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3rd ICETD 2014

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Bandar Lampung University, Indonesia

In coorporation with :

THE UNIVERSITY OF KITAKYUSHU

3rd ICETD 2014

The Third International Conference On Engineering And Technology Development

28 -29 October2014
Bandar Lampung University (UBL)
Lampung, Indonesia

PROCEEDINGS

Organized by:

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PREFACE

The Activities of the International Conference is in line and very appropriate with the vision and mission of Bandar Lampung University (UBL) to promote training and education as well as research in these areas.

On behalf of the Second International Conference on Engineering and Technology Development (3rd ICETD 2014) organizing committee, we are very pleased with the very good response especially from the keynote speaker and from the participans. It is noteworthy to point out that about 80 technical papers were received for this conference.

The participants of the conference come from many well known universities, among others : University Kebangsaan Malaysia – Malaysia, IEEE – Indonesia, Institut Teknologi sepuluh November – Indonesia, Surya Institute – Indonesia, International Islamic University – Malaysia, STMIK Mitra Lampung – lampung, Bandung Institut of Technology – Bandung, Lecture of The Malahayati University, B2TP – BPPT Researcher – lampung, University of Kitakyushu – Japan, Gadjah Mada University – Indonesia, Universitas Malahayati – Lampung, Lampung University – lampung,

I would like to express my deepest gratitude to the International Advisory Board members, sponsor and also to all keynote speakers and all participants. I am also gratefull to all organizing committee and all of the reviewers who contribute to the high standard of the conference. Also I would like to express my deepest gratitude to the Rector of Bandar Lampung University (UBL) who give us endless support to these activities, so that the conference can be administrated on time

Bandar Lampung, 22 October 2014

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Decision Support System (DSS) For The Determination Of Percentage Of Scholarship Quantity Based Fuzzy Tahani

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Abstract

To ensure quality education, the Government must provide services and conveniences to education without any descriminations. To conduct quality education needed some big enough fee therefore for every learner at any unit of education are entitled to tuition fees for those whose parents could not afford to finance their education, and the right to obtain a scholarship for those who has achievment. (Putra & Hardiyanti, 2011).

By taking the results of previous research, entitled the application of Fuzzy Inference System Mamdani's method for the determination of quantity percentage of scholarship (Research Lecturer Beginners by 2013), on research this time the researcher do application design with combination of algortitma Fuzzy Inference System Mamdani Method and using the Fuzzy Method for designing Databases Tahani decision support system (SPK).

Fuzzy tahani is one method of Fuzzy that uses the database standard. the data are classified based on how the data are seen by the user. So that all the results of the algorithms of previous research can be used to create applications by using Fuzzy method Tahani Database.

The type of This research is a kind of applied research, it is a bridge from basic research between experimental research. In the design and development of decision support system based on Desktop Application is a system development methodology used is a structured methodology with the model development SDLC (System Development Life Cycle) that serves to illustrate the main stages and steps of each stage are generally divided into three main activity analysis, design and implementation of data collection Techniques as well as performed there are 3 methods of interview techniques, Documentation and Observation. The Data obtained from the marketing of Computer Science Faculty -Bandar Lampung University

The purpose of this research is Designing Applications by using the Fuzzy Database method's Tahani with available the desktop application so that the eligibility determination process for new student scholarships being accepted right on the target, fast and objective.

Key Word : Application, Scholarship, Fuzzy, Tahani Fuzzy

CHAPTER 1 . INTRODUCTION

1.1 Background

Currently, the development of computer technology has been capable of replacing human jobs. As we knew, the computers at the beginning of creation, functions as a tool only to calculate. However, in line with the needs of humans, computers are expected to be able to do the tasks as do humans. Humans can accomplish their duties because it has knowledge and experience. In addition, humans are also provided with common sense to do the reasoning. Like wise with computers, to be able to act like a human, the computer should also have the knowledge and ability of reasoning. This is where the sense of importance of artificial intelligence (artificial intelligence) in computer science. (Amalia et al, 2010)

With the advancement of technology the big changes occur to the company owners, Top Management or managers need support by way of computerization in decision making by using a decision support system (SPK). Not only in commercial companies or business corporations, in the world of academic or education agency decision support system is used as a tool for the decision makers to expand and multiply choice for being the basic as decision, but not to replace an assessment of the decision makers.

At the educational institutions especially universities lots of scholarships that offered to high achieving students and for students who are less capable. As set forth in the Constitution of 1945 article 31 (1) that every citizen is entitled to getting education. With the basic worth all citizens of Indonesia to get a decent education and can compete in the world of work, a lot of things that can be done for education, for those who can afford to pay and select a college or for those who are less capable at the moment many scholarship

programs provided by the Government, private companies as well as universities within and outside the country. So the existence of the program of education that equitable will be achieved.

A growing number of scholarship programs that offered and many who register and be tough when offers of scholarships the receiver fewer compared to the large number of applicants scholarship program itself, so it is very difficult to determine the recipients of the scholarships that are really worth it and in accordance with the criteria of the scholarship itself.

Fuzzy Databases Tahani Methods there are 4 stages in the process of doing the research and making of application i.e. describing the function of the membership, the process Fuzzification, process Fuzzification queries, and basic set operation for Fuzzy zadeh.

Application of decision support system based on Fuzzy Databases Tahani to determination of the percentage of scholarship to be designed using the java programming language, java is a high level programming language developed by Sun Microsystem, and as code editor application, researchers using the Integrated Development Environment (IDE) that Netbeans using a Database Management System (DBMS) that MySql As supporters in the processing of data to be made. So this decision support system applications can be used to determine the quantity percentage of scholarships so that the data processed by the turning getting output for fast, precise and objective.

CHAPTER 2. THE CORNERSTONE OF THE THEORY

2.1 The Cornerstone of the Theory

2.2.1 Fuzzy Logic

Fuzzy Logic or Fuzzy logic was introduced by Lotfi Zadeh at tahun1965, also in 1965 by Lotfi Zadeh A Professor (University of California) is recognized as a fuzzy set concept discover scientists have mathematical calculations to describe the outlines of obscurity or similiarity in the form of linguistic variables. Those ideas can be defined as a generalization of the classical set theory that incorporates qualitative approach with quantitative.Generally Fuzzy in General, fuzzy logic inference that allows structure provides the ability to match human reason. (Sivanandam et al, 2007).

Fuzzy Systems is the core of Soft Computing (SC). The basic idea of fuzzy systems is the fuzzy sets and fuzzy logic. In June 1965, Professor Lotfi A. Zadeh published papers or paper first discusses "Fuzzy Sets" in the journal Information and Control (ZAD65). A few years later, which is around the middle of the 1970s, scientists successfully applied the concept of fuzzy Japan into a variety of electronic equipment and production processesin the industry. Up to this time been applied to a variety of fuzzy control system for a washing machine that combines fuzzy sensor with fuzzy logic.

On the washing machine sensor will detect color, type and amount of clothing, underwear and fuzzy logic in microprocessor will choose the

combination most suitable for the water temperature, amount/number of detergents and the time required for the process of washing.

There are several reasons why we use Fuzzy Logic: among others:

a. The concept of Fuzzy Logic is very simple and easy to understand. The advantage compared to other concepts rather than on its complexity, but at naturalness his approach in solving problems.

b. Fuzzy Logic is flexible, in the sense that can be built and developed with ease without having to start from "scratch".Fuzzy Logic provide

c. Tolerance of datas indeterminancy. It is very suited to everyday
fact everything hiking this relative precision, even though we see/observe more closely and carefully. Fuzzy logic is built based on other facts.

d. Modeling/cartography to search for data input-output relationships of any black-box system can be done by wearing a fuzzy system.

e. knowledge or experience of the experts can be easily used for building Fuzzy logic.

f. Fuzzy logic can be applied in the design of the control system without having to eliminate conventional control
systems design techniques that have first existed.

g. Fuzzy Logic based on human language.

2.2.2 Concept of Fuzzy Logic

Fuzzy logic theory's main motivation is to map an input space into the space of the output by using the IF-THEN rules. The mapping is done in a Fuzzy Inference System (FIS).The order of rules can be arbitrary, FIS evaluate all rules simultaneously to produce a conclusion. Therefore, all rules should be defined first before we build a FIS to be used for applying all those rules. The mechanism in the FIS can be summarized like this: FIS is a method of applying prices in the input vector, draw conclusions based on a set of IF-THEN rules given, and then generate the vector output. (Kusumadewi & Purnomo,2010).

On the set of assertive (crips), the value of membership an item x in a set A, which is often written with μA (X), Has two possibilities, namely:

a. one (1), which means that an item is a member of a set, or

b. zero (0), which means that an item is not a member of a set.

Fuzzy set has two attributes (Kusumadewi & Purnomo, 2010), namely:

a. Linguistics, that is, the naming of a group that represents a certain State or conditionby using natural language, such as: Less is less, and Very Pretty.

b. Numerically, i.e. a value (number) that indicates the size of a variable such as: 45, 46,59 and so forth.

2.2.3 Fuzzy System

There are a few things to know in understanding system fuzzy, i.e. (Kusumadewi & Purnomo, 2010):

a. fuzzy Variable, the variable is to be discussed in a fuzzy system. Example: age, temperature, and so forth.

b. fuzzy Sets, a group that represents a certain State or condition in a fuzzy variables.

c. Hosts the talks, was the overall value that is allowed to be operated in a fuzzy variable.

d. Domain, is the overall value that is permitted in the universe talks and can beoperated in a fuzzy set.

2.2.4 Membership Function

Function of membership (membership function) is a curve that shows the mapping of data input points into the value of its membership (often also referred to as the degree of membership) that have an interval between 0 to 1 (Kusumadwi, Purnomo, 2010). One of the ways that can be used to get the value of the approach is through membership functions. There are several functions that are used i.e. Linear Representation (up and down), Triangular Curve, Representation a representation of the curve, representation of the curve Trapezoid shape of the shoulder. Rule-based Fuzzy System Databases (Tahani Method)

Most standard database are classified based on how the data is to be used. Suppose we have the employee data that is stored in the DT_KARYAWAN table with a field Nama, NIP, Tgllahir, Th. Masuk and Gaji/bl as the following table

NIP	Nama	Tgl Lahir	Th. Masuk	Gaji/bl (Rp)
01	Lia	03-06-1972	1996	750.000
02	Iwan	23-09-1954	1985	1.500.000
03	Sari	12-12-1966	1988	1.255.000
04	Andi	06-03-1965	1998	1.040.000
05	Budi	04-12-1960	1990	950.000
06	Amir	18-11-1963	1989	1.600.000
07	Rian	28-05-1965	1997	1.250.000
08	Kiki	09-07-1971	2001	550.000
09	Alda	14-08-1967	1999	735.000
10	Yoga	17-09-1977	2000	860.000

Tabel 2.1 Raw Data Of Employees

NIP	Nama	Umur (th)	Masa Kerja (th)*	Gaji/bl
01	Lia	30	6	750.000
02	Iwan	48	17	1.500.000
03	Sari	36	14	1.255.000
04	Andi	37	4	1.040.000
05	Budi	42	12	950.000
06	Amir	39	13	1.600.000

Then from the table DT Karyawan, we can into a temporary Table to calculate the age of the employee and his tenure. The table we give the name of the EMPLOYEE table (Table 2.2) (Sri Kusumadewi, Purnomo, 2010)

Table 2.2 Employee Data After being processed

4. stages carried out by the researchers to undertake the process of Fuzzy Database Tahani Method, among them:

a. describe the Membership Function

b. the process of Fuzzyfication

c. Process a Query Fuzzyfication

d. Basic Set Operation For Fuzzy Zadeh

2.2.6 *Unified Modeling Language (UML)*

UML is a modeling language standard, meaning the UML has a syntax and semantic.When we create a model using UML concepts there are rules that must be followed. How the elements on the models that we make relate to one another

should follow the existing standard. (Prabowo Pudjo Widodo, 2011)

a. Class Diagrams (Class Diagram) Diagram packages (Package Diagrams)

b. Diagram Use – Case (Use Case Diagram)

c. Interaction and Sequence Diagram (Sequence)

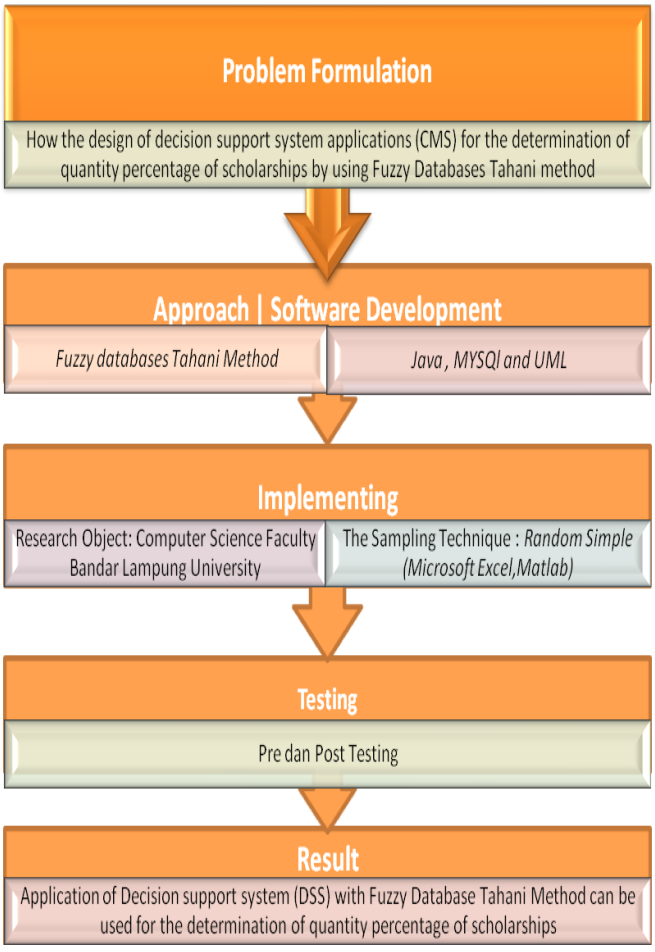
d. Communication Diagram (Communication Diagram).

e. Statechart Diagram (Statechart Diagram)

f. the activity Diagram (Activity Diagram)

g.

2.3 The Framework Of Thought



CHAPTER 4. RESEARCH METHODS

4.1 The Stages of Research

In the design and development of decision support system based on Desktop Application is a system development methodology used is a structured methodology with the model development SDLC (System Development Life Cycle) that serves to illustrate the main stages and steps of each stage are generally divided into three main activities, namely:

1. Analysis
2. Design
3. Implementation

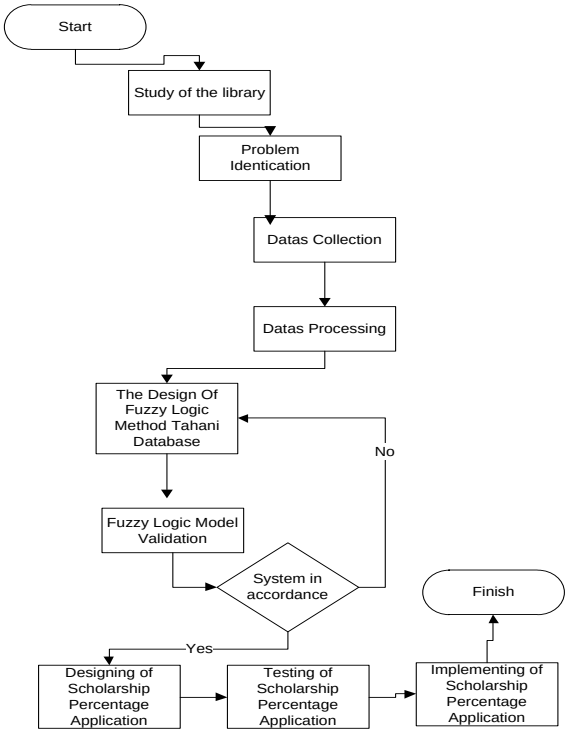


Image 4.1 The stages of research

4.1.1 Data Analysis Techniques

Technique of data analysis is the process of data sequences, organise categories into a pattern, the basic unit of description and categories based on the data that is obtained either through data from the marketing of computer science faculty, Bandar Lampung University as well as from interviews and observations, in this research to make an application for the

determination of quantity percentage of scholarships by using Fuzzy Databases Tahani Method required data analysis or data processing.

The table Lists of the scholarship receiver candidate SMT Odd Years 2012/2013

Fakulty of Computer Science - Bandar Lampung University (UBL)

No	NT	NW	NR	PO	RL	Result
1	51.67	33.33	67.35	70	100	64.47
2	71.67	88.89	78.50	100	70	81.81
3	41.67	33.33	67.35	90	70	60.47
4	48.33	61.11	76.93	60	100	69.28
5	58.33	33.33	76.08	100	100	73.55
6	61.67	66.67	66.28	70	90	70.92
7	40.00	77.78	67.35	80	80	69.03
8	70.00	87.89	78.50	100	70	81.28
9	48.33	50.00	72.53	100	80	70.17
10	56.67	55.56	67.35	90	100	73.92
11	51.67	33.33	74.09	100	100	71.82
12	63.33	77.78	67.35	90	70	73.69
13	61.67	66.67	66.28	70	90	70.92
14	62.00	50.79	72.53	100	90	75.06
15	38.33	77.78	66.28	70	90	68.48
16	70.00	87.89	78.50	100	70	81.28
17	61.67	66.67	66.28	70	90	70.92
18	48.33	61.11	76.93	60	100	69.28
19	63.33	77.78	67.35	90	70	73.69
20	61.67	77.78	70.66	60	80	70.02
21	61.67	77.78	70.66	60	80	70.02
22	56.67	38.89	71.77	70	80	63.46
23	40.00	50.00	67.35	80	100	67.47
24	56.67	38.89	70.28	60	90	63.17
25	60.00	38.89	72.31	80	70	64.24
26	48.33	50.00	72.53	100	80	70.17
27	48.33	61.11	76.93	60	100	69.28
28	56.67	38.89	70.28	60	90	63.17
29	33.33	77.78	74.11	60	100	69.04
30	48.33	77.78	72.53	60	80	67.73
31	56.67	55.56	67.35	90	100	73.92
32	63.33	77.78	66.28	70	70	69.48
33	62.00	50.79	72.53	100	90	75.06
34	63.33	77.78	66.28	70	70	69.48
35	48.33	77.78	71.77	80	80	71.58
	71.67	**88.89**	**78.50**	**100.00**	**100.00**	**81.81**
	33.33	**33.33**	**66.28**	**60.00**	**70.00**	**60.47**
	55.26	**61.58**	**71.07**	**79.14**	**85.43**	**70.49**

4.1.2 Application Design Model

In designing Application Systems Supporting Decision (SPK) using the theory of Fuzzy Databases Modeling Method Tahani cited from the book of goddess srikusuma and applications using the Java Programming Language and Mysql as Databases.

a. Design of Fuzzy Databases Tahani Method

1. Stages of the method of fuzzy database Tahani model

a) The membership function of the fuzzy input set to the value of the Written Test (NT)

On the set of Fuzzy Values written Test (NT) there are three sets of fuzzy, namely low, medium, and high. By using the 3 function is used that is a Linear representation of a Linear representation of ascending, descending and the representation of curves of the triangle. Described by the application of an approach of functions and curves below

Low :

$$\mu\,\mathbf{Low}(x) = \begin{cases} \dfrac{52.5 - x}{52.5 - 33}; & 33 \le x \le 52.5 \\ 0; & x \ge 52.5 \end{cases}$$

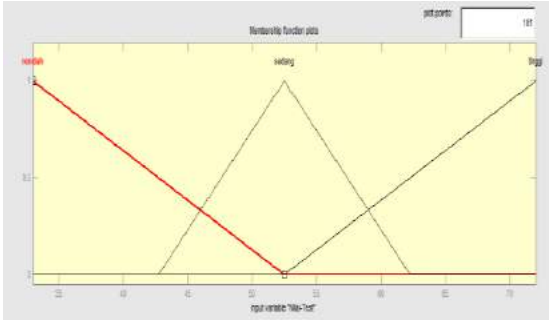


Image 4.2

Low degrees of membership Function curve variable is the value of a written Test

Medium :

$$\mu\,\mathbf{Medium}(x) = \begin{cases} 0; x < 42.75 \\ \dfrac{x - 42.75}{52.5 - 42.75}; 42.75 \le x \le 52. \\ \dfrac{62.5 - x}{62.25 - 52.5}; 52.5 \le x \le 62. \\ 0; 62.25 \le x \end{cases}$$

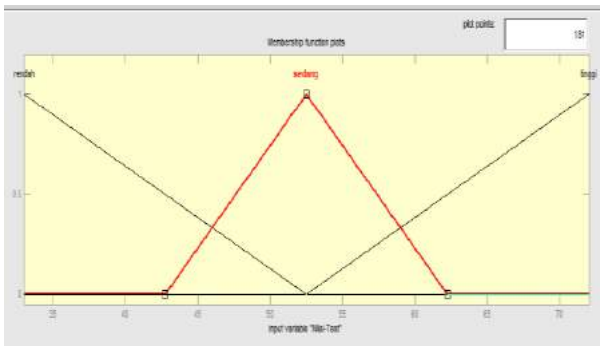


Image 4.3

The curve of the function value of membership Variable degrees of written Test

High :

$$\mu\,\mathbf{High}(x) = \begin{cases} 0; x < 52.25 \\ \dfrac{x - 52.25}{72 - 52.25}; 52.25 \le x \le 72 \\ 1; \quad x > 72 \end{cases}$$

Image 4.4

The curve of the function value of high membership Variable degrees of written Test

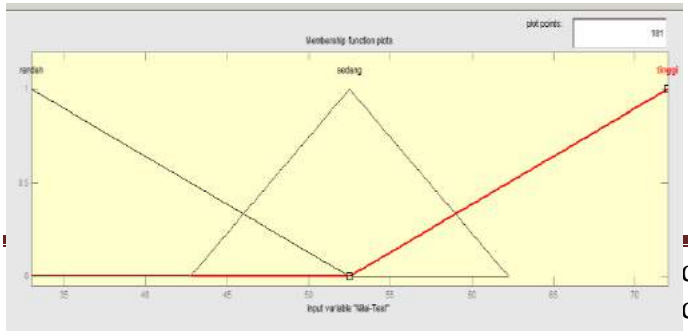


Table 4.2

The result of fuzzy membership function by fuzzy set

NO	NT			NW			NR			PO		
	R	S	T	R	S	T	R	S	T	R	S	T
1	0.04	0.91	0.00	0.99	0.31	0.00	0.79	0.00	0.00	0.00	0.00	0.
2	0.00	0.00	0.98	0.00	0.26	0.94	0.00	0.74	0.92	0.00	0.17	1.
3	0.56	0.00	0.00	0.99	0.00	0.00	0.79	0.00	0.00	0.00	0.00	0.
4	0.21	0.57	0.00	0.01	0.08	0.00	0.00	0.00	0.68	1.00	0.00	0.
5	0.00	0.39	0.30	0.99	0.78	0.00	0.00	0.00	0.55	0.00	0.00	1.
6	0.00	0.06	0.47	0.00	0.99	0.18	0.96	0.00	0.00	0.00	0.00	0.
7	0.64	0.00	0.00	0.00	0.00	0.56	0.79	0.00	0.00	0.00	0.00	0.
8	0.00	0.00	0.90	0.00	0.38	0.91	0.00	0.23	0.92	0.00	0.00	1.
9	0.21	0.57	0.00	0.40	0.08	0.00	0.00	0.00	0.01	0.00	0.00	1.
10	0.00	0.56	0.21	0.21	0.66	0.00	0.79	0.00	0.00	0.00	0.00	0.
11	0.04	0.91	0.00	0.99	0.31	0.00	0.00	0.00	0.25	0.00	0.00	1.
12	0.00	0.00	0.56	0.00	0.87	0.56	0.79	0.00	0.00	0.00	0.00	0.
13	0.00	0.06	0.47	0.00	0.99	0.18	0.96	0.00	0.00	0.00	0.00	0.
14	0.00	0.03	0.49	0.38	0.96	0.00	0.00	0.00	0.01	0.00	0.00	1.
15	0.73	0.00	0.00	0.00	0.00	0.56	0.96	0.00	0.00	0.00	0.00	0.
16	0.00	0.00	0.90	0.00	0.38	0.91	0.00	0.23	0.92	0.00	0.00	1.
17	0.00	0.06	0.47	0.00	0.99	0.18	0.96	0.00	0.00	0.00	0.00	0.
18	0.21	0.57	0.00	0.01	0.08	0.00	0.00	0.00	0.68	1.00	0.00	0.
19	0.00	0.00	0.56	0.00	0.87	0.56	0.79	0.00	0.00	0.00	0.00	0.
20	0.00	0.06	0.47	0.00	0.99	0.56	0.28	0.00	0.00	1.00	0.00	0.
21	0.00	0.06	0.47	0.00	0.99	0.56	0.28	0.00	0.00	1.00	0.00	0.
22	0.00	0.56	0.21	0.79	0.66	0.00	0.11	0.00	0.00	0.00	0.00	0.
23	0.64	0.00	0.00	0.40	0.00	0.00	0.79	0.00	0.00	0.00	0.00	0.
24	0.00	0.56	0.21	0.79	0.66	0.00	0.34	0.00	0.00	1.00	0.00	0.
25	0.00	0.23	0.38	0.79	0.89	0.00	0.03	0.00	0.00	0.00	0.00	0.
26	0.21	0.57	0.00	0.40	0.08	0.00	0.00	0.00	0.01	0.00	0.00	1.
27	0.21	0.57	0.00	0.01	0.08	0.00	0.00	0.00	0.68	1.00	0.00	0.
28	0.00	0.56	0.21	0.79	0.66	0.00	0.34	0.00	0.00	1.00	0.00	0.
29	0.98	0.00	0.00	0.00	0.00	0.56	0.00	0.00	0.25	1.00	0.00	0.
30	0.21	0.57	0.00	0.00	0.08	0.56	0.00	0.00	0.01	1.00	0.00	0.
31	0.00	0.56	0.21	0.21	0.66	0.00	0.79	0.00	0.00	0.00	0.00	0.
32	0.00	0.00	0.56	0.00	0.87	0.56	0.96	0.00	0.00	0.00	0.00	0.
33	0.00	0.03	0.49	0.38	0.96	0.00	0.00	0.00	0.01	0.00	0.00	1.
34	0.00	0.00	0.56	0.00	0.87	0.56	0.96	0.00	0.00	0.00	0.00	0.
35	0.21	0.57	0.00	0.00	0.08	0.56	0.11	0.00	0.00	0.00	0.00	0.

2. The Process of Fuzzyfication

In the process of determining the value of the firm's value to the value of the Variable and Fuzzy variable-what is related that was the basis for determining Fuzzy Query

Table 4.3 The Universe Talks

Function	Variable	Notation	The Universe Talks
Input	NT	U	[33-72]
	NW	V	[33-90]
	NR	W	[66-79]
	PO	X	[60-100]
	RL	Y	[70-100]
Output	Scholarship	Z	[63-86]

3. The Fuzzyfication Query process
4. Basic Zadeh for Fuzzy set operation

The table below is the fuzzy input set notation and its effect on the determination of the amount of the scholarship will be percentage as the basis for the creation of applications

Using Fuzzy Databases Tahani method.

Table 4.4 *Input Fuzzy* Set

Variable		***Fuzzy input* Set**		**Domain**
Name	**Notation**	**Name**	**Notation**	
NT	U	Low	R	[33-52.5]
		Medium	S	[42.75-62.25]
		High	T	[52.5-72]
NW	V	Low	R	[33-61.5]
		Medium	S	[47.25-75.25]
		High	T	[61.5-90]
NR	W	Low	R	[66-72.5]
		Medium	S	[69.25-75.75]
		High	T	[72.5-79]
PO	X	Low	R	[60-80]
		Medium	S	[70-90]
		High	T	[80-100]
RL	Y	Low	R	[70-85]
		Medium	S	[77.5-92.5]
		High	T	[85-100]

The table below is the output of fuzzy set notation and the effect on the determination of quantity percentage of scholarships

Table 4.5 Fuzzy Output Set

Variabel	**Fuzzy Output Set**		**Domain**
Name	**Notation**	**Name**	**Notation**	
Scholarship	Z	10%	R	[63-68.75]
		25%	Ar	[63-74.5]
		50%	S	[68.75-80.25]
		75%	At	[74.5-86]
		100%	T	[80.25-86]

Each set of escapes by observing the maximum and minimum value of the every variable .Where the value is to be taken in this method is the minimum value. Each variable fuzzy set consists of three, namely: high, medium and low.

4.2.1 Unified Modeling Language (UML) Diagram

To get lots of views of the information system will be built on this research, using UML as a visual diagram which shows various aspects of the system. UML diagram type that will be used in the development of these information systems is the use case diagram (user interacting with a system), activity diagrams (procedural and parallel behaviour) and the class diagram (showing the classes and packages in the system).

1. *Use Case* Diagram

Use case Diagram presents the interaction between use case and actors. Where, the actor can be people, equipment, or any other system that interacts with the system being built. Use case describes the functionality of the system or requirements that must be met from the view of system users. The actors are available on this Scholarship is SPK Admin and staff.

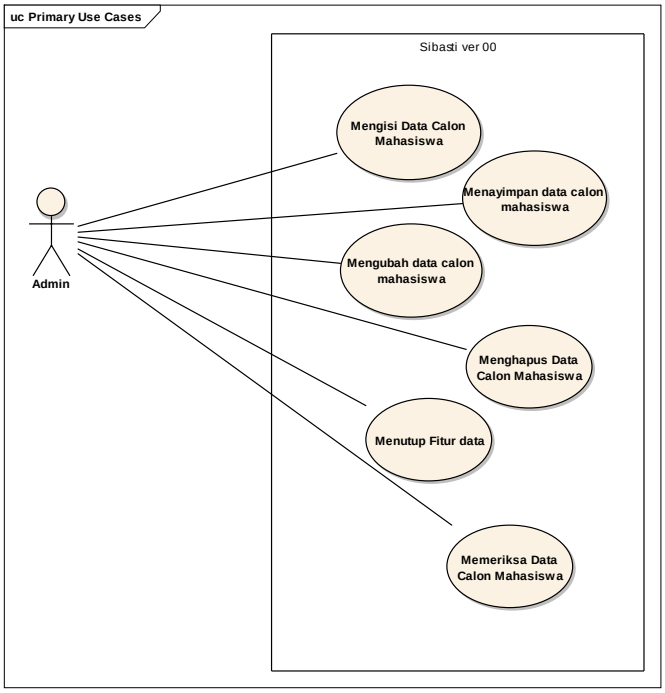


Image 3.1 Use Case Admin

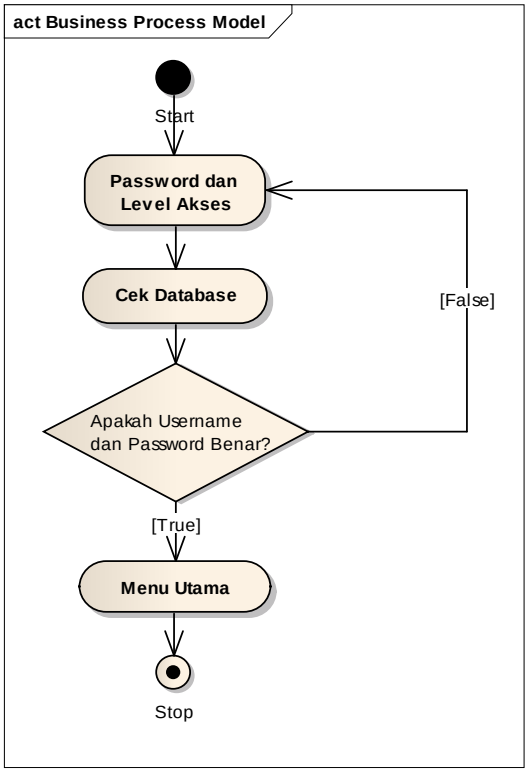
4.2.2 *Activity Diagram*

Activity diagram illustrates the flow of the functionality of the system. At this stage of business modeling, diagram of activity can be used to show business work flow (business work flow). Can also be used to describe the flow of events (flow of event) in a use case. Related to the use case diagram above, then there is some activity diagram can be described as follows:

a. *Activity Diagram* Login

Activity diagram of this login is admin's work flow to fit into the system of the SPK scholarship. The following picture of the activity diagram for login.

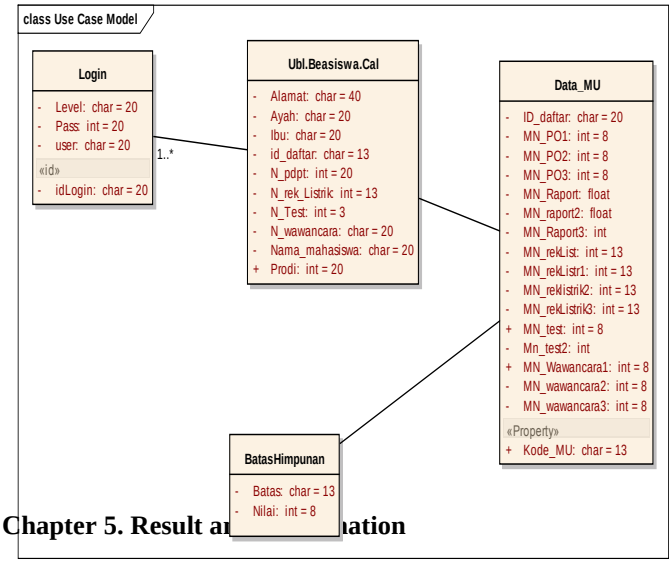
Image 3.4 Activity of Diagram Login



4.2.3 *Class Diagram*

The class Diagram is used to display the classes or packages in the system and the relationships between the tables. Class diagram gives an overview of the static System. Usually, created some class diagram to one system.

Image 3.10 *Class Diagram* of Scholarship SPK



Chapter 5. Result ar ation

5.1 Result

a. Application System Interface SPK Determination Of Scholarships Percentage

Image 5.1 Application of interface SPK percentage of Scholarships

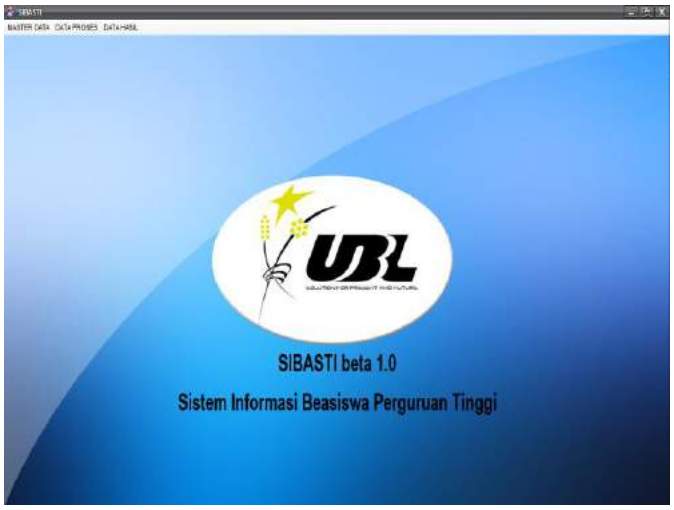
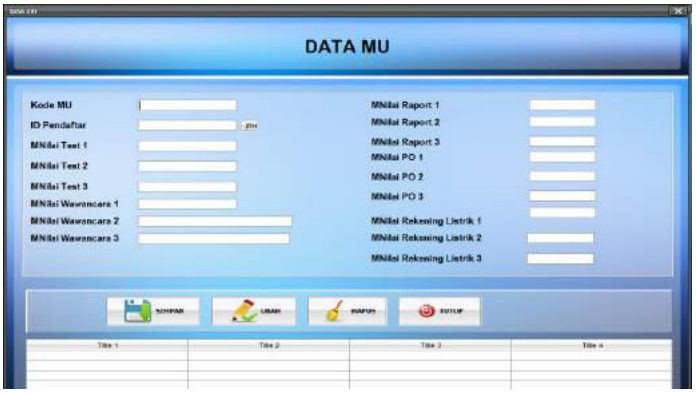


Image 5.2 Application Login Menu SPK Percentage of Scholarship

Image 5.3 Candidate Data Form Application SPK percentage of Scholarships



5.2 Conclusion

Based on research conducted with the implementation of FIS MAMDANI Method, then it can be inferred that: FIS MAMDANI Method can be used for the determination of quantity percentage of scholarships at the Faculty of computer science-University of Bandar Lampung. With the implementation of FIS MAMDANI Method, can make it easier to top management at the Faculty of computer science-University of Bandar Lampung for a decision determining the percentage of quantities of scholarship on prospective students scholarship recipient with a precise and objective.

As for the process of the process in determining the percentage of quantities this scholarship by using Fuzzy Inference System (FIS) using the method of MAMDANI is as follows:

A. establishment of the fuzzy set (Fuzzification)

At this stage in the determination of quantity percentage of scholarships takes variable inputs and determine the membership of each variable, in this set there are 5 input variables are:

1. the value of Test (NT)
2. the value of the interview (NW)
3. the value of report cards (NR)
4. the value of parents Income (PO)
5. the value of the electricity Account (RL)

While the output variables is Fellowship. In this study consists of 3 Sets, namely:

1. low
2. Medium
3. high

And then from any of the input variables and inputs specified hosts talks or domain. Then made a curve of each set and the input and output variables.

b. Application Functionality Implications

At this stage in the input values of each input variable based on an existing set. On the research methods used to combine every degree a minimum membership of any rules made, at this stage of the combination 3 and 5 Set Input Variables, formed the influential rules 243.

c. the composition Rules

At the time of the composition of these rules specified rules that influence, at this stage to use methods of the Max (Maximum) of each case.

d. Deffuzification

At this stage the value of output in the form of quantity percentage crips scholarship that best suits how to change input, namely: a crips set fuzzy obtained from the composition of fuzzy rules into some number of these fuzzy sets on the domain.

By using the decision support system applications is existing data can be processed properly and can facilitate searches

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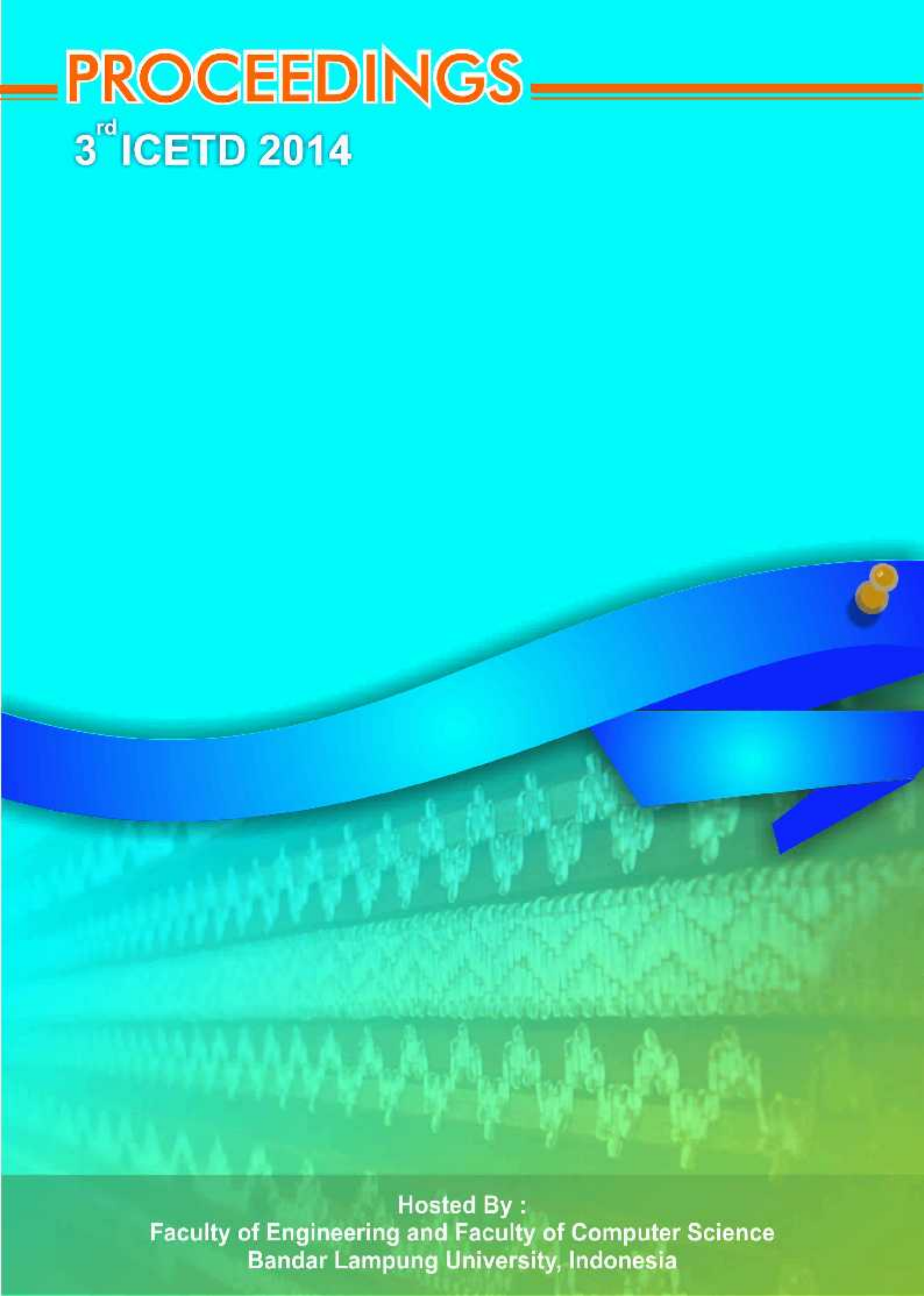

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