

Decision Support System for Tourist Attractions Recommendation in Sidoarjo Using Profile Matching Method and AHP Method

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ABSTRACT

The problem that is often faced by tourists is choosing a tourist attraction that suits the needs that are desired, and in accordance with the budget. This study aims to facilitate tourists in determining tourist attractions that suitable with standard criteria. This research compares the Profile Matching and AHP methods in the best process of decision making, from several articles reviewed. The Profile Matching method assumes an ideal predictor variable and fits the criteria. Meanwhile, the AHP method carries out simultaneous analysis and is mutually integrated between its parameters. The results of this research answer the needs of domestic and foreign tourists in determining the desired tourist attractions as needed.

Keywords: Decision Support System, Profile Matching, Analytical Hierarchy Process

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1. INTRODUCTION

Tourism is inseparable from people's lives because it involves social and economic aspects. Tourism can be a promising business, it can be a source of tax and income for companies that provide services to tourists. Every country has a leading tourism destination. Indonesia has distinguished tourism spots that are rich in culture like Bali. Jogja which is rich in history and temples. Tourism is a promoter of the world economy so that many countries compete to make a superior destination.

In the tourism field, the selection of tourist destinations still become a thing that is reviewed by tourists, both domestic and foreign. Selection of tourist attractions that suitable in terms of distance, cost, cleanliness, entertainment, and rating. Frequently they are not satisfied with the facilities provided by the tourism due to lack of information about the tourist attractions. Therefore technology is needed in the form of a Decision Support System for tourist attractions in a website-based application. So that it can make it easier for tourists to choose tourist attractions that suit their tastes.

MIS (Management Information System) is the application of information systems in the organization to support informations needed by all levels of management . According to George M. Scott, MIS is a collection of information system interactions that provide information for managerial and operational needs. Management Information Systems have a major role for companies in the field of tourism. Competition between the similar industry, the threat of new companies, the power of consumer bargaining.

And the role of Information Systems in helping an organization to achieve strategic advantage from its competitors.

Decision Support System (DSS) is a software-based system intended to assist managers in making decisions by accessing large amounts of information generated from various information systems. Due to the problem of tourists with the tourist attractions, so it is needed a Decision Support System for tourist attractions in Sidoarjo using the Profile Matching Method and the AHP Method.

1.1. Profile Matching Method

Profile Matching is a decision making mechanism by assuming that there is an ideal level of predictor variables that must be fulfilled by the subjects that are studied, instead of the minimum level that must be fulfilled or passed.

The profile matching method is commonly used for the Decision Support System to determine the appropriate eligibility in a development. The advantage of using this method is that it can measure what is desired in the expected specifications. Not less or even more, but suitable as needed.

In determining tourist attractions recommendations, the profile matching method has a role in comparing user input, in this case is an ideal solution with the criteria for each tourist site. So the difference between criteria and ideal solutions is often called the gap. If the gap that generated is smaller, then the weight value will be bigger. Profile matching based decision support system functions as a tool in accelerating the search for recommended tourist attractions in accordance with the criteria. Through

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this system, quick and accurate results are obtained so that the determination of the desired tourist attractions becomes more relevant.

In making decisions there are several processes of profile matching, including:

1. Determine the criteria, sub-criteria and values
2. Finding the sub criteria value of the object
3. Determine the gap
4. Determine the core and secondary factors
5. Determine the total value
6. Determine the ranking

After those stages above, will be obtained conclusions whether it is worthy or not.

1.2. Analytical Hierarchy Process (AHP) Method

Analytic Hierarchy Process (AHP) is a method that is commonly used to make decisions with various criteria and organize them into a hierarchy. Work principle: AHP simplifies unstructured complex, strategic and dynamic complex problems into its parts, and organizes variables in a level. After that the level of importance of the variable is given a numerical value subjectively, about its relative importance compared to other variables.

Then the research is conducted to determine which variable has the highest priority and has a role to influence the results in the system. AHP method is often used as a method in solving problems because it has the following advantages:

1. The hierarchical structure, as a consequence of the selected criteria, up to the deepest sub-criteria.
2. Calculates the validity up to the tolerance limit of inconsistencies of various criteria and alternatives chosen by decision making.
3. Calculate the durability of the decision making sensitivity analysis output.

Analytic Hierarchy Process (AHP) can solve problems by analyzing simultaneously and mutually integrating between the parameters. The parameter values can be quantitative, qualitative or a combination of both, the qualitative parameters are changed first into quantitative so as to produce more objective decisions.

In this research, a trial was conducted with the AHP method specifically to determine tourist attractions for tourists who want to take a vacation. The criterias that are used as a reference in selecting tourism attractions include Distance, Cost, Attractiveness and Facilities. These criterias are a consideration for tourists in determining tourist attractions.

2. RESEARCH METHOD

This research uses literature review method. Literature Review is a technique of collecting data by conducting a research to books, literature, and journals related to the problem that is being solved.

The reason for using the literature review method, because in the literature study includes systematic review of literatures and the results of previous researches, which have been confirmed. It has correlation with the research that will be carried out and worked on.

The object in this study is the user and tourist attractions along with the level of compatibility according to the ideal data desired by the user, which is based on distance, cost, attractiveness and facilities.

3. RESULT AND DISCUSSION

The results and discussion are the most important parts of the entire contents of scientific articles. The purpose of the discussion is to answer the research problem, interpret the findings, integrate the findings from the research into a collection of existing knowledge and compile new theories or modify existing theories. Below is the result and discussion of the Profile Matching method:

3.1. Application Interface

Login page is intended to authenticate users who will enter the decision support system for tourist attractions as for the input required is a username and password.

3.2. User Registration Page

User Registration Page If the user wants to access the tourist attraction decision support system for the first time, the user must first register him/herself through the user registration page.

3.3. Weight Input Page

Ideal Solution In choosing tourist attractions, required a criteria of the desired tourist attractions. The criteria in the system include distance, cost, beauty and facilities. Then the next process, is the weight calculation using the profile matching method to get a list of tourism that meet the criteria.

3.4. Calculation Result Page

After going through the process of weight calculation, a list of tourist attractions that meet the criteria will be generated. The list displays 5 results sorted from the highest calculation results to the lowest calculation.

3.5. Tourist Attraction List Page

Users can also see all list of tourist attractions with complete photos and descriptions. In addition, users can also see the rating of a tourist site through this feature.

Results and discussion in the AHP method

1) Designing System

The system designing consists of process designing and interface designing. The design process consists of Context Diagrams and Data Flow Diagrams (DFD) Level 1.

a. Context Diagram

Is the highest level of DFD which describes all the inputs to the system or the output of the system.

b. DFD Level 1

DFD Level 1 in the tourism recommendation system has two processes, they are login and tourism recommendation system.

For admins, they have four processes, all of them are the data criteria and weight processing

2) Program Display

- a. Form of the Determination of Criteria Value Is a form to determine the criteria value that the user wants as the initial weight in the assessment that provides Distance, Cost, Beauty and Facilities.
- b. Recommendation Result Display
Is a display of the processing result of a tourism recommendation system using the AHP method, the output given is in the form of a tourism list or ranking of tourist attractions that are recommended to the tourists.

4. CONCLUSION

Based on the research that has been done, it can be concluded that the use of the Profile Matching method can be used in determining or recommending tourist attractions in Sidoarjo based on user needs divided into 4 criteria based on distance, cost, beauty and facilities.

The use of AHP method which refers to the existing problems, is also able to design a tourist attractions recommendation system by processing the data that has been collected that are distance, cost, beauty and facilities.

However, in the system there are certainly some shortcomings. In the Profile Matching method, the system does not calculate the durability or resilience of the decision-making sensitivity analysis output. Whereas in the AHP method, the system cannot be reviewed in terms of pure statistics or opportunity distribution because sampling is not random and can be done by single-participant or multi-participant.

The existence of these 2 decision support systems is expected to make it easier for tourists to choose tourist attractions in Sidoarjo that they want to visit in accordance with these 4 criteria.

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This research needs to be developed to improve the effectiveness and utilization of the use value of the Decision Support System for Tourist Attractions in Sidoarjo

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