

## **DEVELOPMENT OF BLOOD BANK AND INFORMATION SYSTEM USING WEB-BASED APPLICATION**

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**ABSTRACT** - The title of this research and system is “Development of Blood Bank and Information System Using Web Based Application”. This research is aimed to design web applications involving blood bank centers, blood donor books and information related, to develop web-based applications for blood centers information of donors also give notifications for certain important messages and to evaluate the blood bank centers and information system via user testing and user acceptance test. This web application targets donors to donate more blood with help of this web application. Methodology that has been used in this study is the Waterfall Model which consists of planning, designing, implementation, testing and maintenance. For testing evaluation, usability test and user acceptance test (UAT) are used for data collection. Usability testing will focus on navigation, clarity of instructions, visual design, information organization, and overall user satisfaction. Meanwhile, the user acceptance test (UAT) is focusing on user validation, making sure the product meets their needs for usability and expectations. Based on data, ages 18 to more than 36 years old, almost all the respondents agree and think this web application is easy for them to use and help them to donate more blood.

**Keywords:** Donate, blood, test, donors

### **1. INTRODUCTION**

As blood is so important to humans, there must be people who need blood for emergencies. Emergency blood is used from blood donation. Blood donations are essential as 1 bag= 350ml can save 3 lives. Donors also can receive many benefits if they regularly donate their blood. For example, it can lower the risk of heart attack and high blood pressure. About 328 million people currently live in the United States. About 6.8 million people donate blood in the United States each year. Each year, this equates to approximately 13.6 million units of whole blood collected for donation in the United States. The Red Cross donates about 40% of our country's blood and blood cell components to donors. Your blood donation will be used for patients who need surgery, cancer treatment, and blood transfusions for blood loss from trauma. This project will focus on reaching donors or other users to know more about blood donation, flow of donation and any important info about blood. This project also will help hospitals as suppliers to stock blood which is blood banks.

### **2. METHODOLOGY**

Methodology that was used in this study is the Waterfall Model. In testing phase which will be conducted using usability test and user acceptance test (UAT). For usability testing, data were collected from respondents which consisted of donors as user and admin from educated fields in Medicine, nursing and related fields. Respondents need to explore the system first. After testing the system, respondents will be provided with a link to the Google Form questionnaire. The questionnaire only takes 5-8 minutes to answer.

### **3. RESULTS AND DISCUSSION**

All respondents were satisfied with the system's utility, information quality, and interface quality, according to the findings and analyses; chapter five results serve as support for this claim. The system's overall goals, which included designing web applications involving blood bank centers, blood donor books, and information-related matters, developing web-based applications for blood centers that collect donor information and send notifications for certain urgent messages, and assessing blood bank centers and information systems through user testing and user acceptance tests, were nevertheless achieved. Based on the suggestions made by respondents, the system still needs improvement and further capabilities for future use.

#### **4. NOVELTY OF RESEARCH / PRODUCT**

This study reveals several unexpected elements. First, it emphasizes the crucial role that blood donation plays in saving lives during emergencies, highlighting the significance of satisfying people's blood requirements in urgent situations. Second, it highlights the advantages to health that regular blood donors might experience, including a lower risk of heart attacks and high blood pressure. By highlighting the benefits that both donors and recipients receive reciprocally, this viewpoint gives the research a distinctive dimension. The goal of the project is to enhance blood bank facilities and technology systems through user and acceptability testing. The research attempts to discover areas for development by gathering input and evaluating usability, encouraging continual improvement and a user-centric approach. In outcome, this study offers innovation through its emphasis on the significance of blood donation, investigation of health advantages, usage of a web-based application, implementation of the Waterfall Model, and commitment to user testing and approval.

#### **5. CONCLUSION**

To conclude, blood donation, information and related messages can be reached through this web application. Not only is it beneficial towards recipients, but donors will also gain the benefits from donating blood. Along with the growth of this web application, the hospital and Pusat Darah Negara will have sufficient blood supply for emergency cases.

#### **REFERENCES**

- Abegaz, S. B. (2021). Human ABO Blood Groups and Their Associations with Different Diseases. *BioMed Research International*, 2021, 1–9. <https://doi.org/10.1155/2021/6629060>
- Pradhan, D. (n.d.). *Testing phase in Waterfall Model (Pros and Cons)!* Software Testing Tricks. <https://www.softwaretestingtricks.com/2007/02/pros-and-cons-of-waterfall-model-and.html>
- Raghuwanshi, B., Bhatia, V., & Sahoo, J. (2016). Current status of blood banks in India. *Global Journal of Transfusion Medicine*, 1(2), 72. <https://doi.org/10.4103/2455-8893.189847>
- Zainal Abidin, N. I., & Shet, D. (2021). Knowledge, Attitude, and Practice towards Blood Donation among Undergraduate students of Health Camps, Universiti Sains Malaysia. *The Malaysian Journal of Nursing*, 12(3). <https://doi.org/10.31674/mjn.2021.v12i03.001>