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Web-Based New Student Admission System using the Rapid Application Development (RAD) Method at Penraujan Private Junior High School

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The advancement of information technology has significantly influenced the education sector, particularly in the management of new student admissions. Many schools still rely on manual registration processes that are time-consuming, prone to data entry errors, and inefficient in managing applicant data. Penraujan Private Junior High School is one of the institutions that continues to use a conventional registration system, resulting in administrative difficulties, especially during periods of increased enrollment. This study aims to develop a web-based new student admission system to improve the efficiency, accuracy, and accessibility of the registration process. The system enables prospective students to register online at any time and assists the school in managing, storing, and generating registration data and reports more effectively. The Rapid Application Development (RAD) method is applied in this research due to its emphasis on fast and iterative system development while accommodating user needs. The results of this study indicate that the proposed web-based admission system is able to streamline the registration process, reduce data input errors, and enhance the quality of administrative services at Penraujan Private Junior High School. This system also provides convenience for prospective students by allowing online registration without the need to visit the school directly.
Keywords: Web-Based System, New Student Admission, Rapid Application Development (RAD), Information System, Junior High School

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1. Introduction

The rapid development of information technology has brought significant changes to various sectors, including education. The new student admission process, which was previously carried out manually, has gradually shifted to web-based systems to improve efficiency and data accuracy. In many schools, the registration process is still conducted using conventional methods, where prospective students must come directly to the school, fill out forms manually, and submit physical documents. This approach requires considerable time, increases the risk of data input errors, and often results in document accumulation and long queues. Penraujan Private Junior High School is one of the educational institutions that still implements a manual student registration system. This condition causes administrative processes to be less effective, especially as the number of applicants increases each academic year. In addition, the school experiences difficulties in data recapitulation and in storing registration documents in an organized and secure manner.[1] To address these issues, a web-based new student admission system that can be accessed anytime and anywhere is required. This system is expected to accelerate the registration process, minimize data input errors, and facilitate the school in managing and generating applicant reports.[2] In its development, this study employs the Rapid Application Development (RAD) method, as this approach emphasizes rapid system development while still considering user requirements. Through fast and iterative stages of analysis, design, construction, and implementation, the system is expected to

be promptly deployed and adapted to the school's needs.[3] Therefore, the development of a Web-Based New Student Admission System Using the RAD Method at Penraujan Private Junior High School is expected to enhance the quality of school administrative services and provide convenience for prospective students in conducting online registration.[4].

2. Methods

The research methodology consists of several stages that are structured and systematic to support the development of a cashier and inventory management system for a computer store. The research begins with a system requirements analysis, which involves the collection and processing of data related to existing sales transaction workflows and inventory management processes. Data collection is carried out through direct observation of sales activities and inventory recording, interviews with the store owner and employees, and literature studies to obtain relevant references for the development of a web-based cashier and inventory system. This study aims to design and implement a web-based cashier and inventory system equipped with QR code features. The system is designed to support sales transaction processing, inventory recording, and integrated report generation. The utilization of QR code features enables fast and accurate product data input and retrieval through code scanning, thereby reducing recording errors and improving service efficiency for customers. The developed system is expected to enhance the effectiveness of inventory management, accelerate sales transaction processes, and facilitate real-time monitoring of stock and sales data. With a web-based system, data can be accessed anytime and anywhere according to the operational needs of the computer store, thereby supporting more accurate and informed decision-making. The research framework includes stages of planning the requirements of the cashier and inventory system, system design, development of the web-based system with QR code features, and system testing and evaluation to ensure that the system operates properly and meets user requirements. After the system analysis stage, the system design phase is carried out as a follow-up step to address the identified problems. System design is a crucial stage in the development of a web-based new student admission system at Penraujan Private Junior High School. This phase aims to improve the efficiency of the student registration process, which was previously conducted manually, by making it faster, more accurate, and well-integrated. During the design stage, the required system components are structured and organized to ensure that the application operates in accordance with user needs. The system design includes the design of online registration workflows, applicant data management, document submission processes, and report generation features for the school. With a well-structured design, the developed system is expected to minimize data entry errors, accelerate the registration process, and facilitate the management and presentation of applicant information and registration reports effectively.

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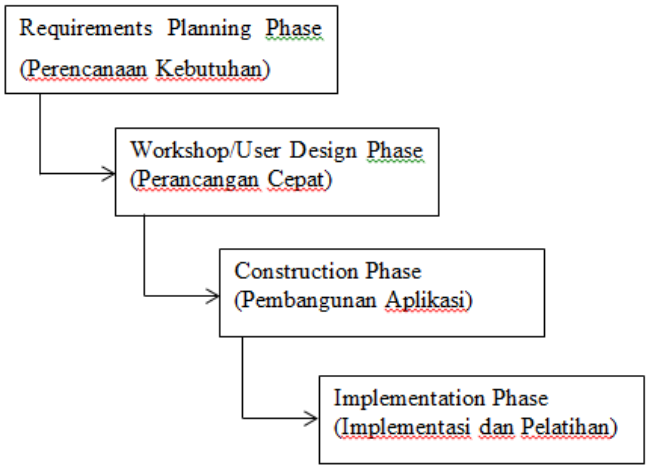

Figure 1. Flowchart Rad

3. Result

System Development Results.

The development of the Web-Based New Student Admission System was successfully carried out using the Rapid Application Development (RAD) method. The RAD method emphasizes fast system development through iterative prototyping, active user involvement, and continuous feedback. The system was designed to improve the efficiency, accuracy, and transparency of the admission process at Penraujan Private Junior High School. The system was implemented using web technologies that allow prospective students to access the registration platform online without visiting the school physically. This approach reduces administrative workload and minimizes manual data entry errors. The final system consists of several main modules:

a. User Login Module

The login feature ensures secure access for administrators and prospective students. Each user must enter a username and password to access the system dashboard.

Functions:

1. Secure authentication
2. Role-based access (admin and applicants)
3. Data protection

b. Online Registration Module

Prospective students can fill in personal data, educational background, and required information through an online form.

Functions:

1. Input student personal data
2. Upload required documents
3. Automatic form validation
4. Data stored in database

Advantages:

1. Eliminates paper-based forms
2. Reduces registration time
3. Improves data accuracy

c. Document Upload Module

Applicants upload scanned documents such as:

1. Birth certificate

2. Family card
3. Previous school certificate
4. Photograph

The system validates file type and size to ensure compatibility.

d. Selection and Verification Module

Administrators can verify applicant data and determine acceptance results.

Functions:

1. Data review
2. Status update (accepted/rejected)
3. Data filtering
4. Search feature

e. Announcement Module

Applicants can view admission results directly through the website using their registration ID.

Benefits:

1. Transparent admission results
2. Easy access to information
3. Reduces information delays

f. Report Generation Module

The system automatically generates reports required by school management.

Reports include:

1. Total number of applicants
2. Accepted student list
3. Registration statistics
4. Document completeness report

The home page interface can be seen as shown in the following figure:

Figure 2. Addressed website

At the system testing stage, the login interface is implemented as part of the Web-Based New Student Admission System developed using the Rapid Application Development (RAD) method, allowing authorized users to log in by entering valid usernames and passwords.

System Testing Results

System testing was conducted using Black Box Testing to evaluate whether each function operates according to system requirements.

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Table 1. Testing System

No	Feature Tested	Expected Result	Actual Result	Status
1	Login	User accesses dashboard	Successful login	Valid
2	Registration form	Data saved in database	Data stored correctly	Valid
3	File upload	Documents uploaded	Upload successful	Valid
4	Selection process	Admin verifies data	Verification works	Valid
5	Announcement	Students view results	Results displayed	Valid
6	Report generation	Reports created	Reports generated	Valid

Based on testing results, all system functions operated properly without significant errors.

1. Registration page interface can be seen as shown in the following figure:

Figure 3. Form Registration

This page displays the student registration interface of the Web-Based New Student Admission System developed using the Rapid Application Development (RAD) method at Penraujan Private Junior High School, where prospective students are required to complete the registration form by entering their personal and academic information.

2. The Proof of Registration data entry page display can be seen as shown in the following figure:

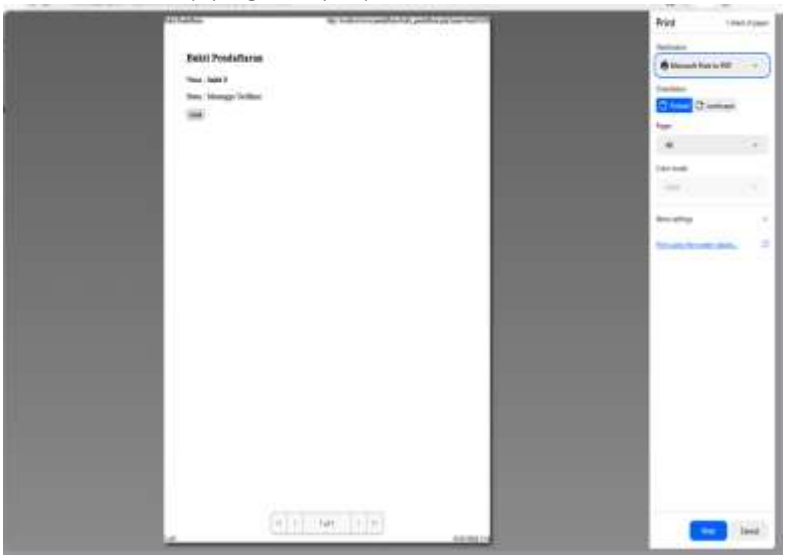

Figure 4. Proof of Registration Page.

This page displays the registration confirmation in the Web-Based New Student Admission System developed using the Rapid Application Development (RAD) method at Penraujan Private Junior High

School. It presents the registration details submitted by prospective students as official proof of successful registration.

3. The login admin page interface can be seen as shown in the following figure:

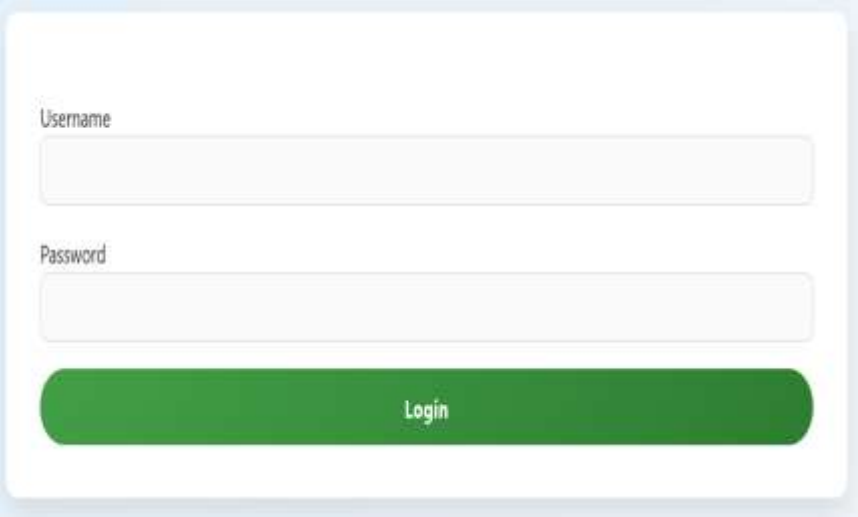

Figure 5. Page Login Admin

This page is used by administrators to access the web-based new student admission system. Through this login page, authorized admin users can enter their username and password to manage student registration data, verify application submissions, and oversee the admission process at Penraujan Private Junior High School.

2. The dashboard admin page interface can be seen as shown in the following figure:

Figure 6. Page Dashboard Admin

System Analysis

The implementation of the RAD method significantly accelerated system development compared to traditional methods. The iterative approach allowed developers to refine system features based on user feedback.

Table 2. The web-based system improved the admission process in several aspects

Aspect	Before System	After System
Registration process	Manual	Online
Data storage	Paper-based	Database
Processing time	Slow	Faster
Error risk	High	Low
Accessibility	Limited	Anytime & anywhere
Reporting	Manual	Automatic

The system reduces administrative workload by automating data entry, document management, and report generation. Processing time for student registration decreased significantly because the system eliminates repetitive manual tasks.Efficiency improvements include:

1. Faster data processing

2. Reduced paper usage
3. Lower operational cost
4. Simplified data retrieval

Based on user feedback (administrators and applicants), the system interface is easy to use because:

1. Simple navigation structure
2. Clear form instructions
3. Responsive design
4. Fast loading pages

Users reported that the system helps simplify the registration process and improves user experience. Data validation features prevent incorrect or incomplete data entry. The system ensures consistency of student records and minimizes duplication. Examples of validation:

1. Required field verification
2. File format checking
3. Email format validation

RAD method effectiveness can be seen from:

RAD Phase	Implementation Result
Requirement Planning	System requirements identified clearly
User Design	Prototype evaluated by users
Construction	Fast development process
Implementation	System applied successfully

RAD supports rapid system delivery without compromising software quality.

Discussion Admission System.

The web-based admission system provides significant advantages for Penraujan Private Junior High School by improving service quality and administrative performance. The system ensures transparency, efficiency, and accessibility for prospective students. The RAD method proved suitable for this project because:

1. Requirements were clearly defined
2. Users were actively involved
3. Development time was limited
4. System flexibility was required

However, some limitations include:

1. Dependence on internet connectivity
2. Need for periodic system maintenance
3. User training required for administrators

The Web-Based New Student Admission System developed using the RAD method has successfully improved the admission process at Penraujan Private Junior High School. The system enhances efficiency, accuracy, transparency, and accessibility. Testing results confirm that all system features function properly and meet user requirements. The RAD method enables faster development while maintaining software quality, making it an appropriate approach for educational information system development.

4. Conclusion

Based on the results of the system design and implementation, the Web-Based New Student Admission System developed using the Rapid Application Development (RAD) method at Penraujan Private Junior

High School has proven to be an effective solution in addressing the student registration process that was previously conducted manually. The developed system is capable of managing prospective student data efficiently, accurately, and in a structured manner, as well as providing real-time access to registration information. The implementation results indicate improvements in administrative efficiency, data accuracy, and ease of monitoring student registration status. Overall, this system supports the optimization of the new student admission process and demonstrates the effective application of information technology in educational administrative services.

5. References

[1] Aldo, D., Habibie, D. R., & Susie, S. (2021). Metode FAST Untuk Pembangunan Sistem Inventory. *INOVTEK Polbeng - Seri Informatika*, *6*(2), 211. https://doi.org/10.35314/isi.v6i2.2080

[2] Ariyandi, H. Z., & Handayani, A. N. (2022). Peran Penggunaan Teknologi QR Code untuk Meningkatkan Keterhubungan dan Efisiensi Masyarakat Menuju Era Transformasi Society 5.0. *Jurnal Inovasi Teknik Dan Edukasi Teknologi*, *2*(7), 299–306. https://doi.org/10.17977/um068v1i72022p299-306

[3] Badawi, A., Teknologi, S., Studi, P., Komputer, S., Pembangunan, U., & Budi, P. (2025). *Analisis Sentimen terhadap Kurikulum Merdeka di MTS Al Ishlah Medan Menggunakan Algoritma Naïve Bayes*. *5*, 168–181.

[4] Fachri, B., & Surbakti, R. W. (2021). Perancangan Sistem Dan Desain Undangan Digital Menggunakan Metode Waterfall Berbasis Website (Studi Kasus: Asco Jaya). *Journal of Science and Social Research*, *4*(3), 263. https://doi.org/10.54314/jssr.v4i3.692

[5] Intan, D., & Putri, M. (2024). *Implementasi QR Code Untuk Sistem Informasi Pemesanan Menu Pada Restoran Omah Gedhe Pandean Kaliwungu Berbasis Web*. *1*(2), 91–105.

[6] Khaliq, A., Arianti, C., Simanjuntak, C. A., & Harahap, D. A. P. (2023). *Perancangan Website Profil Program Studi Menggunakan Content Management System Wordpress sebuah website profil Program Studi menggunakan Content Management System Wordpress . Wordpress dipilih sebagai CMS karena popularitasnya sebagai platform yang mudah Peran Website Profil Program Studi dalam Pendidikan*. *3*, 196–201.

[7] Maudi, M., Nugraha, A., & Sasmito, B. (2015). Desain Aplikasi Sistem Informasi Pelanggan Pdam Berbasis Webgis (Studi Kasus : Kota Demak). *Jurnal Geodesi Undip*, *3*(3), 98–110.

[8] Nadialista Kurniawan, R. A. (2021). PENINGKATAN KAPASITAS DESA BERDASARKAN PADA UNDANG-UNDANG NO. 6 TAHUN 2014 (Sebuah kajian tentang Otonomi Desa). *Industry and Higher Education*, *3*(1), 1689–1699.

[9] Napitu, U., Matondang, M. K. D., & … (2021). Sosialisasi Peranan Maujana Nagori Dalam Membina Harmonisasi Kehidupan Masyarakat Yang Multietnik Di Nagori Pamatang …. *Community …*, *2*(3), 1167–1180.

[10] Noviana, R. (2022). Pembuatan Aplikasi Penjualan Berbasis Web Monja Store Menggunakan Php Dan Mysql. *JTS*, *1*(2), 112–124.

[11] Saepudin, A., Aryanti, R., Fitriani, E., & Ardiansyah, D. (2021). Perancangan Sistem E-Commerce Menggunakan Model Rapid Application Development Pada Pengurus Cabang Judo Karawang. *Paradigma - Jurnal Komputer Dan Informatika*, *23*(1), 25–32.

[12] Sukma, I., & Abhyanda, N. A. A. (2020). *Sistem Informasi Penyewaan Alat dan Dekorasi Pesta Pada CV . Vira Salon Berbasis Website*. *5*(1), 1–15.

[13] Yanti, H., Advinda, A., & Tavita, G. E. (2023). Pemanfaatan Tumbuhan Rempah Dan Bumbu Tradisional Oleh Masyarakat Desa Sebuduh Kecamatan Kembayan Kabupaten Sanggau. *Jurnal Hutan Lestari*, *11*(2), 432. https://doi.org/10.26418/jhl.v11i2.61278