

DECISION SUPPORT SYSTEM FOR HIGH SCHOOL ENTRANCE SELECTION

Reza Zubaedah^{1*}, Hertanto Prasetyo²

^{1,2}Universitas Musamus, Indonesia

¹reza@unmus.ac.id, ²tyotanjung483@gmail.com



*Corresponding Author

Article History:

Submitted: 10-06-2022

Accepted: 11-06-2022

Published: 12-06-2022

Keywords:

Decision Support Sistem; SAW; Selection Student

Brilliance: Research of

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ABSTRACT

Currently, when going to high school, a selection will be made to select students based on zoning alone. Admissions using zoning are very detrimental to students who are outside the zoning but have better grades. Schools also want to have quality students however, the existence of government regulations makes it a trick if only zoning is used as a reference. The existence of a decision support system using the SAW method helps to make alternatives by having several criteria that are used as a benchmark when making a decision. In making this decision support system can display the results of student rankings based on SAW calculations and the development method using waterfalls and making this system web-based using PHP MySQL and HTML. This research produced a decision support system that can help make it easier for schools to determine the selection of new students based on the existing zoning system and produce rankings. The results of testing accuracy increased from 56% to 100%.

INTRODUCTION

School is the second environment to grow personality and a place to practice for children in an effort to minimize illiteracy and provide media for children's growth and development to be better in the future. According to the Regulation of the Minister of Education and Culture (KEMENDIKBUD) Number 51 of 2018 concerning Admission of New Students to Kindergarten, Elementary Schools, Junior High Schools, Senior High Schools, and Vocational High Schools, all schools in Indonesia are required to accept candidates new students as a whole (Eka Sahputra¹), Kusri², n.d.).

The selection process for accepting new students at the school is approximately 450 new prospective students who register, the current selection process, the school in determining whether or not a prospective student passes or not is seen from several criteria (Zain & Purniawati, 2020), namely the distance from the prospective participant's house students to school, national exam scores, and test scores (Astriawan & Elisabet, 2017). But in its current determination, the school does not involve the 3 criteria directly.

The determination made by the school at this time was first seen from the distance from the prospective student's house to the school (Hailitik et al., 2017). Then if the acceptance based on the distance from home to school has been made, the next determination is seen from the results of the national exam scores and test scores of prospective students (Suryadi & Harahap, 2018). This system is carried out to support government regulations regarding the acceptance of new students based on zoning. However, the policy does not fully refer to the ministry's regulations, because schools in Papua Province, especially the Merauke Regency area, do not yet have restrictions on the zoning of each school so that the school cannot determine which areas will be accepted at the school. Many students live far from school. So that the determination system as above can have an impact on the time of decision making in the process of accepting new prospective students (Lutfiansyah et al., n.d.), because the selection process requires the school to select one by one the data of prospective participants according to the 3 applicable criteria. Using the Simple Additive Weighted (SAW) method to assist in providing alternative decisions for the school so that the quality of students obtained according to the desired criteria (Wijaya et al., 2017).

LITERATURE REVIEW

This decision support system is made using the PHP programming language and uses MySQL as the database (Rasyid, 2019). SAW method was chosen to display the criteria by ranking (Buono et al., 2020). Where in this study using 3 criteria so that it is not only zoning but there are 2 other criteria, namely national exam scores and test scores held in schools. The system is expected to be able to help the school so that the admission process becomes easier and more time-saving without having to go through a selection one by one which takes a long time, not to mention the school has to choose which ones are included in the criteria and which ones are not (Pandiangan et al., 2020).

METHOD

Indesigning a decision support system using a use case diagram that can explain the system as a whole, below is the use case diagram from the decision support system of the selection of new students. As for the use case diagram drawing, it can be seen in Figure 1.

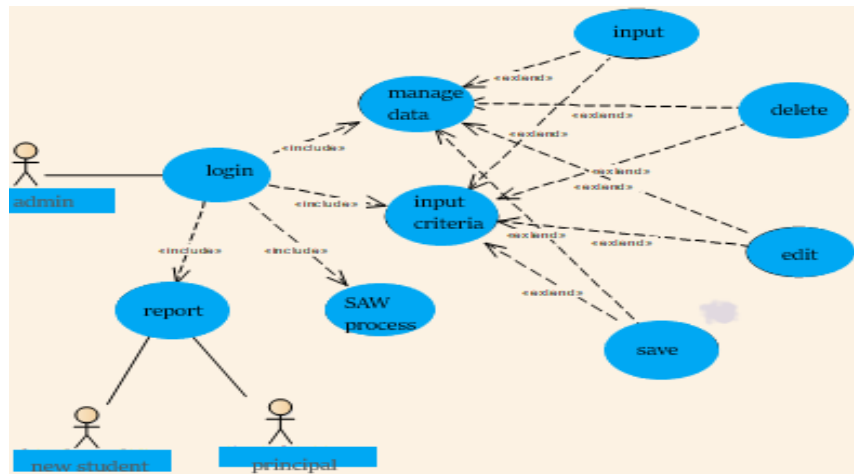


Figure 1. Use Case Diagram

In figure 1 illustrates how the program is used :

1. The admin logs in first before running the program, then carries out student data processing activities, processes criteria data and performs calculations to rank student scores and make reports while
2. students can see the results of the ranking
3. the principal can see the report on the results of the ranking from the system

RESULT

The display of the New Student Admissions Selection Decision Support System using the Simple Additive Weight (SAW) method which is expected to support the school in determining new students who will enter the school environment can be seen in Figure 2.

REGISTER MASTER DATA ALTERNATIVE NORMALISASI LOGOUT

STUDENT NAME

Choose ▾

DISTANCE :

UN VALUE :

TEST VALUE :

INFORMATION :

SAVE

Figure 2. Form Input Value

Normalization calculation process can be seen in Figure 3.

* REGISTER MASTER DATA ALTERNATIVE NORMALISASI LOGOUT

PRINT

CRITERIA

No	Criteria	Akronim	weight	attribute
1		c1	0.60	C
2		c2	0.20	B
3		c3	0.20	B

No	Student name	c1	c2	c3	Total
1	Septia	0.60	0.20	0.19	0.99
2	Damiana Konko	0.12	0.13	0.20	0.45
3	Falah Jundan	0.30	0.20	0.16	0.66

Perankingan

No	Student Name	Total
1	Septia	0.99
2	Falah Jundan	0.66
3	Damiana Konko	0.45

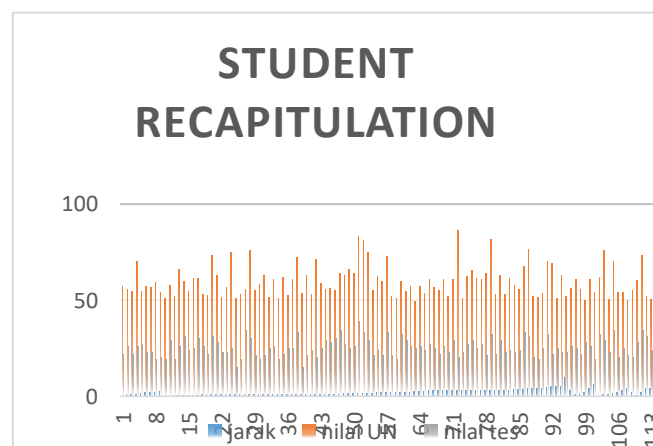
Figure 3. Form Normalization

DISCUSSION

To test the accuracy of the decision support system with the SAW method as follows. To see the recapitulation of the data used in a sample of one high school, it can be seen in Table 1.

Table 1 Recapitulation of Student Data

No	Name	Registrant	Selection	Receiver
1	Student	322	200	113



The following are the results of the student data recapitulation graph shown in the Figure below which is shown in Figure 6

The accuracy test did not reach 100% because the calculations used were different from the SAW method. In the SAW method there is a value normalization step so that the calculation formula is different. Because the results of the school's accuracy test are 56%, the author tries to input the value in the SPK system with the same number of students, the accuracy results obtained increase from 56% to 100%. From the test results, it can be concluded that the calculation of the SAW method in this system is correct

CONCLUSION

The conclusions obtained from this system are:

1. Decision support system that can help facilitate the school in determining the selection of new students based on the existing zoning system
2. Generate rankings on all alternatives using the SAW method applied by the school
3. In this new student admissions decision support system, the accuracy test results increased from 56% to 100%

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