MOBLE MULTIMEDIA AND WEB TECHNOLOGIES BASED - UKM MEDICAL ONLINE SERVICE

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ABSTRACT

"UKM Medical Online Service" is an automated online medical service platform based on mobile multimedia and web technologies, supporting interactive processes with various functionalities. This web-based system provides an online service platform for doctors and patients of UKM Medical Institution, assisting them with medical appointment scheduling, online consultations, medical resource searches, medical video viewing, participation in medical forums, and access to medical announcements, among other operations.The system is developed using Java and HTML, with data stored on a MySQL server. The backend development is implemented using the Spring Boot framework, and frontend page design is created using IDear and Sublime tools. The system is also equipped with real-time chat functionality, implemented using Java Spring framework and Node.js components.Users need to register and log in to the system to access the provided services. The system will accept and store various medical information uploaded by users, such as appointment times and medical condition descriptions. If any issues arise, the system will provide error feedback. Next, the system will execute relevant operations based on predefined logic. For instance, if a user schedules an appointment with a doctor, the system will send the appointment information to the corresponding doctor and then receive feedback from the doctor, such as successful or failed appointment messages. The system will also perform searches for medical resources requested by users and display search results. Additionally, the system includes built-in multimedia medical video resources that users can watch directly within the platform.The system features a user-friendly interface that is easy to understand and operate. After rigorous testing and debugging, the system demonstrates efficient and stable performance, ensuring an excellent user experience. We expect this system to provide patients with convenient, efficient, and reliable medical services, ultimately improving their overall medical experience.

1   INTRODUCTION

With the rapid development of mobile technology and the Internet, more and more services have moved to online platforms, providing more convenient, efficient, and real-time services. In this context, UKM Medical Institution is seeking to develop a mobile multimedia and web-based online service platform that will offer medical service appointments, online medical consultations, medical resource searches, online multimedia medical videos, medical forums, medical announcements, and other functionalities.

2   PROBLEM STATEMENT

Currently, although there are some online medical service platforms, there is still room for improvement in real-time communication, data management, mobile accessibility,

personalized services, and more. To meet the patients' demand for convenient, efficient, and reliable medical services, we need to develop a brand-new online medical service platform.

3 RESEARCH OBJECTIVE

The primary objective of this project is to develop a mobile multimedia and web-based UKM Medical Online Service Platform, providing convenient, efficient, and reliable online medical services, improving patients' medical experience, and offering access to medical information and resource management.

4 RESEARCH METHOD

This project adopts the flexible and adaptive Agile development model. Under the Agile development model, the various phases of the project are not conducted in a linear sequence; instead, they allow for iterations and optimizations based on real-time requirements and project progress. At the end of each iteration cycle, we conduct project evaluations to assess whether the expected objectives have been achieved and determine the next set of development goals and tasks.

This approach places a stronger emphasis on team collaboration and enables us to quickly respond to changes, ensuring that our "UKM Medical Online Service" platform based on mobile multimedia and web technologies can promptly adapt to user demands and keep up with technological advancements, thereby providing better services. Throughout the development process, continuous iterations drive progress, and each phase of the project receives ample attention and optimization, ensuring both the quality and progress of the project.

4.1 PLANNING PHASE

During the planning phase, we will conduct comprehensive project planning, including defining project objectives, scope, resource requirements, timeline, budget, and risk assessment. The goal of this phase is to ensure a smooth project initiation and execution.

4.2 ANALYSIS PHASE

In the analysis phase, we will conduct in-depth research and understanding of user requirements to identify the functional and non-functional requirements of the system. This will guide the design and implementation of the system in a clear direction.

4.3   DESIGN PHASE

In the design phase, based on the results of requirement analysis, we will perform system architecture and interface design. Additionally, we will select appropriate technology frameworks, databases, and server environments.

4.4   TESTING PHASE

In the testing phase, the entire system will undergo comprehensive and in-depth testing, including unit testing, integration testing, system testing, and user acceptance testing, to ensure system stability and correctness.

4.5   OPTIMIZATION AND DEPLOYMENT PHASE

In the optimization and deployment phase, we will optimize the system's performance to enhance user experience. Subsequently, the system will be deployed to the production environment to ensure its security, stability, and availability.

5   RESEARCH OUTCOME

The research outcome of this project will be a completely new and fully functional online medical service platform. Through this platform, patients will have easy access to and management of their medical information, medical appointment bookings, medical resource searches, participation in medical forums, and access to medical announcements. We expect that this UKM Medical Online Service platform, based on mobile multimedia and web technologies, will provide a convenient, efficient, and reliable channel for medical services, meeting the needs of patients and enhancing their medical experience.

First, we have Figure 1, the *visitor's* page. *Visitors* can browse the basic pages without logging in or registering. By clicking the main navigation tool button, the login and registration options will pop up.

Figure 1 Visitors page

When users need to register or log in, they can click on the button on the visitor's page to access the user login interface Figure 2, where they can enter their account credentials to log in.

Figure 2 User login page

Users can complete the registration process by clicking on the "Register" button and filling out the required information. Figure 3.

Figure 3 Antara muka apabila log masuk tidak berjaya

After logging in, users can browse different functional sections by clicking on the top navigation bar. As shown in Figure 4, the homepage is displayed after logging in.

Figure 4 User homepage after login

For the medical forum, users' posts and responses are arranged in chronological order, as shown in Figure 5 below.

Figure 5 FORUM list

Figure 6 Display of medical announcement list

Figure 6 medical announcement list

The user's submitted requests will be processed in the backend and return the corresponding information. Figure 7 shows the structure of the doctor information returned by the system after the user requests to view doctor information.

Figure 7 Docter lsit picture

Figure 8 shows the structure of the personal information returned by the system after the user accesses the personal center.

Figure 8 User center

The data of users and doctors will be stored on the local host and managed from the administrator's end, as shown in Figure 9.

Figure 9 Administractor management page

6　CONCLUSION

Overall, the UKM Medical Online Service platform, based on mobile multimedia and Web technologies, has been successfully developed, albeit with some challenges in relation to online appointment and consultation functionalities. This system is set to aid medical service providers and patients who need a more user-friendly system than currently available options. Despite some drawbacks, we hope that this system can serve as a focus for future research aimed at improving the quality and efficiency of online medical services.

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