Webite-Based Student Enrollment System at MTs Al Anwar Perak Jombang

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ABSTRACT

Each year, MTs Al Anwar faces two lessons learned from managing the student admission process (PPDB). This manual process traditionally applied raises many problems like Time (Inefficiency in times management), Errors and Difficulties to follow up enrollments. This research focuses on the development of a web-based student admission information system to solve these problems. The research method that authors apply is the system development method with Waterfall model such as analysis, design, implementation testing maintenance. The System Developed with PHP and MySQL system has been developed by the programming language. The system offers a number of features such as registration, vetting and data collection (student information), monitoring & evaluation. In this study, the sample is some of the registration staff at MTs Al Anwar in Jombang City and also parents who are enrolling their children. The findings of this study showed a new implementation web-based PPDB Information System that is increasing efficiency and the accuracy on New Student Admission Process at MTs Al Anwar. After being currently used by users (PPDB committee and prospective students/parents), the response they gave was good because of its user friendly features as well transparency provided. This system is a great addition not only providing positive values for both prospective students and their family members or legal guardians, but also it improves KTSP at MTs Al Anwar.

Keywords: Information Systems; New Student Enrolment; Website

INTRODUCTION

Madrasah Tsanawiyah (MTs) institutions play a pivotal role in shaping Indonesia's youth. The enrollment process for new students in MTs is a critical factor in ensuring quality education. Nevertheless, traditional manual enrollment systems often result in data inaccuracies and time delays. A robust enrollment system is essential for upholding educational quality and facilitating a seamless learning experience. An efficient and organized enrollment process can expedite the onboarding of new students, thereby mitigating potential issues at the commencement of their studies.

To establish an efficient enrollment system, several key factors must be considered, including the implementation of suitable information technology, the use of clear and user-friendly enrollment forms, and the optimization of enrollment scheduling and stages.

The development of a digital enrollment system for MTs can be a viable solution for enhancing the efficiency and accuracy of the enrollment process. Moreover, digitalizing the enrollment process can yield numerous benefits, such as streamlined data processing, reduced administrative errors, and expedited announcement of admission results.

A well-designed enrollment system is expected to foster a conducive learning environment and empower students to reach their full academic and personal potential. Consequently, the development of a web-based enrollment system for MTs can significantly improve the efficiency and effectiveness of the enrollment process.

During the new student enrollment process at MTs Al Anwar Perak Jombang, several challenges were frequently encountered by the enrollment committee, prospective students, and their parents.

This study seeks to contribute to the field of educational technology by developing a web-based system to improve the new student admission process at MTs Al Anwar Perak Jombang. The expected

outcomes of this research include increased user satisfaction among prospective students, parents, and school administrators, a more streamlined and user-friendly admission process, and enhanced transparency in the admission results.

METHOD

This study adopted a Research and Development (R&D) approach with waterfall model in developing a website-based student enrollment system. The Software Development Life Cycle (SDLC) approach means that the project involves a series of stages carried out sequentially, one after another. The following are the main stages in the waterfall model:

- Analysis, this stage involves collecting and analyzing the requirements for the system to be developed. This includes identifying user needs, desired functionality, and system limitations.
- Design, the system design stage is carried out based on the needs that have been analyzed previously. This includes system architecture design, user interface design, as well as database and data structure design.
- Implementation, a stage that involves coding or building a system based on a previously created design. Program codes or system components are developed according to predetermined specifications.
- Testing, systems or components that have been built are tested to ensure that they function as expected. This includes functional testing, performance testing, and integration testing between system components.
- Maintenance, the system that has been developed is maintained and improved according to feedback from users. This includes addressing bugs, improving functionality, and adapting to changing needs.

RESULT AND DISCUSSION

This chapter outlines the planning and development stages of application systems. Following development completion, the application undergoes comprehensive system performance testing.

- Use Case Diagram
  Use case diagrams are a fundamental component of the Unified Modeling Language (UML) used to visualize the interactions between users and a system. By depicting various use cases, these diagrams provide a clear understanding of the system's functionality from the user's perspective. This visual representation aids in requirements elicitation, facilitating effective communication between stakeholders and ensuring that the developed system aligns with the intended user needs. . The use case diagram in this research can be seen in the image below.
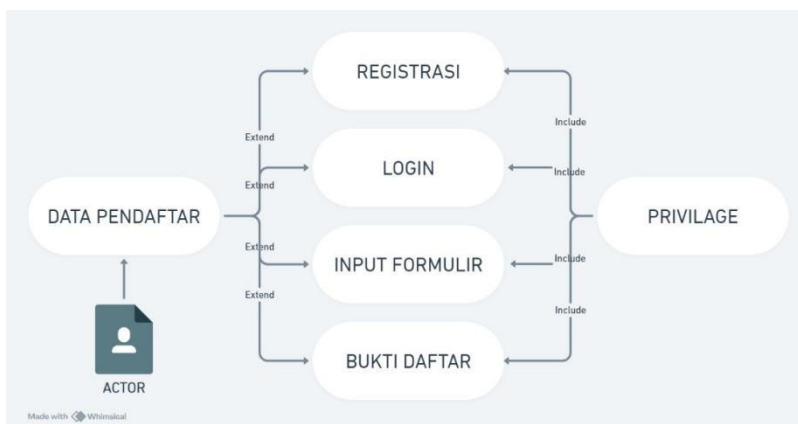

Figure 1. Use Case Diagram

- Database Design

Database design aims to organize and structure data to optimize storage, retrieval, and management within an information system. This process involves identifying and modeling the entities, attributes, and relationships that constitute the data. The database design can be seen in the table below.

Nama_Field	Tipe Data	Keterangan
id_user	Integer (11)	Auto_Increment, Primary Key
username	Varchar (50)	Nama Pengguna
password	Varchar (255)	Kata Sandi terenkripsi
role	Enum ('admin', 'panitia', 'pendaftar')	Jenis Pengguna
email	Varchar (100)	Email Pengguna
created_at	Timestamp	Waktu Pembuatan

Table 1. User Database Design

Nama_Field	Tipe Data	Keterangan
id_pendaftar	Integer (11)	Auto_Increment, Primary Key
nama_lengkap	Varchar (100)	Nama lengkap pendaftar
nisn	Varchar (20)	Nomor Induk Siswa Nasional
tanggal_lahir	Date	Tanggal lahir
alamat	Text	Alamat lengkap
no_hp	Varchar (15)	Nomor handphone
email	Varchar (100)	Email pendaftar
tanggal_daftar	DateTime	Tanggal pendaftaran

Table 2 Registrant Database Design

- Activity Diagram
  This research employs an activity diagram to visualize the data/control flow and well-structured activities within the system. The activity diagram showcases the sequence of actions and data movement within the system (Arianti, T., Fa'izi, A., Adam, S., & Wulandari, 2022). The diagram is provided in the image below.
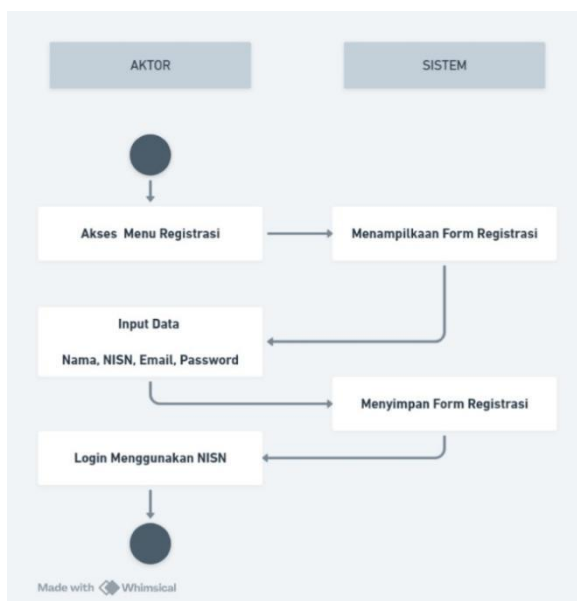

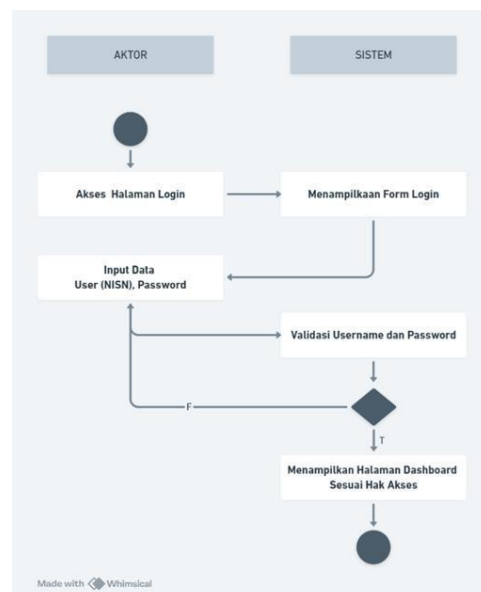*Figure 3. Registration Diagram Activity*

Figure 3. Login Diagram Activity

Result (font size 11pt)

From the system design that has been described, a website-based student registration system was produced which is capable of managing registration data online.

The following displays the resulting system:

- Homepage and Login Page

This is the first page that will appear when the website is accessed by users. The homepage contains the main menu, registration flow, and menus for registration and login with a simple yet informative interface.
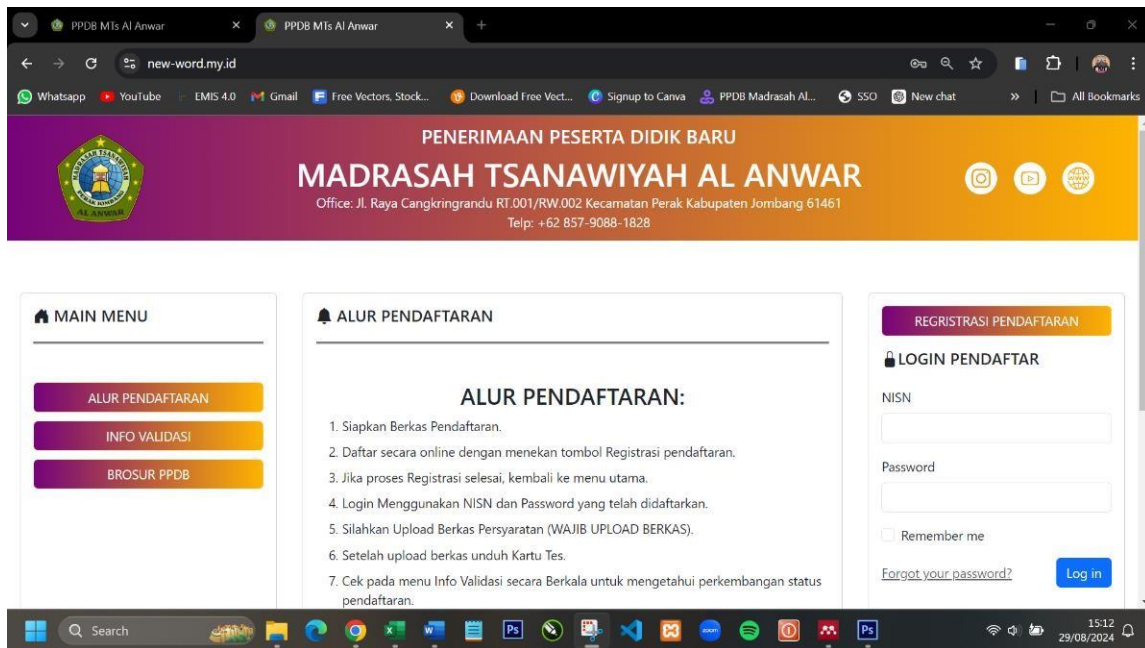

Figure 4. Homepage and Login Page

- Registration Page

The registration page contains a simple form that includes several data fields such as name, National Student Identification Number (NISN), email, and password that must be filled in by prospective students as the first step of registration so that they can then log in and complete the registration using the registered data.
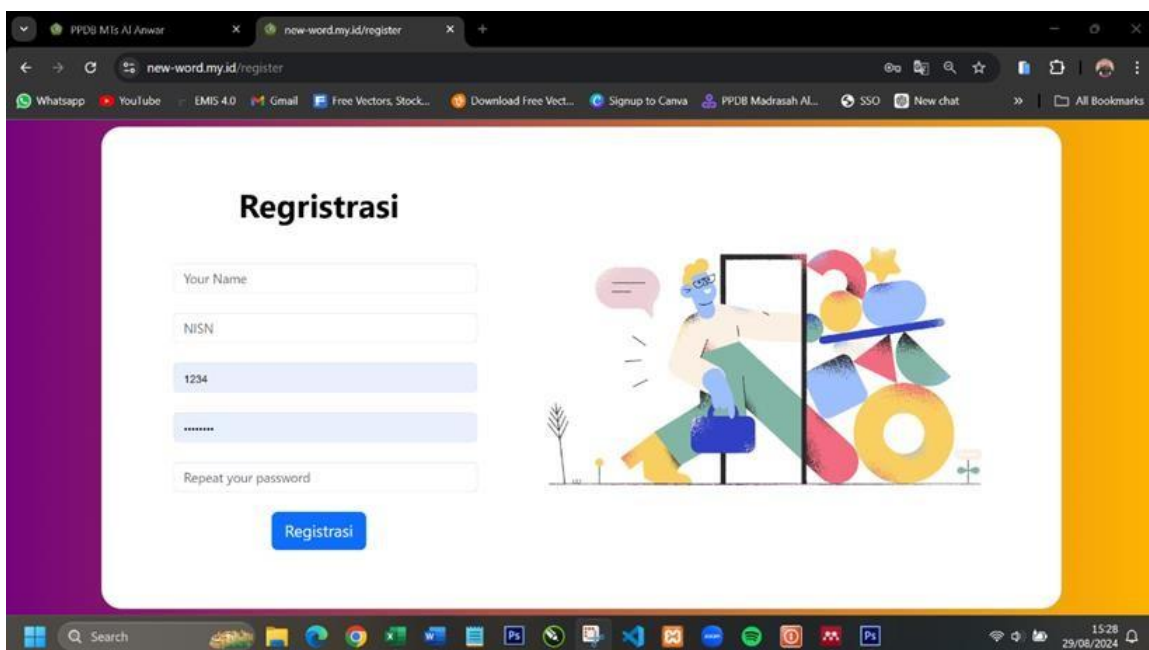
Figure 5. Registration Page

- Dashboard Page
  After successful login, users are directed to the dashboard page. Here, the display provides a general overview of the registration form, registration proof card, and information on the applicant's selection results.

Figure 6. Dashboard Page

- Form Filling Page
  On the form filling page, users will find various input columns that need to be filled in with data uploads, personal information, educational data, and others. The display is designed with a focus on ease of filling and clarity of instructions to minimize user errors.

Figure 7. Form Filling Page

- Download Registration Card Page
  After completing and filling out all parts of the form, users can download the registration proof card through the download registration card menu.
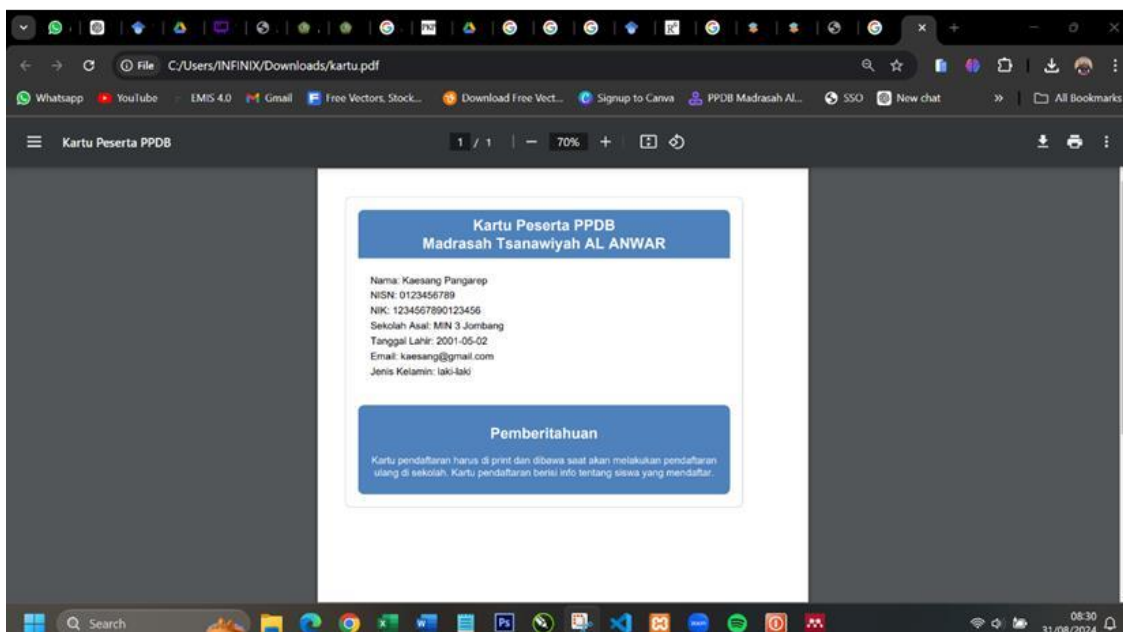

Figure 8. Registrasion Download Card Page

- Admin Dashboard Page
  For admins, the dashboard page provides access to various registration data. The display is designed with full authority over the management of incoming data, both user data and applicant data. Admins can view a summary of applicants and their status in real-time.
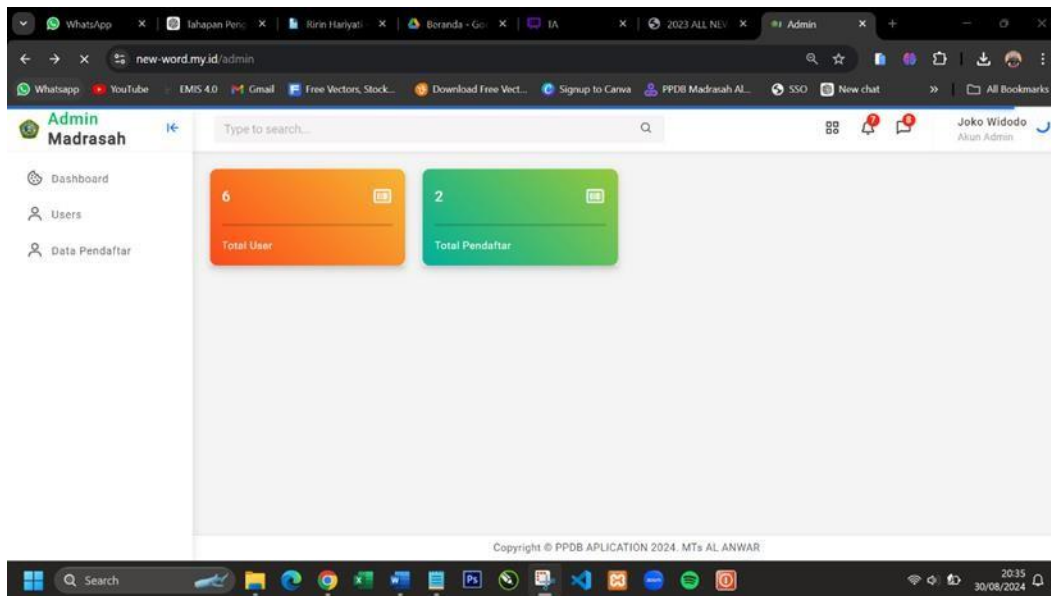
Figure 9. Admin Dashboard Page

- User Data Management Page
  This page allows admins to manage user data, including adding, editing, and deleting users. The page display is designed with sortable and filterable tables, as well as forms to facilitate data management.
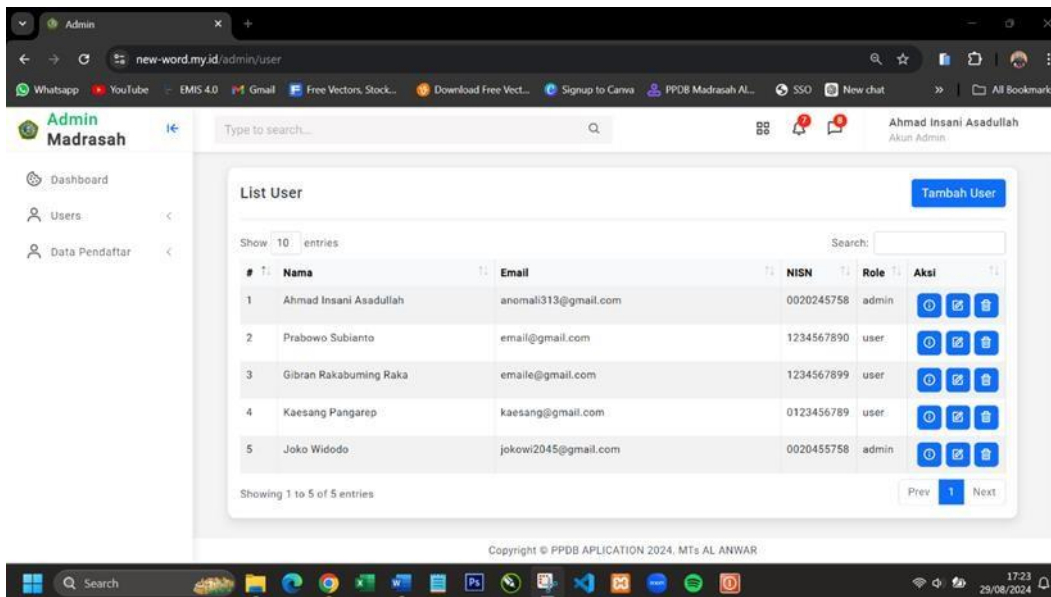

Figure 9. User Data Management Page

- Applicant Data Management Page
  On the applicant data management page, admins can access all incoming applicant data. The display shows a table with detailed applicant information, as well as buttons for validation or rejection of registration. The design emphasizes efficiency and ease of data retrieval.
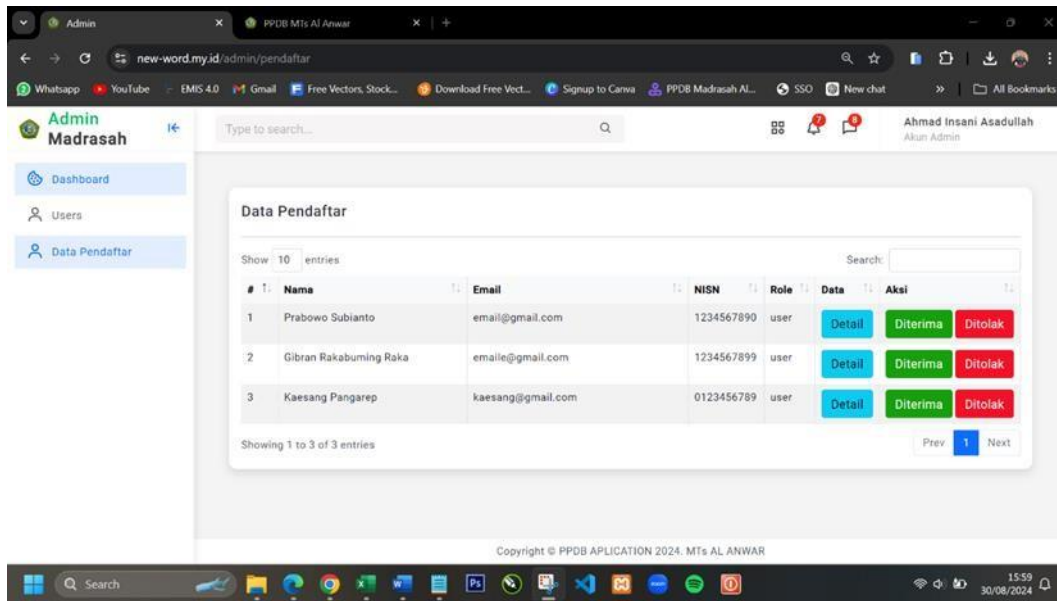
Figure 10. Aplication Data Management Page

Discussion (font size 11pt)

This research utilized black box testing to evaluate the system. Black box testing focuses on assessing the software's functionality by providing input and observing whether the output matches the expected results (Mad Cani, Y., & Ali Ridha, 2023). The test results are presented in the table below:

Test Item	Test Details	Expected Result	Testing Result
Login Test	Entering the correct and incorrect username and password to test login validation.	Successfully entering the correct and incorrect username and password to test login validation.	Success
User Registration Test	Entering new user registration data with various combinations of data (valid/invalid).	Successfully entering new user registration data with various combinations of data (valid/invalid).	Success
Form Filling Test	Entering student data completely and conducting tests with incomplete data.	Successfully entering student data completely and conducting tests with incomplete data.	Success
Data Management Test	Ensuring that entered student data can be modified and saved again by the admin.	Successfully ensuring that entered student data can be modified and saved again by the admin.	Success
System Notification Test	Ensuring that notifications appear when data is invalid or when registration is successful.	Successfully ensuring that notifications appear when data is invalid or when registration is successful.	Success
Logout Test	Testing the logout process from the system after the login session is complete.	Successfully testing the logout process from the system after the login session is complete.	Success
Download Card Test	Testing the function of downloading the registration card after registration is complete.	Successfully testing the function of downloading the registration card after registration is complete.	Success

Table 3 Testing Blackbox

CONCLUSIONS

Research on the implementation of the Website-Based Student Enrollment System at MTs Al Anwar Perak Jombang concluded that the use of this technology has a significant positive impact. The study's findings indicate that the developed system meets its objectives of improving the online registration process. The system's user-friendly interface, timely responses, and accurate information contribute to a positive user experience. Moreover, the system has streamlined administrative processes and enhanced decision-making capabilities within the school.

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