

DESIGN OF THE BEST SALES DETERMINATION SYSTEM IN BLITAR SOUVENIR SHOP USING SAW METHOD WITH WHITE BOX TESTING

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ABSTRACT

O'o Dabli's shop is a shop that sells various kinds of typical Blitar products. The types of products sold by O'o Dabli's shop are various kinds of chili sauce, Blitar's typical snacks, drinks, Blitar's special crafts, Blitar's typical souvenir clothes, and so on. The products that are sold by this shop are predominantly selling types of food, there are various types of food here and if you want to make a purchase, sometimes we are confused to determine the type of product criteria. In a trading business, success in a company is inseparable from the role of strategy in sales. Improving the best service system in Blitar's Souvenir Shop is a process to recommend products to customers in a better way. So that service to customers is easier. The method used in the manufacture of a product sales system in a typical Blitar gift shop uses the saw method (simple additive weighing). The reason for creating this system is because this system can provide benefits and advantages in decision makers to process data and information. This system uses white box testing or commonly referred to as glass box testing. This test is a philosophy that uses case test planning that uses a control structure that is described as part of designing a component device to produce test cases. The reason for creating this system is because this system can provide benefits and advantages in decision makers to process data and information. This system uses white box testing or commonly referred to as glass box testing. This test is a philosophy that uses case test planning that uses a control structure that is described as part of designing a component device to produce test cases. The reason for creating this system is because this system can provide benefits and advantages in decision makers to process data and information. This system uses white box testing or commonly referred to as glass box testing. This test is a philosophy that uses case test planning that uses a control structure that is described as part of the design of the component set to produce test cases.

Word key: Service, system, Simple Additive Weighting

1. INTRODUCTION

O'o Dabli's shop is a shop that sells various kinds of typical Blitar products. The types of products sold by O'o Dabli's shop are various kinds of chili sauce, Blitar's typical snacks, drinks, Blitar's typical handicrafts, Blitar's typical souvenir clothes, and so on. The products that are sold by this shop are predominantly selling types of food, there are various types of food here and if you want to make a purchase, sometimes we are confused to determine the type of product criteria.

The system for determining the best sales plays an important role in today's business world, as a support in improving the quality of a business development activity in the Blitar Typical Souvenir Shop. Prospective buyers can view products on a computer screen, access their information, order and pay with available options, potential buyers can save time without having to come to the store or place of transactions so that from their seat they can make decisions quickly. The system for determining the best sales at a typical Blitar gift shop uses the SAW method (*simple additive weighting*) web-based which is very useful for the general public, which is also useful for developing a business at a typical Blitar gift shop.

According to Sugiyani (2014), the ecommerce application can make it easy for visitors to purchase goods, this recommendation system application is able to provide visitor expectations in the form of suggestions, in purchasing products, this application provides a support system in the form of a wider promotional media so as to increase sales at this Unity Music Store.

Based on Sholikhah (2016), the design in the best customer selection system by applying the SAW (Simple Additive Weighting) calculation method produces Bravo's best customer recommendations based on predetermined criteria, so that these recommendations will take into consideration and assist Bravo in providing rewards to its best customers.

2. DISCUSSION

2.1 Simple Additive Weighting (SAW)

The Simple Additive Weighting method is a method known to many people in dealing with situations, a method of decision-making that determines the weight for each attribute. The total score for an alternative is obtained by adding up all the multiplication results between the rating and the attribute weight. The rating of each attribute must be dimension-free in the sense that it has passed the normalization process. The SAW method carries out several stages in its application (Baysyaib, 2006) that is:

- 1) Comparison across attributes so that the results of the assessment must be dimensionless by performing linear normalization.
- 2) Multiplication of the weight of each attribute with the dimension free assessment.
- 3) The multiplication results are added up for each candidate.
- 4) The alternative that has the largest total multiplication value is chosen as the best candidate.

The settlement algorithm in the SAW (Simple Additive Weighting) method is as follows:

- 1 Determine the criteria that will be used as a reference in making decisions, namely C_i .
- 2 Determine the suitability rating of each alternative on each criterion.
- 3 Making a decision matrix based on the criteria (C_i), then normalizing the matrix based on the equation that is adjusted to the type of attribute (profit attribute or cost attribute) in order to obtain a normalized matrix R .
- 4 The final result is obtained from the ranking process, namely the sum of the normalized matrix multiplication R with the weight vector so that the largest value is chosen as the best alternative (A_i) as a solution. The formula for normalizing is contained in the equation r_{ij}

$$r_{ij} = \frac{X_{ij}}{\text{Max } X_{ij}} \quad \text{jika } j \text{ adalah atribut keuntungan (benefit)} \quad (1)$$

$$r_{ij} = \frac{\text{Min } X_{ij}}{X_{ij}} \quad \text{jika } j \text{ adalah atribut biaya (cost)} \quad (2)$$

r_{ij} = normalized performance rating

Max X_{ij} = maximum value of each row and column

Min X_{ij} = minimum value of each row and column

X_{ij} = rows and columns of the matrix.

Where r_{ij} is the normalized performance rating of the alternative A_i on attribute C_j ; $i = 1, 2, \dots, m$ and $j = 1, 2, \dots, n$. The preference value for each alternative (V_i) is given as an equation:

$$V_i = \sum_{j=1}^n w_j r_{ij} \quad (3)$$

V_i = alternative final value

w_j = weight that has been determined

r_{ij} = normalized matrix.

V_i is the ranking for each alternative, W_j is the weighted value of each criterion and R_{ij} is the normalized performance rating value. A larger V_i value indicates that the alternative A_i is preferred.

2.2 Flowchart

a) Admin Flowchart

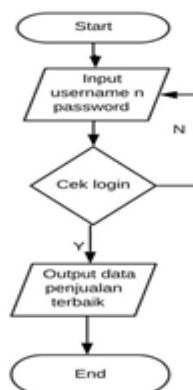
Flow chart admin is a system flow used by the admin of the Blitar Typical Souvenir shop. For the first time, the admin enters the front page to fill in the user name and password that have been determined. After the admin is successful, the admin will enter the next page for the editing process regarding the product price range or adding products in the Blitar Typical Souvenir shop. If when filling in the wrong user name and password, the admin will return to the start page until the user name and password are entered correctly. Then it is stored and immediately entered into the sales report of typical Blitar souvenir products on that day. After finishing checking and editing, the admin can leave the page



img 2.1 Admin Flowchart

b) User Flowchart

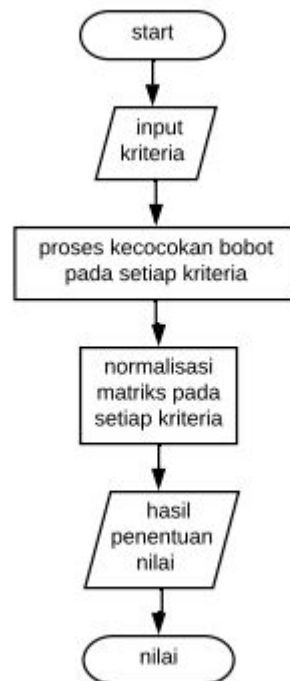
User flowchart is the flow of the system used by users or users of the system such as customers. For the first time, the user enters the front page to fill in the user name and password that have been determined or have been registered in the system. After successfully logging in, the user will enter on the next page to see the products contained in the Blitar Typical Souvenir shop and the price range that has been printed with the product. When a product has been selected, you can immediately make a transaction and close it by logging out. However, if there is no product that suits your wish or no one has been selected, you can immediately close it by logging out.



img 2.2 User Flowchart

c) SAW Method Flowchart

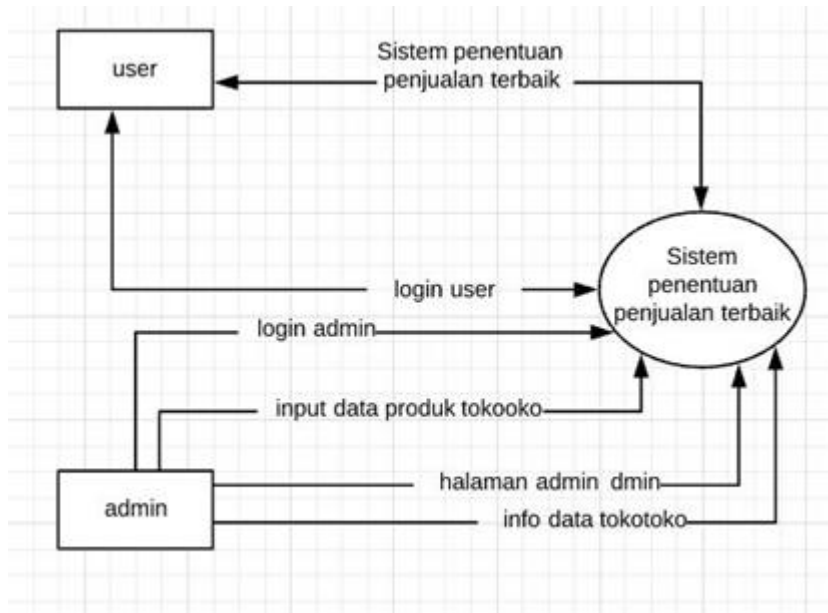
SAW method flowchart with the following explanation. First the program starts with a start, then input the assessment criteria and the weight of each criterion. After that, enter the weighting process for each (rating for the suitability of each criterion), enter the matrix normalization process for each criterion, and then the final preference value and ranking value appear. The program ends with end.



img 2.3 Flowchart of the SAW Method

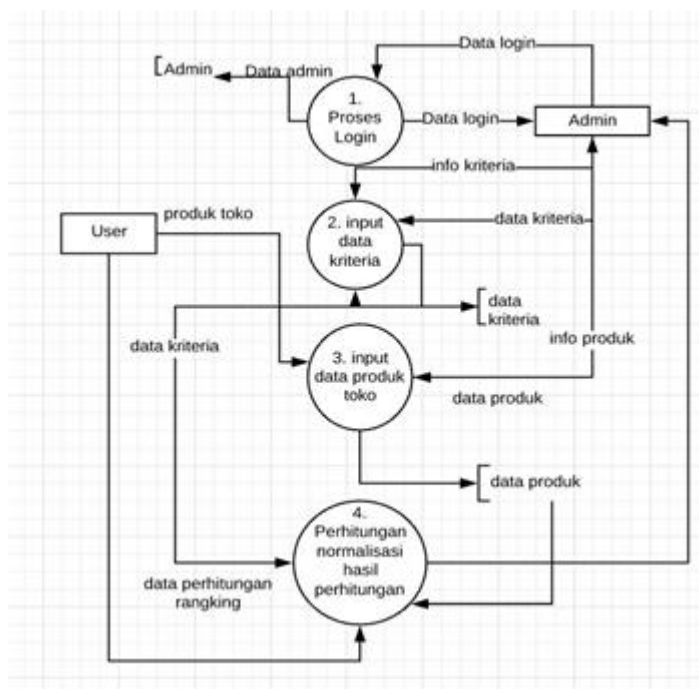
2.3 Data Flow Diagrams (DFD)

a) Data flow diagram level 0



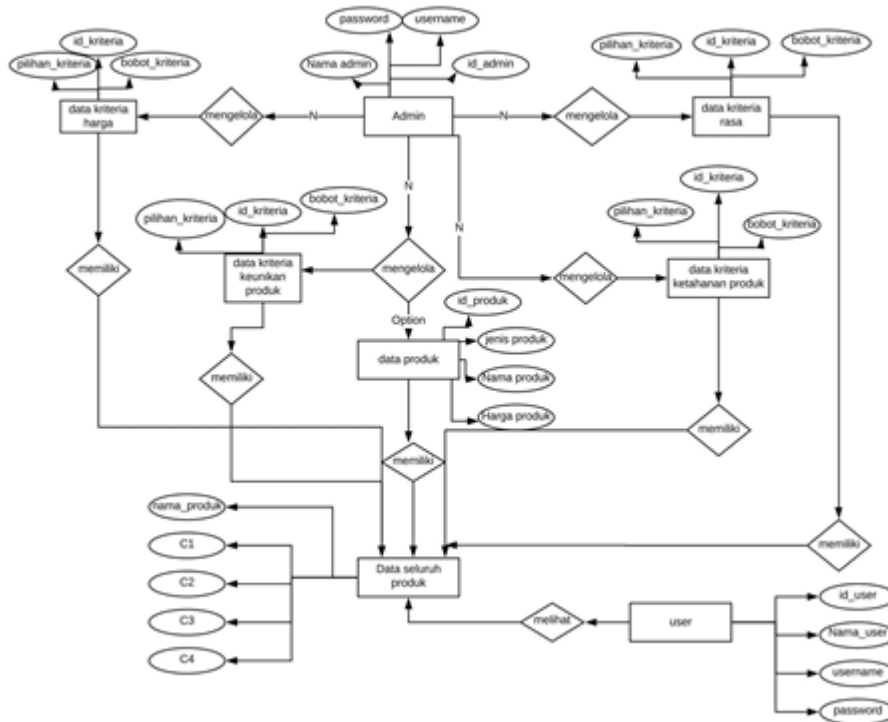
img 2.4 dfd level 0

b) Data flow diagram level 1



img 2.5 dfd level 1

2.4 Entity Relationship Diagram (ERD)

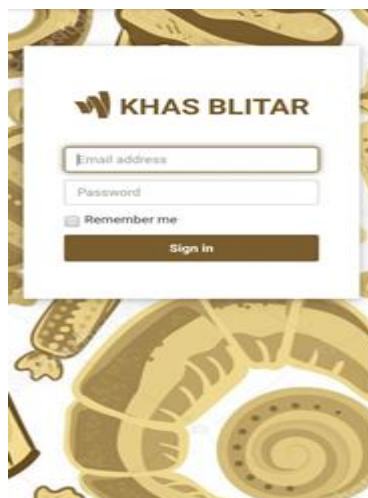


img 2.6 Entity Relationship Diagram

2.5 User interface design

To make it easier to operate the system, the system will be made web-based with the following user interface design:

a) Login interface



img 2.7 login interface

The login view is shown to system users, when they first open the sales system. The components shown from the homepage are an image as a sales system logo, a sales system title, and a shortcut to the dashboard menu.

b) Dashboard interface



img 2.8 dashboard interface

Dashboard display is shown to system users, when they first open the sales system. The components shown from the homepage are the image as the system logo, the system title, and the user control shortcut menu, product categories, goods, criteria, ratings, rankings, and profiles.

4. CONCLUSION

Based on the results of the design of the decision support system that has been carried out, it can be concluded that the recommendation system for the best product sales in a typical Blitar souvenir shop has been running quite according to its function. But it does not rule out that one day if this system is used an error will occur, so it will take time to fix it. So that this decision support system can run well.

With this decision support system, it will be easier for users to suggest the best-selling products in this store. And users do not have to ask shopkeepers to determine what products they want and are best selling because they can access this system independently.

5. SUGGESTION

The weighting and determination of the suitability rating in this decision support system is still subjective, and does not cover the entirety of the existing facilities. Furthermore, this research can be developed by adding facilities according to the circumstances, so that the results obtained can be clearer and more detailed.

REFERENCES

- Baysyaib, F. (2006). journal articles. Decision Support System for Providing Micro Business Assistance with Single Additive Weighting Method.
- Yani Sugiyani, AR (2014). Modern Musical Instrument Sales Recommendation System Using Simple Additive Weighting Method. Journal of Information Systems, University of Serang Raya.
- Faikhatus Sholikhah, DH (2016). Designing the Best Customer Selection Decision Support System Using the Simple Additive Language Method at Bravo Supermarket Jombang. Scientific Journal of Information Systems Technology.
- Ramadhan, A. (2005). Computer Study Book Series: The Internet and Its Applications. Jakarta: PT. Elex Media Komputindo, Gramedia.
- Rifka. (2017). SOP technique in making flowchart form. In Rifka, Step by Step Smoothly Creating SOPs (pp. 168-172). Nauli Media.