



Decision Support System Using Fuzzy Logic Mamdani Method To Select New Students

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ABSTRACT

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Produce competent graduates in the fields of science and computers with excellence in the fields of computer graphics and multimedia, computer networking, and software technology and have character and moral integrity. Decision support system can be interpreted as a system designed to support management in making a decision. The problem to be solved in this research is to develop a decision support system produced by a computer-based system that is used to help decision making in finding data and certain types of types to solve problems that are not structured. This study uses a descriptive approach to the Mamdani fuzzy logic technique. The results of this study are in the form of calculations in determining the selection of prospective students manually in mamdani fuzzy logic, the application to be built can be useful for its users in determining the selection of prospective students who will be competent in the field or academics. This method was chosen because it can provide optimal results, by selecting prospective new students

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1. Introduction

Fuzzy logic is the science of learning about uncertainty. Fuzzy logic is considered capable of mapping an input into output without ignoring the existing factors. Fuzzy logic is believed to be very flexible and tolerant of existing data. One model of fuzzy rules is a model that is often used to build systems whose reasoning resembles human intuition or feeling. The calculation process is quite complex so it requires a relatively long time, but this model provides high accuracy [1].

With these problems, to determine the criteria in meeting the university's demand, an alternative problem solving is needed without adding existing facilities, namely by applying the fuzzy method. The application of the fuzzy method in planning new student selection is expected to be able to cope with demand optimally [2]. Fuzzy logic is a science that is now being developed especially for control systems. Fuzzy logic has advantages as simple and can be translated into human language. The fuzzy logic has a performance that is not inferior when compared to a very complex system solution. This is what makes fuzzy use rather than very complex system solutions [3].

Based on the background that has been explained, this study applies a decision support system using a web-based mamdani fuzzy logic method to determine the selection of prospective new students, so as to reduce the risk of falsifying ineffective data [4]. Several research journals are used as references. The author refers to the first research journal it can be concluded to select prospective new students using the web-based mamdani fuzzy logic method with data collection and information techniques from sources getting fairly dominant results. It can be concluded that the benefits of this fuzzy logic mamdani made by the author are able to select quickly and effectively accurately. It can be concluded that by applying the method of fuzzy logic Mamdani



can use the basic MySQL data to store basic knowledge and data to make it easy to add, edit and delete basic knowledge [5].

2. Research Methods

A. Decision Support System

The concept of Decision Support System (SPK) is a system that seeks to adopt human knowledge to the computer so that the computer can solve problems as is usually done by experts, and a good decision support system is designed to solve a particular problem by imitating the work of the experts.

B. Fuzzy Logic Mamdani

In writing this research, a methodology is needed to make it easier to design a system in the presence of such a design that is expected to be an appropriate and satisfying result. The Mamdani method is often also known as the Max-Min method name. This method was introduced by Ebrahim Mamdani in 1975 (Kusuma Dewi 2003). To get the output, the following steps are needed and the research design.

C. System Design

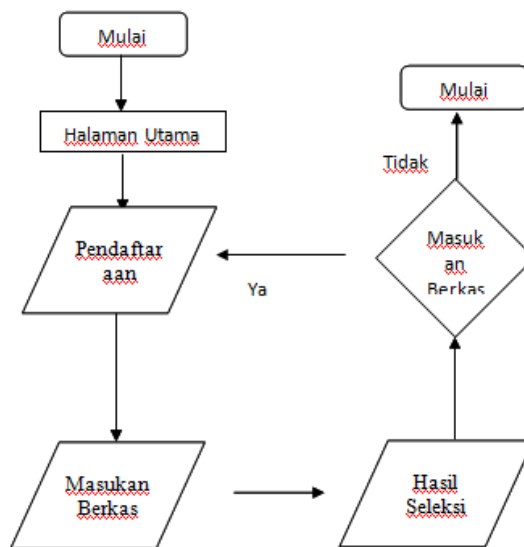


Fig 1. Flowchart sistem

In Figure 1 describes the first stage starting from entering the main page then entering the registration menu, then the system will read data from the user, admin & public relations. Then the system will display the input of prospective student profiles, registration and results. If the user wants to register kembali makan system will point to the registration menu as in the initial stages if the user does not register then finish.

3. Results And Discussion

The table contains the knowledge base about the admission of new students and their dependencies in the system

A. Knowledge Baae

Facts and knowledge that have been obtained will be translated by the creator

Table.1
Admission of new students

Calon Mahasiswa	User	Pendaftaran	Tahun Ajaran	Hasil
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The system becomes a knowledge base that is inserted decision support systems made, with the collection of data about the grouping of selecting new students at the National University.



Table 2
School year

Tahun Ajaran	Qouta	Keterangan	Status
2019-2020	5	Beasiswa	Aktif
2020-2021	5	Gelombang 1	Tidak Aktif

In table 2 shows the data of the school year along with the quota, information and status on the system. There are 2 periods of the school year that we will use on this system.

B. Testing Results

At this stage the application testing based on the Mamdani Algorithm in 2 periods (20 cases) in accordance with table 1-2.

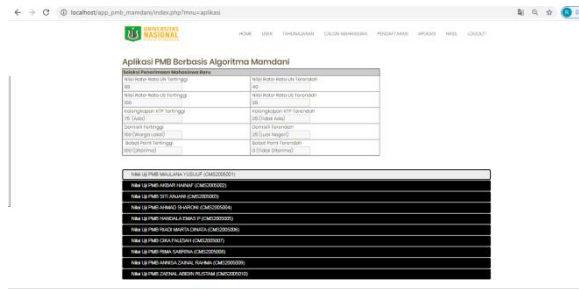


Fig 2. Period Testing System 2020-2021

Table.3
Testing Period Results 2020-2021

ID- Daftar	Nama Calon	Bobot	Ranking	Status
PDT- 200500 1	Maulana Yusuf	47.3	1	Diterima
PDT- 200500 7	Cika Fauziah	46.7	2	Diterima
PDT- 200500 5	Handala Emas	42.2	3	Diterima
PDT- 200500 8	Rima Sabrina	42.2	4	Diterima
PDT- 200500 9	Annisa Zainal	42.2	5	Diterima
PDT- 200501 0	Zaenal Abidin	42.2	6	Tidak Lulus
PDT- 200500 6	Riadi Marta	41.4	7	Tidak Lulus
PDT- 200500 4	Ahmad Syahroni	39.8	8	Tidak Lulus
PDT- 200500 3	Siti Anjanti	8.3	9	Tidak Lulus
PDT- 200500 2	Akbar Hainaf	3.5	10	Tidak Lulus

ID- Daftar	Nama Calon	Bobot	Ranking	Status
PDT- 20050 12	Caesar Hermant o	37.5	1	Lulus
PDT- 20050 14	Denata Ayu	36.3	2	Lulus
PDT- 20050 20	Rizki Perdana	36.2	3	Lulus
PDT- 20050 16	Regina Putri	35.6	4	Lulus
PDT- 20050 11	Rizky Setiawan	31.7	5	Lulus
PDT- 20050 17	Prawati Ayu	31.7	6	Tidak Lulus
PDT- 20050 15	Bobby Prasetyo	30.8	7	Tidak Lulus

Table 4.
Testing Period Results 2019-2020

PDT- 20050 13	Ibrahim Ramadh an	29.0	8	Tidak Lulus
PDT- 20050 18	Zaskia Aulia	37.6	9	Tidak Lulus
PDT- 20050 19	Danu Kurniaw an	25.5	10	Tidak Lulus

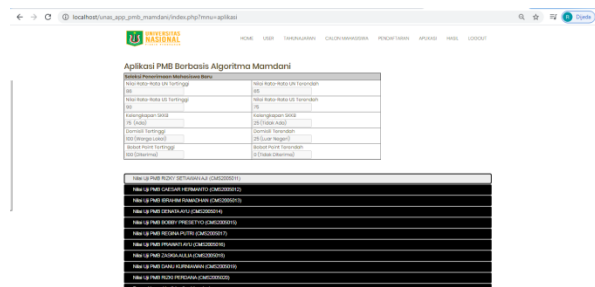


Fig 3. Testing Period Results 2019-2020

C. Display Inteface

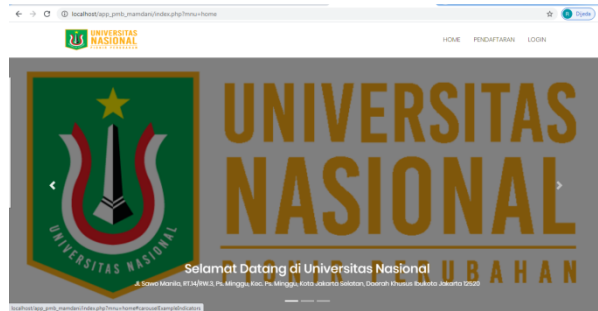


Fig 4. Home page

The home page of the application is the main page that is first run. On this page there is a login menu for admins and a registration menu to enter the registration page.

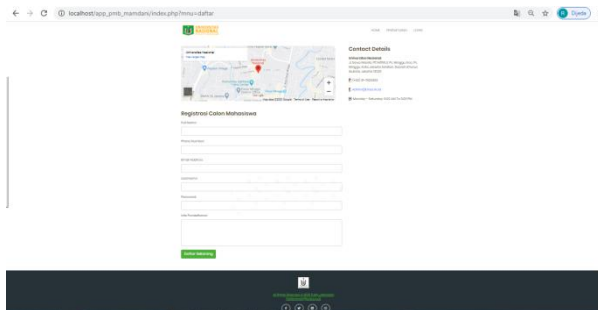


Fig 5. Registration page

To enter the next page prospective students must fill in the data according to the form on the registration page.

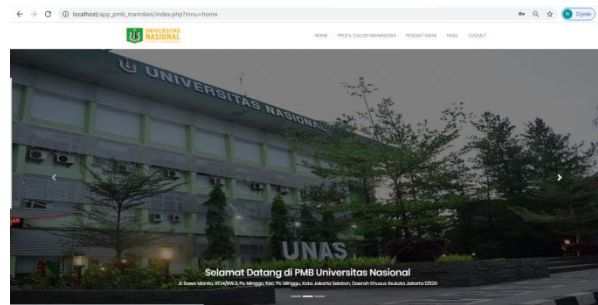


Fig 6. Prospective Student Pages

On this prospective student page, there is a Prospective Student Profile, Registration and Results menu.

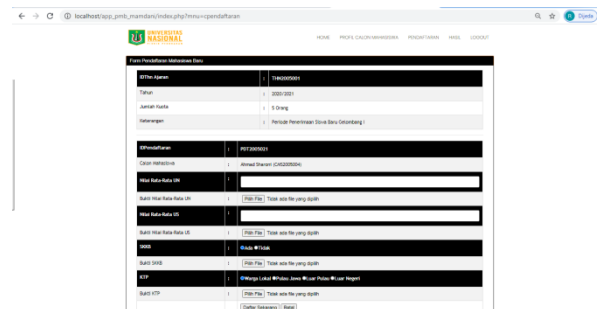


Fig 7. Registration of Students

This page will display the document requirements that must be completed by prospective students .

