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Analysis Of Decision Support Systems Edas Method In New Student Admission Selection

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ABSTRACT

University of Harapan Medan is one of the private tertiary institutions in North Sumatra which has an informatics engineering study program. The informatics engineering study program is a study program that has many enthusiasts. Every year this study program graduates more than 200 students. To produce graduates who have potential, reliability and competence in the field of technology and information, it is necessary to make a selection at the beginning, namely at the time of admission of new students. There are 5 criteria used in the selection process, including the average report card score, basic ability test, computer ability test, psychological test, and interview. Each criterion has 5 weights of values, namely very high, high, medium, low and very low. The selection process for admission of new informatics engineering students with a decision support system for the EDAS (Evaluation Based On Distance From Average Solution) method. Where the stages in this method are by normalizing the decision matrix and looking for the average from alternatives, then from these results calculate the average positive distance (PDA) and negative distance (NDA) as well as the assessment of the weighted attribute weights of SPi and SNi, after that the normalization of positive and negative distance weights is carried out for determining the ranking score. From the results of the analysis carried out using the EDAS method, with a sample of 10 prospective students it was concluded that the 6th order student candidate had the highest score with a score of 0.519 and the lowest score in the 7th order student with a score of 0.14. Therefore, the level of accuracy of the EDAS method in selecting new student admissions is around 20%. Of course, this accuracy value will change with large data samples.

Keywords: Decision Support System, EDAS (Evaluation Based On Distance From Average Solution), Selection, Students, Informatic Engineering

1. INTRODUCTION

The informatics engineering study program is one of the study programs at the Faculty of Engineering and Computers that has many enthusiasts every year. There were more than 227 prospective students who enrolled in the informatics engineering study program and who graduated in the continuous employment process were around 189 people. Of course the informatics study program is still continuing to accept new students. Graduates from study programs are sought after in the world of work, especially in the technology industry and office administration. Every year the informatics engineering study program graduates more than 200 students who have competence and expertise in the field of information technology. To produce alumni graduates who are reliable in their fields, it is necessary to make an initial selection in the admission of new students. The selection process for new student admissions uses a decision support system of the EDAS (Evaluation Based On Distance From Average Solution) method.

Decision making systems are a branch of science that is located between information systems and intelligent systems. The decision-making process of various alternatives that exist requires a criterion. Each criterion must be able to answer one important question about how well an alternative can solve a problem at hand (Siregar & Handoko, 2022). The EDAS method is the application of analysis according to the results of the calculation of alternative positive distances, alternative negative distances, weight positive distance weight tables, weight negative

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distance weight tables, normalization of positive distance values, normalization of negative distance values (Tamimi & Prasetyaningrum, 2009). The criteria used in the selection of new student admissions are other average report card scores, basic ability tests, computer ability tests, psychological tests, and interviews.

2. LITERATURE REVIEW

Decision is the activity of choosing a strategy or action in solving the problem. The act of choosing a strategy or action that the manager believes will provide the best solution to something is called decision making. The purpose of the decision is to achieve a specific target or action that must be carried out (Hadinata, 2018). Decision Support System (SPK) as a computer-based system consisting of three interacting components,language systems (mechanisms for giving communication between the user and the component other Decision Support Systems), system knowledge (domain knowledge repository problems that exist in the Support System Decision or as data or as procedures), and problem processing systems (the relationship between the other two components, consists of one or more capabilities necessary manipulation of common problems for decision making) (Harahap, 2020)

Decision support system is a technique or method in decision making with an accurate and fast process (Sembiring & Siregar, 2021). In addition, Decision Support System (DSS) is a set of systems capable of solving problems efficiently and effectively, which aims to assist decision making in choosing various decision alternatives that are the result of processing information obtained or available (criteria) using decision-making models (Suharti & Putro Utomo, 2021). Decision support system is an interactive system, which helps decision makers through the use of data and decision models to solve problems that are semi-structured and unstructured in nature (Santosa, 2017)

A Decision Support System (DSS) is one of the ways of organizing information intended to be used in making decisions. Some define that a decision support system is an approach to support decision making. The decision support system uses data, provides an easy user interface and can incorporate the thinking of decision makers (Simorangkir et al., 2022). The purpose of DSS is:

a. Assist managers in decision-making on semistructured issues.
b. Provide support for the manager's consideration rather than being intended to replace the manager's functions.
c. Increase the effectiveness of decisions made by managers more than improve their efficiency.
d. Compute. Computers enable decision makers to do a lot of computations quickly at the lowest cost.
e. Increased productivity. Building a decision-making group, especially experts, is very expensive (Sembiring & Siregar, 2021)

Computer-based decision support systems (DSS) are quite widely applied in determining policies in various fields, such as in the fields of economics, industry, education and others, including in the selection of promotional media. In general, DSS is a computer-based system that utilizes data and models to solve structured problem problems. In particular, DSS is a system that supports the work of decision makers in solving semi-structured problems by providing information and alternative decisions on certain problems. Interactive with the aim of facilitating integration between various components in the decision-making process such as procedures, policies, analysis, experience and insights of managers to make better decisions (Rosita et al., 2020)

a. Some characteristics of the decision support system, namely:
b. Interactive. This characteristic requires an SPK to have a communicative interface, making it easier for users to access the data and information needed quickly.
c. Be flexible. Flexible means that SPK has the ability to process as many input variables as possible, as well as provide outputs in the form of alternative decision alternatives that decision makers need.
d. Quality data. This characteristic requires SPK to have the ability to quantize quality data that is subjective from user input. For example, an assessment of beauty that is quality, can be converted into a quantity value by giving the weight value in the form of a number, such as 80 or 95.
e. Expert Procedures. In an SPK, a certain procedure is needed that is designed based on the expertise or science of a person or group of people who are experts in solving the problems that are discussed by the DSS (Rosita et al., 2020)

Decision support system is an information system that provides information, modeling and data manipulation that is able to support ad hoc data analysis and decision modeling and is oriented towards future planning. A Decision Support System is a specific information generating system aimed at solving a specific problem that

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managers must solve at various levels. In other words, a Decision Support System is a computer-based information system that produces various decision alternatives to assist management in dealing with various structured problems using data and models. A decision support system is a computer system that contains 3 interaction components, namely: a language system (a communication mechanism between users and other components in DSS), a knowledge system (a knowledge repository of problem domains in the form of data or procedures), and a problem processing system (a relationship between 2 components containing 1 or more capabilities in manipulating the problem needed) (Siregar et al., 2022)

Decision support systems as a set of model-based procedures for processing and assessment data to help managers make decisions. So that it can be concluded, that the decision support system is a system that carries out the process of making decisions (Andani, 2019). The model that describes the decision-making process consists of four phases, namely:

a. Intelligence This stage is the stage of defining the problem and identifying the information needed related to the problem at hand and the decisions to be taken.
b. Design This stage is a process to represent a system model that will be built based on predetermined assumptions. In this stage, a model of the problem is created, tested and validated.
c. Selection This stage is a process of testing and choosing the best decision based on certain predetermined criteria and leading to the goals to be achieved.
d. Implementation This stage is the implementation stage of the decisions that have been taken. At this stage, it is necessary to formulate a series of planned actions so that the results of decisions can be monitored and adjusted if improvements are needed (Siregar, 2021).

The Multiple Criteria Decision Making (MDCM) method is a decision-making method to determine the best alternative to a number of alternatives based on certain criteria, this method has been widely used in various scopes, such as energy, industry, management and mathematics (Mandarani et al., 2022). EDAS is a method that uses an average solution or also called positive distance from average (PDA) and negative distance from average (NDA) considered for alternative assessment. EDAS is one of the latest methods that already has many extensions because it can solve problems that contain conflicting criteria, calculations that are not complicated and easy to apply (Sasmita et al., 2021). EDAS was introduced by Keshavaraz Ghorabaee, et all in 2015. EDAS resolves the issue with the following steps (Midyanti et al., 2019) :

a. Choose important criteria that describe the alternative.
b. Build a decision-making matrix (X), as in equation 1.

$$X = [X_{ij}]_{n \times m} = \begin{vmatrix} X11 & X12 & X1m \\ X21 & X22 & X2m \\ Xn1 & Xn2 & Xnm \end{vmatrix} \quad (1)$$

Description:
Xij is the 1st alternative work value on the criterion to – j

c. Determine the average solution according to the criteria, using equation 2.

$$AV = [AV_j]_{1 \times m} \quad (2)$$

Where:

$$AV_j = \frac{\sum_{i=1}^{n} Xij}{n} \quad (3)$$

d. Calculate the positive distance from the average matrix (PDA) and the negative distance from the average matrix (NDA) according to the type of criteria (benefit and cost) with equations 4 to 9.

$$PDA = [PDA_{ij}]_{n \times m} \quad (4)$$

$$NDA = [NDA_{ij}]_{n \times m} \quad (5)$$

If j is the benefit criterion use equations 6 and 7

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$$PDA_{ij} = \frac{\max(0,(Xij - AVj))}{AVj} \quad (6)$$

$$NDA_{ij} = \frac{\max(0,(AVj - Xij))}{AVj} \quad (7)$$

If j is a non-benefit criterion use equations 8 and 9.

$$PDA_{ij} = \frac{\max(0,(AVj - Xij))}{AVj} \quad (8)$$

$$NDA_{ij} = \frac{\max(0,(Xij - AVj))}{AVj} \quad (9)$$

Description :
PDA = positive distance from average
NDA = negative distance from average

e. Determine the weighted sum of PDAs and NDAs for all alternatives with equations 10 and 11.

$$SP_i = \sum_{j=1}^{m} wj\ PDAij \quad (10)$$

$$SN_i = \sum_{j=1}^{m} wj\ NDAij \quad (11)$$

Description :
SP = attribute weight assessment and used to determine PDA weighted values
SN = attribute weight assessment and used to determine NDA weighted values

f. Normalization of SP and SN values for all alternatives with equations 12 and 13

$$NSP_i = \frac{SPi}{\max i\ (SPi)} \quad (12)$$

$$NSN_i = \frac{SNi}{\max i\ (SNi)} \quad (13)$$

Description :
NSP = consider the attribute weights of the PDA
NSN = consider the attribute weights of the NDA

g. Calculate the scoring score (AS) for all alternatives with equation 14.

$$AS_i = \frac{1}{2}(NSP_i + NSN_i) \quad (14)$$

Where : $0 \leq AS_i \leq 1$

Description :
AS = Final Ranking of Alternatives

h. Rank alternatives according to the decrease value of the assessment score (AS). The alternative with the highest US score is the best choice among the alternatives.

3. METHOD

At the stage of this research method, there are several steps to complete as follows:

a. Identify the problem. This stage will be determined the background of the problem, the objectives and the object of the scope of the study.
b. Data needs analysis. This stage will determine the data, the amount of data and the criteria used in the study.

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c. Data collection. The data used was sourced from 10 prospective new students of the informatics engineering study program. Where there are 5 criteria, namely the average report card score, basic ability test, computer ability test, psychological test and interview with 5 weights of scores, namely very high, high, sufficient, low, and very low.
d. Data analysis and testing using the EDAS (Evaluation Based On Distance From Average Solution) method. The steps are as follows:
   1. Define alternative data and criteria types
   2. Perform an alterternative average calculation of each criterion (AV)
   3. Calculate the average positive distance (PDA) and the average negartiive distance (NDA)
   4. Conduct a weighted assessment of positive distance (SP) and negative distance (SN)
   5. Normalization of positive distance weights (NSP) and negative distance weights (NSN)
   6. Assign the ranking with the highest score to the lowest (AS)
e. Results and Discussion. At this stage, the results of data testing with the EDAS (Evaluation Based On Distance From Average Solution) method will be known.

Based on the steps described using the EDAS (Evaluation Based On Distance From Average Solution) method above, the framework used to solve this problem can be seen in figure 1 as follows.

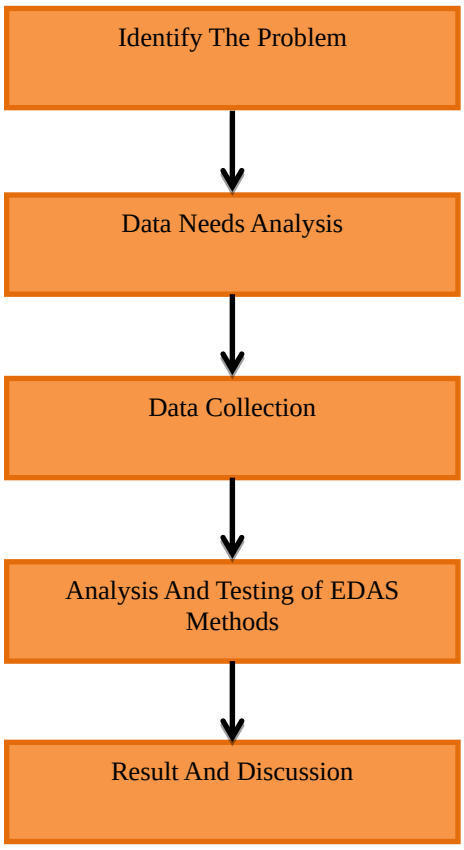

Figure 1. Research Methods

4. RESULT AND DISCUSSION

The data used in this study were 10 prospective students in the informatics engineering study program at Universita Harapan Medan. There are 5 criteria used, namely average report cards, basic ability tests, computer ability tests, psychological tests, and interviews. The weighting and types of criteria in the selection of new student admissions

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using the EDAS (Evaluation Based On Distance From Average Solution) method can be seen in table 1.

Table 1
Weighting and Types of Criteria

Criteria	Criteria Name	Weight	Type of Criteria
K1	Avarege Report Card Scores	15%	Benefit
K2	Basic Ability Tests	20%	Benefit
K3	Computer Ability Test	30%	Benefit
K4	Psycological Test Scores	20%	Benefit
K5	Interview Scores	15%	Benefit

Based on table 1, there are 5 criteria used and determined the weight and type of criteria as follows:

1. The average criteria for the report card value has a value weight of 15% with the type of criterion, namely benefit
2. Basic ability test criteria have a value weight of 20% with the type of criterion, namely benefit.
3. Computer Ability Test Criteria Have a Value Weight of 30% with the type of criterion, namely benefit
4. The psychological test score criteria have a value weight of 20% with the type of criterion, namely benefit
5. The interview value criterion has a value weight of 15% with the type of criterion, namely benefit

The weighting on each criterion can be seen in table 2 below.

Table 2
Weighting Criteria

Avarege Report Card Scores (K1)	Weight Value
5	Very High
4	High
3	Medium
2	Low
1	Very Low
Basic Ability Tests (K2)	**Weight Value**
5	Very High
4	High
3	Medium
2	Low
1	Very Low
Computer Ability Test (K3)	**Weight Value**
5	Very High
4	High
3	Medium
2	Low
1	Very Low
Psycological Test Scores (K4)	**Weight Value**
5	Very High
4	High

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3	Medium
2	Low
1	Very Low
Interview Scores (K5)	**Weight Value**
5	Very High
4	High
3	Medium
2	Low
1	Very Low

Data in the approval of the selection analysis of new student admissions for the informatika engineering study program can be shown in table 3 below.

Table 3
Alternative Data

Alternative	K1	K2	K3	K4	K5
M1	5	4	3	4	5
M2	3	2	2	3	4
M3	4	3	4	5	4
M4	2	5	2	2	3
M5	1	3	4	4	5
M6	5	5	5	4	3
M7	3	4	3	3	2
M8	4	4	2	5	4
M9	2	1	1	1	1
M10	5	3	5	4	5

The stages of testing data for the analysis of new student admission selection using the EDAS (Evaluation Based On Distance From Average Solution) method are as follows:

a. Build a decision-making matrix (X)

$$X = \begin{vmatrix} 5 & 4 & 3 & 4 & 5 \\ 3 & 2 & 2 & 3 & 4 \\ 4 & 3 & 4 & 5 & 4 \\ 2 & 5 & 2 & 2 & 3 \\ 1 & 3 & 4 & 4 & 5 \\ 5 & 5 & 5 & 4 & 3 \\ 3 & 4 & 3 & 3 & 2 \\ 4 & 4 & 2 & 5 & 4 \\ 2 & 1 & 1 & 1 & 1 \\ 5 & 3 & 5 & 4 & 5 \end{vmatrix}$$

b. Calculate the average solution according to the criteria in the selection of new student admissions. The calculation results can be shown in table 4.

AV (K1) = (5 + 3 + 4 + 2 + 1 + 5 + 3 + 4 + 2 + 5) / 10 = 34 / 10 = 3,4
AV (K2) = (4 + 2 + 3 + 5 + 3 + 5 + 4 + 4 + 1 + 3) / 10 = 34 / 10 = 3,4

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AV (K3) = (3 + 2 + 4 + 2 + 4 + 5 + 3 + 2 + 1 + 5) / 10 = 31 / 10 = 3,1
AV (K4) = (4 + 3 + 5 + 2 + 4 + 4 + 3 + 5 + 1 + 4) / 10 = 35 / 10 = 3,5
AV (K5) = (5 + 4 + 4 + 3 + 5 + 3 + 2 + 4 + 1 + 5) / 10 = 36 / 10 = 3,6

Table 4
Calculation of Average Solution Value Criteria (AV)

Alternative	**K1**	**K2**	**K3**	**K4**	**K5**
M1	5	4	3	4	5
M2	3	2	2	3	4
M3	4	3	4	5	4
M4	2	5	2	2	3
M5	1	3	4	4	5
M6	5	5	5	4	3
M7	3	4	3	3	2
M8	4	4	2	5	4
M9	2	1	1	1	1
M10	5	3	5	4	5
Nilai AV	3,4	3,4	3,1	3,5	3,6

c. Calculation of the positive distance from the average matrix (PDA) and the negative distance from the average matrix (NDA) according to the type of criteria (benefit and cost). PDA and NDA results for each criterion can be seen in table 5.

PDA (K1) = (5 – 3,4) / 3,4 = 1,6 / 3,4 = 0,4706
PDA (K2) = (4 – 3,4) / 3,4 = 0,6 / 3,4 = 0,1765
PDA (K3) = (3 – 3,1) / 3,1 = - 0,1 / 3,1 = - 0,0323 = Max (0) = 0
PDA (K4) = (4 – 3,5) / 3,5 = 0,5 / 3,5 = 0,1429
PDA (K5) = (5 – 3,6) / 3,6 = 1,4 / 3,6 = 0,3889

NDA (K1)= (3,4 - 5) / 3,4 = - 1,6 / 3,4 = - 0,4706 = Max (0) = 0
NDA (K2)= (3,4 - 4) / 3,4 = - 0,6 / 3,4 = - 0,1765 = Max (0) = 0
NDA (K3)= (3,1- 3) / 3,1 = 0,1 / 3,1 = 0,0323
NDA (K4)= (3,5 - 4) / 3,5 = - 0,5 / 3,5 = - 0,1429 = Max (0) = 0
NDA (K5)= (3,6 - 5) / 3,6 = - 1,4 / 3,6 = - 0,3889 = Max (0) = 0

Table 5
Results of PDA and NDA Value Calculation of Each Criterion

Positive Distance From Average (PDA)					**Negative Distance From Average (NDA)**				
K1	**K2**	**K3**	**K4**	**K5**	**K1**	**K2**	**K3**	**K4**	**K5**
0,4706	0,1765	0	0,1429	0,3889	0	0	0,0323	0	0
0	0	0	0	0,1111	0,1176	0,4118	0,3548	0,1429	0
0,1765	0	0,2903	0,4286	0,1111	0	0,1176	0	0	0
0	0,4706	0	0	0	0,4118	0	0,3548	0,4286	0,1667

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0	0	0,2903	0,1429	0,3889	0,7059	0,1176	0	0	0
0,4706	0,4706	0,6129	0,1429	0	0	0	0	0	0,1667
0	0,1765	0	0	0	0,1176	0	0,0323	0,1429	0,4444
0,1765	0,1765	0	0,4286	0,1111	0	0	0,3548	0	0
0	0	0	0	0	0,4118	0,7059	0,6774	0,7143	0,7222
0,4706	0	0,6129	0,1429	0,3889	0	0,1176	0	0	0

d. Perform weighted calculations of PDA and NDA values for all alternatives. The calculation results can be seen in table 6 below.
PDA (K1) = (0,15 x 0,4706) = 0,0706
PDA (K2) = (0,2 x 0,1765) = 0,0353
PDA (K3) = (0,3 x 0) = 0
PDA (K4) = (0,2 x 0,1429) = 0,0286
PDA (K5) = (0,15 x 0,3889) = 0,0583

NDA (K1)= (0,15 x 0) = 0
NDA (K2)= (0,2 x 0) = 0
NDA (K3)= (0,3 x 0,0323) = 0,0097
NDA (K4)= (0,2 x 0) = 0
NDA (K5)= (0,15 x 0) = 0

Table 6
Calculation of Weights on PDA and NDA Values

Weighted Sum Of PDA					**Weighted Sum Of NDA**				
K1	**K2**	**K3**	**K4**	**K5**	**K1**	**K2**	**K3**	**K4**	**K5**
0,0706	0,0353	0	0,0286	0,0583	0	0	0,0097	0	0
0	0	0	0	0,0167	0,0176	0,0824	0,1065	0,0286	0
0,0265	0	0,0871	0,0857	0,0167	0	0,0235	0	0	0
0	0,0941	0	0	0	0,0618	0	0,1065	0,0857	0,025
0	0	0,0871	0,0286	0,0583	0,1059	0,0235	0	0	0
0,0706	0,0941	0,1839	0,0286	0	0	0	0	0	0,025
0	0,0353	0	0	0	0,0176	0	0,0097	0,0286	0,0667
0,0265	0,0353	0	0,0857	0,0167	0	0	0,1065	0	0
0	0	0	0	0	0,0618	0,1412	0,2032	0,1429	0,1083
0,0706	0	0,1839	0,0286	0,0583	0	0,0235	0	0	0

e. Normalization of SP and SN values for all alternatives and calculation results can be seen in table 7.
SP (M1) = (0,0706 + 0,0353 + 0 + 0,0286 + 0,0583) = 0,192787115
SP (M2) = (0 + 0 + 0 + 0 + 0,0167) = 0,016666667
SP (M3) = (0, 0265 + 0 + 0,0871 + 0,0857 + 0,0167) = 0,215948315
SP (M4) = (0 + 0,0941 + 0 + 0 + 0) = 0,094117647
SP (M5) = (0 + 0 + 0,0871 + 0,0286 + 0) = 0,17400154

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SN (M1) = (0 + 0 + 0,0097 + 0 + 0) = 0,009677419
SN (M2) = (0,0176 + 0,0824+ 0,1065 + 0,0286 + 0) = 0,23502304
SN (M3) = (0 + 0,0235 + 0 + 0 + 0) = 0,02352941
SN (M4) = (0,0618 + 0 + 0,1065 + 0,0857 + 0,025) = 0,2789306
SN (M5) = (0,1059 + 0,0235 + 0 + 0 + 0) = 0,12941176

Table 7
Normalization of SPi and SNi Values

Alternative	SPi	SNi
M1	0,192787115	0,009677419
M2	0,016666667	0,235023041
M3	0,215948315	0,023529412
M4	0,094117647	0,278930604
M5	0,174001536	0,129411765
M6	0,377148279	0,025
M7	0,035294118	0,122562573
M8	0,164145658	0,106451613
M9	0	0,657357459
M10	0,341363965	0,023529412
Max	**0,377148279**	**0,657357459**

From table 7 after knowing the value of SPi and SNi in each alternative, the next step is to determine the max value of the SPi and SNi values. The max value is obtained from the alternativ data value, where the max SPi value of 0.377148279 is in the alternative M6, and the max SNi value of 0.667357459 is in the alternative M9..

f. Calculate the assessment score (AS) for all alternatives and the results can be seen in table 8 below.
NSP (M1) = 0,1927871 x 0,3771483 = 0,511170608
NSP (M2) = 0,0166667 x 0,3771483 = 0,044191284
NSP (M3) = 0,2159483 x 0,3771483 = 0,572581998
NSP (M4) = 0,0941176 x 0,3771483 = 0,24955078
NSP (M5) = 0,1740015 x 0,3771483 = 0,461361077

NSN (M1)= 0,009677419 x 0,657357459 = 0,0147217
NSN (M2)= 0,235023041 x 0,657357459 = 0,357527002
NSN (M3)= 0,023529412 x 0,657357459 = 0,035793937
NSN (M4)= 0,278930604 x 0,657357459 = 0,424321046
NSN (M5)= 0,129411765 x 0,657357459 = 0,196866656

AS (M1) = 0,511170608 + 0,0147217 = 0,262946154
AS (M2) = 0,044191284 + 0,357527002 = 0,200859143
AS (M3) = 0,572581998 + 0,035793937 = 0,304187968

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AS (M4) = 0,24955078 + 0,424321046 = 0,336935913
AS (M5) = 0,461361077 + 0,196866656 = 0,329113867

Table 8
Calculation of Assessment Score of Each Alternative (AS)

Nama	NSPi	NSNi	ASi
M1	0,511170608	0,0147217	0,262946154
M2	0,044191284	0,357527002	0,200859143
M3	0,572581998	0,035793937	0,304187968
M4	0,24955078	0,424321046	0,336935913
M5	0,461361077	0,196866656	0,329113867
M6	1	0,038031059	0,519015529
M7	0,093581542	0,186447376	0,140014459
M8	0,435228443	0,161938701	0,298583572
M9	0	1	0,5
M10	0,905118714	0,035793937	0,470456326

g. Rank alternatives according to the decrease value of the assessment score (AS). The alternative with the highest US score is the best choice among the alternatives. The results of alternative rankings can be seen in table 9 below.

Table 9
Alternative Rankings

Ranking	Alternatif	ASi Values
1	M6	0,5190
2	M9	0,5000
3	M10	0,4705
4	M4	0,3369
5	M5	0,3291
6	M3	0,3042
7	M8	0,2986
8	M1	0,2629
9	M2	0,2009
10	M7	0,1400

Based on the calculation of U.S. scores in table 8 with 10 prospective students who made a selection of new student admissions in the informatics engineering study program who got the highest score, namely students in 6th place with a score of 0,519 and the lowest score was in students in 7th place with a score of 0,14.

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5. CONCLUSION

Based on research with the analysis of the decision support system of the EDAS (Evaluation Based On Distantance From Average Solution) method in the selection of new student admissions for the informatics engineering study program, it was concluded that the highest score was in the 6th student order with a score of 0.519 and the lowest score was in the 7th place student with a score of 0.14. This research with the EDAS method also resulted in an accuracy rate of 20% by matching the scores of graduating students.

6. REFERENCES

Andani, S. R. (2019). Penerapan Metode SMART dalam Pengambilan Keputusan Penerima Beasiswa Yayasan AMIK Tunas Bangsa. *Jurnal Sistem Dan Teknologi Informasi (JUSTIN)*, *7*(3), 166. https://doi.org/10.26418/justin.v7i3.30112

Hadinata, N. (2018). Implementasi Metode Multi Attribute Utility Theory (MAUT) Pada Sistem Pendukung Keputusan dalam Menentukan Penerima Kredit. *Jurnal Sisfokom (Sistem Informasi Dan Komputer)*, *7*(2), 87–92. https://doi.org/10.32736/sisfokom.v7i2.562

Harahap, J. M. (2020). *SISTEM PENDUKUNG KEPUTUSAN DALAM MENENTUKAN PEMILIHAN POSISI KEPALA UNIT (KANIT) PPA DENGAN*. 37–44.

Mandarani, P., Ramadhan, H. L., Yulianti, E., & Syahrani, A. (2022). Sistem Pendukung Keputusan Penulis Terbaik Menggunakan Metode Rank Order Centroid (ROC) dan Evaluation based on Distance from Average Solution (EDAS). *Journal of …*, *3*(4), 686–694. https://doi.org/10.47065/josh.v3i4.1845

Midyanti, D. M., Hidayati, R., & Bahri, S. (2019). Perbandingan Metode Edas Dan Aras Pada Pemilihan Rumah Di Kota Pontianak. *Computer Engineering, Science and System Journal*, *4*(2), 119. https://doi.org/10.24114/cess.v4i2.13351

Rosita, I., Gunawan, & Apriani, D. (2020). Penerapan Metode Moora Pada Sistem Pendukung Keputusan Pemilihan Media Promosi Sekolah (Studi Kasus: SMK Airlangga Balikpapan). *Metik Jurnal*, *4*(2), 55–61. https://doi.org/10.47002/metik.v4i2.191

Santosa, I. M. A. (2017). Implementasi Metode Smart Pada Aplikasi Sistem Pendukung Keputusan Pemilihan Sekolah Paud. *Jurnal Sistem Dan Informatika*, *12*(1), 157–167.

Sasmita, I., Novita, R., Rozanda, N. E., & Hamzah, M. L. (2021). Literature Review: Trend Penerapan MCDM Metode ELECTRE, EDAS dan ARAS. *Jurnal CoreIT: Jurnal Hasil Penelitian Ilmu Komputer Dan Teknologi Informasi*, *7*(1), 24. https://doi.org/10.24014/coreit.v7i1.13088

Sembiring, B. O., & Siregar, Y. S. (2021). Analisis Penentuan Kelayakan Judul Skripsi Mahasiswa dengan Metode Profile Matching dan TOPSIS. *Algoritma : Jurnal Ilmu Komputer Dan Informatika*, *6341*(April), 127–136.

Simorangkir, A. G., Saidah, F., & Mesran, M. (2022). Penerapan Metode Maut, Copras Dan Edas Dalam Pemilihan Media Pembelajaran Online Di Masa Pandemic Covid-19. *Jurnal Teknologi Informasi Mura*, *14*(1), 46–56. https://doi.org/10.32767/jti.v14i1.1580

Siregar, Y. S. (2021). Analisis Penerima Bantuan Beasiswa Program Studi Teknik Informatika Menggunakan MOORA Dan TOPSIS. *JITEKH*, *9*(1), 58–64. https://doi.org/https://doi.org/10.35447/jitekh.v9i1.399

Siregar, Y. S., & Handoko, D. (2022). Analisa Sistem Pendukung Keputusan Metode MOORA dan ELECTRE dalam Penerima Beasiswa PPA. *Blend Sains Jurnal Teknik*, *1*(2), 114–126. https://doi.org/10.56211/blendsains.v1i2.135

Siregar, Y. S., Harahap, H., Sembiring, B. O., Syahputri, N. I., & Handoko, D. (2022). Sistem Pendukung Keputusan Metode Electree Dalam Pemilihan Dosen Terbaik Pembelajaran Pada Fakultas Teknik Dan komputer. *Algoritma …*, *6341*(April). http://jurnal.uinsu.ac.id/index.php/algoritma/article/view/12656

Suharti, & Putro Utomo, D. (2021). Sistem Pendukung Keputusan Kelayakan Penerima Bantuan Tanah Garapan Pada Desa Trans Aliaga Ujung Batu Iii Dengan Metode Distance From Average Solution (EDAS). *Nasional Teknologi Informasi Dan Komputer)*, *5*(1), 43–55. https://doi.org/10.30865/komik.v5i1.3647

Tamimi, K., & Prasetyaningrum, P. T. (2009). *Sistem Pendukung Keputusan Rekomendasi Makanan Bernutrisi Bagi Penderita Gizi Buruk Menggunakan Metode Edas*.

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