

Analysis Of Consumer Satisfaction Of Smartphone Repair Services At Samsung Service Center Using SAW

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ABSTRACT

This study aims to develop a decision support system to evaluate customer satisfaction levels using the Simple Additive Weighting (SAW) method. The background of this research is based on the need for an objective and structured approach in assessing customer satisfaction in service environments, where manual evaluation is often subjective and inefficient. The problem addressed in this study is the difficulty in measuring customer satisfaction accurately and consistently based on multiple criteria. The objective of this research is to implement the SAW method in a computerized system to improve the accuracy and efficiency of customer satisfaction evaluation. The research method involves data collection through observation and documentation, followed by system development and implementation of the SAW method. Several criteria are used in the evaluation process, including service attitude, repair speed, communication, facilities, and service cost, each assigned with specific weights. The results show that the system is able to calculate customer satisfaction scores effectively and rank customers based on predefined criteria. The implementation of the SAW method provides more objective and consistent evaluation results compared to manual assessment. The conclusion indicates that the developed system can assist administrators in making better decisions related to service quality improvement and customer satisfaction management.

INTRODUCTION

The rapid development of the smartphone industry has made these devices an essential tool for supporting the activities of modern society, whether for communication, work, education, or entertainment (Supardi & Lianda, 2025). The high frequency of smartphone use makes these devices prone to damage, both in terms of hardware and software (Di et al., 2025). This situation has directly increased public demand for professional, fast, and reliable smartphone repair services (Rahman, 2025). Therefore, the level of customer satisfaction with smartphone repair services is a critical factor that every service provider must prioritize (Yoga et al., 2025).

Advances in information technology have made a significant contribution to supporting decision-making processes, including in assessing customer satisfaction (Sembiring, 2025). Information technology enables structured data processing, allowing the resulting insights to serve as a foundation for determining policies and strategies to improve service quality (Petronela Kurniati Kondang et al., 2025).

Customer satisfaction with smartphone repair services is not determined solely by the repair results, but is also influenced by various other service aspects such as speed of service, accuracy of damage diagnosis, quality of parts used, clarity of cost information, and the attitude and professionalism of technicians and service staff (Lufti Puspitasari et al., 2025). Satisfied customers tend to exhibit high loyalty and provide positive recommendations to others, thereby directly impacting the reputation and sustainability of the smartphone repair business (Dewi & Fahrizal, 2025).

As an official smartphone repair service provider, the Samsung Service Center is required to consistently maintain and improve the quality of its services. Located at Jalan Kartini No. 230, Kisaran City, Asahan Regency, North Sumatra, and established in 2013, the Samsung Service Center has been serving the public's various smartphone repair needs with the support of competent technicians and adequate facilities. However, with rising consumer expectations and increasingly fierce business competition, evaluating customer satisfaction levels has become a critical task that must be conducted on an ongoing basis.

In recent months, the Samsung Service Center has faced difficulties in systematically analyzing customer satisfaction levels during the service evaluation process. The inability to clearly determine whether customers are highly satisfied, satisfied, or somewhat satisfied indicates that satisfaction assessments remain subjective and unquantifiable. This situation underscores the need for a structured, data-driven analysis method so that assessment results can serve as the basis for objective decision-making (Ruwllah et al., 2025). Furthermore, customer complaints regarding discrepancies in repair results, delays in completion, and a lack of clarity in information reflect indications of low customer satisfaction in certain service aspects (Pradipta et al., 2025). These complaints serve as empirical evidence that service quality has not yet fully met consumer expectations. On the other hand, the lack of a computerized system



in consumer satisfaction assessment prevents the processes of analysis, documentation, and service quality evaluation from operating optimally (Alvi et al., 2025). Assessments are still conducted based on experience, which has the potential to cause data inconsistencies and difficulties in information processing (Sutoyo & Iin, 2024). Therefore, an assessment mechanism is needed that can identify the service aspects that most influence consumer satisfaction so that targeted improvements can be made (Wijaya & Wulandari, 2024).

Simple Additive Weighting (SAW) is a weighted summation method that calculates the total score for each alternative across all criteria (Rizky Firdaus et al., 2024). This method uses decision matrix normalization (X) so that all values can be objectively compared across alternatives (Rindang Subekti & Prasetya, 2024). Therefore, the objective of this study is to design a decision support system using the SAW method to analyze consumer satisfaction levels in a structured manner and to apply the SAW method in assessing consumer satisfaction at the Samsung Service Center.

LITERATURE REVIEW

The development of Decision Support Systems (DSS) has been widely implemented to assist decision-making processes in various domains, including customer satisfaction analysis. One of the commonly used methods is the Simple Additive Weighting (SAW) method, which is known for its simplicity and effectiveness in handling multi-criteria decision-making problems. Previous studies have shown that SAW can produce objective and structured evaluations by assigning weights to each criterion and calculating preference values to determine final rankings.

Research conducted by Alvi et al. (2025) demonstrated that the SAW method can effectively support scholarship selection decisions by providing accurate ranking results based on predefined criteria. Similarly, Dewi and Fahrizal (2025) applied SAW in cloud service selection, showing that the method is capable of simplifying complex decision variables into measurable outcomes. Furthermore, studies by Puspitasari et al. (2025) and Pradipta et al. (2025) highlighted that SAW improves decision consistency and reduces subjectivity compared to manual evaluation processes.

In the context of customer satisfaction, several studies have utilized SAW to measure service quality based on multiple criteria such as service attitude, response time, and cost. These studies indicate that SAW not only facilitates faster data processing but also provides more transparent and accountable results. However, some limitations have been identified, such as dependency on accurate weight determination and sensitivity to input data.

Based on these previous studies, it can be concluded that the SAW method is appropriate for supporting customer satisfaction analysis systems. Therefore, this research adopts the SAW method to develop a decision support system that can evaluate and classify customer satisfaction levels more effectively and objectively.

METHOD

The method used in this study is a quantitative approach aimed at systematically analyzing accessory sales data to support decision-making. This study focuses on the application of a Decision Support System (DSS) using the Simple Additive Weighting (SAW) method. The quantitative method was chosen because it allows for the processing of numerical data through structured calculations, thereby producing objective and measurable results. The research process was conducted in several stages, ranging from problem identification, data collection, data analysis, system design, building system, system testing, and system implementation. These stages were designed to ensure that the developed system functions effectively and produces accurate recommendations.

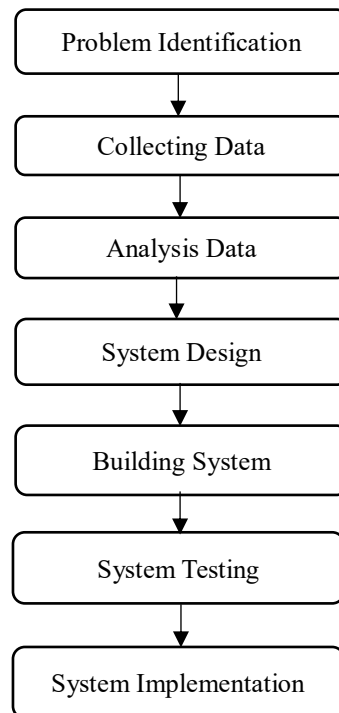


Figure 1. Research Stages

This study employs a quantitative method with the following steps:

Problem Identification

The problem identification in this study was conducted in several stages. The first stage involved defining the focus of the study on the assessment of customer satisfaction with smartphone repair services to ensure a more targeted research scope. The second stage involved data collection through observation of service processes, interviews with management and service staff, and documentation of customer complaints. The third stage involved identifying problem symptoms, such as difficulties in systematically measuring satisfaction, complaints regarding repair results and turnaround times, and the lack of a computerized system. The fourth stage involved analyzing the factors causing the problems. The fifth stage clearly identified the need to implement a decision support system using the SAW technique as a solution to improve the systematic nature of consumer satisfaction assessment.

Collecting Data

At this stage, data and information were collected to gain a better understanding of the system under study. The data collected from the Samsung Service Center consisted of customer data. The author visited the Samsung Service Center in person and conducted interviews with customers to collect the data.

Analysis Data

The data analysis in this study employed the Simple Additive Weighting (SAW) method to assess customer satisfaction with smartphone repair services at the Samsung Service Center. The SAW method was chosen because it provides a more objective assessment by weighting and calculating the preference values of each criterion. The collected data was analyzed by identifying evaluation criteria such as service attitude, speed of repair, communication, facilities, and service costs.

System Design

System design is a blueprint of a system created to address the problems faced by an organization following a preliminary analysis. The management system at the Samsung Service Center will be designed using the Information System Flow (ISF), flowcharts, and Entity-Relationship Diagrams (ERDs); the user interface will be designed using Microsoft Visio; and Unified Modeling Language (UML) diagrams will be designed using Visual Paradigm.

Building System

This stage involves designing the system to be developed. The system is implemented using the PHP programming language and a MySQL database.



System Testing

Once the design is complete, the program will first be tested to determine whether it meets its intended objectives. The decision support system for assessing customer satisfaction with smartphone repair services at the Samsung Service Center, which has been designed, will be tested using black-box testing. This is useful for determining whether the system that has been developed meets the author's expectations.

System Implementation

Programs that are ready will be implemented at this stage, provided they are user-friendly and easy for users to understand. The customer satisfaction survey system for smartphone repair services, which has completed testing, can now be implemented at Samsung Service Centers and utilized to its fullest potential.

RESULT

Analysis Data

To determine the weight values, an assessment of the "level of importance" of each criterion was conducted by administering a questionnaire to six members of the organizational structure at the Samsung Service Center. Based on the "level of importance" scale, the identified factors were assigned weight values, as shown in the table 1 below.

Table 1. Weighting Values for Level of Importance

Criteria	Scale	Weight
Level of Importance	Not at All Important	1
	Not Important	2
	Somewhat Important	3
	Important	4
	Very Important	5

To assess customer satisfaction with smartphone repair services, the values of the respondents' answers on the scale for each of the above criteria were analyzed and then entered into a weighting table that had been adjusted according to the values of the criteria weighting scale. The scale values of the respondents' answers for each criterion are shown in Table 2 below.

Table 2. Respondents Response Scale Scores for Organizational Structure Based on Criteria

Criteria	Respondents						Total	Weight Result
	R1	R2	R3	R4	R5	R6		
C1	4	3	4	3	4	4	22	0,19
C2	4	4	4	4	4	4	24	0,21
C3	3	3	4	4	4	2	20	0,18
C4	4	4	5	3	3	4	23	0,20
C5	4	4	5	3	4	4	24	0,21
Total All Score							113	1

Table 2 presents the respondents response scores for each criterion used in evaluating customer satisfaction. The data were obtained from six respondents representing the organizational structure of the Samsung Service Center. Each respondent provided scores based on a predefined importance scale ranging from 1 (not important) to 5 (very important).

The process of obtaining the weighting values in the table was carried out through several steps. First, all respondent scores for each criterion (C1 to C5) were summed to obtain the total score. For example, criterion C1 obtained a total score of 22, C2 obtained 24, C3 obtained 20, C4 obtained 23, and C5 obtained 24, resulting in an overall total score of 113.

Second, the weight of each criterion was calculated by dividing the total score of each criterion by the overall total score. For instance, the weight of C1 is calculated as 22 divided by 113, resulting in 0.19. Similarly, C2 is 24 divided by 113 (0.21), C3 is 20 divided by 113 (0.18), C4 is 23 divided by 113 (0.20), and C5 is 24 divided by 113 (0.21).

Finally, the resulting weights were normalized so that the total weight equals 1. These weights are then used in the Simple Additive Weighting (SAW) method to determine the relative importance of each criterion in the decision-making process.

Design System

The use case diagram describes the interaction between an actor the administrator and the information system to be developed. The proposed use case diagram is shown in Figure 2.

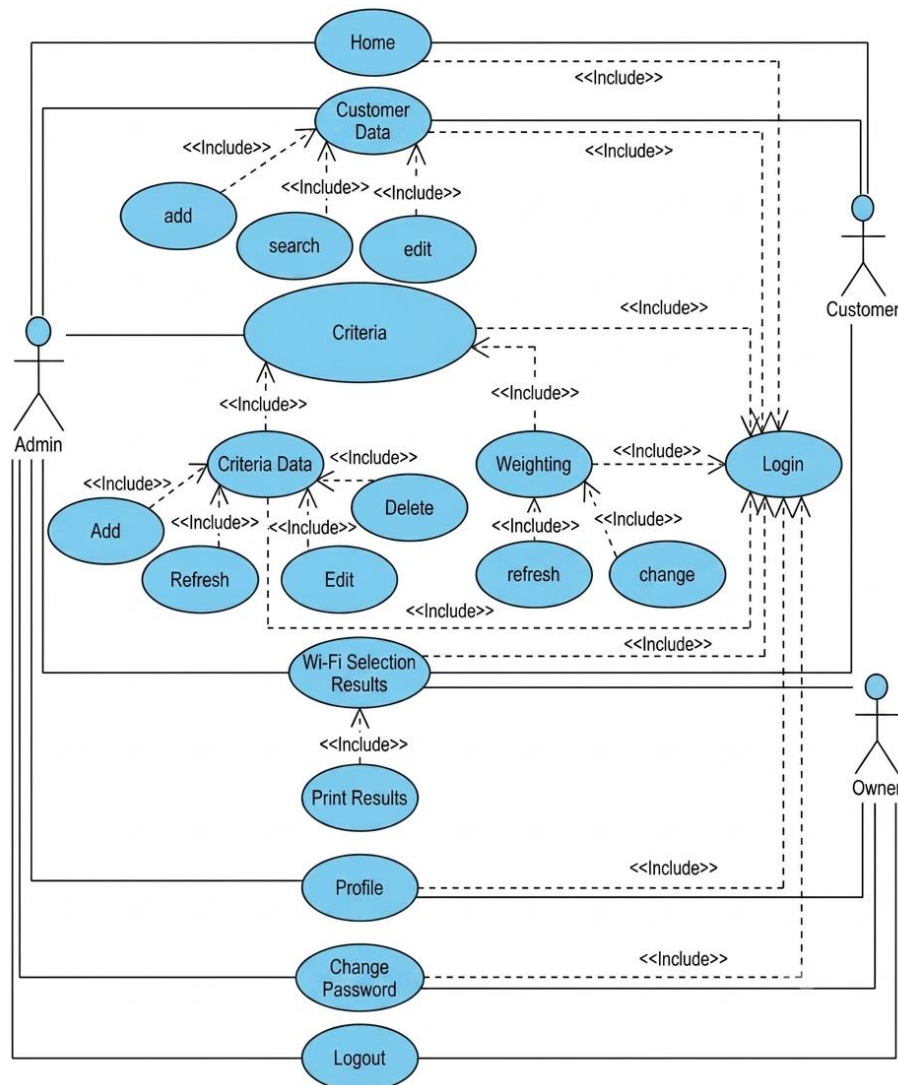


Figure 2. Design System

Figure 2 illustrates the overall system design used in this study. The diagram describes the workflow of the customer satisfaction evaluation system, starting from data input, data processing using the Simple Additive Weighting (SAW) method, and generating output in the form of customer satisfaction results. The system involves the administrator as the main actor who manages criteria data, customer data, and performs evaluation processes. Each component in the system is interconnected to ensure that the data processing runs systematically and produces accurate and objective decision-making results.

Implementation System

The implementation phase of a system provides a detailed explanation of the analysis and design results presented in the previous chapter. When the designed system is implemented, it can be operated and utilized optimally according to requirements. This chapter will outline the methods and steps for implementing the software design, the hardware and software requirements, and system testing.

- Login Page

The login screen is a page used to verify the administrator's access rights during the authentication process before logging into the system. After successfully logging in, the administrator will have full access to the features available within the system, such as managing data, managing calculations, and making configuration changes in accordance with their access rights. This screen also serves as the main gateway to ensure that only authorized users can access the system.

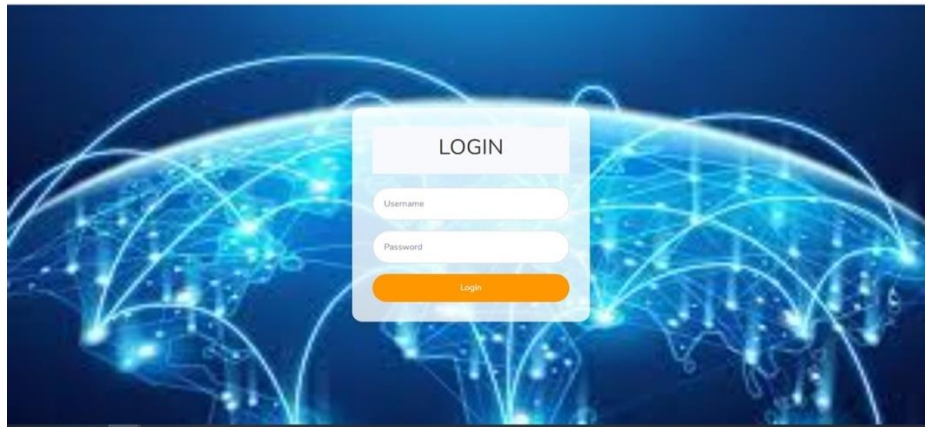


Figure 3. Login Page

- Home Admin

The admin home screen appears after the admin successfully logs in to the system and displays navigation menus such as Home, Criteria, Customer Data, Results, Samsung Service Center Profile, Password, and Logout. This page serves as the admin's main page for managing the customer satisfaction survey system. In the center of the page, information about the customer satisfaction survey is displayed, including a brief explanation of the purpose of the survey—to help improve service quality an estimated completion time of about 2–3 minutes, and a “Start Survey” button used to begin the survey process.

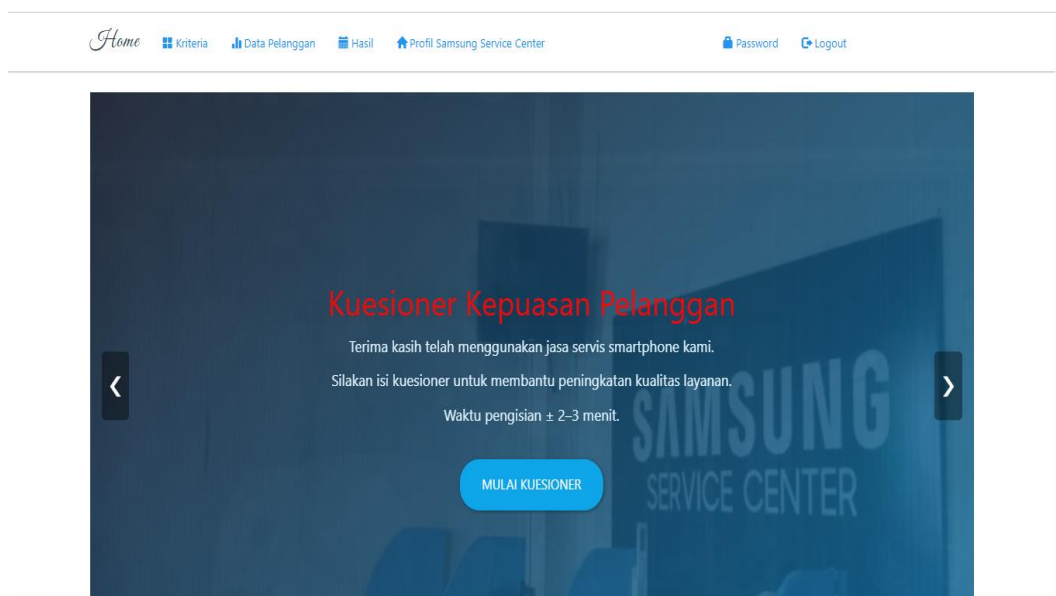


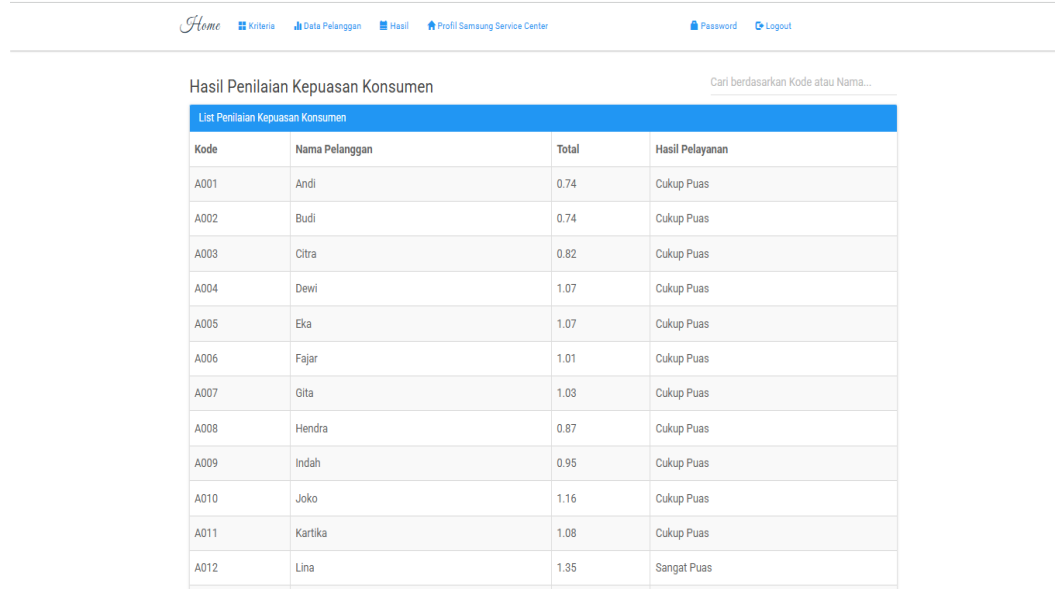
Figure 4. Home Admin

- Criteria Page

The admin criteria view displays a list of criteria and their weightings used in the system to measure customer satisfaction levels. This page contains information such as the criteria code, criteria name, attributes, and weight of each evaluation criterion, such as service attitude (benefit attribute, weight 0.19), repair speed (benefit attribute, weight 0.21), communication (benefit attribute, weight 0.18), facilities (benefit attribute, weight 0.20), and service cost (cost attribute, weight 0.21). The benefit attribute indicates that the higher the score, the better the evaluation result, while the cost attribute indicates that the lower the score, the better the evaluation result. Weights are used to indicate the level of importance of each criterion in the Simple Additive Weighting (SAW) calculation process, so that criteria with higher weights will have a greater influence on the final evaluation result. Additionally, this page also displays criteria weighting data containing descriptions and evaluation scores for each criterion. Admins can manage the data using the add, refresh, edit, and delete buttons available in each section. The admin criteria view at the Samsung Service Center.

- Service Result Page

This customer satisfaction assessment results page displays the calculated customer satisfaction scores based on the SAW method. The data is presented in a table containing columns for code, customer name, total score, and service results. The total score reflects the calculation of each criterion used in the assessment process; thus, the higher the score, the higher the customer's level of satisfaction with the service provided. The service results column displays descriptions such as "Not Satisfied," "Somewhat Satisfied," and "Very Satisfied" as the final results of the customer assessment based on the scores obtained. This page helps administrators objectively determine the level of customer satisfaction and view the service results.



Kode	Nama Pelanggan	Total	Hasil Pelayanan
A001	Andi	0.74	Cukup Puas
A002	Budi	0.74	Cukup Puas
A003	Citra	0.82	Cukup Puas
A004	Dewi	1.07	Cukup Puas
A005	Eka	1.07	Cukup Puas
A006	Fajar	1.01	Cukup Puas
A007	Gita	1.03	Cukup Puas
A008	Hendra	0.87	Cukup Puas
A009	Indah	0.95	Cukup Puas
A010	Joko	1.16	Cukup Puas
A011	Kartika	1.08	Cukup Puas
A012	Lina	1.35	Sangat Puas

Figure 7. Service Result Page

DISCUSSION

The results of this study indicate that the implementation of the Simple Additive Weighting (SAW) method in the decision support system is able to improve the objectivity and consistency of customer satisfaction evaluation. Prior to the implementation of the system, the evaluation process was conducted manually, which often led to subjective judgments and inconsistencies due to the absence of standardized criteria and weighting.

After implementing the SAW-based system, the evaluation process becomes more structured, as each criterion is assigned a specific weight and calculated systematically. This allows administrators to obtain more accurate and reliable results in determining customer satisfaction levels. The ranking results generated by the system also provide clear insights into which customers are highly satisfied and which require further attention.

Furthermore, the system enhances efficiency in data processing and reduces the time required for evaluation. The use of multiple criteria such as service attitude, repair speed, communication, facilities, and service cost ensures a comprehensive assessment. Therefore, the implementation of the SAW method not only addresses the initial research problem but also contributes to better decision-making in improving service quality.

However, this study is limited by the number of criteria and data samples used. Future research may consider adding more variables or comparing SAW with other decision-making methods to obtain more robust results.

CONCLUSION

Based on the research conducted, it can be concluded that this study was able to systematically analyze the level of customer satisfaction with smartphone repair services based on several evaluation criteria, namely service attitude, repair speed, communication, facilities, and service costs. The results indicate that the system can classify customer satisfaction levels into the categories "Dissatisfied," "Somewhat Satisfied," and "Very Satisfied" based on the preference scores obtained. Customers with scores below 0.70 fall into the "Somewhat Dissatisfied" category, scores between 0.70 and 1.19 fall into the "Fairly Satisfied" category, and scores above 1.20 fall into the "Very Satisfied" category. Of the 50 customer data points tested, the majority of customers fell into the "Fairly Satisfied" category, while a few customers such as Lina (1.35), Nanda (1.29), and Sinta (1.24) were classified as "Very Satisfied." This study successfully designed a decision support system based on the SAW method to analyze consumer satisfaction levels in a structured manner. The designed system has several key features, such as criteria data management, customer data management, value weighting, the SAW calculation process, and customer satisfaction assessment results. The results of this design demonstrate that the system can assist administrators in managing data and conducting the assessment process more quickly, accurately, and objectively compared to manual assessment processes.

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