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Aplication Of AHP Method In Selection Of Food Criteria In Medan City

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Abstract- Many foods are on the market but not all the food can be liked or liked by consumers, it all depends on several things that support and meet the expected target. Consumers have many difficulties in choosing what foods they will consume so that in choosing the food is only based on one criteria only and not some criteria. To overcome these problems it is necessary a method that can be used in decision making. The method used in Decision Support System for this research problem is Analitic Hierarchy Process method where in this method is a method of decision making by making pairwise comparisons between choice criteria and pairwise comparisons between the options available so as to get a ranking where the types of food are very to get rank where type of food which is very much in demand. From the results of this study, Durian get the highest weight of 20.98%, then Fried Rice 19.99%, Noodles 19.90%, Soto 19.56% and Meatballs 19.45%.

Keywords : Food, AHP, Criteria

1. INTRODUCTION

Assessment of existing food at this time is one very important factor undertaken by consumers. At this time consumers still do not know how to choose foods that are in demand, so it is not uncommon in selecting food in circulation based on only one criterion alone without looking at other criteria in the food tersebut. This research can make the desired results which will later help consumers choose the most popular foods [1]. AHP method begins with defining the problem, making a hierarchical structure that begins with a general purpose, followed by criteria and alternative choices, Creating a paired comparison matrix, Normalizing data, Calculating eigenvalue vector and testing its consistency, Calculating eigen vector from each comparison matrix in pairs, test the consistency of the hierarchy. If it does not meet with CR <0.100, the assessment must be repeated [2] [4]. There are several studies that have been carried out about food selection, namely:

1.Kadek, et.al conducted research on the Application of Analytic Hierarchy Process (AHP) In Traditional Snack Selection In Tabanan Traditional Market [2].

2.Yohannes, et.al in his research on Determinant Factors of Selection of Food Snacks On Elementary School Students [3].

Identification of Problems

For identification in this study, namely:

1.It takes a method that can overcome the above problems where the results will be able to bring a positive impact for its users.

2.Consumers and Sellers are expected to be more competitive in buying and selling food products snack.

Research purposes

In this study the aim is to help consumers buy the most desirable food and be consumed in the market while for the seller to get the results of what foods are consumed by consumers with the AHP.

Research that has been done

Kadek, et.al (2014) conducted research on Application of Analytic Hierarchy Process (AHP) In Traditional Snack Selection In Tabanan Traditional Market. This journal uses the AHP method and the criteria are raw materials, chemical composition, taste, appearance / appearance, availability, price, way of processing, location / place of sale, presentation method and packaging used. From the results of this research results obtained criteria that become a priority in the selection of traditional snacks in traditional markets Tabanan City is the appearance / appearance of the first, the second taste, the third way of presentation, the fourth is the price and fifth packaging.

While the research conducted by Yohannes, et.al (2013), in his research on Determinant Factors of Food Snacks Selection In Primary School Students using Cross Sectional Study Design where the results obtained from this study are the main factors that determine the snacks in the school that is variable price , gifts, portion sizes, aromas and freedom of choice.

2. METHODE AND MODEL AHP

Methode AHP

Research using AHP is a method that can be used in decision making by describing complex multi-criteria problems into hierarchies [2] [4] .

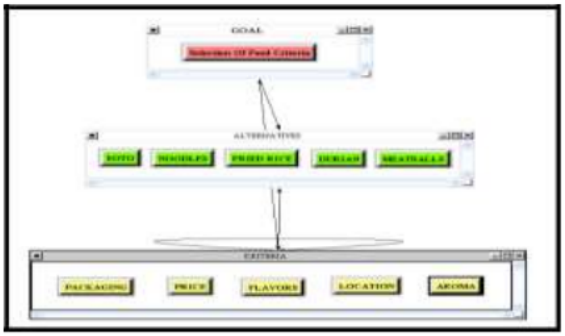

Figure 1 Structure Of Analytic Hierarchy Process (AHP) (Saaty, 1993)

AHP Stage

The steps to be taken by AHP method are as follows [2][5]:

1. Move the matrix with the corresponding priority.
2. Summing the results per line.
3. The sum of each row is divided by the relevant priority and the results are summed.
4. The result c divided by the number of elements, will be obtained λmaks.
5. Consistency Index (CI) = (λmaks-n) / (n-1).
6. Consistency Ratio = CI / RI, where RI is a random consistency index. If the consistency ratio ≤ 0.1, the data calculation results can be justified.
7. The list of RI is presented in Table 1

Table 1. Random Index Value

Matrix Size	The value of RI
1,2	0,00
3	0,58
4	0,90
5	1,12
6	1,24
7	1,32
8	1,41
9	1.45
10	1,49
11	1,51
12	1,48
13	1,56
14	1,57
15	1,59

Survey results and wawacancara conducted on 35 respondents in the city of Medan.

Research methods

Connection Analysis

Connection Analysis in this study are :

a. Aim
   This study aims for people who need the best food in the city of Medan.
b. Criteria
   Criteria in this research are :
   1. Packaging
   2. Price
   3. Flavors
   4. Location
   5. Aroma
c. Alternatives
   Alternatives in this research are :
   1. Soto
   2. Noodles
   3. Fried Rice
   4. Durian
   5. Meatballs

3. Result And Discussion

Testing Tools *Superdecision*
The first step to work on *Superdecision*

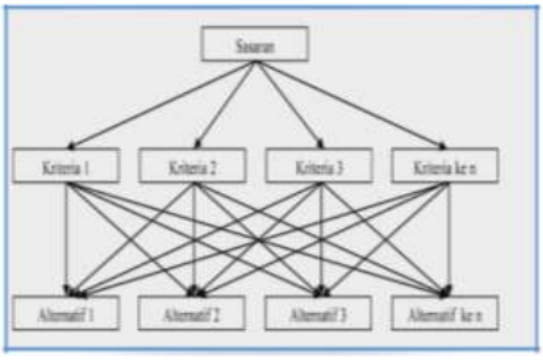

Figure 2 *Node* display in *Cluster*

After creating a node display in the cluster then connect the node nodes in the alternative cluster, then click the connection, then select the node that will be connected and click ok. Can be seen in Figure 3:

Figure 3 Display *Connecting* existing *Clusters* Next is all the formed *clusters* must be connected and connected, then enter the average questionnaire value and enter all the *clusters* that are already connected to the matrix menu tab as shown in the figure below:

Figure 4 *Questionnaire Display*

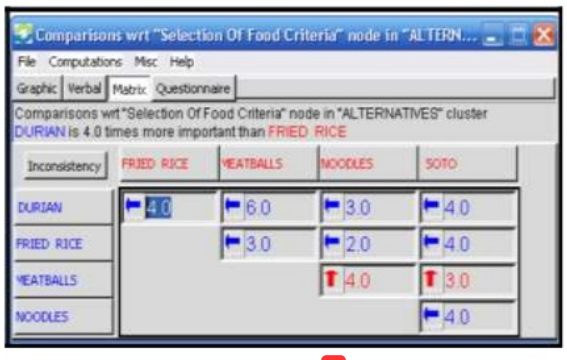

Figure 5 *Matrix Results*

After all the values of the questionnaire results are entered, to find out the value of *inconsistency and priority* of each criterion, click *computations* and then select an *ideal priority*.

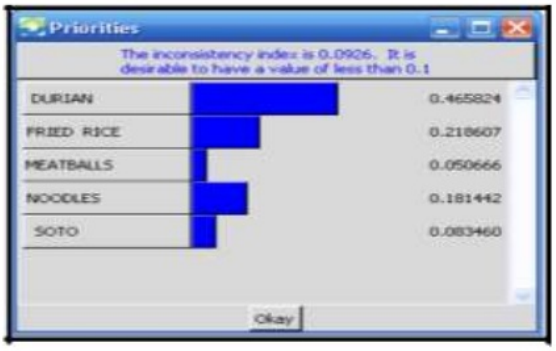

Figure 6 Value of *inconsistency and priority*

Figure 7 can be seen Analysis of AHP computation results between comparison ratios consistency of matrix values in each existing cluster.

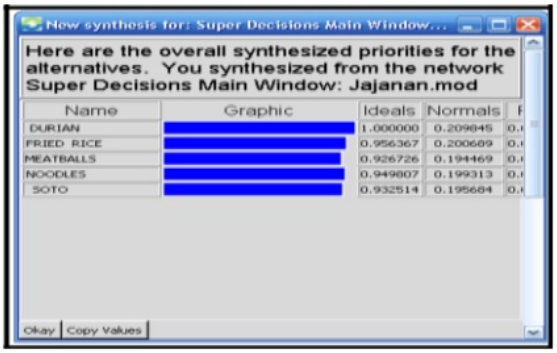

Figure 7 Figure 7 Display of *Research Results*

Figure 8 Display full report of the *results* of the analysis carried out in the study at *Superdecision*.

Figure 8 *Report* on *Ranking Results*

The above display shows the *results* obtained from this study are 20.98% Durian, 20.07% Fried Rice, 19.93% Noodles, 19.57% Soto and 19.45% Meatballs.

4. CONCLUSIONS

From this study, conclusions were obtained:
1. There are 5 criteria in this study, namely Packaging, Price, Taste, Location and Aroma.
2. The results of the AHP method were obtained, namely Durian got the highest score of 21.10% with a consistency value of 0.1.

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