

ONLINE MEDICAL PRACTITIONER AND APPOINTMENT MANAGER

Project Report submitted in partial fulfillment of the requirement for the degree of

Bachelor of Technology.

in

Computer Science & Engineering

under the Supervision of

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By

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to



Jaypee University of Information and Technology

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CERTIFICATE

This is to certify that project report entitled “**Online Medical Prescription and Appointment Manager**”, submitted by **Agrima** in partial fulfillment for the award of degree of Bachelor of Technology in Computer Science & Engineering to Jaypee University of Information Technology, Waknaghat, Solan has been carried out under my supervision.

This work has not been submitted partially or fully to any other University or Institute for the award of this or any other degree or diploma.

Date: 08.05.2015

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AGRIMA

ABSTRACT

A medical practitioner is a professional who practices medicine, which is concerned with promoting, maintaining or restoring human health through the study, diagnosis, and treatment of disease, injury, and other physical and mental impairments. They may focus their practice on certain disease categories, types of patients, or methods of treatment – known as specialist medical practitioners – or assume responsibility for the provision of continuing and comprehensive medical care to individuals, families, and communities – known as general practitioners. In the classical way of prescription, the patients arrive at the clinic or hospital in OPD and then take an appointment. After that, covering a long queue, the patients are given a chance to meet the doctor. This way wastes a lot of time. Now days, most of the service sector is fully automated whether it is utility based services, daily products, banking or finance. As far as the medical services are concerned, these are still relying on the traditional way of communication. Classically, the patients arrive at the doctor's clinic with their series of symptoms or problems. The medical practitioner analyzes and provides the consultancy along with the prescription and future appointment. In the existing or classical way, the patient has to remember a series of medicines as well as the upcoming appointment. In the proposed system approach, we have developed a web based portal that will keep track of the medical prescription as well as the upcoming appointment that will be very easy to remember by the patient as well as the doctor. For implementation of this system, SMS Gateway is deployed that will communicate with the back-end database of each patient's prescription and appointment. The SMS Gateway transmits the message to patient on the near date and time of the activity to be performed.

TABLE OF CONTENTS

S. No.	Topic	Page No.
CHAPTER 1		
INTRODUCTION		1 - 16
1.1	Emergence of online doctoring	1
1.2	Past and future developments	3
1.3	E-patient	5
1.4	eHealth	6
1.5	Forms of e-health	6
1.6	Outpatients and inpatients	7
1.7	Day patient	8
1.8	Patient Centred Healthcare	8
1.9	Physician and surgeon	11
1.10	Motivation	14
1.11	Contribution	15
1.12	Organisation of the thesis	16
CHAPTER 2		
PRELIMINARIES AND BACKGROUND		17-34
2.1	Literature review	17
2.2	Net Doctor	23
2.3	DocAppointments.com.au	26
2.4	Practo Search	32
2.5	patient.co.uk	34
CHAPTER 3		
PROPOSED WORK AND IMPLEMENTATION		34-50
3.1	Algorithm	36
3.2	Algorithmic steps	37
3.3	Data Flow Diagrams	40

3.2 Modules Developed and Integrated	43
CHAPTER 4	
RESULTS AND DISCUSSION	47-54
4.1 Implementation Screenshots	47
4.2 Test Cases	51
CHAPTER 5	
SCOPE OF FUTURE WORK	55
REFERENCES	57- 59
SOURCE CODE	61 - 131

LIST OF FIGURES

S.No.	Title	Page No.
	Figure 2.2.1: Screen shot of patient login	21
	Figure 2.2.2 : Screen shot of prescription request	21
	Figure 2.2.3 : Screen shot of confirmation appointment	22
	Figure 2.2.4: Screen shot of Practice Manager.	23
	Figure 2.2.5 : Screen shot of Admin page.	23
	Figure 2.2.6: Screenshot of doc appointments.com	24
	Figure 2.2.7: Screenshot of doc phone application	25
	Figure 2.3.1: Screenshot of practo search	27
	Figure 2.4.1: Screenshot of patient.co.uk	28
	Figure 3.1.1: Data flow diagram level 0	33
	Figure 3.1.2: Data flow diagram level 1	34
	Figure 3.1.3: Data flow diagram level 2	35
	Figure 3.3.1: Screen shot of the home page	41
	Figure 4.1: Screen shot of the home page	51
	Figure 4.2: Screen shot after adding user id and password	37
	Figure 3.3.3: Screen shot of the Administrator Panel.	41
	Figure 3.3.4: Screen shot of the database maintained	43
	Figure 3.3.5: Screen shot of the rule sets	45
	Figure 3.3.6: Screen shot of the pruning algorithm implemented.	46

LIST OF TABLES

S.No.	Title	Page No.
	Table 4.2.1: Test case 1 Login sign in page	45
	Table 4.2.2: Test case 2 Search medicines, tests and symptoms.	46
	Table 4.2.3: Test case 3 Administrator panel for doctors.	47

CHAPTER 1

INTRODUCTION

A medical practitioner is a professional who practices medicine, which is concerned with promoting, maintaining or restoring human health through the study, diagnosis, and treatment of disease, injury, and other physical and mental impairments. They may focus their practice on certain disease categories, types of patients, or methods of treatment – known as specialist medical practitioners – or assume responsibility for the provision of continuing and comprehensive medical care to individuals, families, and communities – known as general practitioners. Medical practice properly requires both a detailed knowledge of the academic disciplines (such as anatomy and physiology) underlying diseases and their treatment – the science of medicine – and also a decent competence in its applied practice – the art or craft of medicine.

Both the role of the physician and the meaning of the word itself vary around the world, including a wide variety of qualifications and degrees, but there are some common elements. For example, medical ethics require that physicians show consideration, compassion and benevolence for their patients

Online doctor is a term that emerged during the 2000s, used by both the media and academics, to describe a generation of physicians and health practitioners who deliver healthcare, including drug prescription, over the internet.

1.1 Emergence of online doctoring

In the 2000s, many people came to treat the internet as a first, or at least a major, source of information and communication. Health advice is now the second-most popular topic that people search for on the internet. With the advent of broadband and videoconferencing, many individuals have turned to online doctors to receive online consultations and purchase prescription drugs. Use of this technology has many advantages for both the doctor and the patient, including cost savings, convenience, accessibility and improved privacy and communication[6].

In the US, a 2006 study found that searching for information on prescription or over-the-counter drugs was the fifth most popular search topic, and a 2004 study found that 4% of Americans had purchased prescription medications online. A 2009 survey conducted by Geneva-based Health on the Net Foundation found one-in-ten Europeans buys medicines from websites and one-third claim to use online consultation. In Germany, approximately seven million people buy from mail-order pharmacies, and mail-order sales account for approximately 8–10% of total pharmaceutical sales. In 2008, the Royal Pharmaceutical Society of Great Britain reported that approximately two million people in Great Britain were regularly purchasing pharmaceuticals online (both

with a prescription from registered online UK doctors and without prescriptions from other websites). A recent survey commissioned by Pfizer, the Medicines and Healthcare products Regulatory Agency, RPSGB, the Patients Association and HEART UK found that 15% of the British adults asked had bought a prescription-only medicine online.

In developed countries, many online doctors prescribe so-called 'lifestyle drugs', such as for weight loss, hair loss or erectile dysfunction. The RPSGB has identified the most popular products prescribed online as Prozac (an antidepressant), Viagra (for erectile dysfunction), Valium (a tranquiliser), Ritalin (a psychostimulant), Serostim (a synthetic growth hormone) and Provigil (a psychostimulant). A study in the USA has also shown that antibiotics are commonly available online without prescription.

Online healthcare system is being more popular in Bangladesh. Digital health care service and drugs information is now the most fashionable theme that people search on the internet. Nowadays a growing number of specialist metropolitan doctors in Bangladesh are using internet to give immediate online health tips and advice in rural areas through the internet broadband and videoconferencing system, and alternatively many doctors to give satisfactory online prescription their patient by using email and online chat through health and medical website, portal, blog and forum. As a result, a physician can play a vital role in contribution medical health care system by using online digital technology.

Traditionalist critics of online doctors argue that an online doctor cannot provide proper examinations or diagnosis either by email or video call. Such consultations, they argue, will always be dangerous, with the potential for serious disease to be missed. There are also concerns that the absence of proximity leads to treatment by unqualified doctors or patients using false information to secure dangerous drugs.

Proponents argue there is little difference between an e-mail consultation and the sort of telephone assessment and advice that doctors regularly make out of hours or in circumstances where doctors cannot physically examine a patient (e.g., jungle medicine). Laurence Buckman, chairman of the British Medical Association's GPs' committee, says that online consultations make life easier for doctors and patients when used properly. "Many GPs will be very happy with it and it could be useful. When it's a regular patient you know well, it follows on from telephone consulting. Voice is essential, vision is desirable. The problem comes when I don't know the patient". Niall Dickson, chief executive of the General Medical Council, says: "We trust doctors to use their judgement to decide whether they should see a patient in person. Online consultations will be appropriate for some patients, whereas other patients will need a physical examination or may benefit from seeing their doctor in person".

1.2 Past and future developments

The first medical consulting website in the US was WebMD, founded in 1996 by Jim Clark (one of the founders of Netscape) and Pavan Nigam as Healthscape. Currently, its website carries information regarding health and health care, including a symptom checklist, pharmacy information, drug information, blogs of physicians with

specific topics, and a place to store personal medical information. As of February 2011, WebMD's network of sites reaches an average of 86.4 million visitors per month and is the leading health portal in the United States.

Other popular US healthcare and medical consulting sites include NIH.gov, MSN Health, Yahoo! Health, EverydayHealth, WomensHealth.gov, MayoClinic, and Doctor Vista, and many have experienced dramatic growth. (Healthline, launched in 2005, grew by 269% to 2.7 million average monthly unique visitors in Q1 2007 from 0.8 million average monthly unique visitors in Q1 2006). Niche consulting sites are also popular including SeniorNet, which deals with age-related syndromes and 4collegewomen.org and GirlsHealth.gov, which target young women. Several American online doctor companies, including Teladoc, First Stop Health, American Well, WebDoc247, MeMD, and Ringadoc, provide consultations with doctors over the phone or the Internet. Prominent San Francisco-based venture capital firm Founders Fund called such services "extraordinarily fast" and predicted that they will "bring relief to thousands of people with immediate medical needs".

In the UK, e-med was the first online health site to offer both a diagnosis and prescriptions to patients over the Internet. It was established in March 2000 by Dr. Julian Eden, drawing on his experience as a doctor serving the world SCUBA and dive population. In 2011, e-med served 100,000 online patients. NHS Direct is the free health advice and information service provided by the National Health Service (NHS) for residents and visitors in the UK, with advice offered 24 hours a day via telephone and web contact. Over 1.5 million patients visit the website every month. More recently, a number of online doctors have emerged in the country, firms such as Dr Fox Pharmacy, Dr Thom, Doctor Spring and Lloyds Pharmacy offer consultation and prescriptions regularly via the Internet.

In Australia HealthDirect is the free health advice and information service provided by the government with advice offered 24 hours a day via telephone. Medicare began funding online consultations for specialists on 1 July 2011 which has seen a slow but steady increase in volumes. Companies like GP2U Telehealth have forged alliances with pharmacy chains like Terry White Chemists and Priceline Pharmacies to facilitate online consultations and real time medication delivery.

New advances in digital information technology mean that in future online doctors and healthcare websites may offer advanced scanning and diagnostic services over the internet. The Nuffield Council on Bioethics identifies such services as direct-to-consumer body imaging (such as CT and MRI scans) and personal genetic profiling for individual susceptibility to disease. Professor Sir Bruce Keogh, the medical director of the UK NHS, is drawing up plans to introduce online consultations via Skype and has said IT will "completely change the way [doctors] deliver medicine".

1.3 E-patient [11]

An e-patient is a health consumer who participates fully in his/her medical care. Sometimes referred to as an "internet patient," e-patients see themselves as equal partners with their doctors in the healthcare process. E-patients gather information about medical conditions that impact them and their families, using electronic communication tools (including Web 2.0 tools) in coping with medical conditions. The term encompasses both those who seek guidance for their own ailments and the friends and family members (e-caregivers) who go online on their behalf. E-Patients report two effects of their health research: "better health information and services, and different (but not always better) relationships with their doctors".

E-Patients are active in their care and are demonstrating the power of the Participatory Medicine or Health 2.0 / Medicine 2.0. The "e" can stand for electronic but can also stand for:

- Equipped with the skills to manage their own condition.
- Enabled to make choices about self-care and those choices are respected.
- Empowered
- Engaged patients are engaged in their own care
- Equals in their partnerships with the various physicians involved in their care
- Emancipated
- Expert patients can improve their self-rated health status, cope better with fatigue and other generic features of chronic disease such as role limitation, and reduce Disability and their dependence on hospital care.

1.4 eHealth

EHealth (also written e-health) is a relatively recent term for healthcare practice supported by electronic processes and communication, dating back to at least 1999. Usage of the term varies: some would argue it is interchangeable with health informatics with a broad definition covering electronic/digital processes in health while others use it in the narrower sense of healthcare practice using the Internet. It can also include health applications and links on mobile phones, referred to as m-health or mHealth. Since about 2011, the increasing recognition of the need for better cyber-security and regulation may result in the need for these specialized resources to develop safer eHealth solutions that can withstand these growing threats.

1.5 Forms of e-health

The term can encompass a range of services or systems that are at the edge of medicine/healthcare and information technology, including:

- Electronic health records: enabling the communication of patient data between Health care professionals.
- Consumer health informatics: use of electronic resources on medical topics

By healthy individuals or patients;

- Health knowledge management: e.g. in an overview of latest medical journals, Best practice guidelines or epidemiological tracking.
- Virtual healthcare teams: consisting of healthcare professionals who collaborate and share information on patients through digital equipment (for transmural care);
- mHealth or m-Health: includes the use of mobile devices in collecting aggregate and patient level health data, providing healthcare information to practitioners, researchers, and patients, real-time monitoring of patient vitals, and direct provision of care (via mobile telemedicine);
- Medical research using Grids: powerful computing and data management capabilities to handle large amounts of heterogeneous data.
- Healthcare Information Systems: also often refer to software solutions for appointment scheduling, patient data management, work schedule management and other administrative tasks surrounding health

1.6 Outpatients and inpatients

An outpatient (or out-patient) is a patient who is not hospitalized for 24 hours or more but who visits a hospital, clinic, or associated facility for diagnosis or treatment. Treatment provided in this fashion is called ambulatory care. Sometimes surgery is performed without the need for a formal hospital admission or an overnight stay. This is called outpatient surgery. Outpatient surgery has many benefits, including reducing the amount of medication prescribed and using the physician's or surgeon's time more efficiently. More procedures are now being performed in a surgeon's office, termed office-based surgery, rather than in a hospital-based operating room. Outpatient surgery is suited best for healthy patients undergoing minor or intermediate procedures (limited urologic, ophthalmologic, or ear, nose, and throat procedures and procedures involving the extremities).

An inpatient (or in-patient), on the other hand, is "admitted" to the hospital and stays overnight or for an indeterminate time, usually several days or weeks (though some cases, such as coma patients, have been in hospitals for years). Treatment provided in this fashion is called inpatient care. The admission to the hospital involves the production of an admission note. The leaving of the hospital is officially termed discharge, and involves a corresponding discharge note.

Misdiagnosis is the leading cause of medical error in outpatient facilities. Ever since the National Institute of Medicine's groundbreaking 1999 report, "To Err is Human," found up to 98,000 hospital patients die from preventable medical errors in the U.S. each year, government and private sector efforts have focused on inpatient safety. While patient safety efforts have focused on inpatient hospital settings for more than a decade, medical errors are even more likely to happen in a doctor's office or outpatient clinic or center [20].

1.7 Day patient

A day patient or (day-patient) is a patient who is using the full range of services of a hospital or clinic but is not expected to stay the night. The term was originally used by psychiatric hospital services using of this patient type to care for people needing support to make the transition from in-patient to out-patient care. However, the term is now also heavily used for people attending hospitals for day surgery.

Because of concerns such as dignity, human rights and political correctness, the term "patient" is not always used to refer to a person receiving health care. Other terms that are sometimes used include health consumer, health care consumer or client. However, such terminology may be offensive to those receiving public health cares as it implies a business relationship. (In at least some countries, it is illegal to practice business within any public hospital.)

In veterinary medicine, the client is the owner or guardian of the patient. These may be used by governmental agencies, insurance companies, patient groups, or health care facilities. Individuals who use or have used psychiatric services may alternatively refer to themselves as consumers, users, or survivors.

In nursing homes and assisted living facilities, the term resident is generally used in lieu of patient, but it is common for staff members at such a facility to use the term patient in reference to residents. Similarly, those receiving home health care are called clients.

1.8 Patient Centered Healthcare

The Doctor-patient relationship has sometimes been characterized as silencing the voice of patients. It is now widely agreed that putting patients at the centre of healthcare, by trying to provide a consistent, informative and respectful service to patients, will improve both outcomes and patient satisfaction.

When patients are not at the centre of healthcare, when institutional procedures and targets eclipse local concerns, then patient neglect is possible. Scandals in the UK, such as the Stafford Hospital scandal and the Winterbourne View hospital abuse scandal have shown the dangers of silencing the voice of patients. Investigations into these, and similar scandals, have recommended that the health service put patient experience at the heart of what it does, and especially, that the voice of patients is heard loud and clear within the health services.

There are many reasons for why health services should listen more to patients. Patients spend more time in health care services than any regulators or quality controllers. Patients can recognize problems such as service delays, poor hygiene, and poor conduct. Patients are particularly good at identifying soft problems, such as attitudes, communication, and 'caring neglect' that are difficult to capture with institutional monitoring.

One important way in which patients can be put at the centre of healthcare is for health services to be more open about patient complaints. Each year many hundreds of

thousands of patients complain about the care they have received, and these complaints contain valuable information for any health services which want to learn and improve patient experience

Patients' satisfaction with an encounter with health care service is mainly dependent on the duration and efficiency of care, and how empathetic and communicative the health care providers are. It is favored by a good doctor-patient relationship. Also, patients who are well-informed of the necessary procedures in a clinical encounter, and the time it is expected to take, are generally more satisfied even if there is a longer waiting time.

Around the world the term physician refers to a specialist in internal medicine or one of its many sub-specialties (especially as opposed to a specialist in surgery). This meaning of physician conveys a sense of expertise in treatment by drugs or medications, rather than by the procedures of surgeons.

This term is at least nine hundred years old in English: physicians and surgeons were once members of separate professions, and traditionally were rivals. The Shorter Oxford English Dictionary, third edition, gives a Middle English quotation making this contrast, from as early as 1400:

Henry VIII granted a charter to the London Royal College of Physicians in 1518. It was not until 1540 that he granted the Company of Barber/Surgeons (ancestor of the Royal College of Surgeons) its separate charter. In the same year, the English monarch established the Regius Professorship of Physic at the University of Cambridge. Newer universities would probably describe such an academic as a professor of internal medicine. Hence, in the 16th century, physic meant roughly what internal medicine does now.

Currently, a specialist physician in the United States may be described as an internist. Another term, hospitalist, was introduced in 1996, to describe US specialists in internal medicine who work largely or exclusively in hospitals. Such 'hospitalists' now make up about 19% of all US general internists, who are often called general physicians in Commonwealth countries.

This original use, as distinct from surgeon, is common in most of the world including the United Kingdom and other Commonwealth countries (such as Australia, Bangladesh, India, New Zealand, Pakistan, South Africa, Sri Lanka, Zimbabwe), as well as in places as diverse as Brazil, Hong Kong, Indonesia, Japan, Ireland, and Taiwan. In such places, the more general English terms doctor or medical practitioner are prevalent, describing any practitioner of medicine (whom an American would likely call a physician, in the broad sense). In Commonwealth countries, specialist pediatricians and geriatricians are also described as specialist physicians who have sub-specialized by age of patient rather than by organ system.

1.9 Physician and surgeon

Around the world, the combined term "Physician and Surgeon" is used to describe either a general practitioner or any medical practitioner irrespective of specialty. This usage still shows the original meaning of physician and preserves the old difference between a physician, as a practitioner of physic, and a surgeon. The term may be used by state medical boards in the United States of America, and by equivalent bodies in provinces of Canada, to describe any medical practitioner.

North America

In the United States and Canada, the term physician describes all medical practitioners holding a professional medical degree. The American Medical Association, established in 1847, as well as the American Osteopathic Association, founded in 1897, both currently use the term physician to describe members. However, the American College of Physicians, established in 1915, does not: its title uses physician in its original sense.

American Physicians

A physician trained in the United States has either a Doctor of Medicine degree, and uses the initials 'M.D.' or has a Doctor of Osteopathic Medicine degree and uses the initials 'D.O.' After finishing their medical school education both a Doctor of Osteopathic Medicine (DO) and Doctor of Medicine (MD), with licensure, have the same unlimited practicing rights in all specialties and subspecialties of medicine. United States osteopathic medical schools have a curriculum almost identical to MD schools with the addition of osteopathic manipulative medicine, which focuses on extra instruction in the musculoskeletal system.

Graduates of osteopathic medical schools in the United States (osteopathic physicians) should not be confused with osteopaths, who are trained in the European and Commonwealth nations. Osteopaths (the term used for non-American-trained practitioners who practice osteopathic manipulation) are not physicians. Their training is similar to physical therapy and they are not licensed to prescribe medications or perform surgeries.

Podiatric physicians

Also in the United States, the American Podiatric Medical Association (APMA) defines podiatrists as physicians and surgeons that fall under the department of surgery in hospitals. They undergo training with the Doctor of Podiatric Medicine (DPM) degree. This degree is also available at one Canadian university, namely the University du Québec à Trois-Rivières. Students are typically required to complete an internship in New York prior to the obtention of their professional degree.

Nurse practitioners

Nurse practitioners (NPs) in the United States are advanced practice registered nurses holding a post-graduate degree such as a Doctor of Nursing Practice. In Canada,

nurse practitioners typically have a Master of nursing degree as well as substantial experience they have accumulated throughout the years. Nurse practitioners are not considered physicians but may practice in similar fields as physicians with an emphasis on primary care. Nurse practitioners are educated in nursing theory and nursing practice rather than pure and applied medical practice. The scope of practice for a nurse practitioner in the United States is defined by regulatory boards of nursing, as opposed to boards of medicine that regulate medical doctors

1.10 MOTIVATION

Now days, most of the service sector is fully automated whether it is utility based services, daily products, banking or finance. As far as the medical services are concerned, these are still relying on the traditional way of communication. Classically, the patients arrive at the doctor's clinic with their series of symptoms or problems. The medical practitioner analyzes and provides the consultancy alongwith the prescription and future appointment.

In the existing or classical way, the patient has to remember a series of medicines as well as the upcoming appointment. In the proposed system approach, we will develop a web based portal that will keep track of the medical prescription as well as the upcoming appointment that will be very easy to remember by the patient as well as the doctor.

For implementation of this system, SMS Gateway shall be deployed that will communicate with the back-end database of each patient's prescription and appointment. The SMS Gateway will send the message to patient on the near date and time of the activity to be performed.

Medical Portal as the name suggests is the reliable destination for patients to find a doctor and book doctor appointment online. Our site offers hassle-free search for trusted doctors across cities & a smooth experience of online appointment booking. The need of online appointment for doctors is surely on the rise today as no patient wants to wait for hours at the Doctors clinic for their turn. Browse through to book doctors online appointment on our site with database of trusted doctors to choose from based on their detailed professional showcase and happy patient reviews. This will surely enable & help arrive at a decision of the right Doctor!"

A prescription (℞) is a health-care program implemented by a physician or other qualified practitioner in the form of instructions that govern the plan of care for an individual patient. A qualified practitioner might be a physician, physician assistant, dentist, nurse practitioner, pharmacist, psychologist, or other health care providers. Prescriptions may include orders to be performed by a patient, caretaker, nurse, pharmacist, physician, other therapist, or by automated equipment, such as an intravenous infusion pump. Formerly, prescriptions often included detailed instructions regarding compounding of medications but as medications have increasingly become pre-packaged manufactured products, the term "prescription" now usually refers to an order that a pharmacist dispense and that a patient take certain medications. Prescriptions have legal implications, as they may indicate that the prescriber takes responsibility for the clinical care of the patient and in particular for monitoring efficacy and safety. As medical practice has become increasingly complex, the scope of meaning of the term "prescription" has broadened to also include clinical assessments, laboratory tests, and imaging studies relevant to optimizing the safety or efficacy of medical treatment.

1.11 CONTRIBUTION

- Online Account / User Creation
- Admin Panel for Approval / Disapproval of the Users

Patient Panel

- Register
- Login
- Forgot Password and Recovery Options
- View Prescription
- View Upcoming Appointment
- Cancel Appointment
- Request for New Appointment
- View Previous Appointment
- Search Doctor – By Name, Specialization

Doctor Panel

- Register
- Login
- Forgot Password and Recovery Options
- View All Appointments
- Change Appointment
- Bulk SMS Notification to Patients
- Search Patients – By Name, Mobile Number, Disease

Administrator

- Enable / Disable / Delete Patient
- Enable / Disable / Delete Doctor
- Bulk SMS Notification to Doctors / Patients

TOOLS AND TECHNOLOGIES TO BE USED

- PHP
- MySQL Database Engine
- CURL
- SMS Gateway
- AJAX
- JQuery

1.12 ORGANIZATION OF THE THESIS

Chapter 1 initiates with the introduction of web based medical prescription / appointment systems and related aspects. In this chapter, the preamble and base details of related platforms and software suite are mentioned.

Chapter 2 is related to the preliminaries and background of the thesis work. This chapter contains the details of background aspects and different paradigms of medical portal and prescription.

Chapter 3 depicts and explains the proposed work of thesis. In this chapter, the proposed model, algorithm and related details is mentioned. This chapter is having complete information and details of the overall work done in the thesis in technical dimensions.

Chapter 4 represents the results and discussion on the output fetched. This dissertation work is explained and depicted in this chapter with the outcome.

Chapter 5 explains the scope of future work that can be done for further enhancement in the project.

CHAPTER 2 PRELIMINARIES AND BACKGROUND

In India, the online medical practitioner service is not very prominent and adopted by the doctors. The doctors or medical practitioners follow the classical method of giving OPD service to the patients.

This method is very time consuming and not effective as lots of time is wasted in this way.

In abroad, many online services are available by which the patients can book the appointment using their smartphone or any Internet based devices

2.1 LITERATURE REVIEW

1.Design and Implementation of Clinic Appointment Registration System Xiuju Zhan, Xiufeng Liu School of Medical Information Engineering, Guangzhou University of Chinese Medicine, Guangzhou [1]- China Clinic Appointment Registration System is an important way to see a doctor, and it's also a preliminary tool for storage and management of clinic medical records. This new system was developed using Visual Studio 2008 and C#.NET as the development environment and tools and Microsoft Access 2003 as the database to store the medical data based on Browse/Server (B/S) model. The system consists of several data operation functions including appointment registration, data management (e.g. addition, deletion and searching), data backup and recovery, etc., thus, achieve key research objectives.

International Journal of Innovative Research in Computer and Communication Engineering Vol. 2, Issue 1, January 2014 - Android Application for Doctor's Appointment Prof. S. B. Choudhari, Chaitanya Kusurkar et. al. [2]- In today's world if someone wants to book a Doctor's Appointment we need to call in clinic or personally go to that place and book the appointment. This consumes precious time of the patient. Also if the doctor cancels his/her schedule, the patient does not come to know about it

unless he/she goes to the clinic. The objective of this project is to build a system that will ease the process of booking appointment of the doctor. The patient will book the appointment through his/her mobile phone. The doctor will come to know the number of patients he has to attend whole day. The system will save patient's as well as doctor's time. It will save the receptionist's paper work. The system will prove to be useful for doctor as he can check his appointments whenever and from wherever he wants from his mobile phone. Here we present a doctor-patient interaction system based on Android. Its excellent performance on mobile terminals makes it possible that patients are able to access the hospital server to obtain the necessary suggestion about the symptoms and interact with the doctors on their own mobile terminals, while doctors can track patients whenever and wherever possible or make a diagnosis of alert depends on the monitoring data from the hardware of mobile terminals. Paper describes the needful things that the Doctor has to do every day. In this paper, we solve this problem by proposing a new system based on android technology, through that the doctor can manage his/her appointments from anywhere. In addition to this the patient who is unable to go to the clinic and take the appointment can also book his/her appointment from a mobile phone within 2-3 min. Our solution is to build a system that will help the needful people or every person who wants to save their precious time. Any needed information can be supplied at the time of installation. This removes the need for a technician to install software and enormously quickens the implementation of a patient monitoring system. The proposed system consists of two panels: Doctor and Patient. The users will first have to download the application and install it in their mobile devices. Once installed, this application will remain into the device permanently until the user deletes it or uninstalls it. The patient will have to register into the application for the first time. On registering, the patient will receive a username and password. The patient can use this username and password for logging into the app each time he uses it. After logging in, the patient will have to select a filtration type. The filtration is done on two bases: Area wise and Specialty wise. After selecting the filtration type, the doctors list will be displayed. The patient can select any particular doctor and view his profile. Also the patient can view the doctor's schedule and look for an appointment according to his convenience. The patient will then send a request for appointment. The doctor can either accept the appointment or

reject it. The database will get updated accordingly and the patient will get a confirmation message. The add-on to this system is that the patient will receive a notification 2 hours before the actual appointment. This will be very useful in case the patient tends to forget the appointment. System Architecture

This system aims to simplify the task of the patient and the doctor. It will make patients more relaxed as they do not have to stand in a long queue to fix their appointment and also book an appointment according to their choice in a more convenient way. Doctors need not worry about managing their appointment. Though you are not going to clinic for taking an appointment, your appointment gets booked from anywhere and however you want. This helps to save the time of patient. Also the patient can get the doctor of his choice through various filters used in the application. The doctor is also able to view his day to day appointment list which makes it easier for him to plan his schedule. This application will help to optimize the work of patient and doctor

Health Care Providers' Attitudes Towards Online Appointment Scheduling Systems at Planned Parenthood Ryan Field, Zane Schwarzlose, Marianna Symeonides, and Jarred Wilson The University of Texas at Austin's School of Information December –

[3] This study showed that the attitude of PPFA Affiliates towards online appointment scheduling is more positive than negative. Considering the barriers that have been identified regarding implementation, it would benefit some Affiliates to conduct a cost-benefit analysis to determine whether an online scheduling system is appropriate. Some Affiliates may find that such a system would accommodate tech savvy patients while also increasing efficiency, but others may find that the financial, technical, and training burdens of implementing these systems is too great to justify such an undertaking. Perhaps in the future, patients may come to expect, or at least appreciate, online appointment scheduling as a component of their web-based interaction with health professionals. Therefore, it might be worthwhile for Affiliates to survey their patients' attitudes towards online scheduling before deciding definitively whether to move forward with these systems. Once it has been determined that an online scheduling system is beneficial for the Affiliate, and that patients desire such a system, PPFA would be in a

position to provide and administer a uniform system to all Affiliates. A uniform system would help to mitigate the financial, technical, and training concerns that exist across the Affiliates.

Canada Research Chair in Information Technology in Health Care Adoption, Use and Effects of an e-appointment System [4]- Results of a Quebec Showcase Project Guy Paré, Ph.D. Canada was among the OECD countries with the lowest ratio of physicians per 1,000 inhabitants: 2.4. The average for all countries was 3.2.1 In a 2010 comparison with other countries, Canada ranked last (with Norway) in access to a doctor or nurse in the case of illness: only 45% of Canadians said that they could consult a doctor or nurse within 48 hours. Canada's performance has not improved over the years. In 2004, one in four Canadians (or 25%) stated that they had to wait six or more days to see a doctor in the case of illness or need. By 2010, this rate had risen to 33%. It is worth noting that the number of missed medical appointments, that is, those for which patients are no-shows without prior notice or who cancel at the last minute, is a major concern for physicians and managers in medical clinics. Managing medical appointments is a key process that has an impact on the performance of first-line medical clinics. As detailed in the following section, a growing number of medical clinics have adopted various solutions to improve the overall efficiency of this process and to reduce the number of missed appointments. Among these measures are telephone reminders, follow-ups of missed appointments to understand the underlying reasons, overscheduling, billing of fees for missed appointments without 24-hour notice and deployment of e-appointment solutions. This study pertains to one of these solutions, the e-appointment system. The specific focus was to examine the adoption, use and effects of an e-appointment system in a showcase project² involving seven first-line medical clinics. This type of application enables patients to schedule, change or cancel appointments online. Automated reminders can also be sent to patients by phone, email or text message. From the perspective of the medical clinics, such technology tools make it possible to manage schedules, automated reminders and missed appointments more efficiently. To date, few empirical studies have looked into the adoption, use and effects of such systems for both the clinics and the patients. This study is intended to fill a void in the scientific literature. The Doctor Direct

application developed using Microsoft.net technology was deployed as part of this showcase project. This application consists of a secure Web portal that enables patients to access their doctor's schedule 24 hours a day, 7 days a week and to book an appointment that suits them best without the assistance of a secretary. An email reminder, as well as a telephone reminder (automated message), is sent to the patient two days before the appointment. The patient is then able to confirm or cancel the appointment online. This computer solution was chosen because of its interoperability with the Kinlogix Médecin electronic medical record (EMR), the most widely used EMR in medical clinics in Quebec (Paré et al. 2013). The study had four main objectives: 1) to present statistics on the adoption (number of patients enrolled) and use (number of time slots available online, number of appointments made online) of the e-appointment system in each of the seven clinics in the past two years; 2) to gauge patients' perceptions regarding the benefits of using the e-appointment system and their intention to continue using it in the future; 3) to assess the effect of the marketing strategies that were implemented in each of the medical clinics on the rate of 4 patients' adoption of the system; and 4) to measure the impact of the e-appointment system on the number and rate of missed appointments in each of the clinics. Each objective will be treated in a specific section of this report.

2. Adoption and Use of the e-appointment System

various statistics related to the adoption (number of patients enrolled) and use (number of available time slots, number of appointments made online) of the e-appointment system in each clinic are shown below. Before presenting these statistics, it should be pointed out that the Groupe médical Sainte-Catherine was the first to implement the system in 2009, followed by the Cité Médicale in 2010. As of December 31, 2011, before the official start of the showcase project, the Groupe médical Sainte-Catherine had 1,810 patients enrolled on its Web portal and the Cité Médicale had 2,258 patients enrolled. Four clinics implemented the e-appointment system in 2012: the Westmount Square Medical Centre, the Ubisoft Medical Clinic, the Angus Medical Clinic and the Service of Urology – South Shore. For its part, the Polyclinique médicale Pierre-Le Gardeur decided to postpone implementation of the system to 2014. This clinic is, therefore, not included in this report analyses. The statistics in Figures 1 to 3 show that the promotional efforts deployed by the Groupe médical Sainte-Catherine in 2012 resulted in 506 patients being added to the 1,810 users of the e-appointment system, an

increase of 28%. In addition, 10,128 time slots were put online by the clinic's physicians and 27% of them were booked by patients that same year. In 2013, there were 714 new patients enrolled in Doctor Direct, bringing the total number of enrolments for this clinic to 3,030. With regard to the use of the system, 2,722 (or 30%) of the 9,205 time slots that were put online were booked by patients in 2013. In the case of the Cité Médicale, the number of users rose from 2,258 at the end 2011 to 3,734 at the end of the following year, an increase of 65%. In addition, 75% of the time slots that were put online by the clinic's physicians in 2012 were booked by patients. The number of patients enrolled on the Web portal rose to 4,705 by the end of 2013, an increase of 971 patients. The number of time slots put online also increased in 2013, from 2,354 to 3,242, an increase of 27%. Finally, it is worth noting that approximately 72% of time slots available online were booked by patients in 2013.

2.2 NetDoctor

<http://www.netdoctor.co.uk> is one of the website using this methodology. Use the Symptom Checker, created in partnership with NHS Choices, to assess your symptoms online and receive personalised feedback on the best course of action. The Symptom Checker is operated and provided by NHS Choices.

Company wants to break down the "medical language barrier" between the doctor and the patient. Critical medical information must be presented in a clear and understandable language so that the patient fully understands his or her choices and decisions. Ultimately, it is the patient who must make the critical health choices.

The company believes that in the future the world of medicine will be dominated by a new patient who seeks out critical information on the Internet - and that this will take a new type of doctor who must help the patient assess the quality of that information. NetDoctor.co.uk is committed to helping both parties in their quest.

NetDoctor.co.uk is a collaboration between committed doctors, health care professionals, information specialists and patients who believe that medical practice should be based on quality-assessed information and, wherever possible, on the basis of the principles of evidence-based medicine.

Over 250 of the UK's and Europe's leading doctors and health professionals write, edit and update the contents of NetDoctor.co.uk. In addition to creating written content for the

patient these same health professionals respond to user's questions and concerns regarding general health concerns.

The editorial independence and reliance on professional advice is our single most important asset. There is a clear distinction between the editorial and business staff. As a matter of policy our doctors, writers and editors are not allowed to be influenced or answerable to our sponsors or advertisers. We follow the same standards of practice as the leading medical journals.

NetDoctor.co.uk funds its activities by advertising, sponsorship and content syndication with a range of selected commercial organisations, including pharmaceutical companies, information service providers and other electronic and print media publishers. None of the funding source providers has any editorial control over NetDoctor's content, which is developed independently and guided only by accepted medical opinion. All material published on the NetDoctor web site is commissioned directly from UK health professionals.

In March 2006 NetDoctor.co.uk Limited became part of the Hearst Digital Network, the digital publishing division of Hearst Magazines UK, a trading name of The National Magazine Company Limited. NetDoctor is wholly owned by Hearst Magazines UK. NetDoctor.co.uk subscribes to the HonCode-principles

The international HonCode ethical guidelines are as follows:

- Any medical/health advice provided and hosted on this site will only be given by medically/health trained and qualified professionals unless a clear statement is made that a piece of advice offered is from a non-medically/health qualified individual/organization.
- The information provided on this site is designed to support, not replace, the relationship that exists between a patient/site visitor and his/her existing physician.
- Confidentiality of data relating to individual patients and visitors to a medical/health Web site, including their identity, is respected by this Web site. The Web site owners undertake to honour or exceed the legal requirements of medical/health information privacy that apply in the country and state where the Web site and mirror sites are located.
- Where appropriate, information contained on this site will be supported by clear references to source data and, where possible, have specific HTML links to that data. The date when a clinical page was last modified will be clearly displayed (e.g. at the bottom of the page).
- Any claims relating to the benefits/performance of a specific treatment, commercial product or service will be supported by appropriate, balanced evidence.
- The designers of this Web site will seek to provide information in the clearest possible manner and provide contact addresses for visitors that seek further information or support. The Webmaster will display his/her E-mail address clearly throughout the Web site.

- Support for this Web site will be clearly identified, including the identities of commercial and non-commercial organizations that have contributed funding, services or material to the site.
- If advertising is a source of funding, it will be clearly stated. A brief description of the advertising policy adopted by the Web site owners will be displayed on the site. Advertising and other promotional material will be presented to viewers in a manner and context that facilitates differentiation between it and the original material created by the institution operating the site.

The people behind NetDoctor.co.uk

Dr Roger Henderson Qualified as a doctor from St Bartholomew's Hospital, London in 1985 and as a general practitioner in 1990. He decided to work part time in 1995 to concentrate on his writing career, and within 2 years was the medical columnist of the Sunday Times. He has written regular columns for many newspapers and magazines and is currently the medical columnist for the Sunday Mirror, Woman's Own, Slimming magazine, magazine and a number of other publications. His medical responsibilities include being a college doctor and a busy family doctor in Shropshire, running a main surgery and two branch surgeries.

Dr Dan Rutherford, BSc MB ChB MRCP FRCP, qualified from Edinburgh University in 1979. After hospital training in General Medicine and Gastroenterology in Dundee and Edinburgh he became a full time Principal in General Practice in St Andrews, Scotland, in 1986. He was NetDoctor.co.uk's ginal Medical Director and was responsible for the content on the site from its inception in 2000 until 2003, when he returned to full time clinical practice. In addition to a range of medical writing work he now runs his own private general practice in St Andrews. Dr Rutherford is the main author of all 16 titles in the NetDoctor 'Help Yourself to Health' series of books published by Hodder & Stoughton.

Dr David Delvin MB BS LRCP MRCS DObst RCOG DCH FPA Cert MRCP Dip Ven MFFPRCOG, author of 27 books, has appeared on more than 800 radio and TV programmes, contributes to many periodicals and still has time to see patients in his clinics in East Sussex, Cambridge and London.

Christine Webber LNCP, MNCH Dip PHTA, Dip Cognitive Approaches to Psychotherapy (London) is a popular columnist, TV and radio agony aunt and qualified psychotherapist and life coach. She is known for her direct approach and her sound advice balanced with a ready wit. She is currently filming a series for Living TV and is the author of numerous books including Get the Happiness Habit, Get the Self-Esteem Habit and How To Mend a Broken Heart. Visit her website for more details.

2.2 Doc Appointments.com.au [23]

DocAppointments.com.au is the first Australian fully-integrated, automatic and real time online appointment booking system.

The company is delighted to announce a NEW feature to DocAppointments! The patients can now request a prescription. This new feature is part of our ongoing development and improvements processes and is at no extra cost to your Practice.

Quick and easy to use: integrates with your practice management software, so there's nothing new to learn in order to offer online appointments to your patients. Designed to improve Practice efficiencies, and available on computer, iPhone and Android phones

How does it work?

1. The patient logs in and can choose to make an appointment or click on the 'request prescription' button:

The screenshot displays the patient login interface for DocAppointments.com.au. On the left, there is a calendar for November 2013 with the 10th highlighted. Below the calendar, there are instructions on how to make an appointment and cancel it. The main area shows a table of available appointment slots for three doctors: Dr Test Doctor, Dr Cain Fava, and Dr Graham Brown. The slots are listed from 8:50 am to 10:35 am in 5-minute increments. Each slot is marked as 'Available (10 mins)'. In the top right corner, there is a 'Request Prescription' button and a 'Log Out' button. The DocAppointments.com.au logo is also visible in the top right corner.

Time	Dr Test Doctor	Dr Cain Fava	Dr Graham Brown
8:50 am			
8:55 am			
9:00 am	Available (10 mins)	Available (10 mins)	Available (10 mins)
9:05 am			
9:10 am	Available (10 mins)	Available (10 mins)	Available (10 mins)
9:15 am			
9:20 am	Available (10 mins)	Available (10 mins)	Available (10 mins)
9:25 am			
9:30 am	Available (10 mins)	Available (10 mins)	Available (10 mins)
9:35 am			
9:40 am	Available (10 mins)	Available (10 mins)	Available (10 mins)
9:45 am			
9:50 am	Available (10 mins)	Available (10 mins)	Available (10 mins)
9:55 am			
10:00 am	Available (10 mins)	Available (10 mins)	Available (10 mins)
10:05 am			
10:10 am	Available (10 mins)	Available (10 mins)	Available (10 mins)
10:15 am			
10:20 am	Available (10 mins)	Available (10 mins)	Available (10 mins)
10:25 am			
10:30 am	Available (10 mins)	Available (10 mins)	Available (10 mins)
10:35 am			

Fig 2.2.1: Screenshot of patient login

2. The patient selects the family member, their Doctor, plus writes their medication type and dosage. Then when they click the 'request prescription', the request is sent to the surgery and the patient receives a confirmation:

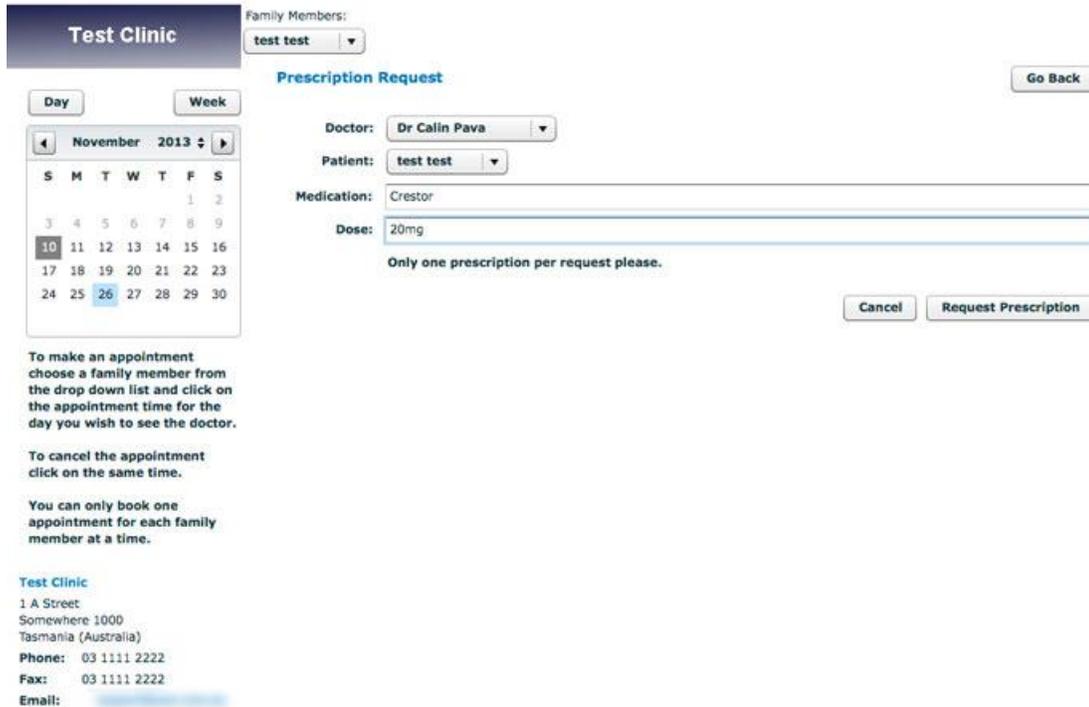


Fig 2.2.2: Screenshot of prescription request.

3. The confirmation:

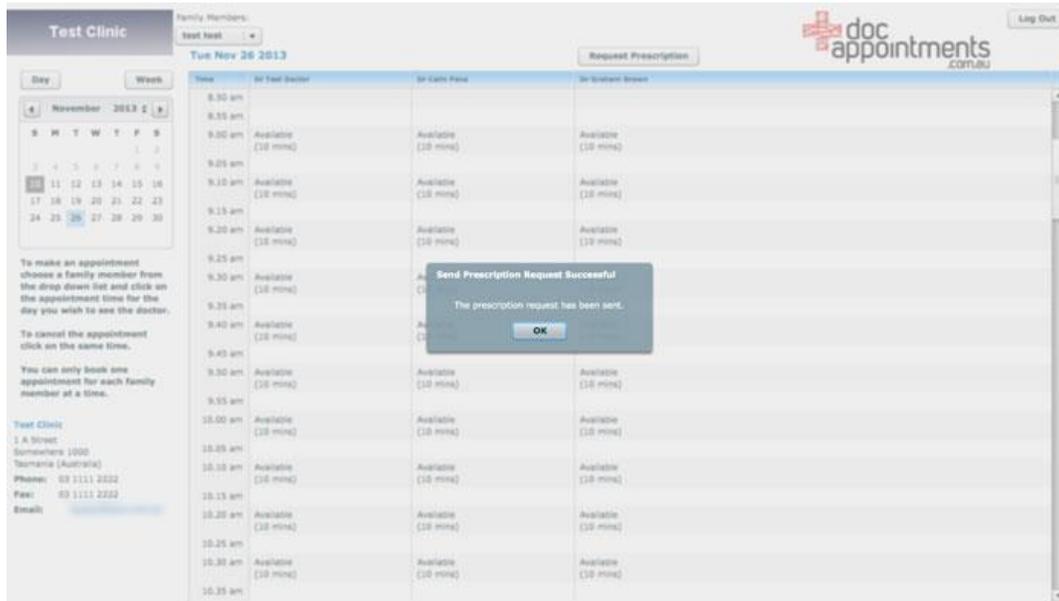


Fig 2.2.3: Screenshot of confirmation of appointment.

4. The Practice Managers' Admin screen.

This allows you to see the settings that we recommend. Please note the tick boxes in the lower-right corner, stating that the Doctor is online, whether they accept new patients, show 'all' free appointments automatically online, and if they accept the script requests. These settings can be varied for each individual Doctor, with one single click. With these settings, the system operates in 'fully automatic' mode, with no intervention required from receptionists (for online appointments). The request script workflow is detailed below:

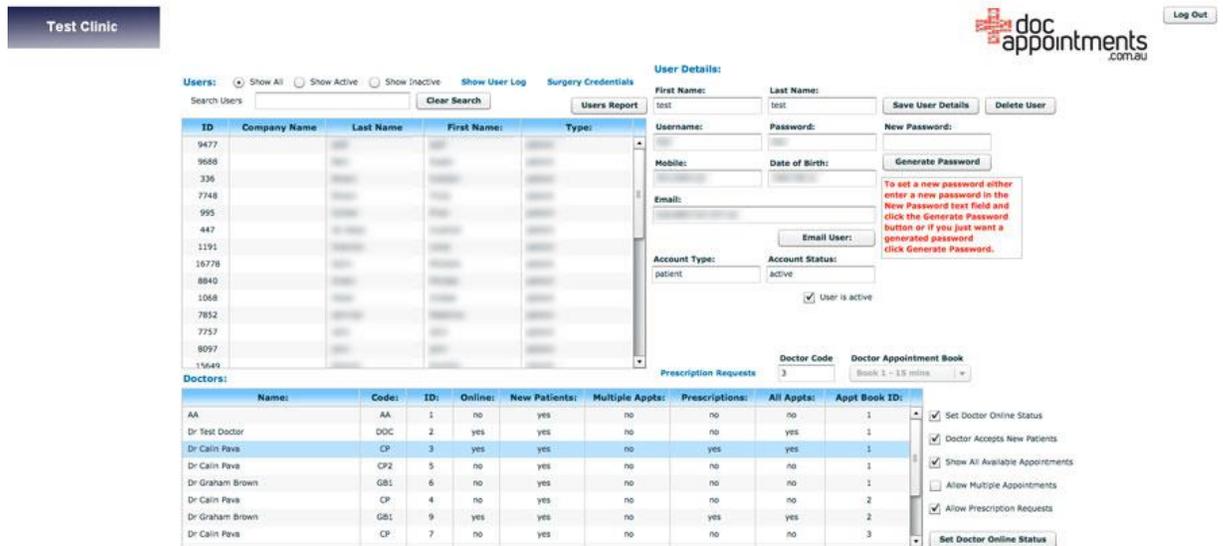


Fig 2.2.4: Screenshot of Practice Manager

5. From the Practice Admin screen above, the receptionist clicks 'prescription requests' button, which allows them to see the prescription request control panel, below? This contains a list of all Doctors selected to accept prescriptions. And by clicking on 'print prescription requests list', the receptionist can print or export a list of prescriptions for each individual Doctor (refer to #6 below)[22].

Test Clinic

[Return To Admin](#)

Prescription Requests

Doctor	Number Of Requests
Dr Test Doctor	0
Dr Calin Pava	1
Dr Graham Brown	0

[Print Prescription Requests List](#)

Patient	DOB	Date
test, test		2013-11-10 10:48:44

Doctor Name: Doctor Code:
 User Name: User DOB:
 User Email: User Mobile:
 Patient:
 Medication:
 Dose:

Fig 2.2.5: Screenshot of Admin page




DocAppointments Prescription Requests for Dr Calin Pava

Show entries Search:

Patient	Medication	Dose	Date Requested
test test [DOB:] [Ph:]	Crestor	20mg	2013-11-10 10:48:44

Showing 1 to 1 of 1 entries

Fig 2.2.6: Screenshot of doc appointments.com

Online appointments and waiting room 'arrivals' for your patients



Fig 2.2.7: Screenshot of phone application

DocAppointments is the first Australian fully-integrated, automatic and real time online appointment booking system.

Quick and easy to use: integrates with your practice management software, so there's nothing new to learn in order to offer online appointments to your patients. Designed to improve Practice efficiencies, and available on computer, iPhone and Android phones.

Patients can make appointments with your Practice 24/7 with the Doctor of their choice, easing the pressure on your reception and the phone system in your Practice.

In fully-automatic mode, all vacant appointments are available online with no intervention necessary from your reception staff. Patients receive an email confirmation and, if the appointment was made on an iPhone or Android smartphone, the patient also

receives a calendar reminder one-day prior and one-hour prior to their appointment (at no extra cost to your Practice).

DocAppointments is fully-integrated with Best Practice, MD Pracsoft, ZedMed, Practice 2000 and Stat Health.

Prescription requests: now with prescription request capability, at no extra cost to your Practice. Read more about script requests...

DocAppointments recently released the first waiting room App allowing patients to check-in and 'arrive' themselves in your waiting room.

The App is available on an Android tablet and integrates with Best Practice and MD Pracsoft ...and soon with Stat Health.

2.3 Practo Search

Practo Search is a patient focused, unbiased, independent medical website with over 100,000 doctor profiles from across India and Singapore. Patients can book confirmed appointments with doctors listed on Practo's website. This is a free service for both the patient and the doctor. We had booked over 28,000 appointments for the month of June 2014[24].

- We do not suggest, endorse or comment on any medical procedures, conditions or treatments of any kind.
- We do not promote, endorse or suggest any Doctor, Hospital or clinic as best or better suited for any specific condition or case.
- Patients are to use their own judgment / volition to assess, choose and connect to Doctors/Clinics /hospitals listed on Practo.com.
- We do NOT provide any emergency medical assistance
- We are not to be referred to for assistance in emergency medical conditions.
- We are NOT an extension of the Clinic, Hospital or Doctor
- We are an independent website focused on helping patients. We do not have any commercial relationship with Doctors / Clinics / Hospitals for regular listings.
- Information about a Doctor / Clinic/ Hospital is indicative as we do not undertake any responsibility for any inaccuracy/misrepresentation of Information. However, we make reasonable efforts to keep the information updated from time to time.
- We do not undertake any responsibility for any medical eventuality that might occur subsequent to using services of a Doctor / Clinic / Hospital whose appointment has been booked through Practo.com.

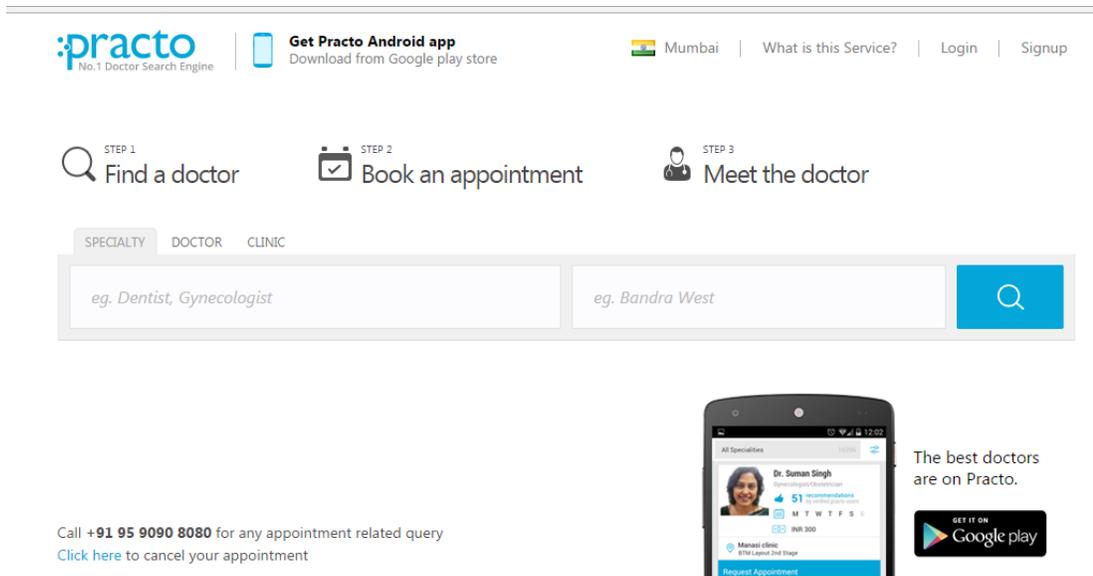


Fig 2.3.1: Screenshot of practo search

- Practo.com believes that the best model to help patients find the right doctors is if we are completely unbiased to the Doctor. We only make money on advertisements – you will notice that a few banners of featured clinics / packages are clearly marked out and shown in the search pages these are paid advertisements. This is very similar to Google search results. We show ads but our search results are completely unbiased.
- If you are you interested in a featured placement get in touch with us at help@practo.com
- Do we have to show our Appointment ID when visiting the clinic for appointment?
- It is not mandatory to have your appointment ID when you visit the clinic. But it always helps to have your appointment confirmation SMS (which has the appointment id) handy. This is a proof of confirmation which helps us assist you faster in case of any queries or issues.
- I know that some of the details of one of the doctors you have listed is wrong- What do I do about it?
- We, as well as countless patients, will be extremely grateful if you can call us at +91 95 90908080 or drop a line at help@practo.com. We will immediately look in and correct it. Your help in doing this makes us better, stronger and more relevant to patients.
- One of the good doctors in my area is not listed on Practo.com? What do I do about it?
- Please request the Doctor to get listed – it's completely free.
- You can also let us know by calling us at +91 95 90908080 or dropping a line at help@practo.com. We will get in touch with the Doctor and discuss listing his/her profile. We will be extremely grateful to you for helping us add more Doctors to the site. So will countless patients!

2.4 patient.co.uk [21]

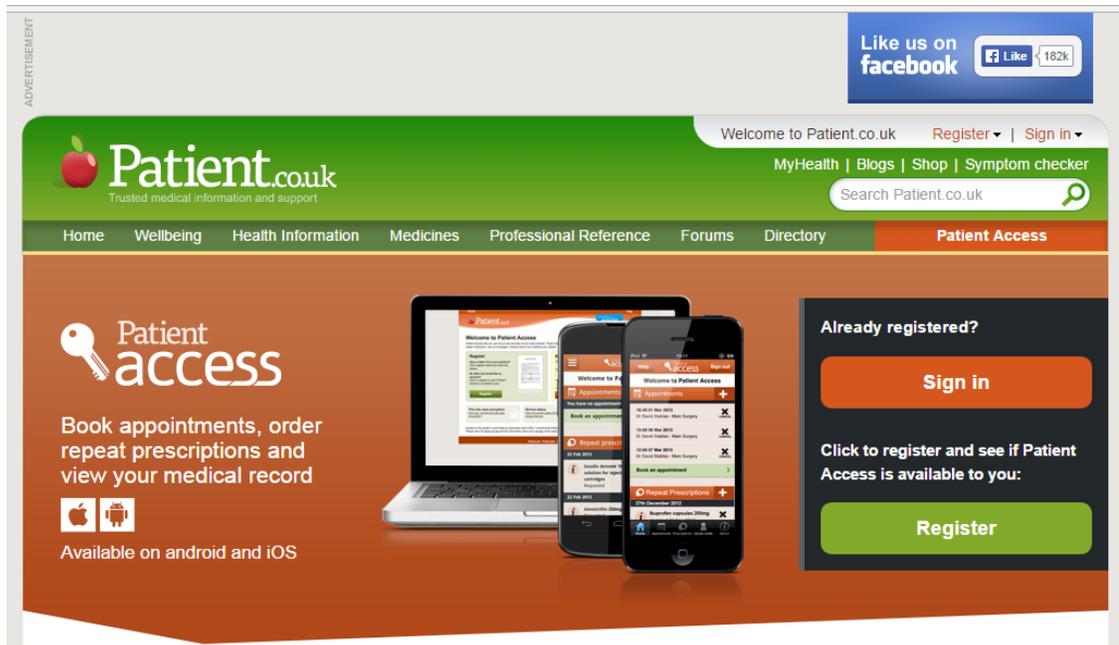


Fig 2.4.1: Screenshot of patient.co.uk

Patient.co.uk is the UK's leading independent health site, established for over 15 years. With more than 16 million visits a month, it is a trusted source of information for both patients and health professionals nationwide.

The site contains over 4000 health information leaflets, a wellbeing centre, a free health check, and thousands of discussion forums. It is accredited by The Information Standard, NHS England's quality mark and was listed as 'The top health website you can't live without' by The Times newspaper (Jan 2013).

Patient.co.uk was first launched in 1997 by PiP (Patient information Publications) as a directory of UK websites which provided information on health, disease and related issues. PiP is a partnership between Dr Tim Kenny and Dr Beverley Kenny, who are GPs with over 15 years' experience in Tyne and Wear, England and who have a particular interest in writing and providing evidence-based patient information.

In December 2002, Patient.co.uk was relaunched as a joint venture between PiP and EMIS (Egton Medical Information Systems Ltd). EMIS has a special interest and experience in making electronic systems that allow doctors and patients to find appropriate medical information quickly. In April 2008, EMIS acquired the balance of

Patient.co.uk from PiP, but the partners of PiP continued to be involved as members of the editorial team.

In January 2012 the site underwent a further redesign. The core content remained the same but the redesign brought it more up-to-date making content easier to find and helping visitors manage their health needs. The Patient Services team are building on the success of Patient.co.uk and provide tools and information in a number of innovative ways well-suited to the new mobile community of internet users.

CHAPTER 3 PROPOSED WORK

ALGORITHM

1. Initiate the Medial Portal MP[i]
Create and Activate Dedicated Database
Create and Use separate database relations for doctor and patients
Keep track of each login L, Doctor Login Di and Patient Login Pi
2. Reg(P[i]) {i<n; i-> Patient} [Patient Registration Module]
3. LoginPanel(P[i]) [Patient Login Panel Activated]
4. for each PR[i] -> PR[RolesPatient]{j}
Patient Session Starts
SA [Schedule Appointment]
VA [View Appointment]
AC [Cancel Appointment]
RP [Recover Authentication]
EX [Exit Patient Dashboard]
Session Destroyed
- 5.Reg(D[I]) {I<k; I-> Doctor} [Doctor Registration and Activation Module]
6. Login Panel (D[i]) [Doctor Login Panel Activated]
7. for each DR[i] -> DR [RolesDoctor]{k}
Session Started
VA [View All Appointment]
DS [Delete Selected Appointment]
DA [Delete All Appointments]
EX [Exit Doctor Dashboard]
VP [View Patient Profile]
AD [Approve / Disapprove]
RP [Recover Authentication]
Session Destroyed
8. For any n, if (D[n] =P[n])
{Print and Exit "Illegal Operation"}
9. For any i, if (D[i]=LoginSuccessful)
D[i+1]=LoginDenied
Print and Exit "Multiple Login Not Allowed"
10. Final Data Reports Generation and Plotting for Performance Analysis

ALGORITHMIC STEPS

Initialize and Activate the Dataset for Evaluation and Multi-Pass Knowledge Discovery

Post Processing Based on Deep Extraction

Pruning

DB Structure ->

DB: = DataBase Structure In Use

[Multiple Aspects of the Database used depending upon different parameters and attributes]

[(Test String, Age Int) | (Test String, Gender Char) | (Gender Char, Disease String)]

(S) := Symptom

(T) := Possible Tests

(D) := Disease

(A) := Age

MS: = Master Structure

Age - Integer

Gender - Character

Treatment - String

Disease - String

Symptom - String

DB is the SubSet of MS after Extraction of Results

Interestingness Measure implemented using specific and effective rules set. The rules set defines the possibility of the association of multiple attributes in the database so that the knowledge discovery as well as the decision is useful for the decision makers]

Interestingness Measure Aspects and Dimensions

RS := Rule Set

FR := Rules Fetched

M := Interestingness Measure

[The function match is created to check the validity and comparison of the records with the rules set. The rules set is used to predict and prune whether the particular test, disease, gender or treatment can be coupled in this case]

Match (RS, M)

{

RecordSet := Get Records from the Pass-1 Filtering and Extraction of Records

if (RecordSet==NULL)

Not Eligible for Pass-2

Else

Eligible for Pass-2 PostProcessing and Interestingness Measure

}

PruneFlag := False;

Arr := Array of RuleSets for Interestingness Measures

function PruningFactor()

{

```
ArrayCompare(Arr, FR);  
}  
Match (PruningFactor, Extracted RecordSet)  
RP := Response;  
If (RP==TRUE)  
{  
PruneFactor = True;  
"RS Pruning"  
}  
Else  
{  
PruneFactor = False;  
"No RS Pruning"  
}
```

3.1 DATA FLOW DIAGRAMS

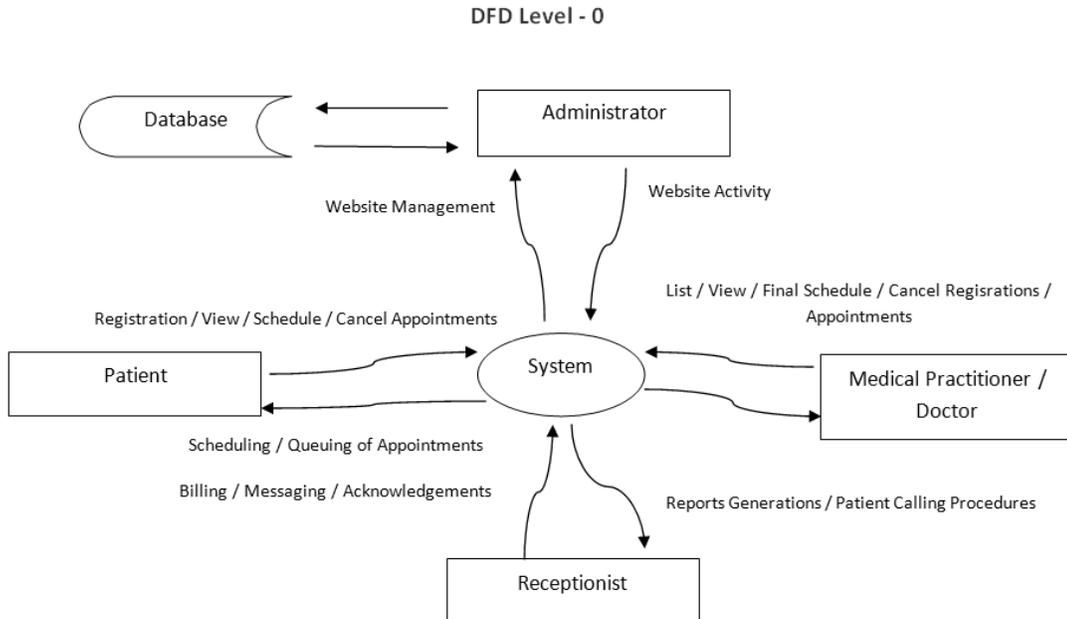


Fig 3.1.1: Data flow diagram level 0

DFD Level - 1

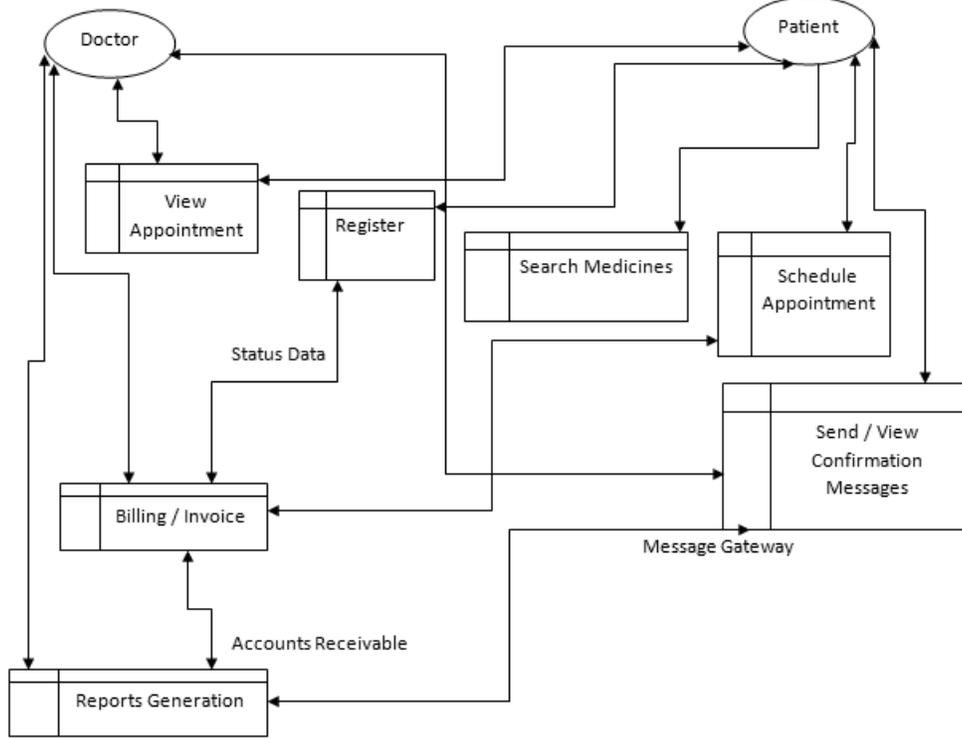


Fig 3.1.2: Data flow diagram level 1

DFD Level - 2

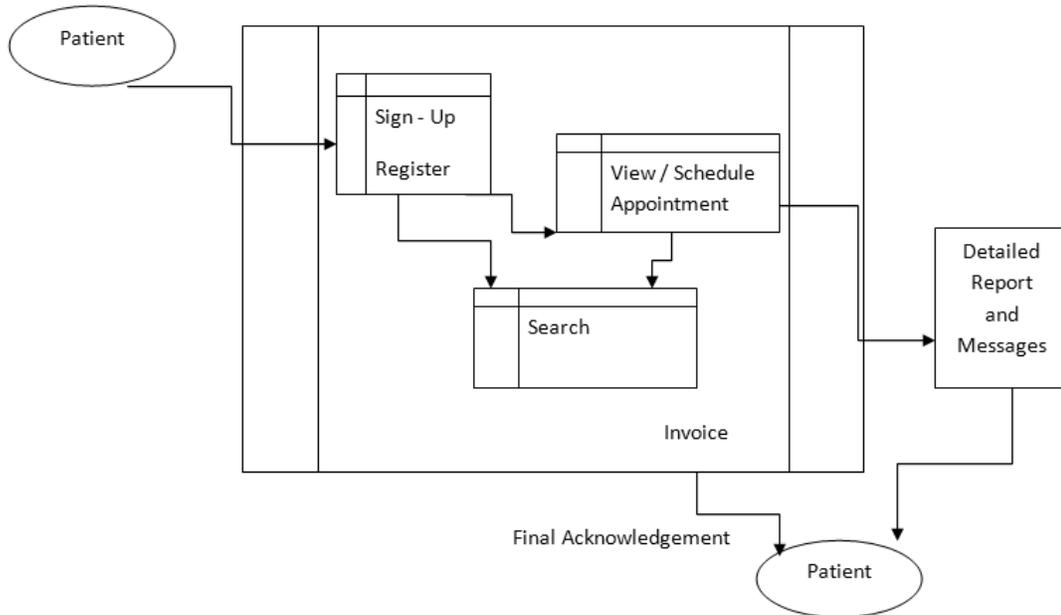


Fig 3.1.3: Data flow diagram level 2

3.2 MODULES DEVELOPED AND INTEGRATED

- Patient Panel
 - Register
 - Login
 - Forgot Password and Recovery Options
 - View Prescription
 - View Upcoming Appointment
 - Cancel Appointment
 - Request for New Appointment
 - View Previous Appointment
- Doctor Panel
 - Register
 - Login
 - Forgot Password and Recovery Options
 - View All Appointments
 - Change Appointment
 - Bulk SMS Notification to Patients
 - Search Patients – By Name, Mobile Number, Disease
- Administrator
 - Enable / Disable / Delete Patient
 - Enable / Disable / Delete Doctor
 - Bulk SMS Notification to Doctors / Patients

TOOLS AND TECHNOLOGIES TO BE USED

- PHP
- MySQL Database Engine
- CURL
- SMS Gateway
- AJAX
- JQuery

PHP

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. As of January 2013, PHP was installed on more than 240 million websites (39% of those sampled) and 2.1 million web servers. Originally created by Rasmus Lerdorf in 1994, the reference implementation of PHP (powered by the Zend Engine) is now produced by The PHP Group. While PHP originally stood for Personal Home Page, it now stands for PHP: Hypertext Preprocessor, which is a recursive backronym.

PHP code can be simply mixed with HTML code, or it can be used in combination with various templating engines and web frameworks. PHP code is usually processed by a PHP interpreter, which is usually implemented as a web server's native module or a Common Gateway Interface (CGI) executable. After the PHP code is interpreted and executed, the web server sends resulting output to its client, usually in form of a part of the generated web page – for example, PHP code can generate a web page's HTML code, an image, or some other data. PHP has also evolved to include a command-line interface (CLI) capability and can be used in standalone graphical applications. The canonical PHP interpreter, powered by the Zend Engine, is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge. Despite its popularity, no written specification or standard existed for the PHP language until 2014, leaving the canonical PHP interpreter as a de facto standard. Since 2014, there is ongoing work on creating a formal PHP specification

PHP is a general-purpose scripting language that is especially suited to server-side web development, in which case PHP generally runs on a web server. Any PHP code in a requested file is executed by the PHP runtime, usually to create dynamic web page content or dynamic images used on websites or elsewhere. It can also be used for command-line scripting and client-side graphical user interface (GUI) applications. PHP can be deployed on most web servers, many operating systems and platforms, and can be used with many relational database management systems (RDBMS). Most web hosting providers support PHP for use by their clients. It is available free of charge, and the PHP Group provides the complete source code for users to build, customize and extend for their own use.

PHP acts primarily as a filter, taking input from a file or stream containing text and/or PHP instructions and outputting another stream of data. Most commonly the output will be HTML, although it could be JSON, XML or binary data such as image or audio formats. Since PHP 4, the PHP parser compiles input to produce bytecode for processing by the Zend Engine, giving improved performance over its interpreter predecessor.

Originally designed to create dynamic web pages, PHP now focuses mainly on server-side scripting, and it is similar to other server-side scripting languages that provide dynamic content from a web server to a client, such as Microsoft's ASP.NET, Sun Microsystems' JavaServer Pages, and mod_perl. PHP has also attracted the development

of many software frameworks that provide building blocks and a design structure to promote rapid application development (RAD). Some of these include PRADO, CakePHP, CodeIgniter, Laravel, Yii Framework, and Zend Framework, offering features similar to other web application frameworks.

The LAMP architecture has become popular in the web industry as a way of deploying web applications. PHP is commonly used as the P in this bundle alongside Linux, Apache and MySQL, although the P may also refer to Python, Perl, or some mix of the three. Similar packages, WAMP and MAMP, are also available for Windows and OS X, with the first letter standing for the respective operating system. Although both PHP and Apache are provided as part of the Mac OS X base install, users of these packages seek a simpler installation mechanism that can be more easily kept up to date.

As of April 2007, over 20 million Internet domains had web services hosted on servers with PHP installed and mod_php was recorded as the most popular Apache HTTP Servermodule. As of October 2010, PHP was used as the server-side programming language on 75% of all websites whose server-side programming language was known (as of February 2014, the percentage had reached 82%), and PHP was the most-used open source software within enterprises.

Web content management systems written in PHP include MediaWiki, Joomla, eZ Publish, SilverStripe, WordPress, Drupal, Moodle, the user-facing portion of Facebook, and Digg. For specific and more advanced usage scenarios, PHP offers a well defined and documented way for writing custom extensions in C or C++. Besides extending the language itself in form of additional libraries, extensions are providing a way for improving execution speed where it is critical and there is room for improvements by using a true compiled language. PHP also offers well defined ways for embedding itself into other software projects. That way PHP can be easily used as an internalscripting language for another project, also providing tight interfacing with the project's specific internal data structures.

PHP received mixed reviews due to lacking support for multithreading at the core language level, though using threads is made possible by the "pthreads" PECLextension.

MySQL

MySQL is (as of March 2014) the world's second most^[a] widely used open-source relational database management system (RDBMS). It is named after co-founder Michael Widenius's daughter, My. The SQL phrase stands for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedishcompany MySQL AB, now owned by Oracle Corporation. MySQL is a popular choice of database for use in web applications, and is a central component of the widely used LAMP open source web application software stack (and other 'AMP' stacks). LAMP is an acronym for "Linux, Apache, MySQL,Perl/PHP/Python." Free-software-

open source projects that require a full-featured database management system often use MySQL.

For proprietary use, several paid editions are available, and offer additional functionality. Applications which use MySQL databases include: TYPO3, MODx, Joomla, WordPress, phpBB, MyBB, Drupal and other software. MySQL is also used in many high-profile, large-scale websites, including Google (though not for searches), Facebook, Twitter, Flickr, and YouTube. MySQL can also be run on cloud computing platforms such as Amazon EC2. Listed below are some common deployment models for MySQL on the cloud:

- Virtual Machine Image – cloud users can upload a machine image of their own with MySQL installed, or use a ready-made machine image with an optimized installation of MySQL on it, such as the one provided by Amazon EC2.
- MySQL as a Service – some cloud platforms offer MySQL "as a service". In this configuration, application owners do not have to install and maintain the MySQL database on their own. Instead, the database service provider takes responsibility for installing and maintaining the database, and application owners pay according to their usage. Notable cloud-based MySQL services are the Amazon Relational Database Service; Rackspace; HP Converged Cloud; Heroku and Jelastic.
- Managed MySQL cloud hosting – the database is not offered as a service, but the cloud provider hosts the database and manages it on the application owner's behalf. As of 2011, of the major cloud providers, only Terremark and Rackspace offer managed hosting for MySQL databases

SMS Gateway

An SMS gateway allows a computer to send or receive Short Message Service (SMS) transmissions to or from a telecommunications network. Most messages are eventually routed into the mobile phone networks. Many SMS gateways support media conversion from email and other formats. Gateway types - Several mobile telephone network operators have true fixed-wire SMS services. These are based on extensions to the European Telecommunications Standards Institute (ETSI) Global System for Mobile Communications (GSM) SMS standards and allow messaging between any mix of fixed and mobile equipment. These use frequency-shift keying to transfer the message between the terminal and the SMSC. Terminals are usually based on Digital Enhanced Cordless Telecommunications (DECT), but wired handsets and wired text-only (no voice) devices exist. Messages are received by the terminal recognising that the Caller ID is that of the SMSC and going off-hook silently to receive the message.

CHAPTER 4 RESULTS AND DISCUSSIONS

4.1 IMPLEMENTATION SCREENSHOTS



Figure 4.1: Screen shot of the home page

Online Medical Prescription and Appointment Manager



Administrator Panel

Search Symptoms, Diseases and Tests



New Patient Registration



Patient Login

Username

Password

Age

Gender Male Female

Name

Problem

Mobile Number

Username

Password

Please Wait

Login to Patient Dashboard

Figure 4.2: Screen shot after adding userid and password

Patient Login

Username

Password

Forgot Password ... Recover

Enter Mobile Number

Administrator Panel to Delete Patients' Accounts

Username	Patient's Name	Gender	E-mail	Mobile	Delete Account
agrima	pushpanjali chauhan	Female	agrimagrover@yahoo.co.in	919805528936	Delete
varun	varun	Male	ervarungrover@yahoo.co.in	919813465511	Delete
mehak	mehak	Female	mehakgoyal13@gmail.com	919805285303	Delete
gg	gg	Male	leo_gaurav@rediffmail.com	918059198562	Delete
simran	simran	Female	simransetia93@gmail.com	919805541091	Delete

Figure 3.3.3: Screen shot of the Administrator Panel.

Formation of Ontologies (Associations Tree) and Support Values in Clinical Database

Search and Generate Ontology by Symptom

Search Results and Ontology from the Symptom

Show All Records in the Database

Show Ontologies using Entire Database

Formation of Ontologies (Associations Tree) and Support Values in Clinical Database

Search and Generate Ontology by Symptom

FEVER

HEADACHE

OVER BLEEDING FROM THE TEETH

FEELING TIRED, MUSCLE SORENESS, FEVER, STOMACH PAIN,

BLOOD CLOTS INSIDE OF THE ABDOMINAL AORTIC ANEURYSM

WEIGHT LOSS, RESPIRATORY INFECTIONS, FATIGUE

SHORTNESS OF BREATH, WHEEZING, VISION ABNORMALITIES, FATIGUE

ABDOMINAL DISCOMFORT

DEEP BORING PAIN IN THE LOWER BACK OR FLANK

PROFUSE SWEATING, HEAT EXHAUSTION

FULLNESS FEELING IN PELVIC REGION,

NAUSEA AND VOMITING

PAIN IN STOMCH

OVERWEIGHT

ABNORMAL HEART RHYTHM

REGROWTH OF THE ENDOMETRIUM

ABNORMAL UTERINE BLEEDING

SHORTNESS OF BREATH, CHEST PAIN, WEAKNESS

LOT OF DIZZINESS

NORMAL VAGINAL BLEEDING OCCURS AS A RESULT OF CYCLIC HORMONAL CHANGES

Training Data Set : 1646 Records

ID	Symptom	Sex	Age	Disease	Tests	Treatment
1	fever	m	0-5	viral infections	Serologic blood tests, viral culture	anti-viral medications
2	fever	m	0-5	Respiratory syncytial virus (RSV)	A chest x-ray, A nasal swab or wash	Acetaminophen (Tylenol), oral and/or intravenous fluids, bronchodilators (albuterol/Ventolin), and oxygen. If the condition is severe
3	fever	m	0-5	Upper respiratory tract infection (URI)	a chest x-ray may be done to rule out pneumonia	acetaminophen (Tylenol), nonsteroidal anti-inflammatory medications /NSAIDs (ibuprofen/Motrin or Advil, naproxen/Naprosyn or Aleve), cough medicine, and decongestants.
4	fever	m	0-5	Pneumonia (lung infection)	An X-ray can confirm the diagnosis. Blood tests, sputum cultures, Occasionally a CT scan	(azithromycin, clarithromycin, Supplemental oxygen erythromycin, levofloxacin, ceftriaxone, doxycycline)
5	fever	m	0-5	Influenza (seasonal flu)	A nasopharyngeal swab , viral antigen . A chest X-ray	acetaminophen(Tylenol and/or ibuprofen (Motrin, Advil)
6	headache	f	15-20	fever	blood test, temperature test	crocin
7	Over bleeding from the teeth	m	Above 20	A. Hemophilia (Hemophilia)	platelet, prolonged aPTT	desmopressin & DDAVP
8	feeling tired, muscle soreness, fever, stomach pain,	f	15-20	A. Hepatitis (Hepatitis A)	blood tests	Patients should make sure to get plenty of rest and avoid drinking any alcohol until they are fully recovered.
9	blood clots inside of the abdominal aortic aneurysm	m	2	AAA (Abdominal Aortic Aneurysm)	ultrasound, CT, and MRI	Surgery Required
10	weight loss, respiratory infections, fatigue	m	Above 20	AAT (Alpha 1 Antitrypsin Deficiency)	plasma cx1-antitrypsin concentration (PiS).	inhalers, nebulizer therapy
11	shortness of breath, wheezing, vision abnormalities, fatigue	f	Above 20	AATD (Alpha 1 Antitrypsin)	cx1-antitrypsin	inhalers, nebulizer therapy

Figure 3.3.4: Screen shot of the database maintained

Sex Identified : -> m (10) [Support Value => 10]

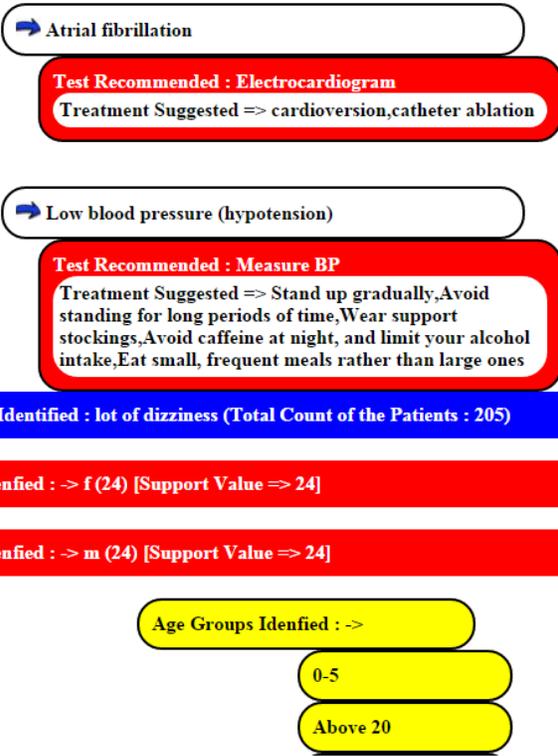
Age Groups Identified : ->

- 0-5
- Above 20
- 2
- 15-20
- Below 5
- 10 to Below 50
- Below 50 to 30
- Above 40

Abdominoplasty (Tummy Tuck (Abdominoplasty))

Test Recommended : Bone scanning

Treatment Suggested => Exercise



Rules Data Set : 14 Records

ID	Test	Age Group
1	blood tests	0-10
2	Bone scanning	0-10
3	X-rays, computerized tomography (CT).	0-10
4	Liver blood tests,AST,ALT,GT, liver biopsy	0-10
5	ultrasound, CT, and MRI	0-10
6	cx1-antitrypsin	0-10
7	Psychatrist	0-10
8	Measure BP	0-10
9	thyroid, breast, and pelvic area	0-10
10	Recording breast pain	0-10
11	blood tests:BUN, creatinine, and glomerular filtration rate (GFR).	0-10
12	Urine and TCL, Platletes	0-10
13	Polio Tests	21-30
14	Polio Tests	Above50

Figure 3.3.5: Screen shot of the rule sets.

Results : Pass - 2 Pruning | Age : 0-10

Gender : -> Male Female

Possible Disease => Abdominal Cramps (Heat Cramps)



Tests -> physical examination

Possible Disease => Acute Kidney Failure (Kidney Failure)



Tests -> X-rays of the abdomen, ultrasound, CT, and MRI



PRUNING CANDIDATE



Tests -> blood tests: BUN, creatinine, and glomerular filtration rate (GFR).

Possible Disease => African Salad (Khat)



Tests -> ACTH urine tests, petrosal sinus sampling, MRIs

Possible Disease => Alpha 1 Antitrypsin Deficiency



PRUNING CANDIDATE



Tests -> Urine and TBL, Platelets

Possible Disease => Aneurysm (Brain Aneurysm)



Tests -> dilation or stretching of the esophagus, surgery, botulinum toxin



Tests -> MRI/MRA, CT scan

Possible Disease => Baby Bottle Tooth Decay (Oral Health Problems in Children)



Tests -> thyroid, breast, and pelvic area

Possible Disease => Benign Brain Lesions (Brain Lesions (Lesions on the Brain))



PRUNING CANDIDATE



Tests -> X-rays, computerized tomography (CT).

Possible Disease => Black Eye



PRUNING CANDIDATE

Tests -> X-rays, computerized tomography (CT).

Possible Disease => Blood, Bicarbonate (Electrolytes)



PRUNING CANDIDATE

Tests -> cx1-antitrypsin

Possible Disease => Cancer Of The Colon And The Rectum (Colon Cancer)



Tests -> blood test

Possible Disease => Caregiver Guide for Alzheimer's Patients (Alzheimer's Disease Patient Caregiver Guide)

Possible Disease => Dementia, Binswanger's Disease (Binswanger's Disease)

Possible Disease => Ear Tubes



Tests -> Tooth examine, sugar

Possible Disease => Elemental Mercury Exposure (Mercury Poisoning)



PRUNING CANDIDATE

Tests -> Bone scanning

Possible Disease => Feeling Baby Kick (Fetal Movement: Feeling Baby Kick Week-by-Week)



Tests -> plasma cx1-antitrypsin concentration (PiS).

Possible Disease => Genetic Brain Lesions (Brain Lesions (Lesions on the Brain))



PRUNING CANDIDATE

Tests -> ultrasound, CT, and MRI

Possible Disease => Hashimoto Thyroiditis (Hashimoto's Thyroiditis)

Possible Disease => Heart Lead Extraction

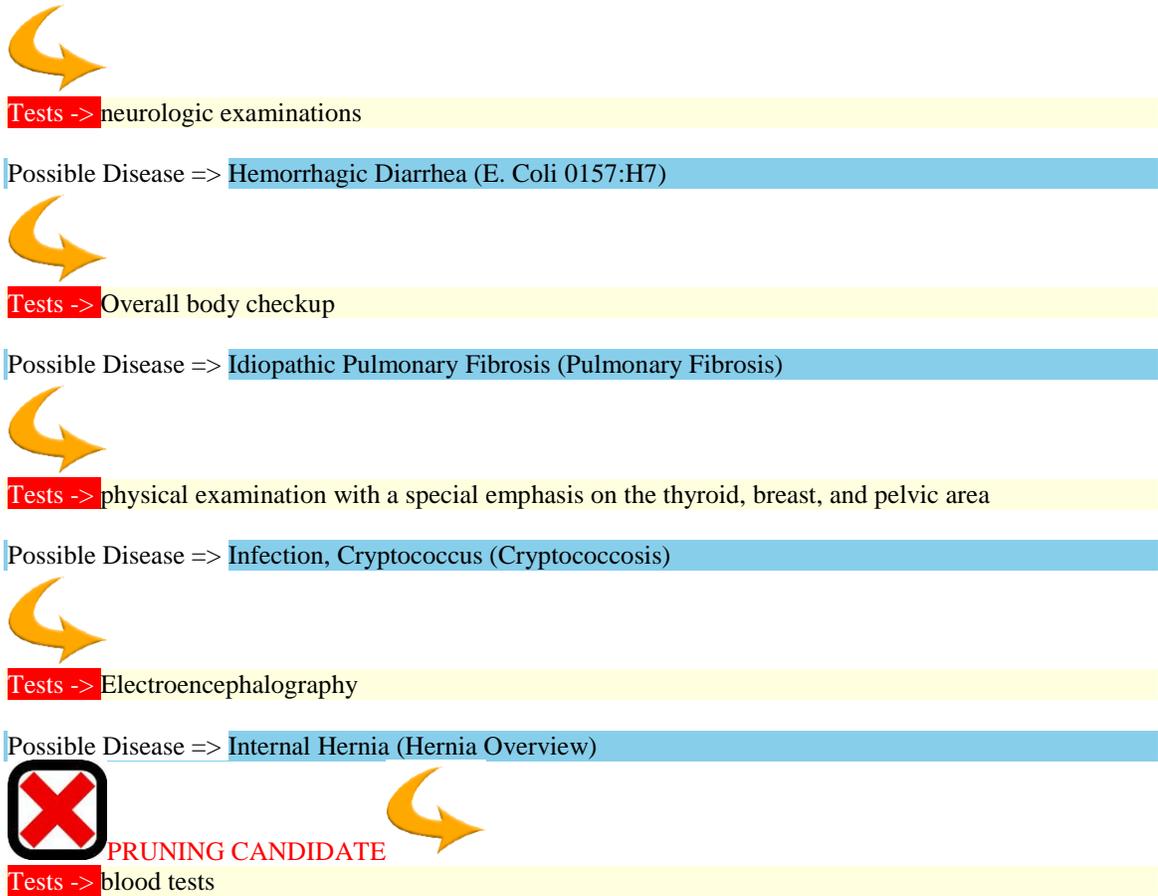


Figure 3.3.6: Screen shot of the pruning algorithm implemented.

4.2 Test Cases

A test case is a document, which has a set of test data, preconditions, expected results and postconditions, developed for a particular test scenario in order to verify compliance against a specific requirement.

Test Case acts as the starting point for the test execution, and after applying a set of input values, the application has a definitive outcome and leaves the system at some end point or also known as execution postcondition.

Test Case - 1 : Login / Sign-In Page for the Patients Dashboard

Test Suite ID	TS001
Test Case ID	TC001
Test Case Summary	To verify that status of Login Page
Prerequisites	<ul style="list-style-type: none"> • User is authorized. • Use of Special Characters not allowed
Test Procedure	<ul style="list-style-type: none"> • Enter the valid username • Enter the valid password • Click on Login
Test Data	<ul style="list-style-type: none"> • Values : a, b, c, d, e, aa, bb
Expected Result	<ul style="list-style-type: none"> • Successful Login Message • Patient should be redirected to the page for appointment • User should be able to view the Current Appointment on Login • User should be able to recover the password using Password Recovery Module
Actual Result	<ul style="list-style-type: none"> • If the specified quantity is valid, the result is as expected. • If the specified quantity is invalid, nothing happens; the expected message is not displayed • User should be able to sign out after completing the process and navigation
Status	Success
Remarks	This is a sample test case
Created By	Agrima
Executed By	Agrima

Table 4.2.1: Test case 1 Login sign in page

Test Case - 2 : Search Medicines, Tests and Symptoms

Test Suite ID	TS002
Test Case ID	TC002
Test Case Summary	To verify and validate the Registration / Sign-Up Page
Prerequisites	<ul style="list-style-type: none"> • User authentication not required. • Use of Special Characters not allowed • User can use the Select/Drop-Down Menu • Click on show all records to view all records
Test Procedure	<ul style="list-style-type: none"> • Select the Symptom from Drop-Down Menu • Click on Search Results and Ontology from the Symptom • View all results and associations
Test Data	<ul style="list-style-type: none"> • Values: No Data Set Required. Data Set in-built and loaded
Expected Result	<ul style="list-style-type: none"> • Successful Results with Message
Actual Result	<ul style="list-style-type: none"> • If the specified quantity is valid, the result is as expected. • If the specified quantity is invalid, nothing happens; the expected message is not displayed • User should be able to sign out after completing the process and navigation • User can move back to the main application to view / cancel the appointments
Status	Success
Remarks	This is a sample test case
Created By	Agrima
Executed By	Agrima
Test Environment	<ul style="list-style-type: none"> • OS: <ul style="list-style-type: none"> ○ Windows ○ Linux • Supported Browsers : <ul style="list-style-type: none"> ○ Chrome ○ Firefox ○ Opera ○ Safari ○ Internet Explorer

Table 4.2.2: Test case 2 Search medicines, Tests and symptoms.

Test Case - 3 : Administrator Panel for the Doctor

Test Suite ID	TS003
Test Case ID	TC003
Test Case Summary	To Authenticate and Upload to the Cloud Space
Prerequisites	<ul style="list-style-type: none"> • User should be authorized. • Use of Special Characters not allowed • Use SQL Injections not allowed • Empty User can't be created • Multiple User Login is not allowed
Test Procedure	<ul style="list-style-type: none"> • View all registered patients • Delete any fake/malicious entry • Super Administrator can perform any action
Test Data	<ul style="list-style-type: none"> • Values : Data Set loaded
Expected Result	<ul style="list-style-type: none"> • Successful Message • Doctor should be able to view all records • Detailed Listing of all the patients
Actual Result	<ul style="list-style-type: none"> • View All Patients • View Name, Age, Gender, Mobile Number • Delete any / all
Status	Success
Remarks	This is a sample test case
Created By	Agrima
Executed By	Agrima
Test Environment	<ul style="list-style-type: none"> • OS: <ul style="list-style-type: none"> ○ Windows ○ Linux • Supported Browsers : <ul style="list-style-type: none"> ○ Chrome ○ Firefox ○ Opera ○ Safari ○ Internet Explorer

Table 4.2.3: Test case 3 Administrator panel for doctors.

CHAPTER 5

SCOPE OF FUTURE WORK

Many clinics in different countries require a referral from your primary care doctor or specialist to make an appointment. The process of requesting an appointment varies from clinic to clinic. Patient appointment scheduling is an integral part of practice management. Scheduling becomes more complex when the practice has multiple facilities and the physicians work at different practice locations at different time-zones. The Calendar-based patient appointment scheduling in portal, enables you to streamline your clinic's workflow and manage each member's schedules efficiently. The portal is a cloud-based online, ambulatory Electronic Health Record (EHR), Practice Management and Medical Billing solution for small and medium-sized practices which dramatically improves practice efficiency and quality of care for patients. It allows you to schedule appointments, share pre-appointment questionnaires, record patient visits, maintain comprehensive information about patient's medical condition, etc. Practices can access patient data, appointment schedules and patient documents anytime, anywhere using a computer or a notebook or an iPad. Portal is offered as a software as a service (SaaS) that eliminates need to maintain expensive hardware, and you enjoy hassle-free software upgrades without any manual intervention.

Portal supports configurable practice timings and working days. The appointment scheduling calendar shows non-working hours and days as grayed out for easy identification. The appointment scheduling calendar has three views, viz., day, week and month. Each view shows appointments of multiple physicians across facilities. Each physician's schedule is color coded for easy identification. Appointment duration can be easily changed by resizing the appointment slot. The Print option in the Appointment Scheduling view, allows you to print appointments of one or more physicians for the selected time period. The Appointment Scheduler also allows you to double/triple book a slot, for special situations, after showing an alert. Patients can send appointment requests from the account, which can be inspected and approved. While confirming a new appointment, you can send pre-appointment questionnaires and consent forms to patients, so that they can fill them up by logging into their account. When the patient fills up the forms, the physician will receive secure message notifications. This helps physicians understand patient's problem before their actual visit.

- Appointments sought from the integrated patient health record portal, improve practice efficiency, with fewer phone calls and missed appointments
- As appointments are stored online, physicians can check their schedules from their iPhone or iPad.
- Automated appointment reminder emails sent to patients helps reduce No Shows.

The portal workflow starts with the patient registration. Front office can register a patient through phone-in or when the patient walks into the clinic. When a patient is registered, patient is also provided a free account in the Patient portal. All future appointments can be requested through patient portal as well for ease of use. Practice can share Pre-appointment questionnaires to the patient which will show up in the

patient portal with a notification to patient in e-mail. Patient can fill-in the questionnaires, share medical history and documents with the practice even before the visit. This greatly reduces the actual patient waiting time at the clinic. The portal also offers an iPad based Patient Check-in providing patient check-in kiosk application which is useful for walk-in patients to fill-in their details including their medical history, history of present illness, allergies, treatment taken, etc. This information can be instantly accessed by the physician in the patient chart during consultation, so that they can take informed clinical decisions for better healthcare. The portal supports template creation for commonly used prescriptions, supplements, lab work and diagnosis, allowing rapid data entry into Encounter Charts. Built in customizable templates help you enter data using mostly selection of check-boxes, dramatically reducing the time for text entry. In addition, the portal also facilitates easy and quick charting through support of various types of encounter such as Quick, Brief and Comprehensive. The portal supports e-prescribing and patient can pick them up at the pharmacy directly reducing the patient wait time. Post encounter, nurse or therapist can look up the chart note and carry out the procedures including injections etc. Front office or Biller can generate the bill and invoice the patient. Biller can track the pending invoices, claims and receivables. The portal also supports in-house pharmacy module where by the clinics can manage their inventory of medications, supplements etc. and dispense them. Pharmacist can track the stock levels, configure reorder thresholds and also view reports on current inventory, drug expiry and reorder levels.

REFERENCES

- [1] Design and Implementation of Clinic Appointment Registration System Xiuju Zhan, Xiufeng Liu School of Medical Information Engineering, Guangzhou University of Chinese Medicine, Guangzhou
- [2] International Journal of Innovative Research in Computer and Communication Engineering Vol. 2, Issue 1, January 2014 - Android Application for Doctor's Appointment Prof. S. B. Choudhari, Chaitanya Kusurkar et. Al. Are online doctors the best medicine?, USA Today, 20 November 2010
- [3] Health Care Providers' Attitudes Towards Online Appointment Scheduling Systems at Planned Parenthood Ryan Field, Zane Schwarzlose, Marianna Symeonides, and Jarred Wilson The University of Texas at Austin's School of Information December.
- [4] Canada Research Chair in Information Technology in Health Care Adoption, Use and Effects of an e-appointment System.
- [5] Online Patient Safety Climate Survey: Tool Development and Lessons Learned, Lynne M. Connelly and Judy L. Powers, U.S. National Library of Medicine National Institutes of Health
- [6] Medical profiling and online medicine: the ethics of "personalised healthcare" in a consumer age Report, Nuffield Council on Bioethics, October 2010.
- [7] The Internet Doctor- the future of health care, Doctor Vista, 16 September 2011.
- [8] House call - No appointments, no waiting, speedy diagnosis and prescription - online doctors are flourishing. But are they safe?, The Guardian, 4 June 2000
- [9] Buying Drugs Online: "It's Convenient and Private, But Beware of 'Rogue Sites'" Food and Drug Administration, U.S. Department of Agriculture, 2001"
- [10] Online health searches S. Fox, 2006. Prescription drugs online S. Fox, 2004
- [11] Online Patient Safety Climate Survey: "Tool Development and Lessons Learned, Lynne M. Connelly and Judy L. Powers, U.S. National Library of Medicine National Institutes of Health".
- [12] "Mail-order trade in medicines in Europe": a guide for legislators to protect consumers, NJ Seeberg-Elverfeldt European Journal of Health Law 16: 351-66, 2009.
- [13] Millions Risk health buying drugs online Royal Pharmaceutical Society of Great Britain, 2008

- [14] Get Real, Get a Prescription' campaign Royal Pharmaceutical Society of Great Britain, 2009
- [15] Medicalisation: "The role of e-pharmacies in iatrogenic harm, N. Glover-Thomas and J. Fanning, Medical Law Review 18(1): 28–55, 2010"
- [16] "Availability of antibiotics for purchase without a prescription on the internet", AG Mainous, CJ Everett, RE Post, VA Diaz and WJ Hueston, Annals of Family Medicine 7(5): 431–5, 2009
- [17] "Are Online Doctors The Best Medicine?", USA Today quoting Roland Goertz of the American Academy of Family Physicians, 20 November 2010
- [18] Online doctor put patients at risk, hearing told The Guardian, 3 February 2007.
- [19] The doctor will see you now . . . over the internet The Times quoting Professor Sir Bruce Keogh, NHS Medical Director, 29 August 2011
- [20] Corporate History History of WebMD
- [21] History of WebMD
- [22] Media Metrix rating Web 3.0 & Online Health, comScore Media Metrix
- [23] GP treats patients "over the internet" BBC, 23 July 2000
- [24] British websites are pushing boundaries of online medicine 'USA Today', 8 July 2011
- [25] History of NHS Direct NHS Direct, retrieved 14 January 2009
- [26] URL - <http://charmtracker.com/ehr/ehr-practice-workflow-overview.html>
- [27] <https://www.clinicconnect.com.au>
- [28] <https://www.practo.com>

BOOKS

- [1] Head First PHP & MySQL by Lynn Beighley and Michael Morrison
- [2] PHP and MySQL Web Development (5th Edition) by Luke Welling and Laura Thomson
- [3] Secure Development for Mobile Apps: How to Design and Code Secure Mobile
- [4] MySQL Cookbook: Solutions for Database Developers and Administrators by Paul DuBois
- [5] Joomla 3 Explained: Your Step-By-Step Guide (Joomla! Press) by Stephen Burge
- [6] Web Application Design and Implementation: Apache 2, PHP5, MySQL, JavaScript, and Linux/UNIX (Quantitative Software... by Steven A. Gabarro
- [7] Building Web Apps with WordPress by Brian Messenlehner and Jason Coleman
- [8] Understand PHP essentials and the basics of object-oriented programming
- [9] Master MySQL, from database structure to complex queries
- [10] Create web pages with PHP and MySQL by integrating forms and other HTML features
- [11] Learn about JavaScript, from functions and event handling to accessing the Document Object Model
- [12] Use libraries and packages, including the Smarty web template system, PEAR program repository, and the Yahoo! User Interface Library
- [13] Make Ajax calls and turn your website into a highly dynamic environment
- [14] Upload and manipulate files and images, validate user input, and secure your applications

WEB REFERENCES

- [1] <https://www.practo.com/>
- [2] www.apolloedoc.co.in/
- [3] www.bookmydoctor.in/
- [4] <https://www.ziffi.com/>
- [5] www.mylifecare.co.in/
- [6] www.sevenhillshospital.com/patient-services/doctor-appointment.html
- [7] <https://www.zocdoc.com/>

APPENDIX - A SOURCE CODE

```
<div align=center>
<img src=banner.gif>

<br>

<table width="900" align=center>
<tbody><tr>
<td>
<a href="appointment.php" style="background-color: red; color: white; padding: 5px;
border: 2px solid yellow; border-radius: 20px; text-decoration: none">Schedule
Appointment</a>
</td>
<td>
<a href="cancelappointment.php" style="background-color: red; color: white; padding:
5px; border: 2px solid yellow; border-radius: 20px; text-decoration: none">Cancel
Current Appointment</a>
</td>
<td>
<a href="viewappointment.php" style="background-color: red; color: white; padding:
5px; border: 2px solid yellow; border-radius: 20px; text-decoration: none">View Current
Appointment</a>
</td><td>
<a href="logout.php" style="background-color: red; color: white; padding: 5px; border:
2px solid yellow; border-radius: 20px; text-decoration: none">Sign Out</a>
</td></tr></tbody></table>

<br>

<div style='background-color: blue; color: white; font-weight: bold; font-family: arial;
width: 300px; box-shadow: 5px 5px 5px yellow; border-radius: 10px; padding: 5px;'>
Schedule Appointment
</div>
</div>

<br>

<div style="border: 2px solid red">
<form action=fixappointment.php method=post>
<table align=center cellpadding=20 style='font-family: arial'>
<tr>
<td>
Select Date
```

```
<td>
<select name=date>
<?php
for ($i=1; $i<=31; $i++)
echo "<option value=\".$i.\">\".$i.\"</option>\";
?>
</select>
```

Month

```
<select name=month>
<option value=January>January</option>
<option value=February>February</option>
<option value=March>March</option>
<option value=April>April</option>
<option value=May>May</option>
<option value=June>June</option>
<option value=July>July</option>
<option value=August>August</option>
<option value=September>September</option>
<option value=October>October</option>
<option value=November>November</option>
<option value=December>December</option>
</select>
```

Year

```
<input type=text name=year value=2014 readonly style='border: 0px solid red'>
```

```
<tr>
```

```
<td>
```

Select Time

```
<td>
```

```
<select name=time>
<option value=10AM>10 AM
<option value=11AM>11 AM
<option value=12Noon>12 Noon
<option value=2PM>2 PM
<option value=3AM>3 PM
<option value=4PM>4 PM
<option value=5PM>5 PM
<option value=6PM>6 PM
</select>
```

```
<div style="display: none" id=x>
```

```
<font color=red size=3><strong>Please Wait</strong></font><br>
```

```
<img src=ajaxloader.gif>
```

```

</div>
<br>

<input type=submit value="Fix Appointment" style="background-color: red; padding:
10px; font-family: arial; color: white; font-weight: bold"
onClick="x.style.display='block'">
</form>

```

```

</div>
</table>

```

```

<div align=center><h2 style="text-align: center; width: 600px; font-family: arial;
padding: 10px; background-color: red; color: white">Approve / Disapprove
Appointments<h2></div>

```

```

<?php
include_once("conn.php");

$q=mysql_query("select * from appointments");
$count = mysql_num_rows($q);

```

```

if (mysql_num_rows($q)<=0)
{
echo "<div align=center><div style='width: 500px; border: 2px solid blue; box-shadow:
5px 5px 5px yellow; background-color: red; color: white; font-size: 16pt; font-weight:
bold; text-align: center'>No Appointment Found</div></div>";
}

```

```

echo "<table align=center border cellpadding=10 cellspacing=0 width=600px
tbody><tr bgcolor=skyblue><td><strong>Date</td><td><strong>Time</td><td><strong>Username</td><td><strong>Problem / Symptoms </td><td><strong>Current Status</td><td><strong>Approve / Disapprove";
while ($r=mysql_fetch_object($q))
{

echo "<tr><td>";
echo $date=$r->date;
echo "<td>";
echo $time=$r->time;
echo "<td>";
echo $username=$r->username;

echo "<td>";
echo $problem=$r->problem;

```

```

echo "<td>";
$currentstatus=$r->status;

if ($currentstatus=='1')
echo "<img src=yes.jpg height=50 width=50>";
else
echo "<img src=no.jpg height=50 width=50>";

$current=$r->status;
if ($current=='1')
$link="<a href=disapprove.php?id=$r->id>Disapprove</a>";
else
$link="<a href=approve.php?id=$r->id>Approve</a>";

echo "<td>$link";

}
echo "</table>";
?>

```

```

<div align=center><h2 style="text-align: center; width: 600px; font-family: arial;
padding: 10px; background-color: red; color: white">Administrator Panel to Delete
Patients' Accounts</h2></div>

```

```

<?php

```

```

$q=mysql_query("select * from patients");

```

```

echo "<table border cellpadding=10 align=center><tr style='font-weight: bold'
bgcolor=skyblue><td>Username<td>Patient's
Name<td>Gender<td>E-
mail<td>Mobile<td>Delete Account";
while ($r=mysql_fetch_object($q))
{
echo "<tr><td>".$r->username;
echo "<td>".$r->name;
echo "<td>".$r->gender;
echo "<td>".$r->email;
echo "<td>".$r->mobile;
echo "<td><a href=delete.php?id=$r->id>Delete</a>";
}
echo "</table>";

```

```

?>
<?php
error_reporting(0);

session_start();

$u=$_SESSION['u'];
$n=$_SESSION['n'];
$problem=$_SESSION['problem'];

include_once("conn.php");

$q=mysql_query("select * from appointments where username='$u'");

$count = mysql_num_rows($q);

if (mysql_num_rows($q)<=0)
{
echo "<div align=center><div style='width: 500px; border: 2px solid blue; box-shadow: 5px 5px 5px yellow; background-color: red; color: white; font-size: 16pt; font-weight: bold; text-align: center'>No Appointment Found</div></div>";
}

while ($r=mysql_fetch_object($q))
{
$date=$r->date;
$time=$r->time;
$status=$r->status;

if ($status=='1')
$show="<img src=yes.jpg height=50 width=50> <span style='background-color: blue; color: white; padding: 5px; font-weight: bold'>Approved by the Doctor</span>";
else
$show="<img src=no.jpg height=50 width=50> <span style='background-color: red; color: white; padding: 5px; font-weight: bold'>No Approved by the Doctor</span>";
}

if (strlen($date)==0)
{
$message="<font color=red><strong>No Appointment</font></strong>";
}

echo "<div align=center><img src=banner.gif>
<br>
<table width=900>

```

```

<tr>
<td>
<a href=appointment.php style='background-color: red; color: white; padding: 5px;
border: 2px solid yellow; border-radius: 20px; text-decoration: none'>Schedule
Appointment</a>
<td>
<a href=viewappointment.php style='background-color: red; color: white; padding: 5px;
border: 2px solid yellow; border-radius: 20px; text-decoration: none'>View Current
Appointment</a>
<td>
<a href=cancelappointment.php style='background-color: red; color: white; padding: 5px;
border: 2px solid yellow; border-radius: 20px; text-decoration: none'>Cancel Current
Appointment</a>
<td>
<a href=logout.php style='background-color: red; color: white; padding: 5px; border: 2px
solid yellow; border-radius: 20px; text-decoration: none'>Sign Out</a>
</table>
<br>
<div style='background-color: blue; color: white; font-weight: bold; font-family: arial;
width: 300px; box-shadow: 5px 5px 5px yellow; border-radius: 10px; padding: 5px;'>
User Profile : $n
</div>
<table border width=700 align=center cellpadding=10 cellspacing=0 bordercolor=blue>
<tr>
<td>Username<td>$u
<tr bgcolor=lightyellow>
<td>Name<td>$n
<tr>
<td>Problem<td>$problem
<tr bgcolor=lightyellow>
<td>Date of Appointment<td>$date.$message
<tr>
<td>Time of Appointment<td>$time.$message
<tr>
<td>Status of Appointment<td>$show
</table>";

?>
<?php
error_reporting(0);
session_destroy();
session_start();
$_SESSION['u']=$u=$_POST['u'];
$p=$_POST['p'];

```

```

include_once("conn.php");

$q=mysql_query("select * from patients where username='$u' and password='$p'");

if (mysql_num_rows($q)<=0)
{
echo "<div style='background-color: yellow; font-size: 16pt; font-weight: bold;'><a
href='javascript: history.back(-1)'>Click Here to Move Back</a><br><br>Login
Failed</div>";
die(" ");
}

while ($r=mysql_fetch_object($q))
{
$_SESSION['n']=$n=$r->name;
$_SESSION['problem']=$problem=$r->problem;
$a=$r->age;
$g=$r->gender;
$_SESSION['mobile']=$m=$r->mobile;
$_SESSION['email']=$e=$r->email;
}

echo "<div align=center><img src=banner.gif>
<br>
<table width=900>
<tr>
<td>
<a href=appointment.php style='background-color: red; color: white; padding: 5px;
border: 2px solid yellow; border-radius: 20px; text-decoration: none'>Schedule
Appointment</a>
<td>
<a href=viewappointment.php style='background-color: red; color: white; padding: 5px;
border: 2px solid yellow; border-radius: 20px; text-decoration: none'>View Current
Appointment</a>
<td>
<a href=cancelappointment.php style='background-color: red; color: white; padding: 5px;
border: 2px solid yellow; border-radius: 20px; text-decoration: none'>Cancel Current
Appointment</a>
<td>
<a href=logout.php style='background-color: red; color: white; padding: 5px; border: 2px
solid yellow; border-radius: 20px; text-decoration: none'>Sign Out</a>
</table>
<br>
<div style='background-color: blue; color: white; font-weight: bold; font-family: arial;
width: 300px; box-shadow: 5px 5px 5px yellow; border-radius: 10px; padding: 5px;'>

```

```

User Profile : $n
</div>
<table border width=700 align=center cellpadding=10 cellspacing=0 bordercolor=blue>
<tr>
<td>Username<td>$u
<tr bgcolor=lightyellow>
<td>Name<td>$n
<tr>
<td>Age<td>$a
<tr bgcolor=lightyellow>
<td>Gender<td>$g
<tr>
<td>Mobile Number<td>$m
<tr bgcolor=lightyellow>
<td>E-mail<td>$e
</table>";

?>
<?php
error_reporting(0);
$u=$_POST['u'];
$p=$_POST['p'];
$n=$_POST['n'];
$a=$_POST['a'];
$g=$_POST['g'];
$e=$_POST['e'];
$pr=$_POST['pr'];
$m="91".$_POST['m'];

if ((ctype_digit($m)) OR (strlen($m)!=12))
{
echo "<div align=center><img src=banner.gif><br><img src=patient.jpg>
<br>
<div style='background-color: blue; color: white; padding: 5px; width: 200px; border-
radius: 10px'>
New Patient Registration
</div>
<div align=center><div style='font-weight: bold; background-color: red; text-
align=center; color: white; padding: 5px; width: 800px; border-radius: 10px'>Mobile
Number should have 10 Digits</div></div>

<table cellpadding=5 align=center>
<tr>
<td>
<form action=newpatient.php method=post>
Username <td><input type=text name=u>

```

```

<tr><td>
Password <td><input type=text name=p>
<tr><td>
Age <td><input type=text name=a>
<tr><td>
Gender <td>
<input type=radio name=g value=Male>Male
<input type=radio name=g value=Female>Female
<tr><td>
Name <td><input type=text name=n>
<tr>
<td>Problem <td><input type=text name=pr>
<tr><td>
Mobile Number <td><input type=text name=m>
<tr><td colspan=2 align=center>
<input type=submit value=Register>
</form>
</table>";

die("");
}

include_once("conn.php");

$q=mysql_query("select * from patients where mobile='$m' or email='$e' or
username='$u'");

if (mysql_num_rows($q)>0)
{
echo "<div style='background-color: yellow; font-size: 16pt; font-weight: bold;'><a
href='javascript: history.back(-1)'>Click Here to Move Back</a><br><br>";
die("Mobile Number or E-mail Already Registered");
echo "</div>";
}

mysql_query("insert into patients(username, password, name, age, gender, mobile,
problem, email) values('$u', '$p', '$n', '$a', '$g', '$m', '$pr', '$e')");

echo "<div align=center>
<br><img src=banner.gif><br><img src=patientlogin.jpg height=100 width=100>
<br><font color=red><strong>Patient Registered Successfully</strong></font>
<div style='background-color: blue; color: white; padding: 5px; width: 200px; border-
radius: 10px'>
Patient Login

```

```

</div>
<table cellspacing=0 cellpadding=10>
<tr><td>
<form action=patientlogin.php method=post>
Username <td><input type=text name=u>
<tr><td>
Password <td><input type=text name=p>
<tr><td colspan=2 align=center>
<input type=submit value=Login>
</form>
</table>
";

echo "Confirmation Mail sent to $e<br>";

$ch = curl_init();

$url="http://bulksms.mysmsmantra.com:8080/WebSMS/SMSAPI.jsp?username=kumarg
aurav&password=kumar&sendername=Magma&mobilenumber=$m&message=Patient%20$n
%20Registered%20Successfully";

// set URL and other appropriate options
curl_setopt($ch, CURLOPT_URL, "$url");
curl_setopt($ch, CURLOPT_HEADER, false);

// grab URL and pass it to the browser
curl_exec($ch);

// close cURL resource, and free up system resources
curl_close($ch);

$body="Dear Patient : $n<br><br>You are successfully Registered.<br><br>
Username : $u
<br>
Password : $p
";

$to="$e";
$subject="Patient Registration : $n";
$headers = 'MIME-Version: 1.0' . "\r\n";
$headers .= 'Content-type: text/html; charset=iso-8859-1' . "\r\n";
$headers .= "From: MedicalPortal <agrimagrover@yahoo.co.in>" . "\r\n";
$headers .= "Cc: agrimagrover@yahoo.co.in";

```

```

mail($to,$subject,$body,$headers);

?>
<?php
session_start();
session_destroy();
header("location: newpatient.html");
?>
<iframe frameborder=0 src=newpatient.html height=100% width=100%></iframe>
<?php
error_reporting(0);
$m="91".$_POST['m'];

include_once("conn.php");

$q=mysql_query("select * from patients where mobile='$m'");

if (mysql_num_rows($q)<=0)
{
include_once("newpatient.html");
die("Mobile Number Not Registered");
}

while ($r=mysql_fetch_object($q))
{
$e=$r->email;
$n=$r->name;
$u=$r->username;
$p=$r->password;
}

echo "Login Details sent to $e";

$body="Dear Patient : $n<br><br>Please note the following Login Details<br><br>
Username : $u
<br>
Password : $p
";

$to="$e";
$subject="Patient Registration : $n";
$headers = 'MIME-Version: 1.0' . "\r\n";

```

```
$headers .= 'Content-type: text/html; charset=iso-8859-1' . "\r\n";
$headers .= "From: MedicalPortal <agrimagrover@yahoo.co.in>" . "\r\n";
$headers .= "Cc: agrimagrover@yahoo.co.in";
```

```
mail($to,$subject,$body,$headers);
```

```
$ch = curl_init();
```

```
$url="http://bulksms.mysmsmantra.com:8080/WebSMS/SMSAPI.jsp?username=kumarg
aurav&password=kumarkumar&sendername=Magma&mobilenumber=$m&message=Patient
%20$n%20Your%20Username%20is%20$u%20and%20Password%20is%20$p";
```

```
// set URL and other appropriate options
curl_setopt($ch, CURLOPT_URL, "$url");
curl_setopt($ch, CURLOPT_HEADER, false);
```

```
// grab URL and pass it to the browser
curl_exec($ch);
```

```
// close cURL resource, and free up system resources
curl_close($ch);
```

```
?>
<?php
error_reporting(0);
```

```
session_start();
```

```
include_once("conn.php");
```

```
$u=$_SESSION['u'];
$problem=$_SESSION['problem'];
$email=$_SESSION['email'];
$mobile=$_SESSION['mobile'];
```

```
$date=$_POST['date'];
$month=$_POST['month'];
$year=$_POST['year'];
$app=$date."-".$month."-".$year;
```

```
$time=$_POST['time'];
```

```
$q=mysql_query("select * from appointments where username='$u'");
```

```

if (mysql_num_rows($q)>0)
{
echo "<div align=center><div style='background-color: red; font-weight: bold; font-size:
12pt; padding: 10px; color: white; width: 500px; box-shadow: 5px 5px 5px yellow;
border-radius: 20px'>Multiple Appointments Not Allowed</div></div>";
include_once("viewappointment.php");
die(" ");
}

mysql_query("insert into appointments(username, date, time, problem) values('$u', '$app',
'$time', '$problem')");

echo "<div style='background-color: red; color: white; text-align: center; font-family:
arial; font-weight: bold'>Appointment Set Successfully</div>";

include_once("viewappointment.php");

$ch = curl_init();

$url="http://bulksms.mysmsmantra.com:8080/WebSMS/SMSAPI.jsp?username=kumarg
aurav&password=kumar&sendername=Magma&mobileno=$mobile&message=Appoint
ment%20Date%20$date%20$time";

// set URL and other appropriate options
curl_setopt($ch, CURLOPT_URL, "$url");
curl_setopt($ch, CURLOPT_HEADER, false);

// grab URL and pass it to the browser
curl_exec($ch);

// close cURL resource, and free up system resources
curl_close($ch);

$body="Dear Patient : $n<br><br>Your Appointment Details are <br><br>
Date : $date
<br>
Time : $time
";

$to="$email";
$subject="Patient Registration : $n";
$headers = 'MIME-Version: 1.0' . "\r\n";
$headers .= 'Content-type: text/html; charset=iso-8859-1' . "\r\n";

```

```
$headers .= "From: MedicalPortal <agrimagrover@yahoo.co.in>" . "\r\n";  
$headers .= "Cc: agrimagrover@yahoo.co.in";
```

```
mail($to,$subject,$body,$headers);
```

```
?>  
<?php
```

```
$u=$_POST['u'];  
$p=$_POST['p'];
```

```
if (($u=='doctor') and ($p=='doctor'))  
{  
header("location: admin.php");  
}  
else  
{  
echo "<div style='background-color: red; text-align: center; color: white; padding:  
10px'>Login Failed</div>";  
include_once("doctor.html");  
}
```

```
?>  
<?php
```

```
$id=$_GET['id'];
```

```
include_once("conn.php");
```

```
$q=mysql_query("update appointments set status='0' where id='$id'");
```

```
header ("location: admin.php");
```

```
?>  
<?php
```

```
$id=$_GET['id'];
```

```
include_once("conn.php");
```

```
$q=mysql_query("delete from patients where id='$id'");
```

```
header("location: admin.php");
```

```

?>
<?php
error_reporting(0);

session_start();

$u=$_SESSION['u'];

include_once("conn.php");

$q=mysql_query("delete from appointments where username='$u'");

header("location: viewappointment.php");

?>

<?php

$id=$_GET['id'];

include_once("conn.php");

$q=mysql_query("update appointments set status='1' where id='$id'");

header("location: admin.php");

?>

<div align=center>
<div style="border: 2px solid red; margin-left: 10px; margin-right: 10px; border-radius:
20px; width: 800px">
<hr color=blue>

<div align=center style='text-align: center; font-family: arial; font-weight: bold'>
<img src=doctor.jpg>
</div>
<br>
<div style="background-color: yellow; padding: 10px; text-align: center; font-size: 11pt;
font-family: arial">
<strong>Login / Sign-In</strong>
</div>
<br>
<div align=center>

```

```
<form action=admin.php method=post>
Username <input type=text name=u style="border: 1px solid black; border-radius: 20px;
padding: 5px">
<br><br>
Password <input type=password name=p style="border: 1px solid black; border-radius:
20px; padding: 5px">
<br><br>
<input type=submit value=Login style="border: 2px solid black; background-color: blue;
font-weight: bold; color: white; padding: 10px; border-radius: 20px">
</form>
</div>
```

```
</div>
<div align=center><img src=doctorlogin.jpg><br><br>
```

```
<div style='background-color: red; color:white; padding: 10px; width: 200px;'>
<strong>Doctor Login
</div>
```

```
</div>
```

```
<table align=center cellpadding=10 cellspacing=0>
<form action=doctor.php method=post>
<tr>
<td>
Username
<td>
<input type=text name=u>

<tr>
<td>
Password
<td>
<input type=text name=p>

<tr>
<td colspan=2 align=center>
<input type=submit value=Login onClick="x.style.display='block'">

<div style='display: none' id=x>
<img src=ajaxloader.gif>
</div>

</table>
</form>
```

```
<table bgcolor=red>
```

```
<tr>
```

```
<td>
```

Home

```
<td>
```

Patient Registration

```
<td>
```

Contact Us

```
</table>
```

```
<div align=center>
```

```
<img src=banner.gif>
```

```
</div>
```

```
<br>
```

```
<table style="width: 1000px" align=center >
```

```
<tr>
```

```
<td align=center>
```

```
<img src=doctor.jpg height=50 width=50>
```

```
<td align=center>
```

```
<a style="background-color: red; color: white; padding: 10px; text-decoration: none; font-family: arial" target="_blank" href="http://www.workshopalerts.com/agrima/doctor.html">Doctor Panel</a>
```

```
<td align=center>
```

```
<a style="background-color: red; color: white; padding: 10px; text-decoration: none; font-family: arial" target="_blank" href="http://www.workshopalerts.com/agrima/search.html">Search Symptoms, Diseases and Tests</a>
```

```
<td align=center>
```

```
<a href="https://twitter.com/AgrimaMed" class="twitter-follow-button" data-show-count="false" data-size="large" data-dnt="true">Follow @AgrimaMed</a>
```

```
<script>!function(d,s,id){ var
```

```
js,fjs=d.getElementsByTagName(s)[0],p=/^http:/.test(d.location)?'http':'https';if(!d.getElementById(id)){js=d.createElement(s);js.id=id;js.src=p+'://platform.twitter.com/widgets.js';fjs.parentNode.insertBefore(js,fjs);}}(document, 'script', 'twitter-wjs');</script></table>
```

```

<table style="width: 1000" align=center>
<tr>
<td valign=top align=center>

<img src=patient.jpg>
<br>
<div style="background-color: blue; color: white; padding: 5px; width: 200px; border-
radius: 10px">
New Patient Registration
</div>

<table cellpadding=5>
<tr>
<td>
<form action=newpatient.php method=post>
Username <td><input type=text name=u>
<tr><td>
Password <td><input type=password name=p>
<tr><td>
Age <td><input type=text name=a>
<tr><td>
Gender <td>
<input type=radio name=g value=Male checked>Male
<input type=radio name=g value=Female>Female
<tr><td>
Name <td><input type=text name=n>
<tr>
<td>Problem <td><input type=text name=pr>
<tr><td>
Mobile Number <td><input type=text name=m>
<tr><td>
E-mail <td><input type=text name=e>
<tr><td colspan=2 align=center>
<br>
<div style="display: none" id=x>
<font color=red size=3><strong>Please Wait</strong></font><br>
<img src=ajaxloader.gif>
</div>
<br>
<input type=submit value=Register onClick="x.style.display='block'">
</form>
</table>

<td valign=top align=center>

```

```

<img src=patientlogin.jpg height=100 width=100>
<br>
<div style="background-color: blue; color: white; padding: 5px; width: 200px; border-
radius: 10px">
Patient Login
</div>
<table cellspacing=0 cellpadding=10>
<tr><td>
<form action=patientlogin.php method=post>
Username <td><input type=text name=u onfocus="uuu.style.display='block'"
onblur="uuu.style.display='none'">
<br>
<div style='display: none; color: red' id=uuu>Enter Registered Username</div>

<tr><td>
Password <td><input type=password name=p onfocus="ppp.style.display='block'"
onblur="ppp.style.display='none'">
<br>
<div style='display: none; color: red' id=ppp>Enter Valid Password</div>

<tr><td colspan=2 align=center>
<div style="display: none" id=login>
<font color=red size=3><strong>Please Wait</strong></font><br>
<img src=ajaxloader.gif>
</div>
<input type=submit value="Login to Patient Dashboard" align=center
onClick="login.style.display='block'">
</form>
</table>

<br>
<hr color=blue size=2 width=300>
<br>

<div style="background-color: blue; color: white; padding: 5px; width: 200px; border-
radius: 10px">
Forgot Password ... Recover
</div>
<br>
<form method=post action=forgot.php>
Enter Mobile Number <input type=text name=m onfocus="mmm.style.display='block'"
onblur="mmm.style.display='none'">
<div style='display: none; color: red' id=mmm>Enter 10 Digit Mobile Number</div>
<br>
<div style="display: none" id=y>
<font color=red size=3><strong>Please Wait</strong></font><br>

```

```
<img src=ajaxloader.gif>
</div>
<input type=submit value="Get Password" align=center
onClick="y.style.display='block'">
</form>
```

```
</table>
```

```
<?php
```

```
error_reporting(0);
```

```
session_start();
```

```
$u=$_SESSION['u'];
```

```
include_once("conn.php");
```

```
$q=mysql_query("delete from appointments where username='$u'");
```

```
header("location: viewappointment.php");
```

```
?>
```

```
<div align=center>
```

```
<?php
```

```
error_reporting(0);
```

```
session_start();
```

```
$time1=microtime(true);
```

```
include_once("index.php");
```

```
echo "<br><a href=search2.php target='_blank' style='padding: 5px; background-color:
blue; color: white; text-decoration: none'><strong>Apply Pass - 2 Pruning on Current
Search Results</a></strong><br>";
```

```
$_SESSION['s']=$s=$_POST['symptom'];
```

```
include_once("conn.php");
```

```
$q=mysql_query("select distinct symptom from disease where symptom like '$s'");
```

```
$count=mysql_num_rows($q);
```

```
while ($rq=mysql_fetch_object($q))
```

```

{
$symptom = $rq->symptom;
echo "<div style='border-radius: 20px; box-shadow: 5px 5px 5px red; font-weight: bold;
padding: 10px; margin-left: 20px; background-color: white; color: black; border: 1px
solid red; width: 1000; text-align: center; text-transform: uppercase'> Symptoms : ".$rq-
>symptom."</div>";

$qsextotal=mysql_query("select distinct sex from disease where symptom='$symptom'");
$qsex=mysql_query("select distinct sex from disease where symptom='$symptom'");
$countsex=mysql_num_rows($qsextotal);
echo "<br><strong>Gender : -> </strong>";
while ($rqsex=mysql_fetch_object($qsex))
{
$sex = $rqsex->sex;
if ($sex=='m')
$sex='Male';
else
$sex='Female';
echo "<span style='padding: 10px; font-weight: bold; margin-left: 50px; width: 50px'>
".$sex."<input src=checkbox.png height=30 width=30></span>";
}
echo "<br>";

$qagetotal=mysql_query("select age from disease where symptom='$symptom'");
$qage=mysql_query("select distinct age from disease where symptom='$symptom'");
$countage=mysql_num_rows($qagetotal);
echo "<br><table><tr><td><strong>Possible Age Groups : ->
</strong><td><table><tr>";
while ($rqage=mysql_fetch_object($qage))
{
$age = $rqage->age;
echo "<td style='margin-left: 180px; font-weight: bold; padding: 5px; border: 1px solid
black; background-color: yellow'>".$age."</td>";
}
echo "</table></table><br>";

sleep(1);

$disease=mysql_query("select distinct disease from disease where
symptom='$symptom'");
$countdisease=mysql_num_rows($disease);
while ($rqdisease=mysql_fetch_object($disease))
{
echo "<br>";
$disease = $rqdisease->disease;
}
}

```

```

echo "<div style='margin-left: 110px; font-weight: bold; font-weight: bold; border-radius:
20px; padding: 10px; background-color: skyblue; width: 400; border: 2px solid black'>
<span style='background-color: white'>Possible Disease => </span>".$disease."</div>";

// Tests and Treatment Fetching
$qttests=mysql_query("select distinct tests, treatment from disease where
disease='$disease'");
while ($rqtests=mysql_fetch_object($qttests))
{
$tests = $rqtests->tests;
$treatment = $rqtests->treatment;
echo "<img src=yellowarrow.png height=50 width=50><div style='margin-left: 460px;
font-weight: bold; font-weight: bold; border-radius: 20px; padding: 10px; background-
color: lightyellow; width: 400; border: 2px solid black'><span style='color: white;
background-color: red; padding: 2px'>Tests -> </span>".$tests." &nbsp; <div
style='background-color: white; color: black; padding: 5px; border-radius:
20px'>Treatment => ".$treatment."</div></div>";
}
}
}

$time2=microtime(true);

$time=$time2-$time1;

echo "<div style='background-color: red; color: white; font-weight: bold; padding:
5px'>Execution Time -> $time</div>";
?>
</div>
<? php

include_once("conn.php");

$qtrain=mysql_query("select * from disease");

$count=mysql_num_rows($qtrain);

echo "
<div style='background-color: black; color: white; padding: 10px; font-weight: bold;'>
Training Data Set : $count Records
</div><br>
<table cellpadding=0 align=center border width=300><tr style='background-color:
yellow'><td><strong>ID</strong><td><strong>Symptom</strong><td><strong>Sex</strong><td><strong>Age</strong><td
bgcolor=black>&nbsp;<td bgcolor=blue><font color=white><strong>Disease</strong><td
bgcolor=blue><font color=white><strong>Tests</strong><td bgcolor=blue><font
color=white><strong>Treatment";

```

```
while ($rqtrain=mysql_fetch_object($qtrain))
{
echo "<tr><td>".$rqtrain->id;
echo "<td>".$rqtrain->symptom;
echo "<td>".$rqtrain->sex;
echo "<td>".$rqtrain->age;
echo "<td bgcolor=black>&nbsp;<td>".$rqtrain->disease;
echo "<td>".$rqtrain->tests;
echo "<td>".$rqtrain->treatment;
}
?>
```