

Determination the Quality of BOOTS Shoes at the EIGER STORE Using the Simple Additive Weighting Method

Fredyanto Irawan
Universitas Prima Indonesia
Information System
Medan, Indonesia

M. Diarmansyah Batubara
Universitas Prima Indonesia
Information System
Medan, Indonesia

Abstract:- The times change a lot of things, one of them human needs such as shoes. Along with the development of modern life, shoes are an irreplaceable part to maintain one's appearance. So it is very important for companies to provide various types of shoes with certain advantages needed by the community so they can compete with other shoe products. For that reason, the writer tries to make it easier for the seller to make the best shoe recommendations more effectively and efficiently so that they can better utilize the available data to be processed into the recommendations. And the usual manual method is done by looking at the previous shoe data and less considering other criteria with the existence of this support system the results of the recommendations are more accurate and precise. Therefore the researchers made a decision support application using the Simple Additive Weighting (SAW) method, based on web with Dreamweaver Editor application and MySQL database. With the hope that this application will make it easier for the seller to determine the best shoes.

Keywords:- Boots Shoes, Decision Support System, SAW, WEB

I. INTRODUCTION

Today's business world is experiencing rapid change, and increasing technological advances in the modern era that require a company to make a product variant that suits the needs and purchasing power of consumers. as well as shoes. shoes are an irreplaceable part to maintain one's appearance. This is what drives the increasingly rapid business in the field of shoe sales because of the demands of increasingly complex consumer desires, and types of shoes also have advantages and disadvantages of each, depending on the price and material of the shoe itself. So it is very important for companies to provide various types of shoes with certain advantages needed by the community so they can compete with other shoe products. So we need a decision support system that is fast and accurate in recommending the best shoes, in order to provide an explanation to consumers in detail and correctly ^[1]. Decision support system is a system that helps decision makers to use data and various models to solve unstructured problems ^[2]. Another term decision support system is a computer-based /

computer-based system that is intended to assist decision making in utilizing certain sata and models ^[3]. The Promethee method is used to determine and produce decisions from several alternatives. In order to obtain solutions or results that can be taken a decision in the form of leaving flow ranking, entering flow, and net flow^[4]. There are many methods available in the decision support system so it is confused which one is suitable to use the method that is suitable with the case of the decision support system ^[5]. To solve the problem in determining the best shoes, the right course of action is to create a decision support system in determining the best shoes. By utilizing existing data to be used as a comparison in each alternative, so getting the best type of shoes to recommend.

II. RESEARCH METODOLOGY

Following are the steps needed to achieve the design goals to be carried out:

1. Identification of Problems

At this stage the problem is identified, to identify the problem that occurs at the Eiger Store so that the writer can provide a solution or design that can later facilitate the Eiger Store.

2. Data Collection

The author collected data directly to the Eiger Store. Data will be processed to get ranking results.

3. System Analysis

The author analyzes the right system in recommending the best Eiger Srtore shoe products, so that later the system designed can help company employees.

4. System Design

The author designs the system in accordance with the problems that have been found. This design process translates requirements or needs into software.

5. System Implementation and Testing

The program that has been designed will be tested for results. For the validation process will be tested with a blackbox. Decision support system is a computer-based system that produces various alternative decisions to assist management in dealing with various structured or

unstructured problems using data and models [6]. Promethee is a method of determining the order (priority) in multicriteria analysis. The main problem is simplicity, clarity, and stability. The presumption of the predominance of the criteria used in Promethee is the use of values in outranking relationships. This method includes a ranking method which is quite simple in concept and application compared to other methods for multi-criteria analysis [7].

III. RESULT AND DISCUSSION

3.1 Determination of Criteria

Criteria data are used to make comparisons between alternatives.

C1 = Design

C2 = Material

C3 = Outsole of shoes

C4 = Midsole shoes

C5 = Price

Symbol	Name Criteria	W	Sub-criteria	Value
C1	Design	0.25	Sport	1
			Hiking & Trekking	0.75
			Stylis	0.5
			Casual	0.25
C2	Material	0.2	Leather	1
			Polyster Nubbuck	0.75
			Nylon	0.5
			Canvas	0.25
C3	Outsole Shoe	0.35	Vibram Rubber Cupsole	1
			Compound Rubber	0.75
			Xc gripper	0.5
			Rubber	0.25
C4	Midsole Shoe	0.12	EVA Compress	1
			Phylon	0.75
			Polyurethane	0.5
			Plate Shank	0.25
C5	Price	0.08	>Rp. 2.000.000	1
			Rp.1.000.000 –Rp. 2.000.000	0.75
			Rp.800.000 – Rp.1.000.000	0.5
			Rp.500.000 – Rp.800.000	0.25

Table 1:- Criteria Data

1.2. Alternatif

Symbol	Alternative Name
A1	Sepatu Eiger Navajo Mc Boots
A2	Sepatu Eiger Boot Pollock
A3	Sepatu Eiger Mid Boot Shamrock

Table 2:- Alternative Data

3.3 Calculation of Preference Values

3.3.1 Determination of Criteria Value of All Alternatives

All alternatives will be assessed based on criteria, as explained in table 3 below.

Alt	Criteria				
	Design	Material	Outsole	Midsole	Price
A1	Stylis	Polyster	Compound	Phylon	1.850.000
A2	Hiking Trekking	Nylon	Compound	Phylon	850.000
A3	Casual	Leather	XcGripper	Phylon	950.000

Table 3:- Assessment Criteria of Each Alternative

3.3.2. Determination of the Weight Value of all the criteria of each alternative

After evaluating the criteria for all alternatives, the next step is to transform the value of the criteria into weighting values.

Alt	Criteria				
	C1	C2	C3	C4	C5
A1	0.5	0.75	0.75	0.75	0.75
A2	0.75	0.5	0.75	0.75	0.5
A3	0.25	1	0.5	0.75	0.5

Table 4:- Weight Assessment

3.3.3. Determination of the Maximum Value of each Criteria.

After transforming the value of the criteria into weight values, the next step is to determine the maximum value for each criteria.

Alt	Criteria				
	C1	C2	C3	C4	C5
A1	0.5	0.75	0.75	0.75	0.75
A2	0.75	0.5	0.75	0.75	0.5
A3	0.25	1	0.5	0.75	0.5
Max	0.75	1	0.75	0.75	0.75

Table 5:- Determination of Maximum Value

3.3.4. Normalization Calculation Method

The method of calculating the Normalization of the SAW Method is the value of the criteria weight divided by the maximum value.

Alt	Criteria				
	C1	C2	C3	C4	C5
A1	0.5 /	0.75 /	0.75 /	0.75 /	0.75 /
A2	0.75	1	0.75	0.75	0.75
A3	0.75 /	0.5 /	0.75 /	0.75 /	0.5 /
	0.75	1	0.75	0.75	0.75
	0.25 /	1 / 1	0.5 / 0.75	0.75 /	0.5 /
	0.75			0.75	0.75

Table 6:- Normalization Calculation

After dividing the criteria weights from the maximum value, the Normalization value will be generated.

Alt	Criteria				
	C1	C2	C3	C4	C5
A1	0.667	0.75	1	1	1
A2	1	0.5	1	1	0.667
A3	0.333	1	0.667	1	0.667

Table 7:- Normalization Results

3.3.5. Determination of the Vi value from the Simple Additive Weighted method.

To get the value of Vi is to do a matrix multiplication between the results of normalization and the importance of weight.

$$V_i = \begin{pmatrix} 0.667 & 0.75 & 1 & 1 & 1 \\ 1 & 0.5 & 1 & 1 & 0.667 \\ 0.333 & 1 & 0.667 & 1 & 0.667 \end{pmatrix} \times \begin{pmatrix} 0.250 \\ 0.200 \\ 0.350 \\ 0.120 \\ 0.080 \end{pmatrix}$$

Then the preference value of each alternative.

$$V_1 \text{ for } A_1 = (0.667 \times 0.20) + (0.75 \times 0.20) + (1 \times 0.20) + (1 \times 0.20) + (1 \times 0.20)$$

$$+ (1 \times 0.020).$$

$$V_2 \text{ for } A_2 = (1 \times 0.20) + (0.5 \times 0.20) + (1 \times 0.20) + (1 \times 0.20) + (0.667 \times 0.20).$$

$$V_3 \text{ for } A_3 = (0.333 \times 0.20) + (1 \times 0.20) + (0.667 \times 0.20) + (1 \times 0.20) + (0.667 \times 0.20).$$

3.3.6. Results.

After calculating the value of Vi, the following values can be obtained:

$$V_1 \text{ for } A_1 = 0.8667$$

$$V_2 \text{ for } A_2 = 0.8733$$

$$V_3 \text{ for } A_3 = 0.69$$

3.4. Ranking

Based on calculations performed using the *Simple Additive Weighting* method, the results shown in table 3. have been selected for the best shoe product as alternative B (Eiger Boot Pollock Shoes) with a 0.873 SAW Value.

Code	Alternatif	SAW Value
A2	Eiger Boot Pollock	0.873
A1	Eiger Navajo Mc Boots	0.867
A3	Eiger Mid Boot Shamrock	0.69

Table 8:- Ranking

IV. CONCLUSION AND SUGGEST

➤ Conclusion:

1. In recommending the best shoe products the *Simple Additive Weighting* method is applied in a calculation, where the results from the highest ranking are the best shoe choices.
2. To produce good shoe recommendations, a combination of the *Simple Additive Weighting* method and the application system has been designed, so that the shoe determination process is more effective and efficient so that the level of accuracy reaches 100%.
3. The results of shoe data management are presented in the form of a report, where the report is obtained based on the results of ranking by the method of *Simple Additive Weighting*. With this report, it is easier for the head of the store to see the results of good recommendations.

➤ Suggest:

1. More developed about the appearance of the Promethee calculation, so it is easier to understand.
2. The need to add features so that the system is not only used as a determination system but can be used for other things.
3. For further development the system can be changed to be based online not only in desktop form.

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