



SIMPLE AND SEAMLESS HEALTHCARE USING DOCTOR-PATIENT APPLICATION

Praneetha¹, Dr. A.Haritha², Dr.P.V.S.Lakshmi³

1. Student, Department of IT, PVP Siddhartha Institute of Technology

2. Associate Professor, Department of IT, PVP Siddhartha Institute of Technology

3. Professor, Department of IT, PVP Siddhartha Institute of Technology.

Abstract

Online Doctor Appointment is a smart web application; this provides a registration and login for both doctors and patients. Doctors can register by giving his necessary details like timings, fee, category, etc. After successful registration, the doctor can log in by giving username and password. This paper discusses about a web based application that overcomes the issue of managing and booking appointments according to user's choice or demands. The task sometimes becomes very tedious for the patient care takers or doctors in manually allotting appointments for the users as per their availability. Hence this system offers an effective solution where users can view various booking slots available and select the preferred date and time. The already booked space will be marked yellow and will not be available for anyone else for the specified time. This system also allows users to cancel their booking anytime. The system provides an additional feature of calculating monthly earnings of doctor. Doctor has to just feed the system regularly with daily earnings and the system automatically generates a report of total amount earned at the end of the month. The application uses Asp.net as a front-end and sql database as the back-end.

Introduction

This doctor patient handling management system that will help doctors in their work and will also help patients to book doctor appointments and view medical progress. The system allows doctors to manage their booking slots online. Patients are allowed to book empty slots online and those slots are reserved in their name. The system manages the appointment data for multiple doctors of various date and times. Each time a user visits a doctor his/her medical entry is stored in the database by doctor. Next time a user logs in he may view his/her entire medical history as and when needed. At the same time a doctor may view patient's previous medical history while the patient visits him. This system satisfies the major objectives like creating Web based online Doctor Appointment management system and it manages all patients' related information. This system is implemented for better user experience. This system is very easy to access. Also for establish real time communication, using modern and updated technology. So, user can see the update without reload or refresh. This system will compatible with user device such as pc, laptop, tab & smart phone. So user can easily access the system anytime anywhere. This system is very simple & user friendly so, any user can use this system easily.



LITERATURE REVIEW

Background of Web-Based Appointment System

Traditionally, medical appointments have been made with schedulers over the telephone or in person. These methods are based on verbal communications with real people and allow for maximum flexibility in complicated situations [1]. However, because these traditional methods require the intervention of schedulers, the ability to get a timely appointment is not only limited by the availability of appointment slots, but also by the schedulers and phone lines [2,3]. Patients' satisfaction with appointment booking is influenced by their ability to book at the right time with the right health service providers [4].

The Internet has recently emerged as another means to make appointments. Web-based appointment scheduling has been a popular research topic. Several studies conducted satisfaction surveys and found that Web-based appointment scheduling is an extremely important feature, and most patients would use the service again [2,5-7].

There are two major types of Web-based medical appointment services, medical scheduling software as a service (SaaS) and proprietary Web-based scheduling systems. Medical scheduling SaaS has gained increasing prominence in recent years. These appointment systems are not built up by health care practices themselves, but are provided and maintained by health IT companies such as ZocDoc and InQuicker on a paid subscription basis [8]. The appointment services are cloud-based and can be integrated into health care providers' own management systems. The other type of appointment service is proprietary appointment systems, which are integrated into patient portals on providers' websites [9]. A patient portal is a secured Web-based service that allows patients to access their health information and communicate with their health care providers at any time [10]. In the United States, the growth of patient portals has largely been spurred by meaningful use (MU) requirements [11] because of the federal incentive program for adoption of electronic health records. To meet the requirements of MU and receive its incentives, the portal should be actively used by both the practice and patients [12].

There are two modes of Web-based appointment systems, asynchronous and real-time. In the asynchronous mode, appointments are requested through emails or electronic forms on providers' website, and then manually processed by schedulers. In the real-time mode, patients can directly interact with providers' scheduling management systems [3,13]. Although the asynchronous Web-based appointment systems also use the Internet as a medium, they basically replicate the process of telephone-based appointment scheduling [13]. Under the asynchronous mode, if an appointment is requested outside of a provider's business hours, it will not be processed until schedulers return to work. Normally, Web-based appointment requests are put in the same queue as phone-call appointments, and are thus limited by the backlog of phone calls in the queue [14]

2.3 Online Booking System

According to Chua (2010) the public demand for better healthcare system and the alarming number of missed appointments have forced the healthcare sector to recognize how they



deliver care services. With the advance of IT technology today and seen healthcare system as a critical system, appointment booking system lies at the intersection of delivering efficient, dependable and timely access to health services. The conventional way of appointment booking is via fax, phone or email.

2.4 Existing Hospital Appointment Schemes

Klassen (2004) developed another method for managing patients' appointment using multiple schedule appointment in multiple period environments. Patients can call for any appointment time but if the period time is full, they should replace the appointment to another time. On the other hand, a patient can call for an appointment without knowledge of the type of appointment and appointment queue number and the patient is not aware whether the appointment is variable or not. Sometimes the exact duration for each patient can be known but at other times this is unknown. Another system developed by Mustafa, (2004) allows a registered patient, having user name and password, to access and explore the list of physicians alphabetically and select a physician whose email contact and profile are also provided. Wijewickrama and Takakuwa (2005) opine that the health care operating time (due time) is from 8:30 am to 5:30 pm during the week days. Throughout this period, four types of patients arrive to have a consultation appointment in the health care center-appointed patients, same day appointment patients (walk-ins), patients who come for a medical test and new patients. Patients who have appointments are given priority over those who walk in for consultation

Existing System:

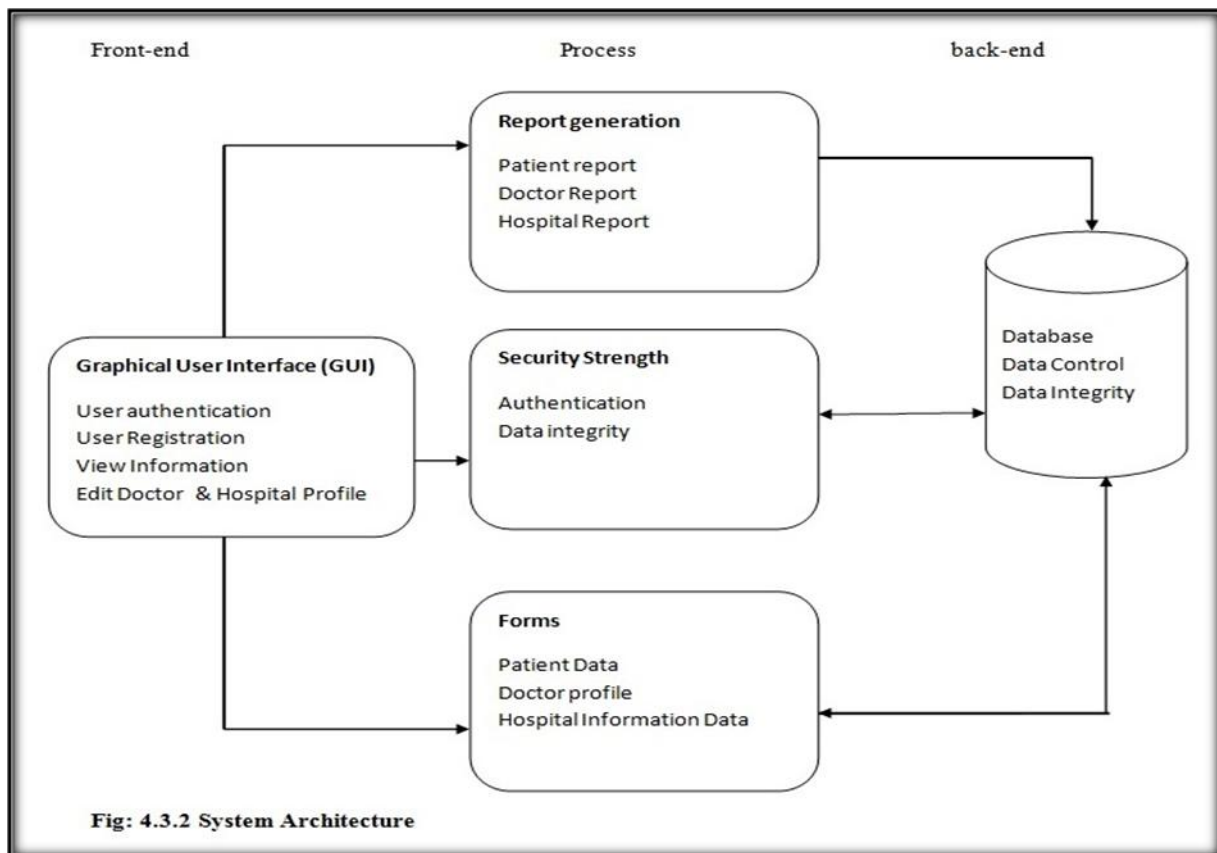
The current system was manual where data is written on different papers and transferred to the different departments, human errors were vulnerable since it was paper based and retrieval of files was time consuming as they had to manually locate patient some of which were even lost and thus finding such information was hard. Per the statistics carried 90% of the users were not contented with the system reason that is was not secure in terms of security and storage as it was prone to damages like loss of important information, worn out papers, The speed of recording and retrieval Patients information was average yet 10% were some ok with the system reason that the paper work can used for future reference.

Proposed System:

In the proposed system the doctors patients are brought to one platform will allow patients to be more flexible they can register and search for the doctors basing on the location the list of doctors will be shown and patient can book by selecting the time slots and the admin will confirm the booking so everything is computerized an done very fast which will save time. The proposed system should be user friendly, multipurpose enough to handle a number of users at a go, could generate feedback when request is submitted and a use of passwords which could deny access to unauthorized users of system which ensured security.

System Architecture:

This gives a high level view of the new system with the main components of the system and the service they provide and how they communicate. The system is implemented using a three-tier architecture that comprises of our interface, process management and DBMS as illustrated bellow.



The Application has following modules

Admin:

Admin needs to login with username and password and in the admin home screen, he can see the basic functionalities of admin. Admin can view the registered doctors and patients. He can also view the patient's request and doctors requests and he will confirm the patients and doctors requests.

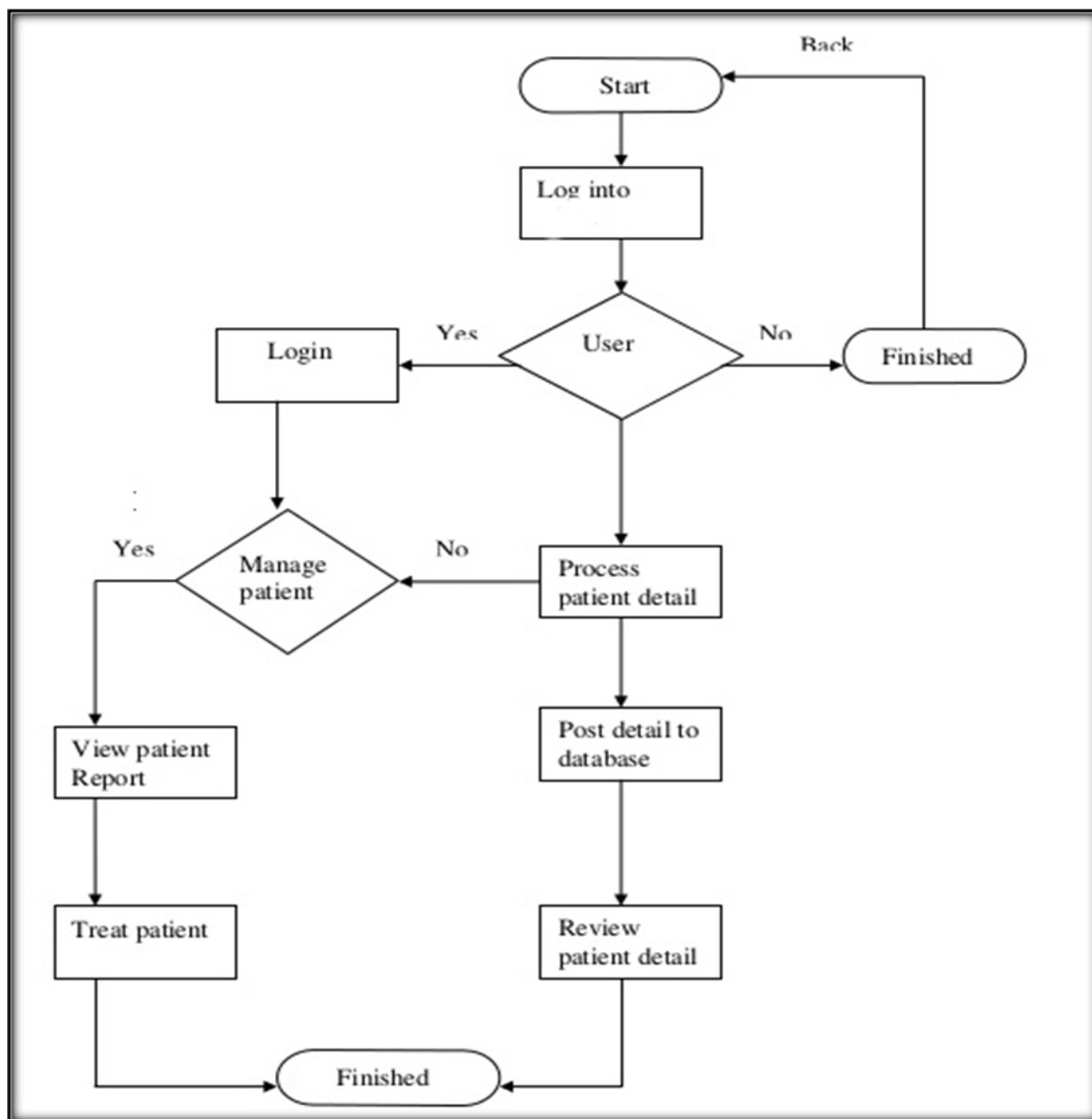
Doctor:

Doctor need to be registered by giving the necessary details like experience, timing, fees etc. After registering he need to log in and in the home screen he can view the basic functionalities. He can view the patient request forwarded from admin and he can accept and he can also view the feedback given by patients.

Patient:

The patient needs to be registered and log in after logging on he can search for the doctor by giving the location, the reason or problem. Basing on the doctor availability the admin will confirm the booking request and will send to mail that the booking is confirmed he can also view in the status and he can also give feedback basing the performance of the doctor.

Process Flow:



Sample Screen shots:
Home Page:

14th International Conference on Science, Technology and Management (ICSTM-19)

Guru Gobind Singh Polytechnic, Nashik, Maharashtra (India)

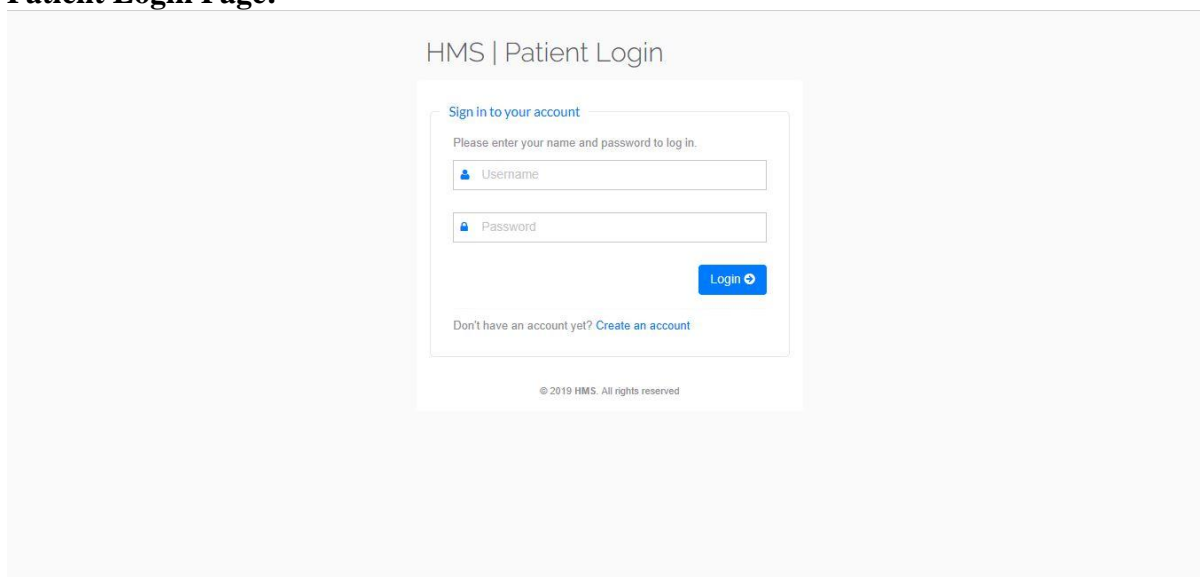
2nd March 2019, www.conferenceworld.in



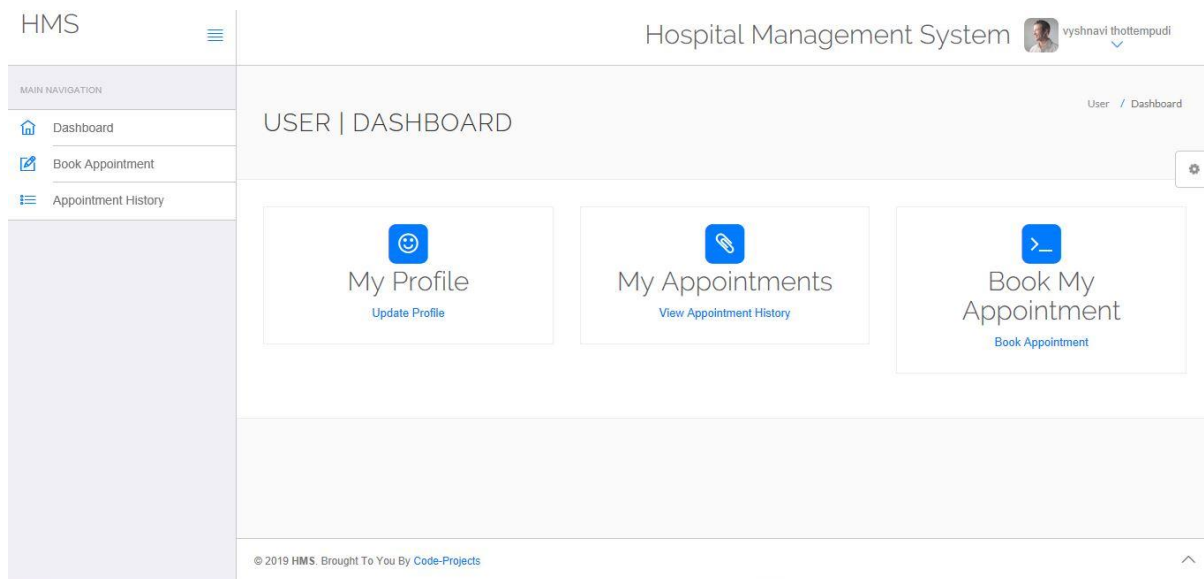
ISBN: 978-93-87793-74-3



Patient Login Page:

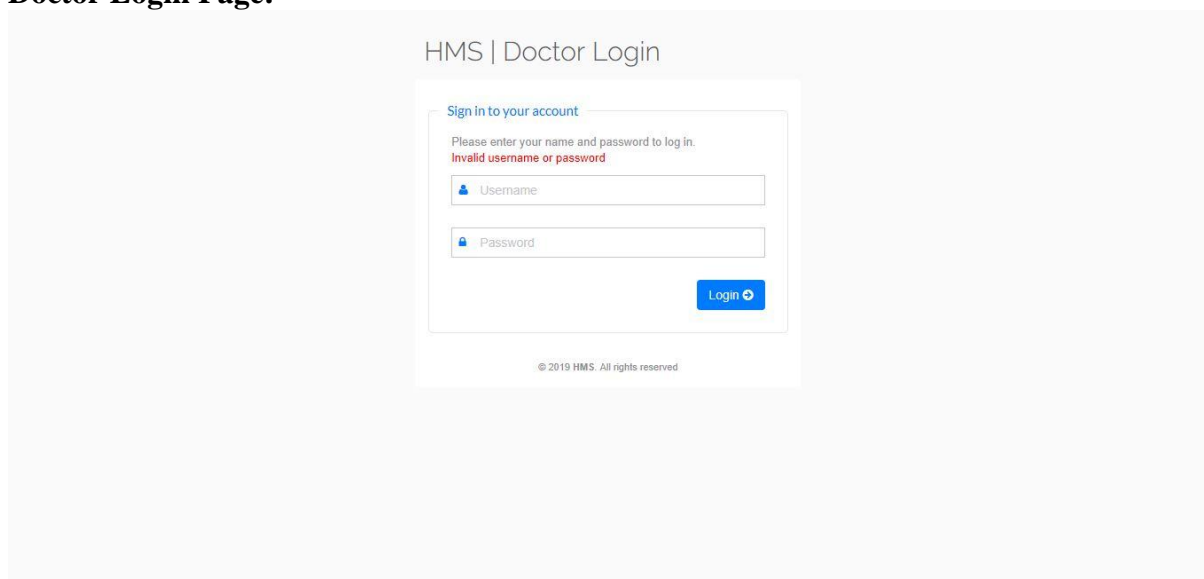


Patient Page:



The screenshot shows the HMS User Dashboard. The header includes 'HMS' and 'Hospital Management System' with a user profile for 'vishnavi thottempudi'. The main navigation menu on the left lists 'Dashboard', 'Book Appointment', and 'Appointment History'. The dashboard content area is titled 'USER | DASHBOARD' and contains three main cards: 'My Profile' with an 'Update Profile' link, 'My Appointments' with a 'View Appointment History' link, and 'Book My Appointment' with a 'Book Appointment' link. A footer note states '© 2019 HMS. Brought To You By Code-Projects'.

Doctor Login Page:



The screenshot shows the HMS Doctor Login page. The title is 'HMS | Doctor Login'. The login form is titled 'Sign in to your account' and contains the text 'Please enter your name and password to log in.' Below this, there is a red error message: 'Invalid username or password'. The form has two input fields: 'Username' and 'Password'. A blue 'Login' button is located at the bottom right of the form. A footer note at the bottom of the page reads '© 2019 HMS. All rights reserved'.

Conclusion

The core reason for the establishment of computerizing Online Doctor Appointment System is to enable the hospital administrators to perform their tasks in a convenient, fair and timely manner. Therefore the IT used should support the core objective of the system if it is to remain relevant to the hospital. A lot still needs to be done in the IT department in order to make available technology effective. This may involve training of the hospital staffs on how to enter data in the right and relevant data in the system and the management to keep updating the hardware and software requirements of the system. IT and computer systems need to be kept being upgraded as more and more IT facilities software are introduced in today's IT market. This system does not handle all patient doctor and hospital. There is a scope for further research, the following can be researched on. The most cost effective way of handling all Hospital Patient management system process.



References:

- [1]. Zhang X, Yu P, Yan J. Patients' adoption of the e-appointment scheduling service: a case study in primary healthcare. *Stud Health Technol Inform.* 2014;204:176–181. [PubMed]
- [2]. Jones R, Menon-Johansson A, Waters AM, Sullivan AK. eTriage - a novel, web-based triage and booking service: enabling timely access to sexual health clinics. *Int J STD AIDS.* 2010;21(1):30–33. doi: 10.1258/ijsa.2008.008466. [PubMed] [CrossRef]
- [3]. Online scheduling applications may improve customer satisfaction, but setup is not always easy. *Internet Healthc Strateg.* 2004;6(5):1–5. [PubMed]
- [4]. Wang W, Gupta D. Adaptive appointment systems with patient preferences. *Manuf Serv Oper Manag.* 2011;13(3):373–389. doi: 10.1287/msom.1110.0332. [CrossRef]
- [5]. Tang PC, Black W, Buchanan J, Young CY, Hooper D, Lane SR, Love B, Mitchell C, Smith N, Turnbull JR. PAMFOnline: integrating EHealth with an electronic medical record system. *AMIA Annu Symp Proc; AMIA Annual Symposium; November 8, 2003; Washington, DC. 2003. pp. 644–648. <http://europepmc.org/abstract/MED/14728253>. [PMC free article] [PubMed]*
- [6]. Denizard-Thompson NM, Feiereisel KB, Stevens SF, Miller DP, Wofford JL. The digital divide at an urban community health center: implications for quality improvement and health care access. *J Community Health.* 2011;36(3):456–460. doi: 10.1007/s10900-010-9327-5. [PubMed] [CrossRef]
- [7]. Zhang X, Yu P, Yan J, Hu H, Gourea N. Patients' perceptions of web self-service applications in primary healthcare. *Stud Health Technol Inform.* 2012;178:242–249. [PubMed]
- [8]. Siddiqui Z, Rashid R. Cancellations and patient access to physicians: ZocDoc and the evolution of e-medicine. *Dermatol Online J.* 2013;19(4):14. [PubMed]
- [9]. Clingan SA. Going online: the role of web-based initiatives in health information technology. *J Med Pract Manage.* 2011;26(4):225–227. [PubMed]
- [10]. Healthit. [2016-09-26]. What is a patient portal? <https://www.healthit.gov/providers-professionals/faqs/what-patient-portal> *webcite*.
- [11]. Healthit. [2016-10-03]. Meaningful use definition and objectives <https://www.healthit.gov/providers-professionals/meaningful-use-definition-objectives> *webcite*.
- [12]. HIMSS. [2016-10-03]. Using patient portals to achieve Meaningful Use Stage 2 <http://www.himss.org/using-patient-portals-achieve-meaningful-use-ep-edition?ItemNumber=35966> *webcite*.

14th International Conference on Science, Technology and Management (ICSTM-19)

Guru Gobind Singh Polytechnic, Nashik, Maharashtra (India)

2nd March 2019, www.conferenceworld.in



ISBN: 978-93-87793-74-3

- [13]. Real-time scheduling faces operational challenges. Internet Healthc Strateg. 2005; 7(1):1–6. [PubMed]
- [14]. Abbott KC, Boocks CE, Sun Z, Boal TR, Poropatich RK. Walter Reed Army Medical Center's internet-based electronic health portal. Mil Med. 2003;168(12):986–991. [PubMed]
- [15]. Cayirli T, Veral E. Outpatient scheduling in health care: a review of literature. Prod Oper Manag. 2003;12(4):519–549. doi: 10.1111/j.1937-5956.2003.tb00218.x. [CrossRef]