



**IJIRCCCE**

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

**Volume 10, Issue 5, May 2022**

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

**Impact Factor: 8.165**



9940 572 462



6381 907 438



ijircce@gmail.com



www.ijircce.com



# Content Based Recommendations for E Healthcare Management System

Prajwal S. Indore, Aman V. Thakare, Ashlesha H. Yeole, Revati V. Upase, Dharati M. Thakare,  
Prof. Deepak Dhanwani

Department of Computer Science Engineering, P. R. Pote Patil College of Engineering and Management, Amravati,  
Maharashtra, India

**ABSTRACT:** The Hospital Management System which uses Python Language with Django Web Framework. Following Python with Django Web Framework project contains all the important features. It has features that will allow all the users to interact with their minor hospital records which includes details of patients, doctors, and appointments. This system as well as the python application's concept is all clear, it's the same as real-life scenarios and well-implemented on it. hospital management system project in Python focuses mainly on dealing with appointment bookings by inserting patient's and doctor's records. Also, the system displays all the available details of patients, and doctors with their respective names, contact information, address, date, and time. In addition, the system lists out all the available appointments which include doctor's and patient's names with their date and time respectively. There's only an admin panel in this system for the management aspects. In an overview of this python web app, the user needs to first insert data under the patient and doctor's section, then he/she can proceed towards appointment booking. So, when it comes to booking appointments, the user should select available patients, doctor's names and select the exact date and time. Besides, the dashboard displays the total available records of each section.

**KEYWORDS:** Python, Django, SQLite3.

## I. INTRODUCTION

Healthcare management is a growing profession with increasing opportunities in both direct and non-direct care settings. As defined by Buchbinder and Thompson (2010), direct care settings are those organizations that provide care directly to a patient, resident or client who seeks services from the organization. Non-direct care settings are not directly involved in providing care to persons needing health services, but rather support the care of individuals through products and services made available to direct care settings.

The hospital Management system includes registration of patients, sorting their details into the system, and also computerized billing. The software has the facility to give a search facility for every patient and the staff automatically. It includes the search facility to know the current status of each room. Users can search about the doctor whether they are available or not and the details of a patient. The hospital management system can be entered using a username and password. It is accessible either by an administrator or receptionist. Only they can add data into the database. The data can be retrieved easily. The interface is very user friendly. The data is well protected for personal use and fast data processing. Hospital Management System is designed for multispecialty hospitals, to cover a wide range of hospital administration processes. Hospital Management System is useful to improve the management of hospitals in the area of clinical process analysis and activity-based costing. Hospital Management System enables you to develop your organization and improve effectiveness and quality of work.

HMS was introduced to solve the complications coming from managing all the paperwork of every patient associated with the various departments of hospitalization with confidentiality. HMS provides the ability to manage all the paperwork in one place, reducing the work of staff in arranging and analyzing the paperwork of the patients. Hospital Information systems are in high demand to handle increasing population needs and also aids the practicing doctors and hospital service and support staff with timely service and precision.

## II. BACKGROUND HISTORY

In the literature survey given below, on hospital management systems have been reviewed and surveyed and the important points from the papers have been mentioned in the survey below. In Exponential development into ICT and Web technology has had a significant effect upon business & infrastructure distribution structures of the current global economy. Electronic -Hospital Management Systems (EHMS) offer benefits of streamlined procedures, efficient compliance & tracking, quality patient service, strict cost containment and expanded efficiency. Healthcare Insurance



Portability & Accountability Act (HIPAA) provisions, that have established the standard of the healthcare sector in management of medical reports as well as protection of patient details. The research focused on identifying success metrics for Hospital Information Systems (HIS), summing up current widely accepted guidelines & procedures such as Health Level Seven (HL7) requirements for shared communications communication, HIS elements, etc. For several customized variants of E-HMS Systems & HIS upon marketplace, a basic module edition of E-HMS was meant to offer simple understanding to analysts and business specialists. Throughout numerous positive research articles discussed in the study, the performance indicators & difficulties presented through positive adoption of E-HMS have been highlighted.

In The testing of the project was done in two ways viz. Black Box Testing which was done by Users. The Users were asked to run the project and check all the features. The feedback was recorded, and amendments were made as required; and White Box Testing in which different test cases were made for each unit of source code and were tested. For each test case, the desired output was expected. When the desired output was not encountered it led to a bug. Each error was removed from the source code and all units were integrated at last. The project is developed under the Django Python Web Framework. It encourages rapid development and clean, pragmatic design.

### III.RELATED WORK

According to , Django (Holovaty & Kaplan-Moss, 2008) is a high-level Python Web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of Web development, so we can focus on writing your app without needing to reinvent the wheel. It's free and open source. Django's primary goal is to ease the creation of complex, database-driven websites. The framework emphasizes reusability and "pluggability" of components, less code; low coupling, rapid development, and the principle of don't repeat yourself. Python is used throughout, even for settings files and data models. Django also provides an optional administrative create, read, update, and delete interface that is generated dynamically through introspection and configured via admin models. The version of Django used during development is Django 2.1.5.

SQLite is a C-language library that implements a small, fast, self-contained, high-reliability, full-featured, SQL database engine. SQLite is the most used database engine in the world. By default, Django uses SQLite3 as its default database. Django provides a specific way to define our database using the python programming language. Jinja2 (Lichened et al, 2015) is one of the most used template engines for Python. It is inspired by Django templating system but extends it with an expressive language that gives template authors a more powerful set of tools.

In One of the good practices in modern web development are separate definitions of structure and style. The general structure of web pages and their content are defined in HTML, while its final presentation and style are in the domain of CSS (Cascading Style Sheets). Such separation enables better flexibility and control over the final appearance of a web page, and it also reduces the complexity of HTML record and eliminates the redundancy in style definitions. The separation of the content from the style enables more web pages to share the same style and a single page to use many different styles at the same time. Besides CSS, a scripting language JavaScript is often used in combination with HTML. JavaScript is interpreted by a web browser and provided web pages with interactivity and dynamics. The JavaScript code can interact with the DOM (Document Object Model) through the various API (Application Programming Interface) libraries based on a mechanism of user-triggered events. In the 1990's majority of web pages were static and intended primarily for reading and browsing while the first decade of the new century brings more dynamic web pages and applications. Users not only "browse" the Web but also contribute to it by producing and up-loading their own content

### OBJECTIVE OF THE SYSTEM:

Hospitals currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the hospital management infrastructure. Often information (on forms) is incomplete or does not follow management standards. Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the hospital and may lead to inconsistencies in data in various data stores. A significant part of the operation of any hospital involves the acquisition, management, and timely retrieval of great volumes of information. This information typically involves; patient personal information and medical history, staff information, room and ward scheduling, staff scheduling, operating theatre scheduling and various facilities waiting lists. All this information must be managed in an efficient and cost wise fashion so that an institution. Hospital Management System, its resources may be effectively utilized. HMS will automate the management of the hospital making it more efficient and error free. It aims at standardizing data, consolidating data, ensuring data integrity, and reducing inconsistencies.





## **REVIEW OF LITERATURE:**

Hospitals can also be regarded as organizations based on high technology and information intensive processes. According to Lawrence and Dyer (1982), such organizations are not hierarchically structured bureaucracies, but are often based on democratic control mechanisms with institutionalized stakeholder influence in decision processes. A survey under 2752 European hospital managers indicates that technology can substantially influence hospital activities and services (Anderson, 1993).

It is also expected that health care budgets and funding will depend significantly on sophisticated patient and diagnosis classifications. The use of IT in diagnostic and treatment processes will add to the development of networks of clinical, hospital and health care processes.

Healthcare management is a growing profession with increasing opportunities in both direct and nondirect care settings. As defined by Buchbinder and Thompson (2010), direct care settings are those organizations that provide care directly to a patient, resident or client who seeks services from the organization. Non-direct care settings are not directly involved in providing care to persons needing health services, but rather support the care of individuals through products and services made available to direct care settings. The construction of medical information is important to improve the hospital medical care capability, the management decision-making level of health and the hospital operational efficiency. Nowadays, comprehensive hospital information services and management platform have been established, centering on electronic medical records and clinical pathway. The establishment and use of these information systems played an important role in improving the degree of patient satisfaction, enhancing hospital efficiency and healthcare quality, protecting the safety of healthcare, and reducing healthcare costs. Hospital Management System (computerized) is increasingly becoming an emerging tool in health care arena to efficiently enable delivery of high-quality health services.

## **EXISTING SYSTEM:**

Hospitals currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the hospital management infrastructure. Often information (on forms) is incomplete, or does not follow management standards. Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the hospital and may lead to inconsistencies in data in various data stores.

## **PROPOSED SYSTEM:**

The Hospital Management System (HMS) is designed for Any Hospital to replace their existing manual, paper-based system. The new system is to control the following information; patient information, room availability, staff and operating room schedules, and . These services are to be provided in an efficient, cost-effective manner, with the goal of reducing the time and resources currently required for such tasks.

## **IV.PROPOSED METHODOLOGY**

1. Administration
2. Accounts
3. Diagnosis
4. Enquiries

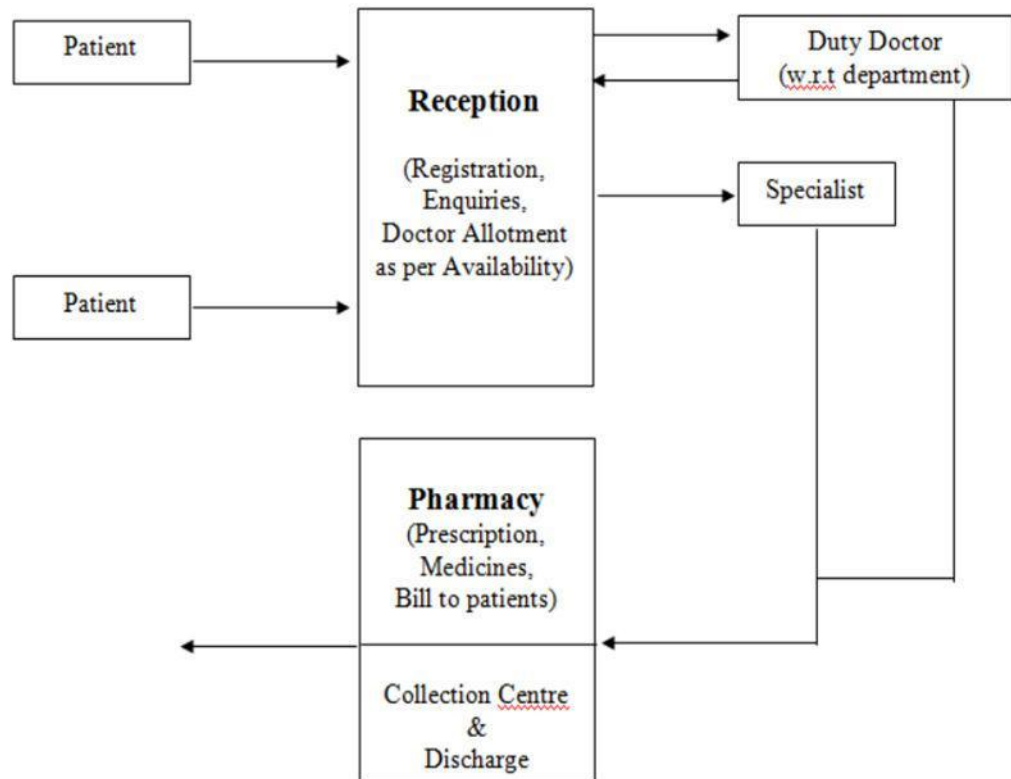


Figure 4.1: - Flowchart of the E Healthcare Management System

Recommender systems apply The Hospital Management System can be entered using a username and password. It is accessible either by an administrator or receptionist. Only they can add data into the database. The data can be retrieved easily. The interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast. Hospital Management System is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals. It is designed for multi-specialty hospitals, to cover a wide range of hospital administration and management processes. It is an integrated end-to-end Hospital. Management System that provides relevant information across the hospital to support effective decision making for patient care, hospital administration and critical financial accounting, in a seamless flow.

**Administration:**

This is the main module of the entire Hospital Management System software. Any important classification of data has to be started from here. If any new Service has to be added then it has to be done from this module. Basically, all main data whichever is required has to be entered from this module. Employee Appointment, Resignation, Visiting Doctor appointment, Attendance of all the staff, Lab and Ward service information, etc.

The user in the module can access any information requiring be changing or viewing. The reports that are generated will be for the support of the management.

**Accounts:**

All the financial accounting required in the hospital is managed and maintained using this module. Bill or any transaction information relating to financial terms will be updated to the database and will be accessed in this module for entry in the respective ledgers or records so as to produce a report on all the transactions that take place in the hospital.

Query based reports are available to retrieve based on the selection of the user requirements such as Reports having the details of how much money is spent on procuring medicines to pharmacy for a period of any duration, etc.

**Diagnosis:**

This module will help the doctor to update the patient diagnosis information in the case sheet of the patient. It also helps to keep track of the patient medication process to update the condition of the patient by verifying past cases, if any.

**Appointment Management**

For hospitals having their own site, appointment widgets will be integrated onto the site. Patients visiting the hospital’s website can book online appointments with ease.

**Billing Management**

Integrated Billing with treatments, Lab and Radiology. Alerts will be sent on Discount Authorisation. Automatic due capture, Option to bill before and after consultation.

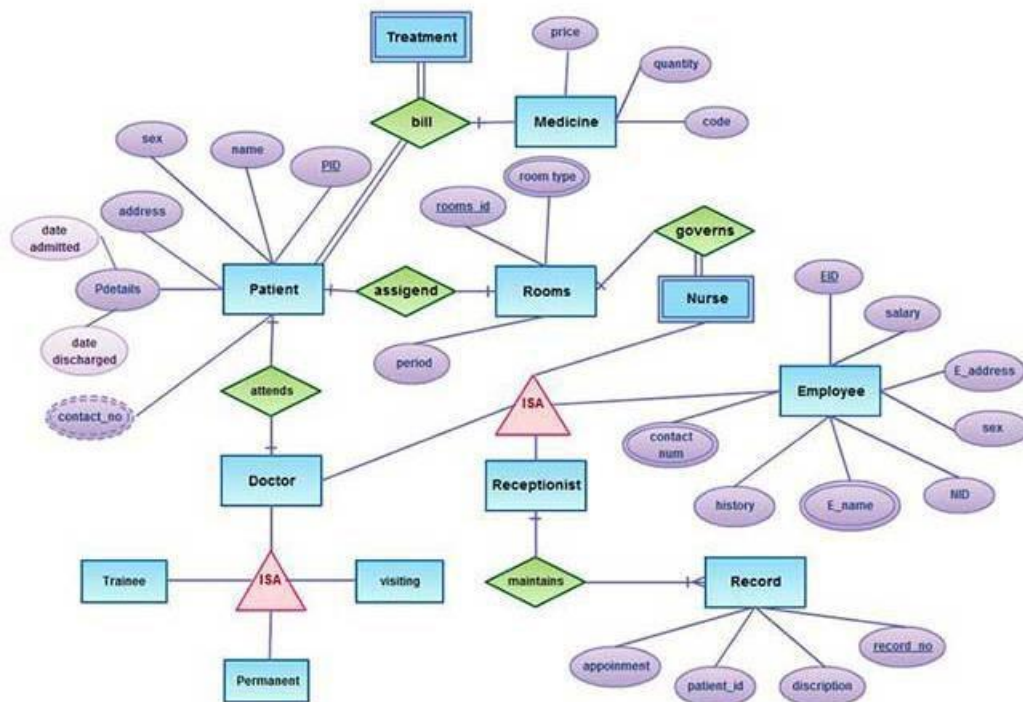
**Prescription Management**

Manage commonly and recently used medicines. Option to show medicines available in the pharmacy. SMS prescriptions to patients.

**Discharge Summary**

Template based Discharge Summary. ICD10 integration. Option to prevent discharge summary till IP bill is closed.

**V.E-R DIAGRAM E-HOSPITAL MANAGEMENT SYSTEM**



**Figure 5.1: -E-R Diagram E hospital management system**

The doctors must register themselves on the portal of the hospital management system. The patients too must register themselves on the portal of the hospital management system. After registering on the portal, the users, be it the doctor or the patients or any other hospital staff for that matter will see a dropdown menu. There will be various types of options provided in that dropdown menu.

Once the user decides to pick the service, they must click on that very option available in that menu. After clicking on the option, the user will be redirected to another page which will primarily be focusing on providing the service which the user has opted for.



The Hospital Management System can be entered using a username and password. It is accessible either by an administrator or receptionist.

## VI.CONCLUSION AND FUTURE SCOPE

In this paper we have discussed about the e hospital management system delling with hospital record using python and Django framework. Also, the system displays all the available appointments with their respective details. In addition, the system allows managing patients' records. Evidently, this project is divided into three categories: Patient, Doctor, and Admin Panel. In an overview of this web application, a patient can simply register and start using it. Initially, the action requires approval from the admin. In fact, he/she has to apply for it. However, each application requires action from the administrator which depends upon their approval or disapproval. By default, every patient needs to provide symptoms details. In addition, the customer can view their appointment.

## REFERENCES

- [1] Hung, Kevin, and Yuan-Ting Zhang. "Implementation of a WAP-based telemedicine system for patient monitoring." *Information Technology in Biomedicine, IEEE Transactions on* 7.2 (2003): 101-107.
- [2] Bruno M.C. Silva, Joel J.P.C. Rodrigues, Isabel de la Torre Diez, Miguel López-Coronado, Kashif Saleem, Mobile-health: A review of current state in 2015, *Journal of Biomedical Informatics*, Vol. 56, pp. 265-272, August 2015.
- [3] Agarwal, Sparsh, and Chiew Tong Lau. "Remote health monitoring using mobile phones and Web services." *Telemedicine and e-Health* 16.5 (2010): 603-607.
- [4] Gunjan Yadav, Parth Lad, Parul Pandey Tejaswi Kolla. Design and Implementation of Hospital Management System *International Journal of Advanced Research in Computer and Communication Engineering* Vol. 5, Issue 4, April 2016.
- [5] Sorwar, Golam, and Raqibul Hasan. "Smart-TV based integrated e-health monitoring system with agent technology." *Advanced Information Networking and Applications Workshops (WAINA), 2012 26th International Conference on*. IEEE, 2012.
- [6] GB. Koyuncu and H. Koyuncu, "Intelligent Hospital Management System (IHMS)," 2015 International Conference on Computational Intelligence and Communication Networks (CICN), Jabalpur, 2015, pp. 1602-1604.
- [7] Ruchi Dumbre, Purva Raut, Bhagyshreemahamuni, Priyanka Khose, Prof. Jagruti Wagh. "Healthcare management system and domain search of nearest Medical" *3 Issue 3, March 2016*
- [8] by Digvijay H. Gadhari, Yadnyesh P. Kadam, Prof. Parineeta Suman Department of Computer Engineering, Saraswati College of Engineering, Kharghar, Mumbai, Maharashtra, India. "HOSPITAL MANAGEMENT SYSTEM" *International Journal for Research in Engineering Application & Management (IJREAM)-2016*
- [9] by Spamast-Malita, Iteit. "Quality of information management and efficiency of Hospital employees Hospital Management 10.13140/RG.2.2.16459.28966(2018).
- [10] Olusanya Olamide.O, Elegbede Adedayo. W and Ogunseye Abiodun. A, "Design and Implementation of Hospital Management System Using Java". *IOSR Journal of Mobile Computing & Application (IOSR-JMCA)* e-ISSN: 2394-0050, P-ISSN: 2394-0042. Volume 2, Issue 1. (Mar. - Apr. 2015), PP 32-36.





**INNO**  **SPACE**  
SJIF Scientific Journal Impact Factor  
**Impact Factor: 8.165**



**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
**INDIA**



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

 **9940 572 462**  **6381 907 438**  **ijircce@gmail.com**



[www.ijircce.com](http://www.ijircce.com)

Scan to save the contact details