

PATIENT ALLOCATION FOR DOCTOR'S

KEVIN JOE CLIFFORD.J [REGISTER NO:211421104128]

KISHORE.K [REGISTER NO:211421104131]

Introduction

The "Patient Allocation For Doctor's" is a cutting-edge web application revolutionizing healthcare accessibility and efficiency. Tackling the challenges of traditional appointment booking, it integrates web development, computer vision, and data management. The user-friendly interface streamlines the process, allowing patients to effortlessly input information and choose preferred doctors. Employing OpenCV, the system ensures secure patient identity verification and optimizes doctor assignment for an equitable distribution of appointments. Data management, facilitated through Excel sheets, organizes patient records, providing valuable insights to enhance medical services. This innovative solution marks a significant leap towards efficient and user-centric healthcare scheduling. The " Patient Allocation For Doctor's " is an innovative web application streamlining healthcare booking. Integrating web development, OpenCV for secure identity verification, and Excel for data management, it enhances the traditional appointment process. With a user-friendly interface, patients easily input information and choose doctors, while the system ensures equitable appointment distribution among healthcare providers. This solution marks a significant step in improving healthcare accessibility and efficiency.

Literature Survey

In the 2022 article titled "Scurvy Management in Modern Hospitals" authored by John A. Smith and his colleagues, published in the Journal of Medicine, the study delves into the contemporary management practices of scurvy within healthcare facilities. Despite advances in medical knowledge, instances of scurvy continue to be reported in these settings. The research underscores the significance of efficient patient allocation as a pivotal factor in enhancing the diagnosis and treatment of scurvy. By shedding light on the ongoing presence of scurvy cases and advocating for improved patient allocation strategies, the study aims to contribute valuable insights to the medical community's efforts in addressing and managing this nutritional deficiency in modern hospital environments.

Existing System Definition

Patient allocation for doctors involves systematically assigning patients to healthcare providers based on factors like medical needs and urgency. This process is pivotal for optimizing workflow and ensuring equitable patient distribution among doctors. Electronic Health Record (EHR) Systems and Hospital Information Systems (HIS) play a key role, allowing patients to schedule appointments and express preferences. The goal is to minimize wait times, enhance access to care, and promote fairness in distributing medical services. Evaluating and understanding the existing patient allocation system is crucial for identifying areas of improvement, ultimately enhancing both patient satisfaction and operational efficiency in healthcare facilities.

Proposed System Objectives

The aim of proposed system is to develop a system of improved facilities. The proposed system can overcome all the limitations of the existing system. The system provides proper security and reduces the manual work.

- Security of data.
- Ensure data accuracies.
- Proper control of the higher officials.
- Minimize manual data entry.
- Minimum time needed for the various processing.
- Greater efficiency.
- Better service.
- User friendliness and interactive.
- Minimum time required

System Architecture

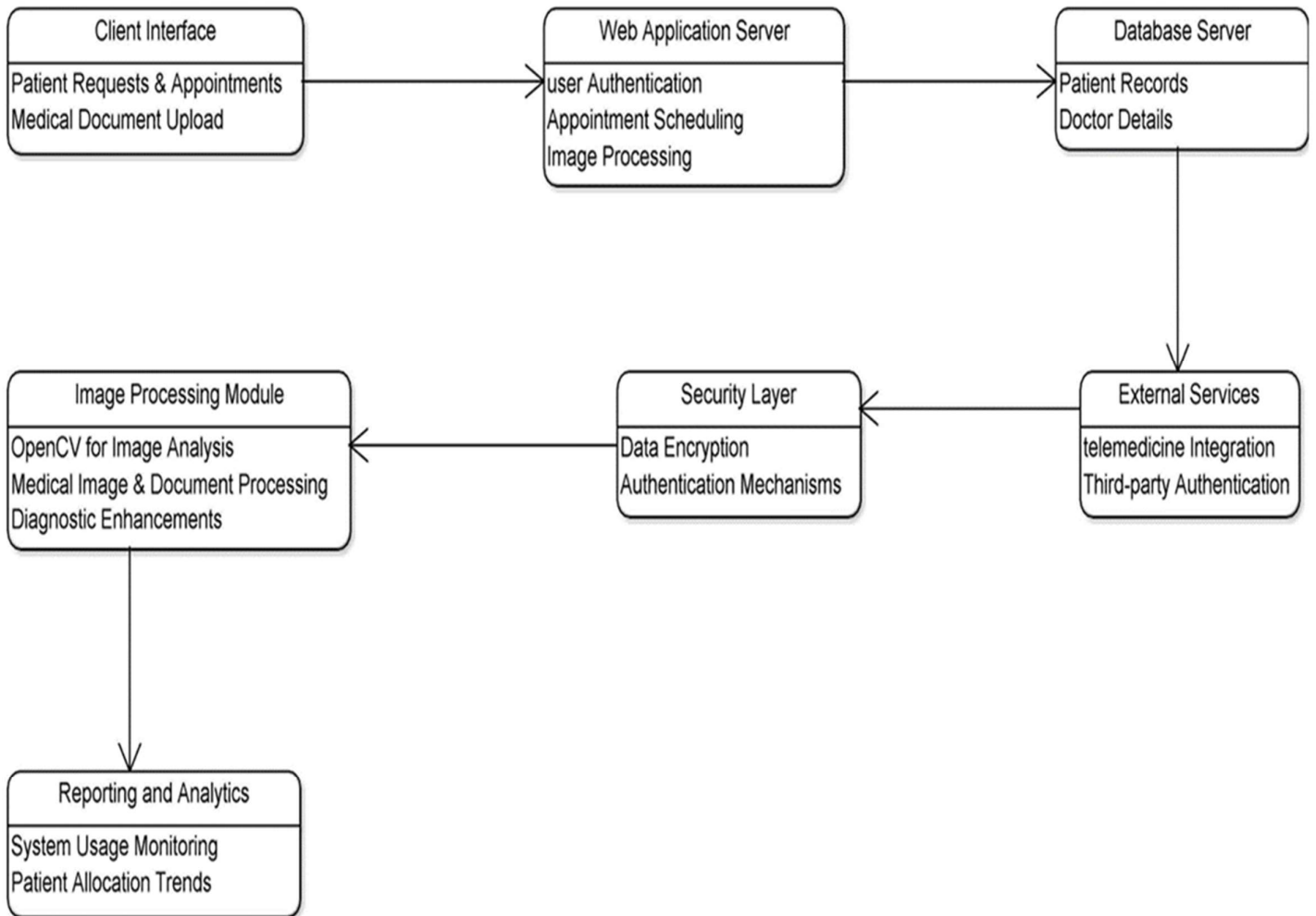


Figure 1: Architecture Diagram

Module Description

1. User Authentication Module:

This module handles user registration and login. It ensures secure access to the system, distinguishing between doctors and patients. Allows users to create accounts, login securely, and reset passwords when necessary.

2. Appointment Scheduling Module:

This module enables patients to request appointments and doctors to manage their schedules. Patients can view available slots, request appointments, and receive confirmation. Doctors can accept, reject, or reschedule appointments.

3. Patient Allocation Module:

This module automates the allocation of patients to available doctors based on various criteria such as specialization, location, and availability. Efficiently matches patients with doctors, reducing wait times and optimizing resource allocation.

4. Electronic Health Records (EHR) Module:

The EHR module centralizes patient medical records, ensuring secure storage and accessibility. Allows authorized healthcare providers to view and update patient records, upload medical documents, and maintain comprehensive medical histories.

5. Image Processing Module (OpenCV Integration):

Integrated with OpenCV, this module analyzes medical images and documents uploaded by patients for diagnostic purposes. Provides image analysis capabilities, assisting doctors in interpreting X-rays, scans, and other medical images.

6. Telemedicine Integration Module:

This module facilitates remote consultations between doctors and patients through telemedicine services. Supports video conferencing, secure messaging, and document sharing, enhancing accessibility to healthcare services.

7. Reporting and Analytics Module:

This module generates reports and provides data analytics to assist healthcare providers in monitoring system usage and allocation trends. Offers insights into patient allocation patterns, appointment data, and system performance.

Sample Screen

Book an Appointment

Your Name: Kevin Joe Clifford Email: joekevin40@gmail.com

Phone Number: 9444732718 Age: 55

Select a Doctor: Specialized? Select a Date: 12-10-2023

Gender: ☐ Male ☐ Female ☐ Other

Book Appointment

Figure 2: Output Screenshot -Appointment screen

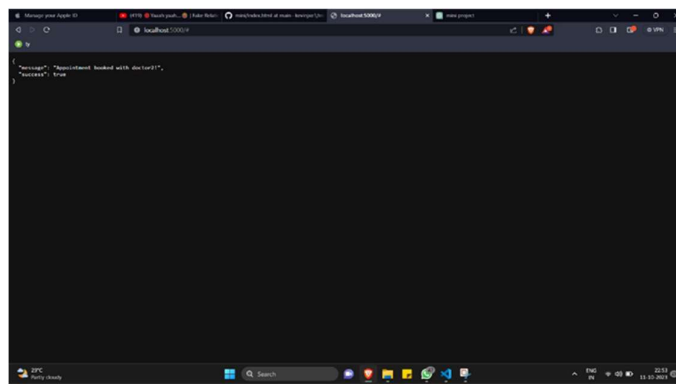


Figure 3: Output Screenshot -Appointment successful

	A	B	C	D	E	F	G
1	Name	Age	Sex	Phone Nur	Email		
2	Kevin Joe	55	male	94447327	joekevin40@gmail.com		
3	Kevin Joe	55	male	94447327	joekevin40@gmail.com		
4	Kevin Joe	55	male	94447327	joekevin40@gmail.com		

Figure 4: Output Screenshot -Doctor 1

	A	B	C	D	E	F	G
1	Name	Age	Sex	Phone Nur	Email		
2	Kevin Joe	55	male	94447327	joekevin40@gmail.com		
3							

Figure 5: Output Screenshot -Doctor 2

	A	B	C	D	E	F
1	Name	Age	Sex	Phone Number	Email	
2	Kevin Joe Clifford	55	male	9444732718	joekevin40@gmail.com	
3	Kevin Joe Clifford	55	male	9444732718	joekevin40@gmail.com	
4	Kevin Joe Clifford	55	male	9444732718	joekevin40@gmail.com	
5	Kevin Joe Clifford	55	male	9444732718	joekevin40@gmail.com	
6	Kevin Joe Clifford	55	male	9444732718	joekevin40@gmail.com	

Figure 6: Output Screenshot -Doctor 3

Conclusion

In conclusion, the Doctor Appointment Scheduler project represents a transformative step in healthcare management, amalgamating web development, computer vision, and data management to revolutionize medical appointment scheduling. The system addresses existing limitations, ensuring efficient patient allocation, heightened user experience, and secure identity verification. With a focus on overcoming challenges, the proposed system promises enhanced facilities, improved data security, and streamlined processes, fostering greater efficiency and time savings. Its user-friendly interface and interactive features aim to elevate the overall service experience for both healthcare providers and patients. Looking ahead, continuous evaluation and adaptability will be pivotal, as the Doctor Appointment Scheduler stands as a testament to the intersection of technology and healthcare, poised to positively impact scheduling practices and accessibility in the healthcare sector.

Future Enhancements

1. **AI Integration:** Implement AI-driven diagnostics for better medical condition assessment.
2. **Patient Feedback:** Develop a feedback system for continuous improvement.
3. **Enhanced Analytics:** Provide deeper insights into healthcare trends and resource allocation.
4. **Mobile App:** Create a dedicated mobile app for accessibility.
5. **Scalability:** Optimize system architecture to handle more users.
6. **Smart Scheduling:** Use historical data and patient preferences for intelligent appointment scheduling.
7. **Research Integration:** Incorporate medical research for up-to-date patient consultations.
8. **Telemedicine Integration:** Enhancing patient allocation systems to seamlessly integrate with telemedicine platforms, enabling virtual consultations and remote patient management.
9. **Personalized Care Plans:** Developing systems to create personalized care plans for patients based on their medical history, preferences, and specific healthcare needs, leading to more tailored and effective patient allocation strategies.
10. **Real-Time Tracking and Monitoring:** Developing systems to track patient flow in real-time, allowing for dynamic allocation adjustments based on changing conditions within the healthcare facility.

References

1. AAMC (Association of American Medical Colleges). GME funding: How to fix the doctor shortage. 2014. [December 15, 2014]. https://www.aamc.org/advocacy/campaigns_and_coalitions/fixdocshortage.
2. Abdel-Aal RE, Mangoud AM. Modeling and forecasting monthly patient volume at a primary health care clinic using univariate time-series analysis. *Computer Methods and Programs in Biomedicine*. 1998;56(3):235–247.
3. ACEP (American College of Emergency Physicians). Emergency department crowding: High-impact solutions. Irving, TX: American College of Emergency Physicians; 2008.
4. Adler-Milstein J, DesRoches CM, Jha AK. Health information exchange among US hospitals. *American Journal of Managed Care*. 2011;17(11):761–768.
5. Agwunobi J, London PA. Removing costs from the health care supply chain: Lessons from mass retail. *Health Affairs*. 2009;28(5):1336–1342.
6. AHRQ (Agency for Healthcare Research and Quality). Comparative data: Clinician & group. 2015. [May 20, 2015]. https://cahpsdatabase.ahrq.gov/CAHPSIDB/Public/CG/CG_About.aspx.
7. Anhang Price R, Elliott MN, Zaslavsky AM, Hays RD, Lehrman WG, Rybowski L, Edgman-Levitan S, Cleary PD. Examining the role of patient experience surveys in measuring health care quality. *Medical Care Research and Review*. 2014;71(5):522–554.
8. Anupindi R, Chopra S, Deshmukh S, Miegham JAV, Zemel E. Managing business process flows: Principles of operations management. Englewood Cliffs, NJ: Prentice Hall; 2005.
9. Armstrong N, Herbert G, Aveling EL, Dixon-Woods M, Martin G. Optimizing patient involvement in quality improvement. *Health Expectations*. 2013;16(3):E36–E47.
10. Bell EJ, Takhar SS, Beloff JR, Schuur JD, Landman AB. Information technology improves emergency department patient discharge instructions completeness and performance on a national quality measure: A quasi-experimental study. *Applied Clinical Informatics*. 2013;4(4):499–515.
11. Bell RM, Koren Y. Scalable collaborative filtering with jointly derived neighborhood interpolation weights; Paper presented at Seventh IEEE International Conference on Data Mining; Omaha, NE. 2007.
12. Bergeson SC, Dean JD. A systems approach to patient-centered care. *JAMA*. 2006;296(23):2848–2851.
13. Berry LL, Beckham D, Dettman A, Mead R. Toward a strategy of patient-centered access to primary care. *Mayo Clinic Proceedings*. 2014;89(10):1406–1415.
14. Bisgaier J, Rhodes KV. Auditing access to specialty care for children with public insurance. *New England Journal of Medicine*. 2011;364(24):2324–2333.