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DECISION SUPPORT SYSTEM FOR DETERMINING THE LOCATION OF IWANG RESTAURANT BRANCHES USING WEIGHT PRODUCT METHOD

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Abstract: Restaurant Iwang is a business in the field of food originating from Betawi (Tanah Abang), currently, the satay Betawi business is growing rapidly, because of this development, more and more people are making similar businesses. However, despite many similar businesses, Mr. Iwang's satay stall continues to get a good response from the community so that it has 2 branches with 1 center at Mas M1 Airport. because he saw a huge opportunity, Mr. Iwang was increasingly determined to build a bigger branch so he could continue to expand his business. But his determination could not be realized due to a lack of resources. Therefore, this research was conducted to make a good decision on where the branch will be built with a franchise system. With a Decision Support System to determine the appropriate place as the location of the franchise using the Weight Products (WP) method, the results of the decision will be used to assist Mr. Iwang in making a decision. The result will be information about the suitability of a location that will be provided by the franchise. This method is done by rating technique where the rating is raised with the weight of the rating attribute in question. The result shows that for the decision to open a new branch restaurant for

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restaurant Iwang has three rankings. The first ranking priority at location A1=" Ruko Malabar Market", the second-ranking priority at location A3=" Ruko Cibodas, PAM", and the third-ranking priority at location A2=" Ruko Pasar Lama".

Keywords: decision support systems; weighted product; franchise.

2010 AMS Subject Classification: 91B06.

1. INTRODUCTION

Branch Restaurant Mr. Iwang is a food business originating from the Tanah Abang Mess Gang, which is centered on M1 Airport Mas, now Branch Restaurant Mr.Iwang has 2 branches namely in Pintu Air 10 and Kotabumi Tangerang. With the condition that continues to grow, Mr. Iwang as the owner of this business has a very big desire to further develop his business, but lack of capital and resources is an obstacle in the development he wants to do. So with the franchise system, Mr. Iwang's efforts to develop his business. But do not rule out the possibility that the business with this franchise system stops in the middle of the road because the benefits are not appropriate. Because it is a Decision Support System it is necessary to assist the needs of accurate data to make it easier to make a decision.

Decision Support System, in essence, is to help in making a decision, the result of this research is to determine a strategic location to facilitate trademark owners in determining the exact and strategic location for establishing a place of business. Determining the best franchise location or location for this food business is easy because this business is a business that does meet the food needs of every community. With the Decision Support System to determine the location of this franchise, there are several things to consider including, location, land area, building area, competitors, and location crowd. After determining the things that are considered in the selection of the right location, then the location is recommended to the franchisee, if it is following these things, then the process is a decision.

But in making a decision is not easy because some things will be faced with something that is subjective and can make confusion for those who make decisions or make inappropriate decisions.

Because of this, the Decision Support System was made using the Weight Product (WP) method. Weight Product (WP) is a method of solving one of the decision support systems. This method evaluates several alternatives to a set of attributes or criteria, where each attribute is independent of one another. So the weight product (WP) method is suitable for use in determining the location of the franchise to be built into a branch of Branch Restaurant Mr.Iwang. Under the statement above, the research was made "Decision Support System (Decision Support System) determine the feasibility of the location of the franchise for Branch Restaurant Mr.Iwang with the Weight Product (WP) method". It is hoped that this research can help Mr. Iwang determine the location of the franchise as the newest branch accordingly and the franchise system can continue.

2. PRELIMINARIES

The Weight Product (WP) method was used to provide laptop recommendations that match the specifications of buyers with 100% accuracy. Based on manual calculations and calculations on decision support systems in the selection of laptops. The method requires a normalization process because this method forwards the assessment of each attribute[1]. Meanwhile, the WP method was used to minimize the process of selecting tower locations for PT. Winer Medan, because so far the company is still using a manual process that is directly visiting each location to be built. The WP method was used in the decision support system, the decision to make the location of the tower can be calculated based on the weight of the assessed criteria so that a decision on the location of the tower can be generated [2].

Moreover, the WP was conducted to change the system in determining the housing construction that will be carried out because the company still uses manual methods by the company observing the condition of the nearest housing and direct survey to the location directly. By using this WP the company hopes that the selection of residential construction sites will be more accurate[3]. Then, the Decision Support Systems (DSS) was built to decide the franchise store location at PT. Indonesia Morning Spirit using the Scoring System Method[4]. This research was conducted to obtain a decision in determining the right location for the franchise at PT. Indonesian Morning

Spirit. The method with a scale score requires a comparison norm to be interpreted qualitatively. With this method expected to produce a strategic location, this research also has the result that is in line with expectations, namely getting the right location and building a strategic franchise location for a business place.

Furthermore, the WP method was used to conduct a proper assessment of doctors because the current work evaluation at the Royal Prima Medan Hospital is still doing it conventionally and the results of the assessment are subjective[5]. The WP method was implemented by finding the value of the criteria weights and then processing the rating from the doctor. Then, the WP method was used as DSS to determine the students who performed well to be ranked [6]. The WP method research was conducted with the criteria of average value, discipline, attendance, extracurricular and non-academic activities.

Also, The WP method was to determine the midwife who works well and implement the Weight Product method to determine the best midwife in the Lalang Coal Health Center Riau [7]. Moreover, Geographical Information Systems (GIS) was implemented to help entrepreneurs or managers to make a good business location decision[8]. Meanwhile, the WP method also used aimed at supporting decision making on company activities to find excellent traditional herbs, by the selection of quality traditional spices in making herbal turmeric acid[9].

Farther, the WP method was also used for multiplication to associate the attribute value, where the value must be increased first with the weight of the attribute in question[10]. Four types of banana samples can be applied to make banana chips, namely kepok banana, ambon banana, jackfruit banana, and horn banana, where kepok banana dan horn bananas are the best to be made with chips. Meanwhile, the WP method was combined with the Simple Additive Weighting (SAW) method for recruiting new employees using assessment criteria for interviews, field tests, psychological tests, and health checks as Multi-Attribute Decision Making (MADM)[11]. The finding shows that the WP method can provide more strongest results than the SAW method, while the difference in the time of applying the SAW method and WP explains about the implementation time of the SAW method is relatively fast because the SAW calculation method has an easier process than using the

WP calculation method.

Moreover, MADM was implemented using SAW and WP methods for foodservice selection where food choices aim to find solutions to food shortages and Food choices can be made with diversification. Food diversification aims to find the best alternative food choices, where alternative foods are rice, corn, cassava, potatoes, sago, sorghum, wheat, and analog rice[12]. Then, the WP method was used for restaurant selection in the Badung Region with Geography Visualization centers/markets where several criteria will be used in decision making such as food quality, price, service, atmosphere, and distance [13]. The value of each of these criteria comes from the reviews or ratings of other users, so these values are dynamic. Users can freely set the weight value of each criterion to be compared to get the best results. The final result of this research is to build a system that can help users to compare several restaurants whose results will be sorted from the best based on the weight comparison results that have been entered.

Furthermore, the WP method was used aims to determine the location of housing in which the criteria are made according to the wishes of consumers, such as distance to the main road, distance to shopping centers/schools, distance to education centers/schools, population density around the location, land surface height for locations[14]. Meanwhile, the WP method was used as well for determining home renovation assistance in the Pringsewu district, where to determine which citizens were eligible for housing renovation assistance for disadvantaged/poor people[15]. Finally, the WP method was used as well to provide the value needed for project selection because value engineering (VE) as a methodology involves the application of techniques[16]. This study evaluating alternatives to construction projects after considering the requirements of the project owner.

Based on the 16 journals above, several conclusions can be drawn, namely:

Results obtained from research [1] The application of the Weighted Product method can be used to help recommend the selection of the best laptops in Bekasi Mandiri Vocational School by ordering alternative values from the smallest alternative value to the largest alternative value. By using 5 criteria, namely: Processor, RAM, Harddisk, VGA, Price. The formula used is, Wj =

$Wj\Sigma Wj$ to determine the weight per criteria and $Si = \Pi jn = 1\ Xij\ Wj$ to determine the vector value. The results obtained from research [2] namely the decision support system for selecting tower locations at PT. Winer has been successfully created by applying the Weighted Product method to one of the programming languages, the Visual Studio 2008 program, using the Access database, and displaying reports with Crystal Report. In applying the Weighted Product method, it is carried out in several stages, namely: making improvements to the weight, calculating the S vector, and calculating the V vector that has been discussed in the previous discussion section. In starting the process of making the system first, designing the system to be made. So that it succeeded in designing a decision support system to determine the feasibility of the location of the tower construction.

The results of research [13] namely the design of this system are made responsive, so it can adjust the size of the device of users who use it. Like users who use tablets or smartphones, it can be developed on a system that has been created for example adding new features such as users forgetting passwords, Interface / Interface on the system is made more attractive so that they don't feel bored in using this system.

The results of the study [14] viz By conducted decision support system for determining the endeavors in building the program of housing location in Pringsewu district, it can help investors in decision making when they will open housing business in Pringsewu District, After conducting this research hopes it can help developers know housing locations in Pringsewu District.

Based on the conclusions of the 15 journals above, it can be seen that the Decision Support System using the Weight Product (WP) method is very good to be used in making a decision, because by using this method the researcher can be more accurate in making a decision. by applying this WP method only produces the greatest value that will be selected as the best alternative. The calculation will be the same as this method if the chosen alternative meets the specified criteria. This WP method is more efficient because the time required in calculations is shorter. The weight for the benefit attribute functions as a positive rank in the multiplication process, while the cost weight functions as a negative rank.

3. MATERIAL AND METHOD

The study entitled "Decision Support System for Franchise Location for Branch Restaurant Mr.Iwang using the Weight Product (WP) method" is a study conducted to determine precisely, which strategic location will be determined to build a business. This decision support system is very important in determining a decision. This research has the advantage of being able to present the results of a Decision Support System to determine the location of Branch Restaurant Mr.Iwang Franchise and presenting writings to readers in understanding the concept of a Decision Support System that can help readers understand how and what a Decision Support System is like.

The method used in the process of collecting data is observation, library study, and library research. The observation method is done by collecting data that is done by direct observation of the research location. In this study, the observations made were visiting locations that would be used as references, namely Pasar Malabar Shop, Pasar Lama shop, and Cibodas Shop, PAM). Meanwhile, the Library Study is a method by searching from various sources, namely journals, books, and others. The method used to get references by doing internet technology is Google. Researchers use this to find information about prices, residents, and various references in the Weight Product method.

Meanwhile, Decision Support System (DSS) is an interactive system that helps in deciding on the use of data and decision models in solving problems that are structured, unstructured and semi-structured [4], which is used when no one person knows how the decision should be made and taken [5]. Because basic decision making is a systematic approach to a problem by way of gathering facts - facts and determining exactly the alternatives that will be faced. [15].

DSS are computer-based systems that are interactive to help determine an institution by using data from various models to solve related problems. DSS has 5 characteristics, namely: Computer-based system, Used in assisting in making decisions, Help in solving complex problems with manual calculations, Through interactive simulations and The main components are data and analysis models [5].

DSS aims to provide information, guide, provide predictions, and direct information to users to be

able to make better decisions. In addition to the above characteristics, there are other characteristics, namely: DSS is designed to help decide on semi-structured and unstructured problems with computerized information. The processing system is by combining entry techniques and analytical models by interrogation data/information search. Meanwhile, Franchise is a form of business collaboration between 2 or more companies where 1 is a franchisor and the other party is a franchisee. In this system, the franchisor is the owner of a well-known brand and gives the franchisee the right to make an effort for an item and service based on a commercial plan that is prepared and its success is tested from time to time, in exclusive and nonrelationships exclusive, otherwise, the franchisor will get a reward from these things. [4]

A strategic location is related to where the company will build its operations center. In this case, there are 3 types of interactions that can affect the location, namely: Service Providers (companies) are visited by consumers, in situations like this, the location becomes a very important location because the company should choose a place close to consumers so that it is easy to reach. Consumers are visited by the Service Provider if in such conditions the location becomes not too important, but it must still be considered if the delivery of a fixed service must be quality. The two do not meet each other directly, in situations like these service providers and consumers interact through other means of communication such as telephone, email, computers, etc. This condition makes the location less important because communication does not work effectively. A collection of location factors that are combined, used specifically from the amount of land use, can provide good flexibility in giving and handling the preferences that will use. This depends on the characteristics of the business itself, there may be factors that are not addressed individually but are compliant in making location decisions [8]. In the DSS in determining the location two directions expand geographical, quantitative, qualitative and evaluation and maintenance, if necessary. DSS itself can generate benefits to users, namely managers and entrepreneurs such as reducing search time, assessing locations, arranging, and prioritizing data. priories and preferences, measure the need for an appropriate location and provide comparisons between industries. [8]

The Weight Product (WP) method uses multiplication in linking attribute ratings, which raring

must be raised with the corresponding weight/value and this method only produces the highest and the largest and highest number will be the best alternative to choose [2] the method that uses multiplication to connect the attribute rank, where each attribute rank must be raised first to the weight associated attribute [12]. This method only requires a short time in the process therefore this method is an effective and efficient method to be used [1].

This method requires normalization in each of the criteria weights by multiplying the results from the assessment of each attribute/criterion. The results are then divided by standard values. Cost category weights serve as positive and negative ranks in terms of cost criteria [3]. In this method, it should be noted that this method is potentially better because of its simplicity and user-friendliness [16].

The advantage of this method is that it is useful to determine the criteria that influence the decision, besides the calculation is not too complex and easy to understand, often used in determining a decision with the concept used that is the rating of an assessor variable [7]. Dimensional analysis is a term that is often used for weight products because it can be used in multi-dimensional problems or all problems, institutional problems in which alternatives are explained using different measurements. [14]

The stages of the Weighted Product method are: [13]

1. Determine the criteria to be used as an election.
2. Determine the assessment of the importance of the specified criteria.
3. Determine the ranger rating of each criterion.
4. From the assessment data, each attribute weight and alternative value is made a decision matrix (X).
5. The process of repairing / normalizing criteria weights (W) is carried out.

$$Wj = \frac{wj}{\Sigma wj} \qquad (1)$$

Information:

Wj = Attribute Weight

ΣWj = Addition of Weight of Attributes

The variable W is the rank in which the criteria are positive and the costs are negative. According to Susliansyah, et al Variable W is the rank of positive value for the profit attribute and negative value for the cost attribute. Preferences for alternatives are given by equation (3). The normalization process (S) of the decision matrix is performed by multiplying the attribute rating, where the attribute rating must first be raised with the attribute weights. [1] The decision to give weight based on the level of interest of each of the criteria needed for the steps in the method of calculating the Weighted Product is as follows. [10].

$$Si = \prod_{j=1}^{n} Xij^{W_j} \qquad (2)$$

Information:

Π = Product

Si = Matrix Normalization Result

Xij = Alternative value i to the jth attribute

n = number of criteria

Wj = Weight of each attribute or criterion

Preference process for each alternative

$$Vi = \frac{\prod_{j=1}^{n} xij^{Wi}}{\prod_{j=1}^{n} (xj^{*})^{Wi}} \qquad (3)$$

Information :

Vi = i alternative alternative preference results

Xij = Alternative rating per attribute

Wj = attribute weight

i = alternative

j = attribute

In the process of the weighted product method required criteria will be used as calculation material in the calculation in determining achievement. (Other valuation methods where the product is weighted from criteria used to choose the best alternative) [13].

4. MAIN RESULTS

In determining the right location to build a business Warung Sate Betawi Mr. Iwang this research uses the Weight Product method which steps as mentioned there are 5 steps such as:

1. Determine the criteria to be used as an election.

   Determine the Criteria and Alternatives to be used, in this study the following criteria and alternatives are used. Table 1 shows there are 3 alternatives such as A1, A2, and A3 as Ruko Malabar Market, Ruko Pasar Lama, and Ruko Cibbodas, PAM. Meanwhile, there are 6 criteria as shown between tables 2 and 7 such as:

   a. Transportation access information (C1)

      This criterion was divided become two options as shown in table 2.

   b. Description of the rental price (C2)

      This criterion was divided become four options as shown in table 3.

   c. Description of Population Density (C3)

      This criterion was divided become five options as shown in table 4.

   d. Description of Safety and Hygiene (C4)

      This criterion was divided become three options as shown in table 5.

   e. License Criteria Information (C5)

      This criterion was divided become two options as shown in table 6.

   f. Explanation Criteria for Building Area Ruko (C6)

      This criterion was divided to become five options as shown in table 7.

Table-1 Alternative Information

Alternative	
A1	Ruko Malabar Market
A2	Ruko Pasar Lama
A3	Ruko Cibodas, PAM

Table-2 Transportation Access Information (C1)

No	**Access Transportation**	**Value**
1	Near from Highway	5
2	Away from Highway	4

Table-3. Description of Rental Price Criteria (C2)

No	Rental Price	Value	Remarks
1	Rp. 17.000.000/ Year	1	Very Not Suitable
2	Rp. 15.000.000/ Year	3	Quite appropriate
3	Rp. 12.500.000/ Year	4	Corresponding
4	Rp. 10.000.000/ Year	5	Very appropriate

Table-4. Description of Population Density Criteria (C3)

No	Population Density	Value	Remarks
1	≥11.000 Soul/ Km2	1	Very Not Suitable
2	9.000 - 10.000 Soul/ Km2	2	It is not following
3	7.000 - 8.000 Soul/ Km2	3	Quite appropriate
4	5.000 – 6.000 Soul/Km2	4	Corresponding
5	≤4.000 Soul /Km2	5	Very appropriate

Table-5. Description of Safety and Hygiene Criteria (C4)

No	Safety and Cleanliness	Value	Remarks
1	Unsafe & Unclean	1	Very Not Suitable
2	Safe enough & Clean enough	3	Quite appropriate
3	Safe & Clean	5	Very appropriate

Table-6. License Criteria Information (C5)

No	Licensing	Value	Remarks
1	Easy	5	Very appropriate
2	A little complicated	4	Corresponding

Table-7 Explanation Criteria for Building Area Ruko (C6)

No	Area of the office building	Value	Remarks
1	126-150 M2	1	Very Not Suitable
2	100-125 M2	2	It is not following
3	75 - 99 M2	3	Quite appropriate
4	65 - 74 M2	4	Corresponding
5	50 – 64 M2	5	Very appropriate

2. Determine the assessment of the importance of the specified criteria.

   Determine the scale of importance (weight) of each of the criteria specified above, the researcher determines the preference weights for each criteria C1 to C6 as shown between tables 2 and 7, and Table 8 shows the weight for those six criteria.

Table-8. Criteria of Weights

Criteria Code	Criteria	Value Criteria of Weight
C1	Transportation Access	5
C2	Rental price	5
C3	Population density	4
C4	Safety and hygiene	4
C5	Licensing	3
C6	Area of the office building	3

3. Determine the ranger rating of each criterion.

   After determining the preference weights, then we will find which criteria are worth the costs and benefits. If the criterion is worth the cost then the attribute value becomes negative and if the criterion value is worth the profit then the value is fixed (positive). In the criteria above there is a criterion that is worth the cost of C2 so that the weight of C2 is negative (-5).

4. From the assessment data, each attribute weight and alternative value is made a decision matrix (X).

   Before finding the decision matrix as calculated as Si in equation (2) then weights will be improved using equation (1), where ∑ Wj = 5+5+4+4+3+3=24, whereas summation of value criteria of weight at last column in table 8. Next is the detail for each W as attribute weight for each criterion in table 8:

$W_j = \frac{wj}{\Sigma wj}$ = W1 =5/24 = 0.21

$W_j = \frac{wj}{\Sigma wj}$ = W2 =-5/24 = -0.21

$W_j = \frac{wj}{\Sigma wj}$ = W3 =4/24 = 0.17

$W_j = \frac{wj}{\Sigma wj}$ = W4 = 4/24 = 0.17

$W_j = \frac{wj}{\Sigma wj}$ = W5 = 3/24 = 0.13

$W_j = \frac{wj}{\Sigma wj}$ = W6 = 3/24 = 0.13

   Special for criteria C2 the Wj=-5 since mention before where the criteria C2 is recognized as cost.

Next, Table 9 shows the assessment data where the three alternatives in table 1 such as A1=" Ruko Malabar Market", A2=" Ruko Pasar Lama" and A3=" Ruko Cibodas, PAM" were assessed with six criteria such as C1, C2, C3, C4, C5 and C6 as seen between tables 2 and 7 and each row or alternative has assessment six criteria value such as C1, C2, C3, C4, C5 and C6 as shown in table 9.

Table.9 Assessment Data

NO	Alternative	Criteria					
		C1	C2	C3	C4	C5	C6
1	A1= Ruko Malabar Market	Near the highway	12.500.000 /Year	4.000 Soul /Km2	Safe and Clean Enough	Easy	70 M2
2	A2= Ruko Pasar Lama	Near the highway	15.000.000 / Year	5.700 Soul /Km2	Unsafe and Unclean	Little difficult	55 M2
3	A3= Ruko Cibodas, PAM	Near the highway	15.000.000 / Year	7.500 Soul /Km2	Safe and Clean Enough	Little difficult	78 M2

Meanwhile, table 10 is the result of the composition for assessment data in table 9 using each scoring criteria C1 to C6 as shown between tables 2 and 7. For example, the first row in table 9 where alternative A1=" Ruko Malabar Market" with value content:

- C1=" near from the highway" and refer to C1 scoring on table 2 then has score=5.
- C2="12.500.000/year" and refer to C2 scoring on table 3 then has score=4.
- C3="4.000 soul/Km2" and refer to C3 scoring on table 4 then has score=5.
- C4=" Safe and Clean Enough" and refer to C4 scoring on table 5 then has score=3.
- C5=" Easy" and refer to C5 scoring on table 6 then has score=5.
- C6="70 M2" and refer to C6 scoring on table 7 then has score=4.

Thus, the first line on table 10 shows the detail for alternative A1= "Ruko Malabar Market" with criteria C1, C2, C3, C4, C5, and C6 scores such as 5, 4,5, 3, 5, 4 respectively.

Table 10. composition of Alternative Criteria Weight

NO	Alternative	Criteria					
		C1	C2	C3	C4	C5	C6
1	A1	5	4	5	3	5	4
2	A2	5	3	4	1	1	5
3	A3	5	3	3	3	1	3

Improvements to the weight of the results have been obtained, then the next step is to search for the S Vector as Si in equation (2) from the assessment data on table 9 become matrix normalization result. The Si in equation (2) was running with the value of the criteria weights on table 10 where Xij in equation (2) as criteria score value at table 10, while Wj as the result from equation (1) above such as 0.21, -0.21, 0.17, 0.17. 0.13 and 0.13. Moreover, i as row and j as the column, so as an example for the first row in table 10 where i=1, and alternative A1=" Ruko Malabar Market" with j=1 to n where n=6 as several criteria C1 to C6 such as 5,4,5,3,5,4 and each of criteria will be power with Wj where j = 1 to 6 with score 0.21, -0.21, 0.17, 0.17. 0.13 and 0.13. Then S1= (50.21) (4-0.21) (50.17) (30.17) (50.13) (40.13) =

1.4*0.75*1.31*1.20*1.22*1.19 = 2.39

The same with S1, then for the second row in table 10 where i=2, and alternative A2=" Ruko Pasar Lama" with j=1 to n where n=6 as several criteria C1 to C6 such as 5,3,4,1,1,5 and each of criteria will be power with Wj where j = 1 to 6 with score 0.21, -0.21, 0.17, 0.17. 0.13 and 0.13. Then S2= (50.21) (3-0.21) (40.17) (10.17) (10.13) (50.13) =

1.4*0.80*1.26*1.00*1.00*1.22 = 1.71

The same with S1 and S2, then for the third row in table 10 where i=3, and alternative A3=" Ruko Cibodas,PAM" with j=1 to n where n=6 as number of criterias C1 to C6 such as 5,3,3,3,1,3 and each of criteria will be power with Wj where j = 1 to 6 with score 0.21, -0.21, 0.17, 0.17. 0.13 and 0.13. Then S3= (50.21) (3-0.21) (30.17) (30.17) (10.13) (30.13) =

1.4*0.80*1.20*1.20*1.00*1.15 = 1.84

5. The process of repairing / normalizing criteria weights (W) is carried out.

Last but not least, after generating the S vector with equation (2) as matrix normalization result value from each alternative, the result of the S Vector is picked up for the result used in the V Vector research the result is as follows: 2.39 + 1.71 + 1.84 = 5.95 as shown in the second column on table 11. The next step is to determine the result of the Vectors value V with equation (3) where each vector value Si from each criterion as seen in the second column in table 11 was divided with a total score of 5.95 and had to score of 0.40, 0.29, and 0.31 as shown in the

third column table 11.

The last column in Table 11 shows the ranking of alternatives where the largest V score is 1st ranking with V score =0.4, the second-ranking with V score=0.31, and the third-ranking with V score=0.29. Obviously, from the result of the ranking, as shown in table 11, a decision can be made that a good alternative is A1=" Ruko Malabar Market" with vector S=2.39 and vector V=0.40. Moreover, the second-ranking alternative is A3=" Ruko Cibodas, PAM" with vector S=1.84 and vector V=0.31 and the third-ranking alternative is A2=" Ruko Pasar Lama" with vector S=1.71 and vector V=0.29.

Table.11. Ranking Results

Ranking Result			
Alternative	**Vector Value S**	**Vector Value V**	**Ranking**
A1	2.39	2.39/5.95= 0.40	1
A2	1.71	1.71/5.95= 0.29	3
A3	1.84	1.84/5.95= 0.31	2
Total	5.95	1.00	

5. CONCLUSION

Based on the running Weight Product (WP) method for the decision to open a new branch restaurant for restaurant Iwang then the first ranking priority at location A1=" Ruko Malabar Market", the second-ranking priority at location A3=" Ruko Cibodas, PAM" and the third-ranking priority at location A2=" Ruko Pasar Lama".

There are five stages of the Weighted Product method as the first is to determine the criteria to be used as an election, the second is to determine the assessment of the importance of the specified criteria. The third is to determine the ranger rating of each criterion, the fourth is from the assessment data, each attribute weight and alternative value is made a decision matrix (X) and the fifth is the process of repairing / normalizing criteria weights (W) is carried out.

CONFLICT OF INTERESTS

The author(s) declare that there is no conflict of interests.

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