



# Mobile-Based Event Decoration Ordering System Using UAT Method with PIECES Framework

Hadi Jayusman<sup>1</sup>, Fajar Mahardika<sup>2</sup>, Ratih<sup>3</sup>

<sup>1</sup>Information Systems, Harapan Bangsa University, Banyumas, Indonesia

<sup>2</sup>Informatics Engineering, Politeknik Negeri Cilacap, Cilacap, Indonesia

<sup>3</sup>Information Systems, STMIK Komputama Majenang, Cilacap, Indonesia

email:<sup>1</sup>hadijayusman@uhb.ac.id, <sup>2</sup>putrafajardika@gmail.com, <sup>3</sup>ratihagis.ra@gmail.com

## ARTICLE INFO

### Article history:

Received 24 September 2024

Revised 30 October 2024

Accepted 12 December 2024

Available online 30 December 2024

### Keywords:

Ordering System,  
User Acceptance Testing,  
Pieces framework,  
Mobile

### IEEE style in citing this article:

[1]H. Jayusman, F. Mahardika, and R. Ratih3, "Mobile-Based Event Decoration Ordering System Using UAT Method with PIECES Framework," *Journal of Innovation Information Technology and Application (JINITA)*, vol. 6, no. 2, pp. 163–172, Dec. 2024.

## ABSTRACT

The Mobile Event Decoration Booking System is an innovative solution designed to facilitate users in ordering event decorations. By implementing the User Acceptance Testing (UAT) method and the PIECES framework, this system ensures that the developed application meets the needs and expectations of users. This research aims to identify and analyze key features in the ordering process and evaluate user satisfaction with the application. Respondents provide valuable feedback regarding the interface, functionality, and overall user experience through UAT. The research results indicate that this application can enhance the efficiency of bookings, reduce communication errors between service providers and customers, and offer a better experience. With the application of the UAT method, users feel that this system effectively meets their needs, resulting in an improved experience in event planning. These findings suggest that the factors influencing user satisfaction and interest are adequate and should be maintained. The Mobile Event Decoration Booking System has successfully improved the efficiency and effectiveness of the booking service, with an average user satisfaction rate of 95%.

## 1. INTRODUCTION

In the digital era today, the demand for efficient and easily accessible services is increasing, especially in event organizations. Decoration is an important aspect that influences an event's impression and atmosphere. However, the process of ordering decorations often faces various challenges, such as ineffective communication, errors in ordering, and a lack of information about available services. The manual ordering process often takes a long time due to the involvement of many steps, including in-person meetings, phone calls, and correspondence. Additionally, the manual process frequently does not provide clear information regarding the order status, pricing, and availability of items, which can confuse customers. Customers may also need help accessing information or placing orders outside the working hours of service providers, thereby limiting convenience. The Mobile Event Decoration Ordering System offers a solution to these issues. By leveraging mobile technology, users can easily place orders, view portfolios, and interact directly with service providers [1]. The use of the User Acceptance Testing (UAT) method in the development of this system aims to ensure that the application created truly meets user needs and provides a satisfying experience. This creates a simpler and more enjoyable ordering process for customers while reducing the likelihood of errors through a more structured and user-friendly system.

---

The PIECES framework, which focuses on essential elements in software development, provides a clear structure in the design and implementation of the system. With this approach, the application is expected to not only fulfill basic functions but also offer added value through an intuitive interface and a pleasant user experience [2]. The PIECES framework is applied to evaluate and improve the system's quality in various aspects, such as performance, information, economy, control, efficiency, and service.

The PIECES framework, which focuses on essential elements in software development, provides a clear structure for the system's design and implementation. With this approach, the application will meet basic functions and offer added value through an intuitive interface and a pleasant user experience. Previous research was conducted by F. Apri Wenando, R. Pratama Santi, S. Ramadhani Putri, and L. Nur Irsyad. This system can potentially positively impact users with many achievements that have not been well documented. This system is expected to make it easier for users to update their own data without needing to collect physical documents and supporting evidence. Users only need to upload their achievement data from home, and the system can be accessed from anywhere since it is web-based.[3]. So that it can serve as a valid curriculum vitae in the form of an SKPI (Certificate of Accompanying Diploma) for future users. [4]. The PIECES framework is a tool used to classify problems, opportunities, and directives present in the scope definition of system analysis and design. By using this framework, new ideas can emerge that can be considered in system development [2]. In PIECES, there are six variables for analysis: Performance, Information and Data, Economics, Control and Security, Efficiency, and Service. With this system, the ordering process is hoped to become faster, more efficient, and transparent. This will facilitate users' planning of events and increase customer satisfaction. Therefore, the research and development of this ordering system are expected to provide a positive contribution to the event decoration service industry.

This research also includes references from relevant previous studies. Pratiwi, M., Arsyah, U. I., Kartika, D., and Arsyah, R. H. (2021) conducted one of these studies regarding applying the PIECES Framework in information system analysis. The results indicate that using the ANEV Data information system to improve performance achieved average scores of 5.20 for performance, 4.76 for information and data, 5.20 for economic indicators, 4.85 for control indicators, 4.16 for efficiency, and 7.16 for service satisfaction. These scores suggest that operational staff are delighted with using the ANEV Data information system [5]. The following study was conducted by Fatoni, A., Adi, K., and Widodo, A. P. (2020), applying the PIECES framework and importance-performance analysis method to evaluate the implementation of information systems. This research aims to measure user satisfaction and the significance of the information system. The analysis results using the IPA method indicate that the average user satisfaction and the importance of the information system quality reached 93.71%. However, several areas need improvement in the development of the information system, including work plans and annual budgets, such as system quality, information accuracy, cost estimation for system development, security system efficiency, and enhancement of user services. [6]. The next study was conducted by Rahmadoni, J., Akbar, R., and Ulya, R. (2022) titled "Analysis of Nagari Management Information System Evaluation (Simnag) Using PIECES and UAT Methods." This evaluation aims to assess the feasibility of the SIMNag application in enhancing services to the community. The research employs two approaches: PIECES (Performance, Information/Data, Economy, Control, Efficiency, and Security) and UAT (User Acceptance Testing). The results of this study include an evaluation of the Nagari Information System (SIMNag) developed in Nagari Kamang Mudiak [7]. The research conducted by Ibrahim, I., Batubulan, K. S., and Yuniyanto, D. R. (2023) discusses designing a production machine monitoring application using the PIECES method. This makes companies feel more secure as their systems are well-protected from various risks. Overall, the study demonstrates that the PIECES method effectively develops and implements of production machine monitoring systems. With a reliable and efficient system, companies can optimize their production processes, enhance performance, and achieve better overall results [8].

## 2. METHOD

In developing the Mobile Event Decoration Ordering System, we used the Scrum methodology as the primary approach. Scrum is one of the most well-known Agile frameworks, focusing on team collaboration, adaptability, and iterative product delivery. There are several reasons behind Scrum, compared to other Agile methodologies such as Kanban and Extreme Programming (XP). Scrum allows for product development in short cycles known as "sprints," typically lasting two to four weeks. Each sprint produces a functional part of the product that can be tested and used. Other methodologies, such as Kanban, focus more on continuous workflow without structured iterations, which may not provide feedback as quickly as Scrum. In the context of the ordering system, the speed of receiving user feedback is crucial to ensure that

the application meets their needs; Scrum encourages close collaboration among team members through regular meetings such as Daily Stand-ups, Sprint Planning, and Sprint Reviews. This ensures that all team members clearly understand the project's progress and the challenges faced. While methodologies like Extreme Programming (XP) also emphasize collaboration, Scrum provides a simpler and more structured framework for project management, making it easier to implement in teams that are new to Agile.

This study applies the Scrum method, one of the most recognized Agile methodologies. Scrum is an adaptive, iterative, fast, flexible, and effective approach designed to deliver significant value quickly throughout the project [9]. This methodology ensures transparency in communication and creates an environment that fosters collective accountability and ongoing progress. The Scrum framework, as outlined in the SBOK™ Guide, is designed to support the development of products and services across various sectors and project types. There are seven key elements in the development process: 1. Adhering to the established schedule; 2. Working consistently according to the sprint [10]; 3. Using the product backlog as a guide for the work that needs to be completed; 4. The team needs to assess whether items in the product backlog can be developed during the sprint; 5. The Scrum Master is responsible for the outcomes of the sprint; 6. Holding daily stand-up meetings [11]; 7. Focusing on the sprint, meetings, reviews, and project timeline. By applying the Scrum method, it is expected that the development process of the event decoration ordering system will proceed efficiently and produce high-quality products. The PIECES Framework used in this research. [12]:

Table I. PIECES Framework Domain

No	Variables	Number of Questions
1	Performance	5
2	Information and Data	9
3	Control and Security	4
4	Efficiency	3
5	Service	5

Table 2. Scale of Level of Importance

Answer Options	Abbreviation	Score
Very important	SP	5
important	P	4
Doubtful	RG	3
Not important	TP	2
Very Unimportant	STP	1

Table 3. Satisfaction Level Scale

Answer Options	Abbreviation	Score
Strongly agree	SS	5
agree	S	4
Doubtful	RG	3
Not agree	TS	2
Strongly Not agree	STS	1

Table 4. Average satisfaction and importance

Value Range	Predicate of Interest	Satisfaction Predicate
1-1.79	Very Unimportant	Very Dissatisfied
1.8- 2.59	Not important	Not satisfied
2.6- 3.39	Quite Important	Quite Satisfied
3.4- 4.91	Important	Satisfied
4.92-5	Very important	Very satisfied

The data obtained from the questionnaire will be analyzed using the Likert scale. This scale measures the attitudes, views, and perceptions of individuals or groups regarding a phenomenon [13]. In the evaluation, it is employed to assess the success, benefits, or level of user satisfaction with a policy or

program. To determine the level of satisfaction and importance of the information system in the Mobile-Based Event Decoration Ordering System, the formula used according to the Likert method is :

$$RSK = \frac{JSK}{JK}$$

- RK = Average satisfaction/importance
- JSK = amount of questionnaire score
- JK = amount of questionnaire

### 3. RESULTS AND DISCUSSION

#### 3.1 Results

##### 1) Designing a Use Case Diagram System

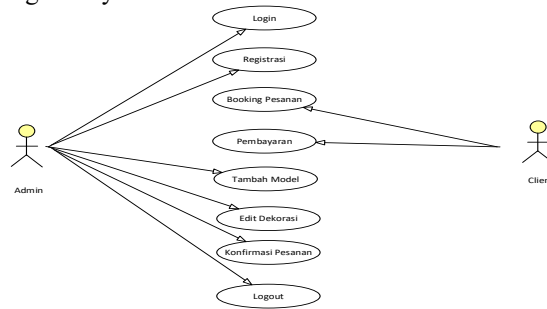


Figure 1. Use Case

In Figure 1, the Use Case page requires the user to log in to the account that has been created to make orders and transactions.

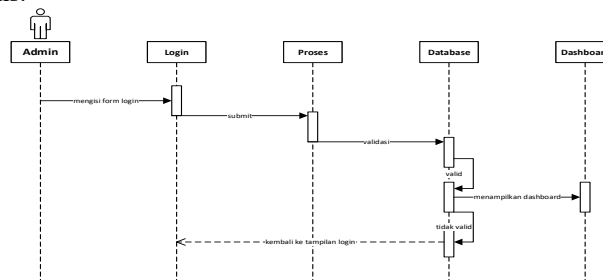


Figure 2. Sequence Diagram User

In Figure 2, the user enters the application, fills in the login form, submits it, and is processed. After validation, the user will enter the application dashboard. If it is invalid, the user will be returned to the login display page.

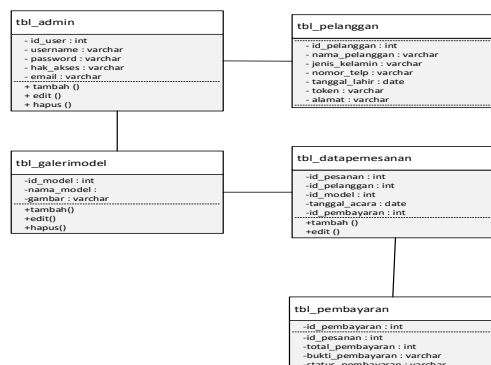


Figure 4. Class diagram [14]

## 2) User Interface and User Experience



Figure 5. Dashboard View

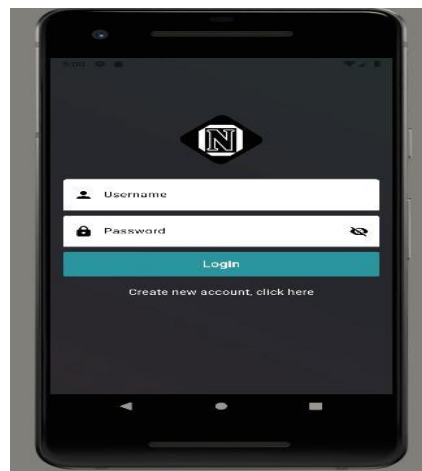


Figure 6. Login View



Figure 7 Payment View

## 3) Create a Product Backlog

Table 5. Product Backlog

Backlog Name	Importance (1-100)	Estimated Time (Days)	Demo
Creating a UML design	100	4	Checking the conformity of UML work results with system requirements
Login and Logout	100	3	1) User presses the login button 2) User enters a username and password 3) User successfully logs in and enters the system
Registration	100	3	Make a Registration
Booking Order	95	5	Make a booking order
Payment	97	5	Make a Payment
Add Model	100	4	Performing model addition
Edit Decoration	95	3	Perform decoration edits
Order Confirmation	100	4	Make order confirmation

## 4) Sprint Phase

Table 6. Sprint Phases

Id	Backlog Name	Story	Task	Est (Day)
1	UML design creation		Analyze the system's functional and non-functional requirements	0.5
			Create a Requirement Gathering Method	0.5
			Create use-case diagrams	0.5
			Create Sequence diagrams	0.5
			Create activity diagrams	0.5
			Create class diagrams	0.5
2	Login and Logout	As Administrator and Client	Create Administrator and Client database schemas	1
			Create Administrator and Client login UI designs	1
			Implementation of Administrator and Client UI design	3
3	Registration	As Client	Create Client database schemas	1
			Create Client login UI designs	0.5
			Implementation of Client UI design	1
4	Booking Orders	As Client	Create Client database schemas	2
			Create Client login UI designs	0.5
			Implementation of Client UI design	1
5	Payment	As Client	Create Client database schemas	0.5
			Create Client login UI designs	1
			Implementation of Client UI design	2
6	Add Model	As Administrator	Create Administrator database schemas	1
			Create Administrator login UI designs	0.5
			Implementation of Administrator UI design	1
7	Edit Decoration	As Administrator	Create Administrator database schemas	1
			Create Administrator login UI designs	2
			Implementation of Administrator UI design	1
8	Order Confirmation	As Administrator	Create Administrator database schemas	1

Create Administrator login UI designs	1
Implementation of Administrator UI design	2

5) Daily Scrum

The development team conducts the Daily Scrum almost every day. This brief meeting, lasting 15 minutes, allows team members to quickly exchange information about the product development progress they are making. During this meeting, the team discusses what has been completed in the sprint backlog and updates the burndown chart.

6) Sprint Review

The next phase is the sprint review. During this stage, the team discusses the results from all items in the sprint backlog to review the Increment and make changes to the Product Backlog if necessary. The results are examined, and the team's working process is evaluated to identify areas that need improvement for the next sprint. At this stage, the client can demonstrate and assess the implemented software enhancements.

3.2 Discussion

1) Research instruments

The research instrument uses a list of questions, which can be seen in Table 7.

Table 7. List of Questionnaire Questions

Doamin	Question
Performa nce	a. The Mobile-Based Hajatan Decoration Ordering System is easily accessible by users.
	b. The Mobile-Based Hajatan Decoration Ordering System can operate several commands relatively quickly without experiencing any obstacles.
	c. The Mobile-Based Hajatan Decoration Ordering System can quickly respond to a cancellation order or request for a process.
	d. When the Mobile-Based Hajatan Decoration Ordering System is used simultaneously, the information system's performance must remain stable.
	e. The total time required to process data to produce information must be done quickly.
Informati on and Data	a. Data stored by the Mobile-Based Hajatan Decoration Ordering System must be stored according to what is entered into the system
	b. The Mobile-Based Hajatan Decoration Ordering System cannot store data that is not supposed to be.
	c. The Mobile-Based Hajatan Decoration Ordering System cannot store data containing errors or incorrect data.
	d. The Mobile-Based Hajatan Decoration Ordering System cannot store the same data so as not to cause data duplication or redundancy.
	e. The information generated by the information system must be following what is needed.
	f. The information format generated by the Mobile-Based Hajatan Decoration Ordering System is useful and can be used properly by users.
	g. Data processed by the Mobile-Based Hajatan Decoration Ordering System must be stored
	h. Information presented by the Mobile-Based Hajatan Decoration Ordering System is easy to learn and understand.
	i. The information generated by the Mobile-Based Hajatan Decoration Ordering System is reliable/trustworthy.
Control and Security	a. There is centralized control over data usage.
	b. The security system in the Mobile-Based Hajatan Decoration Ordering System must be good
	c. Management in granting authorization and determining access control over the use and operation of the system must be clear
	d. The system currently used is more user-friendly in terms of cost and time.

Efficiency	a.	Using a Mobile-Based Hajatan Decoration Ordering System plays the most important role in making ordering easier.
	b.	The system can simplify the decoration ordering process
	c.	Service providers assist users in using the Mobile-Based Hajatan Decoration Ordering System
Service	a.	Mobile-based Hajatan Decoration Ordering System is easy to learn and understand
	b.	Mobile-based Hajatan Decoration Ordering System is easy to use
	c.	Mobile-based Hajatan Decoration Ordering System can be changed flexibly
	d.	Mobile-based Hajatan Decoration Ordering System is coordinated and integrated with other systems
	d.	Mobile-based Hajatan Decoration Ordering System can provide satisfaction to you as a User who uses

2) Data Analysis

With the average equation of interests and satisfaction above and the data collected from 40 respondents, the average level of satisfaction can be seen in tables 8 and 9.

Table 8. Tabulation of the questionnaire on the user satisfaction level of the Mobile-Based Celebration Decoration Ordering System.

Domain	Average	Predicate
Performance	4,3	Satisfied
Information and Data	4,2	Satisfied
Control and Security	4,2	Satisfied
Efficiency	3,8	Satisfied
Service	4	Satisfied

Table 9. Tabulation of the questionnaire on the user satisfaction level of the Mobile-Based Celebration Decoration Ordering System

Domain	Average	Predicate
Performance	4,4	Important
Information and Data	4,1	Important
Control and security	4,26	Important
Efficiency	4	Important
Service	4	Important

3) Analysis of the level of suitability of interests and user satisfaction of the Mobile-Based Celebration Decoration Ordering System

Based on the results obtained from the measurement of 40 respondents, a calculation will be produced regarding the level of satisfaction and importance of using and applying the MOBILE-BASED PARTY DECORATION ORDERING SYSTEM. The method used is quantitative descriptive using importance performance analysis (IPA). The use of the importance-performance analysis method is in measuring the level of satisfaction of service services that fall into the quadrants on the importance performance matrix map [15]. In this method, a measurement of the level of suitability is required to determine the level of user satisfaction with the Mobile-Based PARTY Decoration Ordering System. The formula used is as follows:

$$TKI = Xi Yi \times 100\%$$

TKI = Respondent Suitability Level

Xi = Average satisfaction score

Yi = Average importance score



Table 10. Analysis Results

Domain	Calculation Results	Information
Performance	98%	Maintain Achievement
Information and Data	97%	Maintain Achievement
Control and security	93%	Low Priority
Efficiency	95%	Top Priority
Service	97%	Maintain Achievement

The development of the Mobile Event Decoration Ordering System using the User Acceptance Testing (UAT) method and the PIECES framework has provided valuable insights into user effectiveness and satisfaction. The results of this research highlight several key points that are important to discuss:

- The trial results indicate that the average user satisfaction rate reaches 95%. This reflects that the application meets functional needs and provides an enjoyable user experience. Positive feedback from users regarding the intuitive interface and ease of navigation suggests that the application design has successfully addressed the challenges of manual ordering systems.
- The system has proven to enhance efficiency in the ordering process. By automating the ordering steps, users can complete their orders faster than by using manual methods. This reduces the time spent on ordering and minimizes the likelihood of errors that often occur due to ineffective communication.
- By implementing the PIECES framework, this system provides clear and structured information regarding order status, pricing, and item availability. Research results show that users feel more confident using the system because of the transparency of the information provided. This contributes to a better user experience and overall satisfaction.

#### 4. CONCLUSION

This application's development has significantly contributed to the decoration ordering industry. This platform's innovations enhance process efficiency and provide a better user experience in planning and executing event decorations. The intuitive and user-friendly interface is one of its strengths, ensuring that users from various backgrounds can easily access and utilize the available features. The optimized ordering process, cost transparency, and accurate estimates boost user confidence in managing event budgets. The results of this system include improved efficiency, ease of access, and positive feedback regarding the interface and functionality. By implementing the UAT method, users feel that this system effectively meets their needs, resulting in a better experience in event planning. This indicates that the factors influencing satisfaction and interest are adequate and should be maintained. The Mobile-Based Event Decoration Ordering System has successfully improved the efficiency and effectiveness of ordering services, with an average user satisfaction rate reaching 95%.

#### ACKNOWLEDGEMENTS

Thank you to all parties who have supported and contributed to this research. I would like to express special thanks to Universitas Harapan Bangsa, Politeknik Negeri Cilacap, and STMIK Komputama for their guidance and inspiration, as well as to my colleagues who have engaged in discussions and shared ideas. With your assistance and support, this research was successful.

#### REFERENCES

- [1] F. Irvansyah, S. Setiawansyah, and M. Muhaqqin, "APLIKASI PEMESANAN JASA CUKUR RAMBUT BERBASIS ANDROID," *J. Ilm. Infrastruktur Teknol. Inf.*, vol. 1, no. 1, pp. 26–32, Jun. 2020, doi: 10.33365/JITI.V1I1.253.
- [2] I. Puntadewa, A. Rustam, and Y. I. Kurniawan, "Aplikasi Penyewaan Lapangan Futsal di Pusat Olahraga Orion Purwokerto Berbasis Android," *J. Pendidik. dan Teknol. Indones.*, vol. 2, no. 7, pp. 311–328, 2022, doi: 10.52436/1.jpti.195.
- [3] F. Mahardika and R. B. B. Sumantri, "Implementation of Payment Gateway in the Mobile-Based Pawon Mbok ` E Eating House Ordering System," pp. 60–70, 2024.
- [4] F. Apri Wenando, R. Pratama Santi, S. Ramadhani Putri, and L. Nur Irsyad, "Sistem Informasi Pendataan Prestasi Mahasiswa untuk Pendataan Prestasi Mahasiswa Departemen Sistem Informasi Menggunakan Metode UAT Dengan Framework Pieces," *J. Fasilkom*, vol. 13, no. 01, pp. 54–60, 2023, doi: 10.37859/jf.v13i01.4959.
- [5] M. Pratiwi, U. I. Arsyah, D. Kartika, and R. H. Arsyah, "PIECES Framework dalam Analisis Penerapan Sistem Informasi," *Maj. Ilm. UPI YPTK*, vol. 28, no. 1, pp. 19–24, 2020, doi: 10.35134/jmi.v28i1.64.
- [6] A. Fatoni, K. Adi, and A. P. Widodo, "PIECES Framework and Importance Performance Analysis Method to Evaluate the Implementation of Information Systems," *E3S Web Conf.*, vol. 202, pp. 0–10, 2020, doi: 10.1051/e3sconf/202020215007.
- [7] J. Rahmadoni, R. Akbar, and R. Ulya, "Analysis of Nagari Management Information System Evaluation (Simnag) Using Pieces and Uat Methods," *J. Appl. Eng. Technol. Sci.*, vol. 4, no. 1, pp. 512–521, 2022, doi: 10.37385/jaets.v4i1.1326.

- 
- [8] I. Ibrahim, K. S. Batubulan, and D. R. Yunianto, "Rancang Bangun Aplikasi Monitoring Mesin Produksi Menggunakan Metode PIECES," *J. Inform. Polinema*, vol. 10, no. 1, pp. 19–26, 2023, doi: 10.33795/jip.v9i4.1351.
- [9] F. Mahardika and D. I. S. Saputra, "Implementation Segmentation of Color Image with Detection of Color to Detect Object," *VOLT J. Ilm. Pendidik. Tek. Elektro*, vol. 2, no. 2, pp. 157–166, Oct. 2017, doi: 10.30870/VOLT.V2I2.1095.
- [10] F. Mahardika, S. G. Merani, A. T. Suseno, and D. Redaksi, "Penerapan Metode Extreme Programming pada Perancangan UML Sistem Informasi Penggajian Karyawan," *Blend Sains J. Tek.*, vol. 2, no. 3, pp. 204–217, 2024, doi: 10.56211/BLENDSAINS.V2I3.313.
- [11] T. Tundo and F. Mahardika, "Fuzzy Inference System Tsukamoto–Decision Tree C 4.5 in Predicting the Amount of Roof Tile Production in Kebumen," *JTAM (Jurnal Teor. dan Apl. Mat.)*, vol. 7, no. 2, p. 533, 2023, doi: 10.31764/jtam.v7i2.13034.
- [12] S. Ramadhani, "PIECES Framework for Analysis of User Satisfaction Levels and Information System Interests," *J. Teknol. dan Manaj. Inform.*, vol. 4, no. 2, 2018.
- [13] R. Nugraha, H. Ambar, and H. Adianto, "Usulan Peningkatan Kualitas Pelayanan Jasa pada Bengkel 'X' Berdasarkan Hasil Matrix Importance-Performance Analysis (Studi kasus di Bengkel AHASS PD. Sumber Motor Karawang)," *J. Online Inst. Teknol. Nas.*, vol. 1, no. 3, pp. 221–231, 2014.
- [14] B. H. Pomo, E. S. Moreta, and E. Pranoto, "Perancangan Aplikasi Sistem Informasi Kasir Berbasis Web Pada DailyFood Kitchen," *J. SIKOMTEK*, vol. 12, no. 1, pp. 60–69, 2022.
- [15] F. Mahardika, A. R. Naufal, and M. AL AMIN, "Desain UI dan UX dalam Sistem Informasi Akademik Menggunakan Metode Extreme Programming," *Progresif J. Ilm. Komput.*, vol. 19, no. 1, pp. 105–116, Feb. 2023, doi: 10.35889/PROGRESIF.V19I1.1023.