



APPLICATION OF DETERMINATION OF CULINARY BUSINESS OPPORTUNITIES STUDY WITH THE SAW METHOD AS A TOURIST ATTRACTION IN THE DIGITAL ERA

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Abstract

In the development of technology, more and more people are using the products of technology development to facilitate their daily activities. However, to determine opportunities when opening a culinary business, people usually choose according to their own estimates without using a system that is able to help the community to determine a business opportunity, including people in XYZ District, Central Java Province. In this situation, a Decision Support System (DSS) can be developed, which is a computer-assisted decision-making process to assist decision-makers by using certain data and models to solve some unstructured problems. The calculation method used is Simple Additive Weighting (SAW) with the basic concept of finding the weighted sum of the performance ratings on each alternative on a criterion. The features that can be used are storing master data such as alternative data, criteria data, and attribute data and generating a list of recommendations for the type of culinary business and the categorie of the culinary business in XYZ District. This system is expected as a means to help the community when making decisions to choose a culinary business at XYZ District in Central java as a tourism attaction in digital era.

Keyword : Decision Support Systems, Simple Additive Weighting, Culinary Business Opportunities,

INTRODUCTION

The community has a variety of jobs, one of which is an entrepreneur in the culinary field. To determine opportunities when opening a culinary business, people usually choose according to their respective estimates without using a system that is able to help the community to determine a business opportunity. This also happened in Purwanto District, Wonogiri Regency, Central Java Province. There is not yet a Decision Support System that is able to help the community in Purwanto District to choose and determine culinary business opportunities and culinary business categories. By utilizing advanced technology, it can be one way to realize a system that can help the community to determine culinary businesses that are in accordance with the conditions and criteria. Thus, it is hoped that the community will be easier to choose the right culinary business for micro-enterprises.

The product to be developed is a web-based Decision Support System using the CodeIgniter (CI) framework. The system can be managed by admin. The system that will be made uses the Simple Additive Weighting (SAW) method in its calculations. The criteria used for business ranking are business capital, profits, number of competitors, and number of enthusiasts. The criteria used for ranking the recommended business places are the distance from the village to the market, the distance from the village to the main road, and the number of residents in the village. This culinary business determination system seeks digitization efforts in order to support the improvement of the tourism sector in the post-pandemic digital era.

METHOD

The research methodology carried out in this study uses the Waterfall research methodology. The Waterfall research methodology can be seen in Figure 1.



Figure 1 Waterfall Research Methodology Pictures

Waterfall research methodology stage (R. A. Sukamto and M. Salahuddin, 2013):

1. Software Requirements Analysis
2. Design
3. Program Code Generation
4. Testing
5. Support or Maintenance

Decision Support System

Decision Support System is a computer-assisted decision-making process to assist decision-makers by using certain data and models to solve some unstructured problems. The existence of DSS in companies or organizations is not to replace the tasks of decision makers, but is a tool that helps them in making decisions (Wibowo, 2011).

Simple Additive Weighting

Simple Additive Weighting (SAW) is a weighted addition method. The basic concept of Simple Additive Weighting (SAW) is to find the weighted sum of the performance ratings on each alternative on a criterion. The Simple Additive Weighting (SAW) method requires the process of normalizing the decision matrix (X) to a scale that can be compared with all available alternative branches. The calculation steps for the SAW method are as follows:

1. Determine the alternative, namely A_i
2. Determine the criteria that will be used as a reference in the decision making of C_i
3. Determine the preference weight or importance level (W) of each criterion. $W = [W_1 W_2 W_3 \dots W_4]$
4. Create a rating table for the suitability of each alternative on each criterion
5. Make a decision matrix X which is formed from the suitability rating table of each alternative (A_i) on each criterion (C_j) that has been determined where, $i = 1, 2, \dots, m$ and $j = 1, 2, \dots, n$.

6. Normalize the decision matrix X by calculating the normalized performance rating value (r_{ij}) from the alternative (A_i) on performance (C_j)
7. The results of the normalized performance rating value (r_{ij}) form a normalized matrix (R). (Harsiti and H. Aprianti, 2017).

Website

Website is an internet facility that connects documents locally and remotely. Documents on the website are called web pages and links on the website allow users to move from one page to another (hyper text), both between pages stored on the same server or servers around the world. Pages are accessed and read through browsers such as Netscape Navigator, Internet Explorer, Mozilla Firefox, Google Chrome, and other browser applications ((Harsiti and H. Aprianti, 2017).

CodeIgniter

CodeIgniter (CI) is a PHP framework that can help speed up developers in developing PHP-based web applications compared to writing all program code from scratch [5]. In CI there are several kinds of classes (classes) in the form of libraries and helpers. CI has a complete library to perform operations commonly required by web-based applications such as accessing databases, validating forms so that the system developed is easy. CI is also the only framework with complete and clear documentation. CI source code which is equipped with comments in it so as to further clarify the function of a program code and the resulting CI is very clean and search Engine Friendly (SEF) (M. Destiningrum and Q. J. Adrian, 2017).

Unified Modeling Language

Unified Modeling Language (UML) is one of the visual language standards that is widely used in the industrial world to identify requirements, make analysis and design, and describe architecture in object-oriented programming. UML emerged because of the need for visual modeling to specify, describe, construct, and document software systems. UML only serves to do modeling, so the use of UML is not limited to a particular methodology, although in fact UML is mostly used in object-oriented methodologies (R. A. Sukamto and M. Salahuddin, 2013).

RESULTS AND DISCUSSION

Functional requirements are used to determine the functions performed by actors who have access to the system. Functional Needs in Applications for Determining Culinary Business Opportunities can be seen in Table 1.

Table 1 System Functional Requirements Table

Kode FR	Deskripsi FR	Aktor	Dependency
FR01	Admin can login	Admin	
FR02	Admin can change alternative data for culinary business	Admin	FR03
FR03	The system can display a list of alternative culinary business data	Sistem	
FR04	Admin can change alternative data for culinary business categories	Admin	FR05
FR05	The system can display a list of alternative data for culinary business categories	Sistem	
FR06	The system can display a list of culinary business criteria data	Sistem	
FR07	Admin can change culinary business criteria data	Admin	FR06

The FR Code field contains a unique code for each functional requirement of the system. The FR Description column contains a description of the functional requirements of the system. The Actor column contains actors in the form of people or systems that perform or are related to a function. Then the Dependency column contains the FR Code from another function, where a function has a dependency on the function whose unique code is listed in the Dependency column.

Non-functional requirements are used to analyze application interactions outside of functional requirements. The non-functional requirements of the Application for Determining Culinary Business Opportunities can be seen in Table 2.

Table 2 System Non-Functional Requirements Table

Kode non-FR	Deskripsi non FR
NFR01	The system can be run by web browser software
NFR02	The system can provide information when data input does not comply with the rules

The Non-FR Code column contains a unique code for each non-functional system requirement. The FR Description column contains a description of the non-functional requirements of the system.

Use Case Diagram shows the relationship of functions in the system as described in the functional requirements. The Use Case Diagram of the Application for Determining Culinary Business Opportunities can be seen in Figure 2.

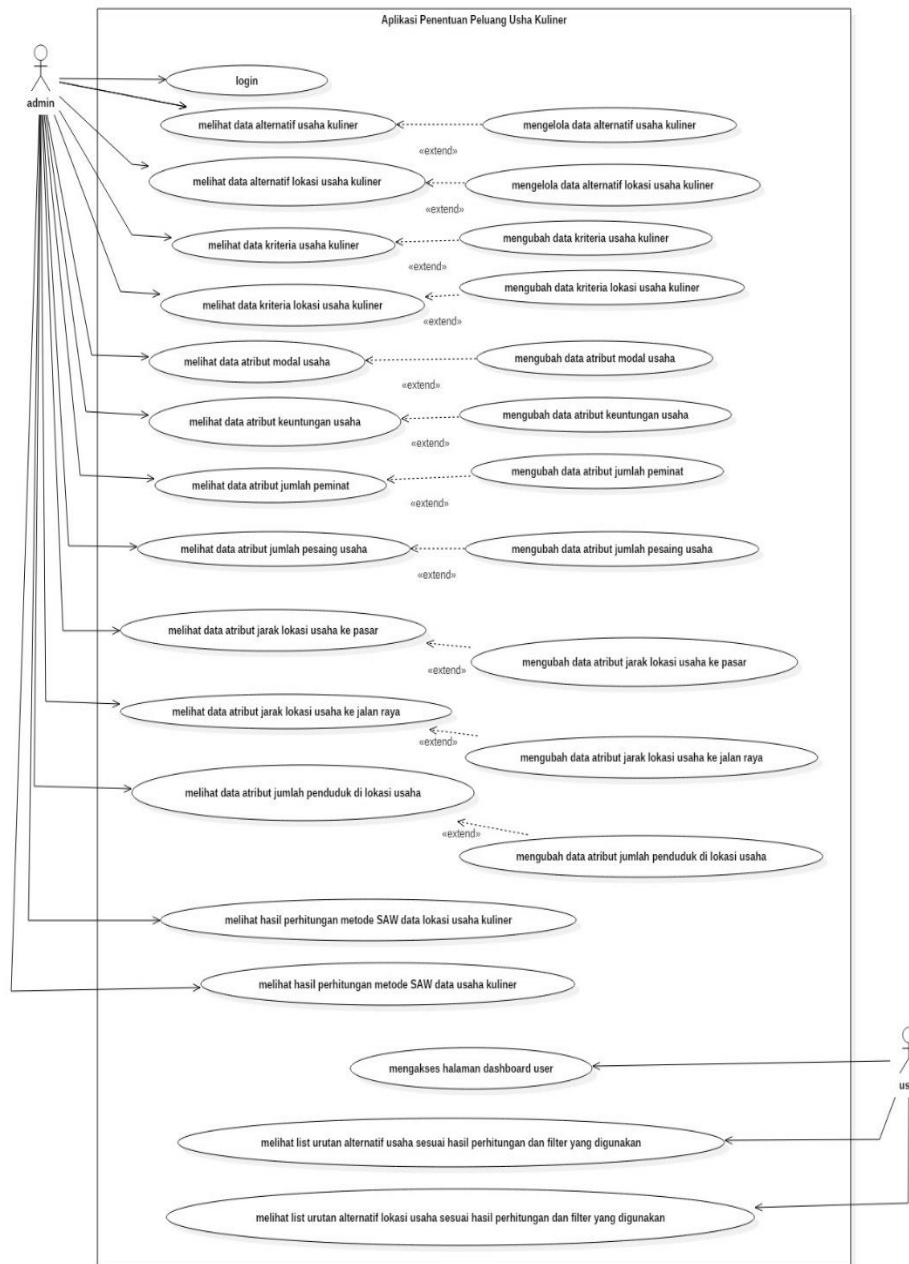
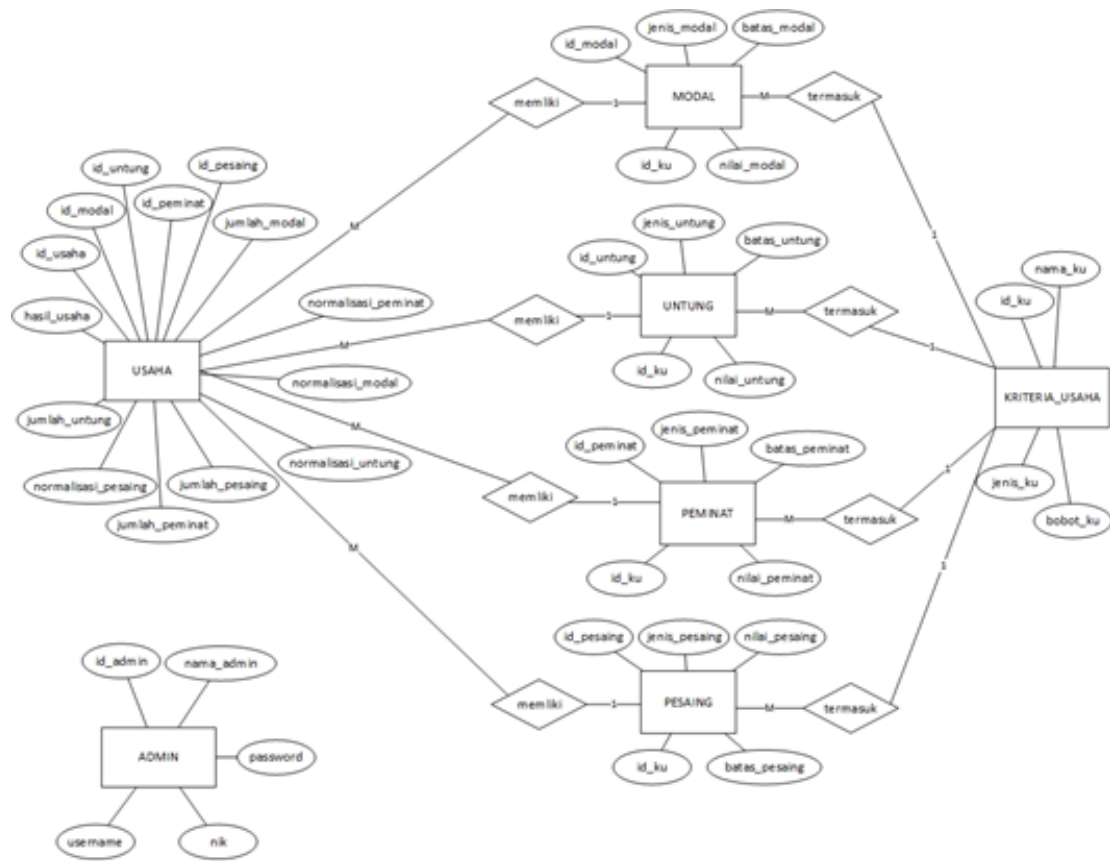


Figure 2 Figure Use Case Diagram

In this study, there are 2 actors involved in the system, namely admin and user. Admin and user have different access rights and features in the system. One of the differences in access from admin and user is that the admin must log in if he wants to access the admin page and the user does not need to login to access the login page. Admins and users can see the results of the recommendation sequence for culinary businesses and culinary business categories based on calculations using the Simple Additive Weighting method.

Entity Relationship Diagram (ERD) or E-R Model or is a model used to describe data in the form of entities, attributes, and relationships between entities [7]. ERD in this study can be seen in Figure 3.



Gambar 3 Entity Relationship Diagram

The implementation of the design for the admin page can be seen in Figure 4 and Figure 5.

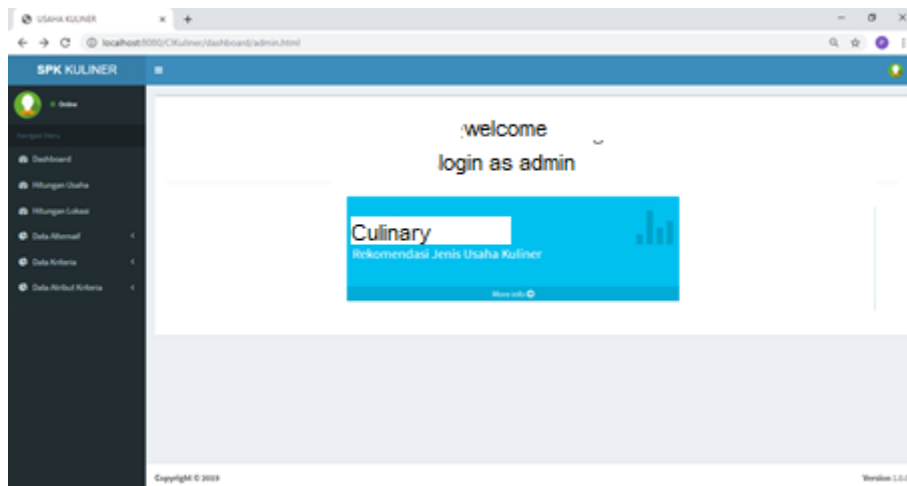


Figure 4 Implementation of The Admin Dashboard Page

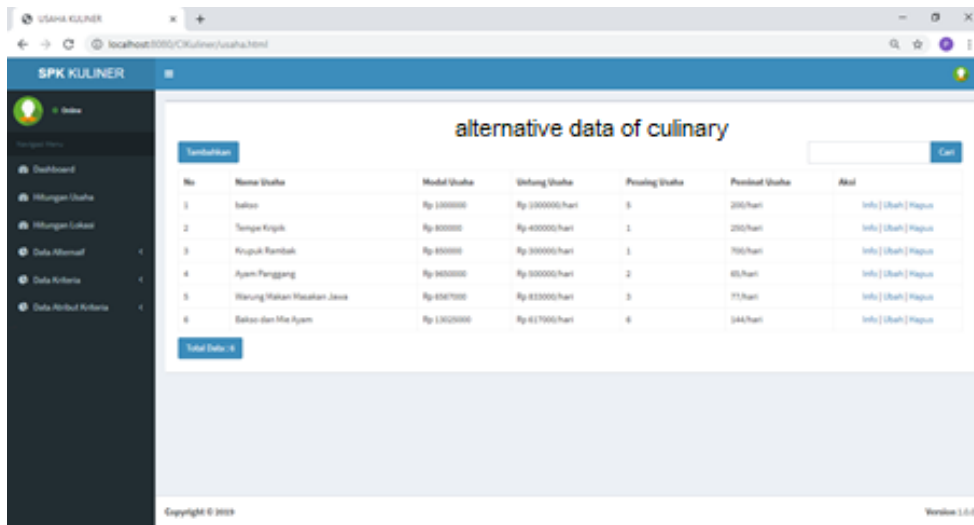


Figure 5 Implementation Of The Alternative Data Menu Page

The implementation of the design for the user page can be seen in Figure 6.

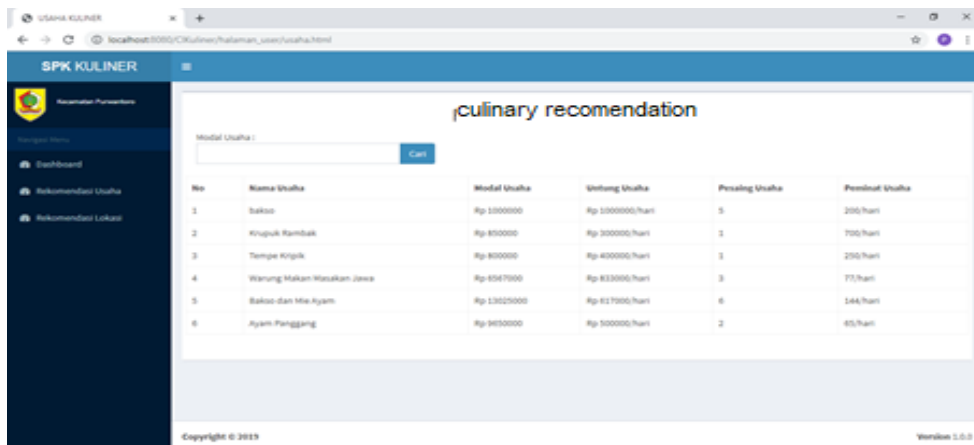


Figure 6 Implementation Of The Culinary Business Recommendation Page On The User Page



Figure 4 Kuisiner the system displays culinary categories

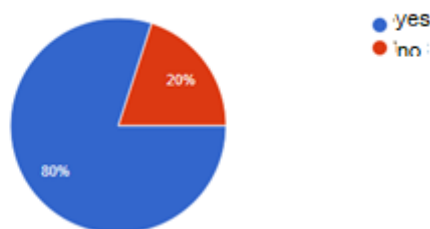


Figure 8 Usability system

The test results of the Application for Determining Culinary Business Opportunities based on respondents' opinions during the system simulation can be seen in Figure 7 and Figure 8. Recommendations and web-based information systems for determining culinary businesses are expected to provide and improve the community's economy, especially in the field of tourism in the current digital era. In the digital era, the era of digitalization, big data technology provides convenience for the community in obtaining information and also in determining a problem.

CONCLUSION

The research conducted resulted in the conclusion that it has succeeded in developing a system with the title Application of Determining Culinary Business Opportunities with features that are able to store master data such as alternative data, criteria data, and attribute data and produce a list of recommendations for the type of culinary business and business categories so that it can increase tourism attraction in the post-pandemic period.

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