



EDOC DOCTOR APPOINTMENT SYSTEM

SMART ONLINE APPOINTMENT SYSTEM

¹DR.SANDEEP BHAT, ²SHREYA SHETTY, ³AYISHA KA, ⁴BIYASREENI,
⁵GAYATHRI GOND, ⁶MUHAMMED FIDHAN

¹ Professor, ²Assistant Professor, ³B. Tech Student ⁴B. Tech Student ⁵B. Tech Student, ⁶B. Tech Student

^{1,2,3,4,5,6}Computer Science and Engineering,

^{1,2,3,4,5,6}Srinivas Institute of Technology, Mangalore, India

Abstract: Effective scheduling of appointments is an important aspect of contemporary healthcare, with direct implications for patient access, provider productivity, and overall patient satisfaction. Inefficiencies in conventional scheduling systems can result in long wait times, higher no-show rates, and increased administrative burden for healthcare providers. This paper describes the design, implementation, and testing of "eDoc," a web-based doctor appointment system. The eDoc system enables patients to easily search for doctors, make appointments online, and manage their current bookings, while allowing doctors to effectively manage their schedules and securely access vital patient information. Built with a blend of PHP, MySQL, HTML, CSS, and JavaScript, the system emphasizes security, ease of use, and scalability to address the strict requirements of modern healthcare settings. The approach involves system architecture, security features, and optimization methods. The findings of the study indicate substantial gains in patient satisfaction, decreases in scheduling conflicts, and improvements in operational efficiency, thus demonstrating eDoc as an effective solution to modern healthcare scheduling issues.

Index Terms –Doctor Appointment System, Web Application, Healthcare Technology, Scheduling, PHP, MySQL.

I. INTRODUCTION

With the fast-paced modernization of the healthcare environment, electronic solutions become essential for refining patient satisfaction and business efficiency. The conventional practice of appointment planning is frequently hampered by inefficiencies, with negative implications leading to excessive wait times, repeat bookings, and high patient frustration. The COVID-19 pandemic worldwide has further emphasized the absolute need to make available affordable, remote healthcare services. Web-based scheduling systems present an interesting solution to the problems, allowing patients to schedule appointments over the web, reducing administrative burdens by a great margin, and greatly enhancing access to care. Still, making user-friendly interfaces, secure backend handling, and rigorous security features is still the priority. This paper presents the eDoc Doctor Appointment System, an internet-based application carefully developed to automate the appointment process of patients, physicians, and administrators. Through the implementation of real-time booking facilities, automated reminders, and role-based access, the eDoc system efficiently counteracts the shortfalls present in conventional scheduling approaches. With the fast modernization of the healthcare division, the selection of advanced innovations has ended up crucial for moving forward understanding encounters and streamlining organization workflows. Among the foremost squeezing challenges in healthcare operations is arrangement planning, where conventional manual strategies are regularly tormented by wasteful aspects. These obsolete frameworks as often as possible result in over the top hold up times, twofold bookings, missed arrangements, and authoritative over-burden, eventually driving . The development of the COVID-19 widespread advance underscored the critical require for strong, adaptable, and contactless healthcare conveyance models. Lockdowns and social separating conventions disturbed in-person interviews and uncovered the vulnerabilities of paper-based and phone-based planning frameworks. In reaction, computerized arrangements such as web-based planning stages picked up noticeable quality, advertising a more secure and more open elective for both patients and healthcare .This paper presents the *eDoc Specialist Arrangement Framework*, an imaginative, internet-based application outlined to robotize the arrangement prepare for patients, doctors, and regulatory staff. The eDoc framework offers highlights such as real arrangement booking, computerized updates, calendar integration, and role-based get to control. The stage moreover joins secure information dealing with hones compliant with standard healthcare directions, guaranteeing both ease of use and privacy. By tending to the restrictions of conventional planning frameworks and leveraging cutting edge web innovations, eDoc points to progress healthcare conveyance, decrease operational costs, and upgrade quiet engagement in a quickly advancing therapeutic scene.

II.SCOPE OF PROJECT

The Doctor Appointment Booking System is intended to optimize and digitize the scheduling of medical appointments, thereby improving convenience for both patients and healthcare providers. This system will allow patients to find doctors based on their specialty, location, and availability, and to book appointments online via a user-friendly interface. It will facilitate the creation and management of detailed profiles for both doctors and patients, encompassing personal information, medical history, qualifications, and schedules. Doctors will have the capability to manage appointments by confirming, rescheduling, or canceling them, while

patients will receive timely notifications and reminders. Furthermore, the platform will ensure secure access to medical records, prescriptions, and visit histories, with stringent privacy controls in place. An administrative dashboard will enable system administrators to monitor user activity, assess system performance, and generate reports on essential metrics such as appointment statistics and user engagement.

1. Online Appointment Scheduling: Facilitate patients in locating physicians by specialty, geographical area, and availability, allowing them to schedule appointments online via an intuitive interface.

2. Physician and Patient Profiles: Enable both physicians and patients to establish and oversee their profiles, encompassing medical history, schedules, credentials, and contact details.

3. Appointment Coordination: Offer functionalities for physicians to confirm, reschedule, or cancel appointments, while patients receive notifications and reminders.

4. Secure Access to Medical Records: Provide a secure environment for the storage and retrieval of patient medical records, prescriptions, and visit history, ensuring appropriate privacy measures are in place.

5. Administrative Dashboard and Reporting: Furnish administrators with resources to manage users, oversee system performance, and produce reports regarding appointments, physician availability, and patient interaction.

III. REVIEW OF LITERATURE

There are many studies examining the effect and structure of online appointment systems and how they have the potential to revolutionize healthcare operations. Monica et al. (2024) point to the urgent necessity for sophisticated scheduling algorithms and efficient communication strategies in order to enhance overall efficiency. Zhao et al. (2017) performed an extensive systematic review, citing that web-based systems have the potential to alleviate patient waiting times by a considerable margin and boost overall satisfaction levels. Srivastava et al. (2024) highlight the value of user experience and flexible booking functionality in determining patient attitudes. Deepak Yadav and Apeksha Shirke (2024) further demonstrate how automated systems can reduce wait times by as much as 40% and enhance compliance through auto-reminders. In addition, commercial products like Kyruus Health (2025) show how critical real-time provider availability is, as well as convenient integration with electronic health records (EHRs), in the ability to optimize appointment scheduling.

Stakeholder opinions and experiences of electronic appointment systems have also been investigated through qualitative content analyses by BMC Health Services Research (2025) to emphasize the importance of careful design to enhance stakeholder satisfaction. The available literature highlights that for an appointment system to succeed, it should strike a balance between functionality, usability, security, and integration with current healthcare processes. But a shortage exists in the existence of holistic systems addressing all these issues, which the eDoc system is designed to cover.

IV. METHODOLOGY

1. Requirement Identification Initiate the process by recognizing the primary stakeholders, which include patients, healthcare providers, and administrative staff. Execute interviews, surveys, and observational studies to gain insights into existing scheduling difficulties and user expectations. Record both functional requirements (such as booking, profile creation, and reminders) and non-functional requirements (including security and performance).

2. Planning and Feasibility Assessment Evaluate the collected requirements to assess technical, operational, and financial viability. Formulate a project plan that delineates milestones, timelines, resource distribution, and strategies for risk management. Select the suitable technology stack in accordance with system requirements and scalability.

3. System Architecture Design Develop a thorough system architecture that encompasses both client-side and server-side components. Design a database schema that facilitates the secure storage of user information, appointments, and medical records. Create wireframes and UI/UX prototypes that prioritize user-friendly navigation and accessibility for individuals of all ages.

4. Implementation of Agile Development Approach Divide the project into manageable iterations (sprints), each concentrating on a specific set of features. Facilitate ongoing collaboration with stakeholders throughout each sprint to refine requirements. At the conclusion of each sprint, conduct reviews and incorporate feedback into future cycles.

5. Development of Essential Modules User Module: Manages patient and doctor registration, login, and profile administration. Appointment Module: Oversees appointment scheduling, rescheduling, and cancellations. Notification Module: Dispatches appointment reminders and updates via email or SMS. Medical Records

Module: Allows secure uploading and access to patient history and prescriptions. Admin Panel: Offers tools for system oversight, user management, and report generation.

6. Testing and Quality Control Execute Unit Testing to verify each function and module independently. Carry out Integration Testing to ensure seamless interaction between modules.

V.DESIGN AND ARCHITECTURE

The eDoc system is designed to use a stable three-tier architecture to ensure optimal scalability, maintainability, and security. As seen in Figure 1, the tiers are:

1. **Presentation Layer:** It is the user interface and has been developed using HTML, CSS, and JavaScript. It is intuitive and responsive for patients, doctors, and administrators, with optimal performance across various devices and screen sizes.
2. **Application Layer:** This layer encloses the business logic of the system, overseeing user authentication, appointment scheduling, data processing, and notifications. It is deployed using PHP due to its capacity to interact with the database as well as manage complex operations safely.
3. **Data Layer:** This layer consists of a MySQL relational database, which offers persistent storage for important data like user credentials, doctor profiles, appointment records, and schedule details.

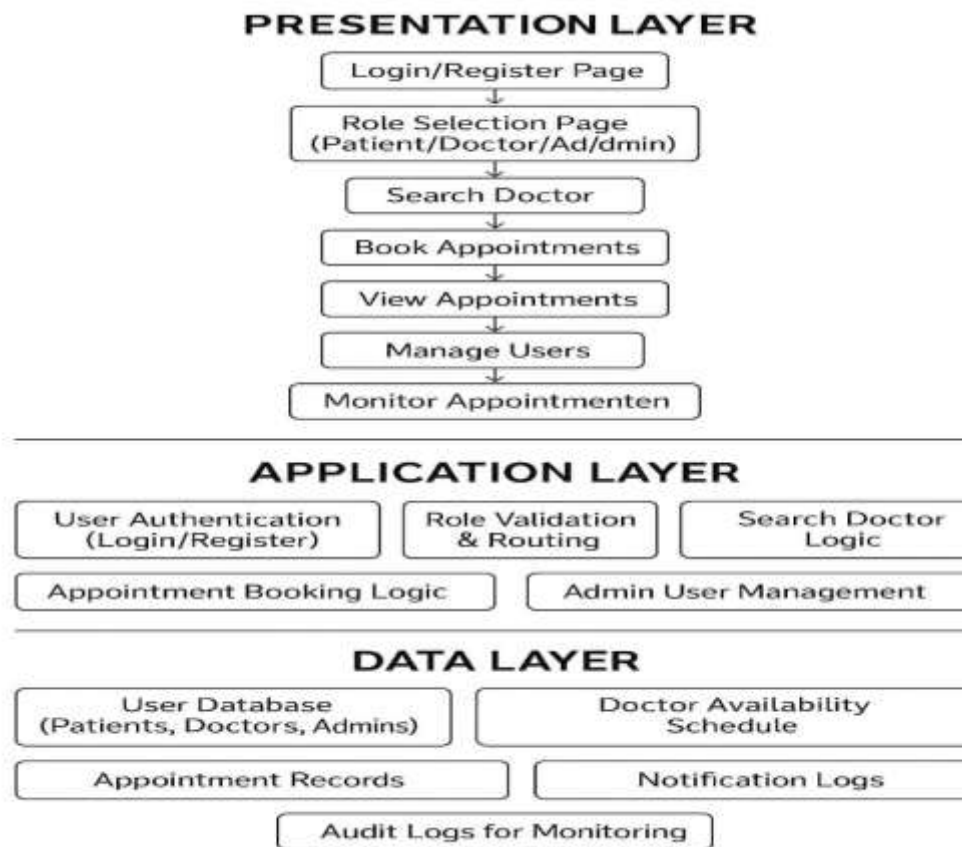


Figure 1: Structure

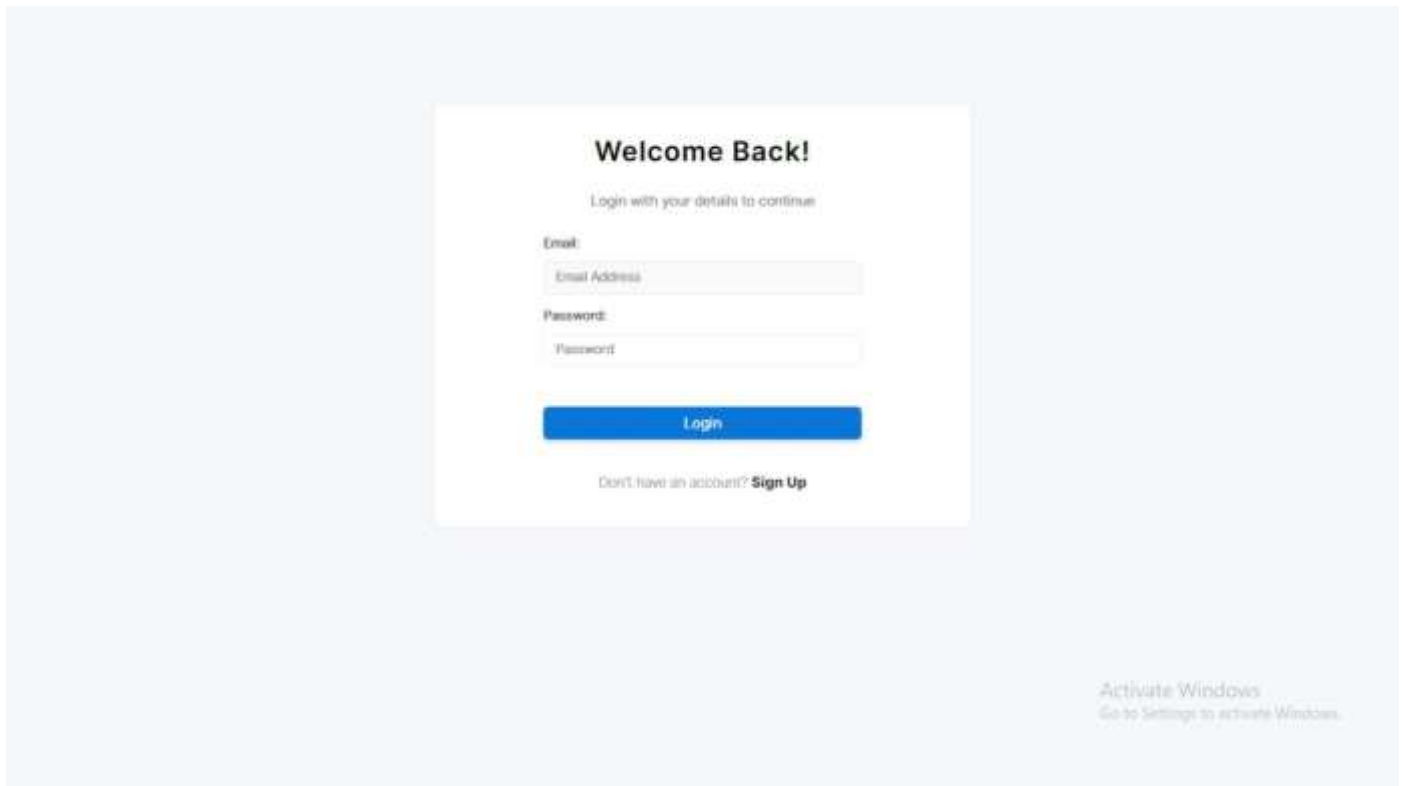


Figure 2: Sign up/login page

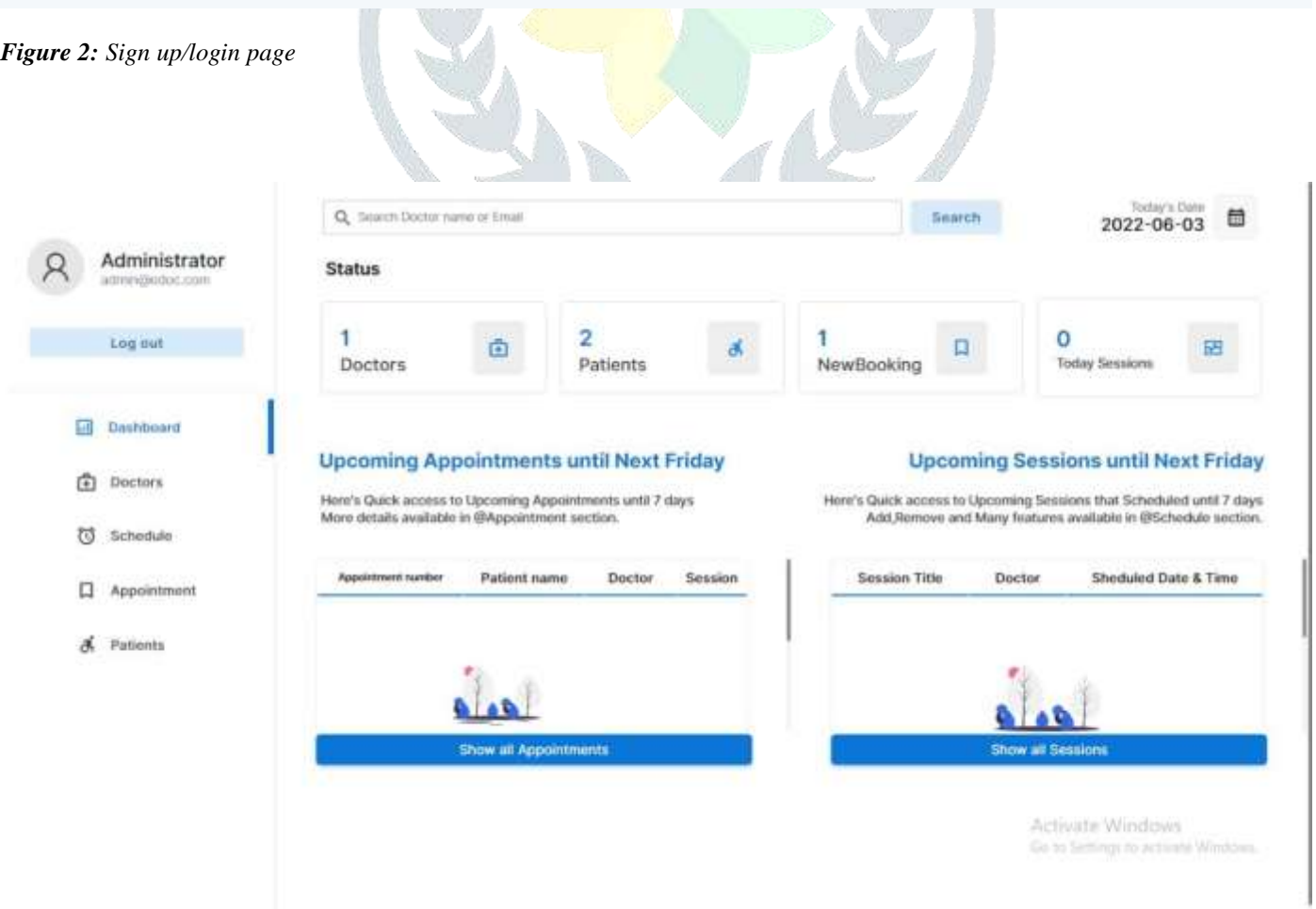


Figure 3: Admins Dashboard

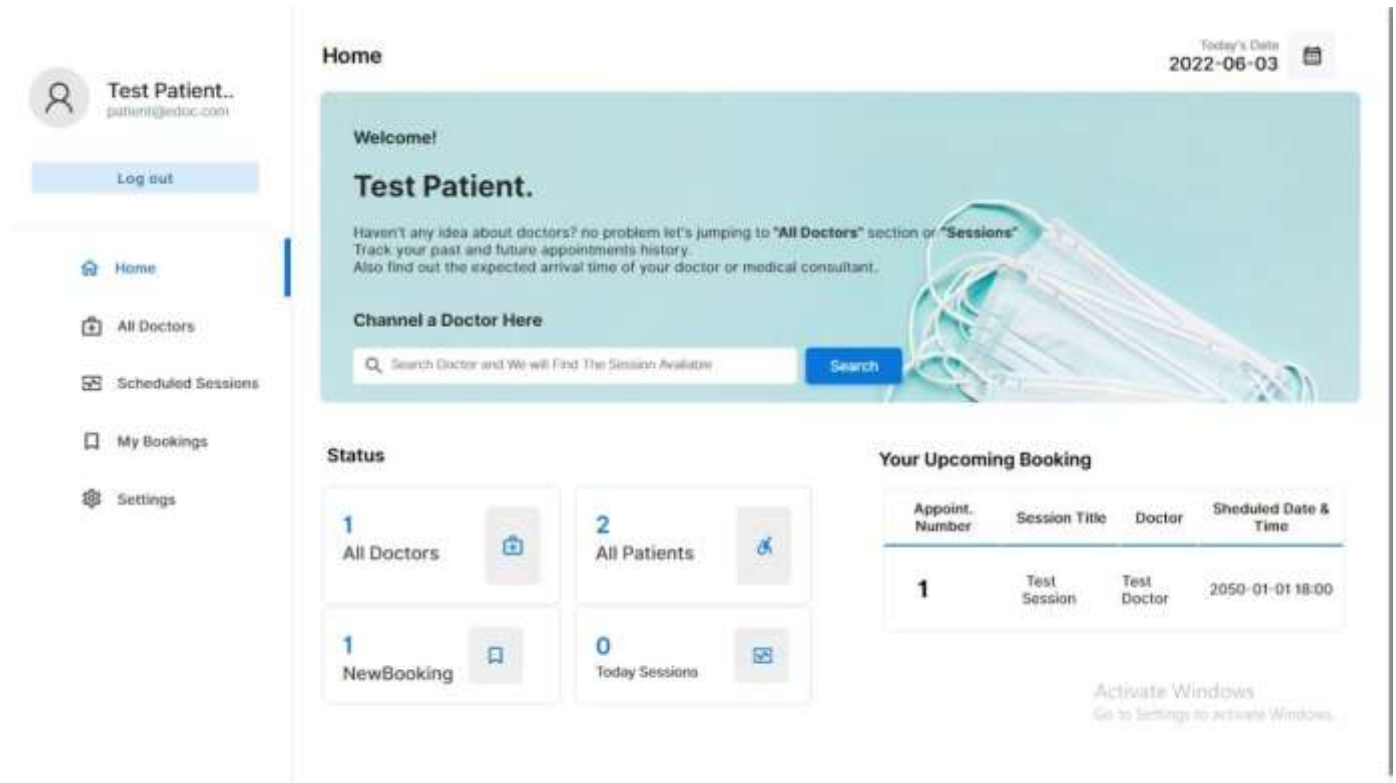


Figure 3: Patient Details

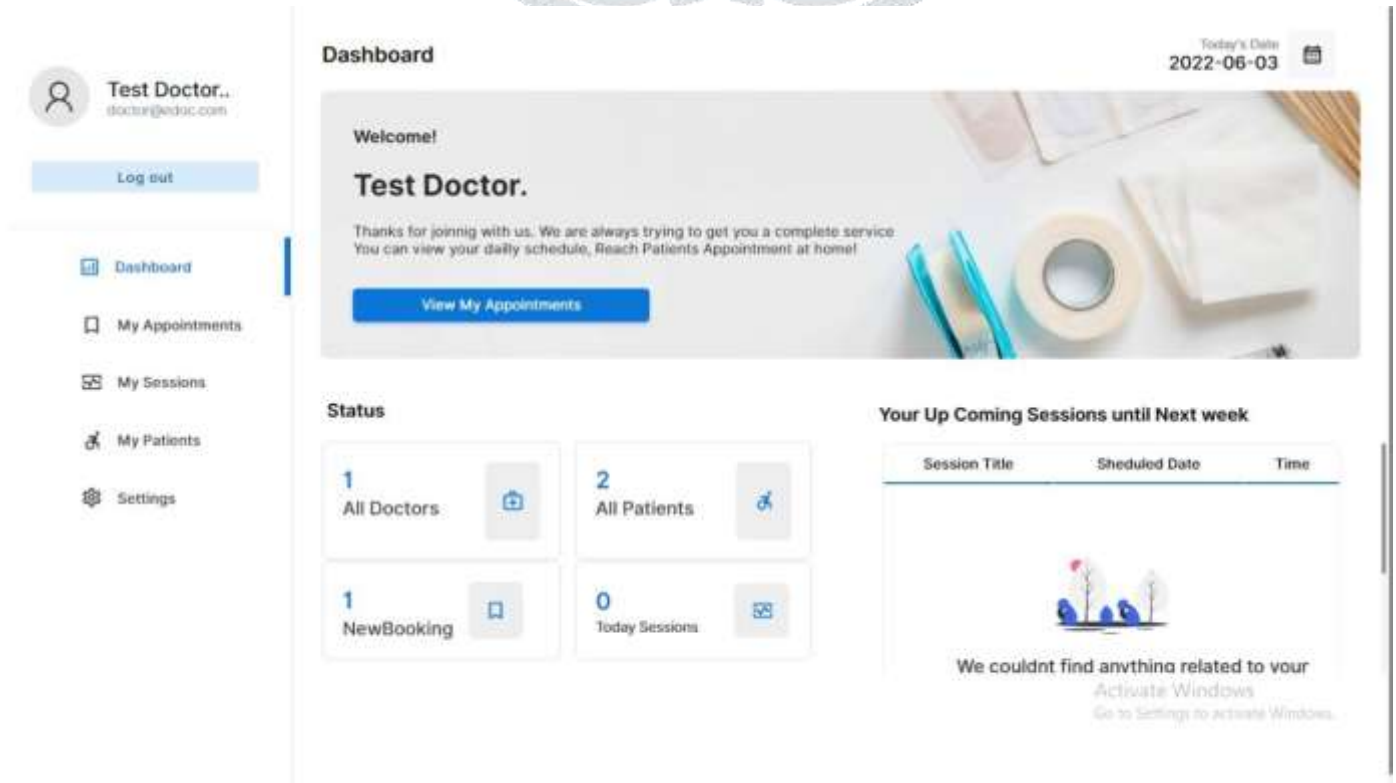


Figure 5: Doctor Details

VI. RESULTS AND DISCUSSION

The eDoc system underwent comprehensive testing and evaluation to assess its performance, usability, and security. Key results include:

1. **Decreased Wait Times:** The adoption of the eDoc system brought about a major decrease in the time taken by patients to make appointments. Patients indicated that booking an appointment online took around 5 minutes, as opposed to an average of 20 minutes through conventional phone booking.
2. **Enhanced Appointment Compliance:** Computerized appointment reminders that were automatically sent by email and text messages decreased appointment misses by 30%, leading to enhanced resource usage and improved patient outcomes.
3. **Improved User Satisfaction:** There was a survey conducted on user satisfaction among patients, doctors, and administrators. The survey results showed that 90% of the patients found the system easy to use and were satisfied with the online booking system. In addition, 85% of doctors and administrators agreed that the system increased their efficiency and decreased their administrative load.
4. **Security Assessment:** Thorough penetration testing was carried out by a third-party security company. Results showed that the system exhibited strong security controls, with no significant vulnerabilities detected.
5. **Some of the major challenges** faced during the system development and testing were to provide 24/7 availability, support high user loads during peak hours, and smooth integration with existing hospital systems and processes. Feedback from stakeholders highlighted the need for timely and clear notifications and flexible rescheduling features to support unexpected situations.

VII. CONCLUSION

The eDoc Doctor Scheduling System presents a streamlined, user-friendly, and secure solution for contemporary healthcare scheduling. By overcoming the shortcomings of conventional methods and implementing industry leading practices, the eDoc system improves the overall healthcare experience for patients, physicians, and administrators. Future endeavors will be aimed at adding telemedicine features, connecting with even more diverse payment gateways, and creating native mobile apps for greater accessibility and functionality.

REFERENCES

- [1] Monica, M., Siddiqui, A., Amir, W., Yadav, V., Garg, U., Srivastava, J., & Aggarwal, P.K. (2024). Doctor Appointment System. SSRN. <https://ssrn.com/abstract=5064665>
- [2] Zhao, P., Yoo, I., Lavoie, J., Lavoie, B.J., & Simões, E.J. (2017). Web-Based Medical Appointment Systems: A Systematic Review. *Journal of Medical Internet Research*, 19(4). <https://www.jmir.org/2017/4/e134/>
- [3] Srivastava, A., Sharma, R., & Sinha, S. (2024). Impact of Appointment Scheduling in Patient Experience. *American Journal of Medicine and Medical Sciences*, 14(11), 2912–2918. <https://doi.org/10.5923/j.ajmms.20241411.51>
- [4] Deepak Yadav, & Apeksha Shirke. (2024). Online Doctor Appointment System. JETIR, e728. <https://www.jetir.org/papers/JETIR2502482.pdf>
- [5] Kyruus Health. (2025). Patient Self Scheduling for Healthcare Organizations. <https://kyruushealth.com/solutions/schedule-for-health-systems/>
- [6] Stakeholders' experiences, perceptions and satisfaction with an electronic appointment system: a qualitative content analysis. (2025). *BMC Health Services Research*. <https://pmc.ncbi.nlm.nih.gov/articles/PMC11807305/>
- [7] Hashen Udara. (2022). eDoc Doctor Appointment System [Source code]. GitHub. <https://github.com/HashenUdara/edoc-doctor-appointment-system>
- [8] Lecture Notes. (2023). How to Write an Academic Research Paper. <https://lecture-notes.tiu.edu.iq/wp-content/uploads/2023/10/HOW-TO-WRITE-AN-ACADEMIC-RESEARCH.pdf>