

1) To introduce Doctors' Appointments and Prescription System for mobile user.
2) Facilitate mass people to connect doctor through mobile to get appointment.
3) To reduce time and hassle of doctors and patients.
4) To record patent information in digital format for future usage. Smart Doctors Appointment and Prescription System is an application that provides services to the Doctors and Patients. The Doctor's Appointment and Prescription system connects between Doctor and Patients using web and android apps and patients are able to search Doctor and ask for his/her appointment as well as for prescription using their Smartphone. This application shows the Doctors the previous history of a particular patient and can prescribe on basis of the history of patient. The main objective of this research is connecting doctor and patient very quickly and easily from any location without any involvement of any third party. Any doctor and patient can easily use this application by registering themselves, and doctor can prescribe the patient based on disease using listed medicine and number of days etc. This system also notifies the Doctor and patient through apps about the request of doctor appointment and prescription within shortage possible time.

B. Artificial Intelligence based Smart Doctor using Decision Tree Algorithm

The ability to learn is one of the most fundamental attributes of intelligent behavior. Health is a key issue in current times and everyone now seems to be too busy to consider their day to day health issues. This is where an online health services come into play. The use of Artificial Intelligence (AI) to make systems behave and work more like humans is gaining popularity. The idea of using an AI system to diagnose and provide remedy for their daily minor health issues, could save tons of time and money of visiting and waiting for doctor at clinics. Sometime patients are unable to reach at doctors or hospital, moreover occasionally it happens that patient is alone and can't walk or is unable to see a doctor. Therefore, in various situations it has become a direct need to have a personal medical assistant by your side at all times, and what better way to have that then as an artificially intelligent smart doctor application on your cell phone. In this project, the scope is to involve artificial intelligence to assist any person by diagnosing and providing the treatment. This will be an AI based smart doctor application that would behave as a doctor. The idea is to develop an android app for users providing a natural interaction with a softbot to diagnose the health problems. By using this user has access to the doctor completely so he/she can review his health. The smart doctor will be driven through an AI agent based algorithm that would take the users precept and make a decision based on the knowledge base and machine learning techniques.

C. Smart Doctor: A Urgent Health Care System.

Digital technologies are rising day by day as a result of the straight forward usage choices, potency of the applications. Life science and technology aren't any exception, however that they're nearly setting out to overlap upon one another and in sure things even combining with one another to assist the top user. This paper conferred here is that the one that may be terribly helpful and effective in serving to the users to seek out applicable doctors for the diseases/symptoms. The aim of this paper is to change the user or the patient to induce all the specified details like convenience, contact info concerning the doctors who are specialized within the problems given by the patient. This application permits user to induce instant oversight on their health problems through a wise health care application on-line. The appliance is feed with varied symptoms and also the diseases related to those systems. Patient will check their anamnesis Hence; this technique provides Quality Health Care to everybody and error free and communication to patients. Mobile technology is additionally use in hospital management by serving with search hospitals; improve health outcomes and medical theme potency measures. In additional sections of this paper we have a tendency to mentioned the present system, and a betterment of the present system considering the convenience of the doctors and patients (users).

D. MOBILE HEALTHCARE SYSTEM.

Many medical applications for smart phones have been developed and widely used by health professionals and patients. The use of these applications is very helpful because it leads to better communication between doctors and patients and help to enhance the overall treatment quality. The literature review of healthcare applications shows that applications focus on different area of healthcare such as patient care and monitoring apps, weight loss and fitness apps, communication among doctors and nurses on inpatient wards, the uses of the smart phone in medical education and research. Our proposed healthcare system is based on Android and Web apps to provide medical assistance for patients who live in regions where mobility is difficult and limited and can save the doctor and the patient lots of time. The proposed application identifies and selects doctors registered in the system based on their location, specialty and availability. The application allows patients to make appointments with doctors and assigns reminders for the prescribed medications and vaccinations. The paper is organized as follows; first we present the design of our mobile healthcare system and its different applications and service, followed by testing results and finally a conclusion.

E. Online medical consultation: a review

Online medical consultation (OMC) is the term utilized as a part of this paper to allude to web-based remote patient-specialist (consumer-provider) medicinal discussions. With the approach of broadband and video conferencing, numerous people have swung to online web-portals to get an online consultation. Utilization of this technological innovation has numerous advantages for both the doctor as well as the patient; including cost savings, comfort, accessibility, and enhanced privacy and communication.

This idea is for patients with a variety of medical needs originating from different areas of a country or several nations. Patients may pick or be assigned to any specialist/general duty doctor who is accessible on the web. They are not limited to a particular care provider either by past learning or by geographical closeness.

F. Excessive Ancillary Testing by Healthcare Providers

Excessive ancillary testing by healthcare providers pervades clinical practice and is a major cause of mounting healthcare costs. The principal reasons include ubiquitous practice of defensive medicine, widespread usage of inappropriate and obsolete tests, technological advances, patient expectations and demands, and financial rewards for providers. Effective solutions would help lessen the testing-related healthcare cost burden by enhancing awareness of the problem, educating present and future generations of healthcare providers to be costconscious, instituting malpractice liability reform, monitoring test utilization, and focusing on patient education with a shared decision-making model in disease management.] Healthcare costs in the U.S. have escalated exponentially over the past several decades and are now approaching 20% of Gross National Product (GDP), far more than any other country [1-3]. Runaway healthcare cost growth has widespread ramifications putting enormous pressure on patients and their families, healthcare providers, government, and the economy in general. Further compounding the matter are diminishing reimbursements by third-party payers (i.e., Medicare, Medicaid, and commercial payers). On a macro level, factors that contribute to rising healthcare costs in clinical practice include 1) management of chronic diseases (over 85% of healthcare costs); 2) expensive healthcare technology; 3) payment models such as “fee-for-service”; 4) unregulated and exorbitant pricing of pharmaceuticals and hospital services; 5) fragmented and uncoordinated acute and chronic patient care; 6) high and increasing administrative costs (estimated to be 20-30% of all U.S. healthcare costs); 7) inflated end-of-life care; and 8) excessive ancillary tests and overtreatment

G. Quality Perception of Nurses in the Hospitals Receiving Quality Certificate

It was aimed to determine the quality perception of nurses and the factors affecting this perception. Background: Increased international policy makers and healthcare providers seeking to improve patient outcomes and quality of care have adopted standardized processes to assess the care and care of healthcare providers. Accreditation and certification are proposed as interventions to support patient safety and high quality health care. More evidence is needed to support driving force, efficiency and effectiveness for accreditation. Method: The study was conducted in cross-sectional survey design. The sample of the study consisted of 301 nurses working in five hospitals receiving quality certificate in Ankara province. As data collection tools, the 70-item “Scale for Quality Perception of Healthcare Professionals” and “Personal Questionnaire” prepared by the researchers were used. The data of the study were analyzed by using SPSS 0.20 program with the support of a statistical consultant. Results: It was determined as a result of the study that the nurses got the highest score from the “Quality Training” (=65.95 ± 13.61) subscale and the lowest score from “Use of Human Resources” (=58.12 ± 16.76) subscale. It was determined in the comparisons performed with independent variables that the institutions, the working position, and the working time increased the quality perception and there were statistically significant differences between the subscale mean scores of the scale ($p<0.05$).

H. QUALITY IN PRIMARY CARE

Quality in Primary Care is an international peer reviewed journal for those researching, teaching or practising in the fields of quality improvement, clinical governance or clinical audit related to primary and prehospital care. The journal is concerned with all aspects of quality and quality improvement in primary and prehospital care and the interfaces between primary, secondary and social care. We publish high-quality original research that advances knowledge on these topics generalisable to other settings and countries and from other disciplines related to medicine, including nursing, practice management, professions allied to medicine and social science. The journal is supported by a strong Editorial Board which includes colleagues from the United Kingdom, United States, Europe and Australia. Quality in Primary Care is affiliated with the International Federation of Primary Care Research Networks, North American Primary Care Research Group and the Australian Primary Health Care Institute.

I. HEALTH AND MEDICAL ECONOMICS

Health is considered as the major wealth of our life. Present day’s system claims huge medical expenditure for individuals as well as for the government or private authorities. Therefore, understanding such economic issues associated with health management and treatment system is of prime importance. Journal of Health & Medical Economics provide a platform for the researchers, academicians who are associated with medical economics. The aim of this periodical is to provide latest information in the relevant area of research along with providing upgraded information on affordable strategies for better economic management related to medical issues. The broad area of the journal encompasses ways of availing better and cheaper health services, medical insurance and relevant discussions, health policies and medical expenditure planning, novel and latest technologies aiding medical economics, better and cheaper diagnostics methods, patient management and related economics, economical issues related hospital management, management of diseases especially those which cost a lot to the patient for medical management, mathematical or computational prediction or modeling related to health economics, analysis of the clinical trial data in association to medical economics.

J. DIGITAL TECHNOLOGY

Here in this research paper the main aim is to focus on the digital technology. Where it promotes communication strategies that may encourage improving patient health and community. Health care is one of the most important components in your life. Disease or illness can really mean a down turn in your life. Health policy refers to decisions,

plans, and actions which were undertaken to achieve specific health care goals within a society. Health Informatics is a term describing the acquiring, storing, retrieving and using of healthcare information to foster better collaboration among a patient's various healthcare providers. Advanced Healthcare Materials is an international, interdisciplinary forum for peer-reviewed papers on materials, science aimed at promoting human health. Nursing is a profession within the health care sector focused on the care of individuals, families, and communities so they may attain, maintain, or recover optimal health and quality of life. mHealth is also known as mobile health, it is used for the practice of medicine and public health supported by mobile devices. Health care finance is a branch of finance that helps patients and health care beneficiaries pay for medical expenses in the short and long terms. Some health care finance concepts have a general meaning, while others relate specifically to the health care sector. Diagnostic Accuracy is related to the ability of test to discriminate between the target condition and health

K. Experiences with online consultation systems in primary care

There is concern among GPs that alternatives to face-to-face consultations may increase workload and compromise safety.[3,9,12,13] The ESTEEM trial of telephone consulting found a 29% reduction of face-to-face contacts over 28 days, but an overall increase (38%) in all contacts.[14] A Cochrane review of email consultations was inconclusive regarding effect on workload.[15]

Two models of online consultations (also called e-consultations) are currently available.[16] One is pharmacy led and explicitly avoids contact with the GP (patients obtain private prescriptions for a limited range of conditions online). The other involves web-based history-taking communicated to the patient's GP surgery, with potential for a face-to-face consultation depending on how the GP interprets the information. Despite equivocal evidence, NHS England plans to offer every practice support to adopt online consultation systems, committing an estimated £45 million investment.[5]

In this article, the authors report a case study of an online consultation system recently incorporated into an inner-city general practice and consider how the introduction of an online consultation system is changing the work of general practice.

L. Effective Online Medical Appointment System

EFFECTIVE online medical appointment is an online application it allows the patient to book appointments through online registration .A more Convenient Approach Going online is an easy way of life People take recourse to online transactions for a safer, convenient and smoother way of life. It is difficult to manage the patients by direct paper appointment. Over the last two decades, the health care has become the most important healthcare service in many developed countries .It is difficult to get appointments by direct contact to the hospital and standing in a queue. the main concept of this project is to get easy appointments through online application which resolves the problem to the patients. With this application the effort to the patients will be reduced which contains the details of the doctor and their available time and the time will be saved for both doctors and patients. the doctor can schedule his own time.

M. Smart Appointment Generation for Patient

This is a web based appointment booking system that offers patients or any user a best way of booking a doctor's appointment online. This is online application that overcomes the issue of handling and reserve appointments according to user's choice. The job on occasion becomes very monotonous for the doctor himself in manually allotting appointments for the users as per their convenience. Hence this system offers an active resolution where patients can see different booking slots available and select the preferred date and time. The previously booked space will be marked with graphical interface and will not be available for anyone else for the indicated time. This system also allows users to terminate their booking anytime.

N. A Doctor Appointment Application System

The proposed work in this paper is an Online Hospital Management Application that uses an android platform that makes the task of making an appointment from the doctor easy and reliable for the users. Android based online doctor appointment application "Mr. Doc" contains two modules. One module is the application designed for the patient that contains a login screen. The patient has to register himself before logging in to the application. After logging in, the patient can select a hospital and can view the hospital details. The patient has the option of selecting a doctor from the list of doctors and can view the doctor's details. The patient can request for an appointment on his/her preferred day/time. The selected day/time slot will be reserved and patient will receive the notification of the successfully added appointment. The patient can view the location of the hospital on map. In addition, the patient can contact to the hospital and the doctor by making a call or may send an email to the doctor. The second module is the admin module that is designed on the website. The admin views all details of doctors and all appointments by the admin. The admin can add doctor, view patient's details and doctor's details and can view appointments also. All the doctors of the specific clinic are registered by the admin. Doctors cannot register themselves.

O. Physicians' Perceptions of Chatbots in Health Care

Chatbots in health care may have the potential to provide patients with access to immediate medical information, recommend diagnoses at the first sign of illness, or connect patients with suitable health care providers (HCPs) across their community [13,14]. Theoretically, in some instances, chatbots may be better suited to help patient needs than a human physician because they have no biological gender, age, or race and elicit no bias toward patient demographics. Chatbots do not get tired, fatigued, or sick, and they do not need to sleep; they are cost-effective to operate and can run 24 hours a day, which is especially useful for patients who may have medical concerns outside of their doctor's operating hours. Chatbots can also communicate in multiple

different languages to better suit the needs of individual patient

P. E-healthcare: an analysis of key themes in research

The concept of e-healthcare emerged in the early years of the twenty-first century. It is the combined use of electronic information and communication technology in the health sector for clinical, educational, research, and administrative purposes, both at the local site and across wide geographic regions. Its use has enhanced networking, facilitated global thinking, and improved healthcare on local, regional, and national levels. The future of e-healthcare is based on empowering individual patients with current information about diagnosis and treatment for personal decision making about their health without ever visiting a healthcare facility (Rohm and Rohm Jr, 2002). The main aims of e-healthcare are to embrace increased efficiency in healthcare, improved quality of care, increased commitment to evidence-based medicine, as well as empowerment of patients and consumers, not to mention the development of new and closer relationships between patients and healthcare professionals. Many healthcare providers and users have access to scanners, digital cameras, and videoconferencing facilities. Simply stated, e-healthcare networks can remove time and distance barriers to the flow of health information and can therefore help to ensure that collective knowledge is brought to bear effectively on health problems throughout the world.

Q. Experiences with online consultation systems in primary care

Three interrelated themes were identified: online consultation systems as innovation, managing the 'messiness' of general practice consultations, and redistribution of the work of general practice. These themes raise timely questions about what it means to consult in contemporary general practice. Uptake of Tele-Doc by patients was low. Much of the work of the consultation was redistributed to patients and administrators, sometimes causing misunderstandings. The 'messiness' of consultations was hard to eliminate. In-house training focused on the technical application rather than associated transformations to practice work that were not anticipated. GPs welcomed varied modes of consulting, but the aspiration of improved efficiency was not realised in practice.

R. Online medical consultation

Online medical consultation (OMC) is the term utilized as a part of this paper to allude to web-based remote patient-specialist (consumer-provider) medicinal discussions.1 with the approach of broadband and video conferencing, numerous people have swung to online web-portals to get an online consultation. Utilization of this technological innovation has numerous advantages for both the doctor as well as the patient; including cost savings, comfort, accessibility, and enhanced privacy and communication.2 This idea is for patients with a variety of medical needs originating from different areas of a country or several nations. Patients may pick or be assigned to any specialist/general duty doctor who is accessible on the web. They are not limited to a particular care provider either by past learning or by geographical closeness.

S. MEDICAL APPOINTMENT APPLICATION

The current standard operating procedure in healthcare environment for patient registration and appointment scheduling are time consuming and somehow troublesome. Medical Appointment Application is a web-based mobile application develop for managing appointment-booking process for a few medical organizations, regardless of the type of service they schedule in Parit Raja and Batu Pahat area. The practices will have to sign up on the online appointments portal themselves and can view the appointment made by user, the patients. It will help user, the patients to book their appointment using the Medical Appointment application. Furthermore, Prototype Model is used to develop this system. As for the hardware and software used to develop this system is MySQL Database and programming language use is PHP and JavaScript. By developing this system, it will reduce the number of calls for an appointment and avoid the morning rush for an urgent appointment. Also, it will potentially reduce the need for extra reception staff, a significant reduction in labor. Furthermore, it helps user in time saving and avoiding the need to negotiate with the receptionist for a convenient appointment time. This technology can transform the current daunting appointment process and enable them to run more efficiently, effectively and profitably.

III. METHODOLOGY

A. Introduction to Methodology

Various app have been reffered by me to know what kind of services are provided by them their limitations. Apart from this I have also reffered certain journal papers online to gather some medical based knowledge. Also met various hospital managers to know about different types of services provided by different hospitals and their respected response from the users. Other than this we have also include modules on drugs information and modules on types of symptoms.

B. Working

First of all the user will login the page filling all his personal details like Name phone number ,age, etc. then futher he/she will get an option to consult a doctor then further in that also they will get 2 options one is paid where he /she will have to pay the consultant fees depending upon the doctor and secondly the unpaid one (charitable)where he/she will get a free consultancy from a doctor .user can also gain some knowledge regarding what kind of drugs to consume for a small scale diseases like fever, omitting etc. Further moving if a user is belonging to a poor family and require any kind of help financially or regarding transport he /she can write it in a comment box that will provided at the end of our application.

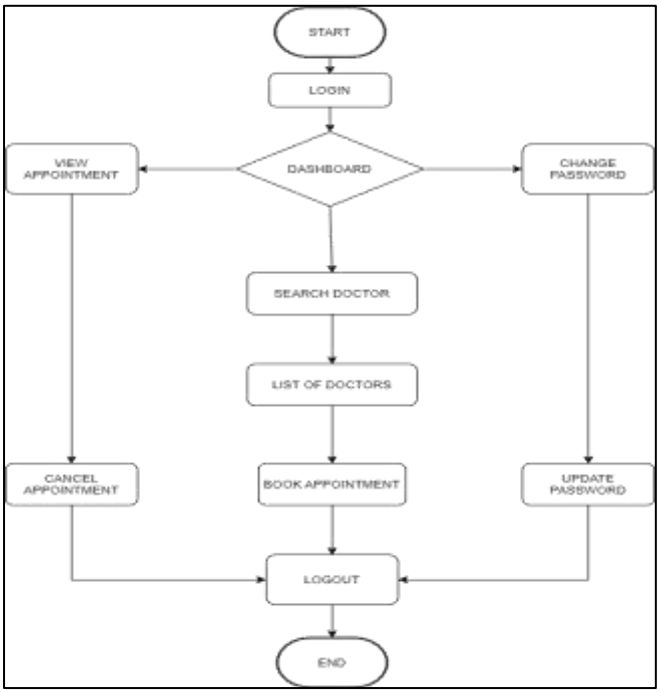

Fig. 3.2.1: Doctor Panel Flow Chart

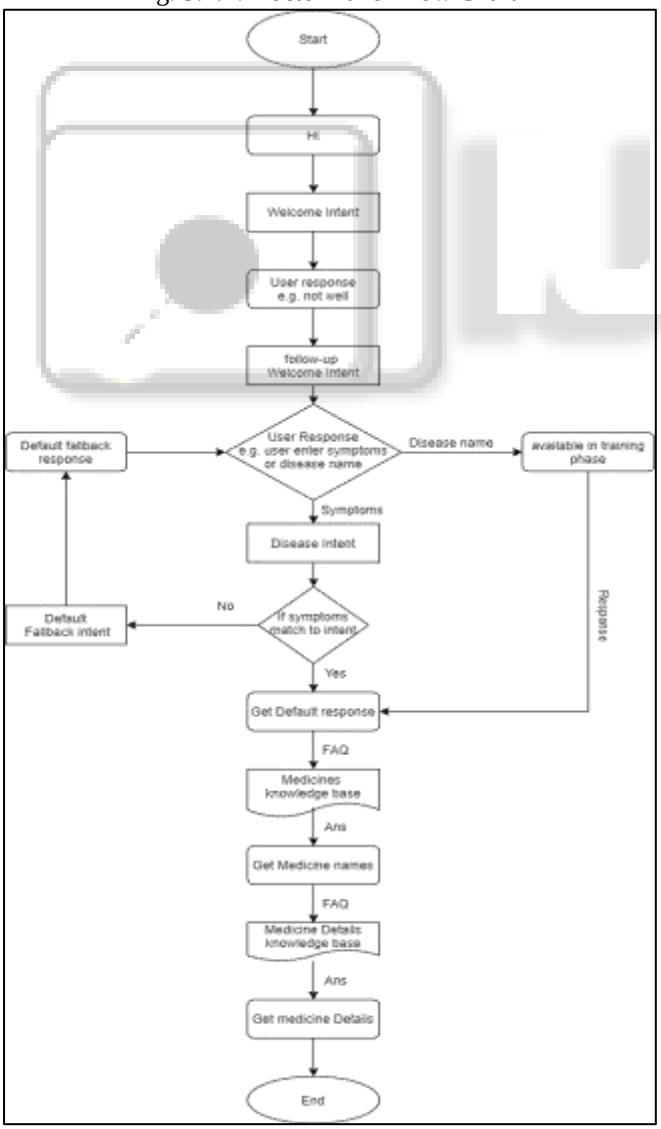

Fig. 3.2.2: Chatbot Flowchart

C. Advantages

By using our application people our application patients can get a super quick consultancy without any delay. Secondly patient who is belonging to a economically weaker section can get a chance to get a better treatment with the help of donated money.

D. DISADVANTAGES

1) User Acceptance
2) System Maturity
3) Continuously Upgrading data

E. ALGORITHMS

1) Decision Tree Algorithm

Decision tree algorithm falls under the category of supervised learning. They can be used to solve both regression and classification problems.

Decision tree uses the tree representation to solve the problem in which each leaf node corresponds to a class label and attributes are represented on the internal node of the tree.

We can represent any boolean function on discrete attributes using the decision tree.

2) ASSUMPTIONS

At the beginning, we consider the whole training set as the root.

Feature values are preferred to be categorical. If the values are continuous then they are discretized prior to building the model.

On the basis of attribute values records are distributed recursively.

We use statistical methods for ordering attributes as root or the internal node

IV. CONCLUSION

The ADVANCE HEALTHOCARE helps people to book paramedic appointment thus optimizing time of both doctor and patient .Secondly selfcare becomes most important and as sometimes first aid treatment is most important than first class treatment.Last but not the least people donates a lot but donation in the right way happens rarely so using this platform we tried to sever the mention services.

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