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## **Employee Recruitment Decision Support System Web-based with Fuzzy Analytical Hierarchy Method Process (Case Study of PT. Agrofarm Nusa Raya)**

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### **ABSTRACT**

Employees are the the most important part of the company. Therefore, when conducting recruitment must be done optimally in order to maximally in order to obtain quality employees, quality and as needed. In the process of process of recruiting new employees, PT. Agrofarm Nusa Raya still uses manual methods and has not implemented a method for decision making. The large number of prospective employees makes HRD find it difficult to select prospective employees who match the criteria to be accepted in the company. company. To overcome this problem then a web-based Decision Support System is needed Support System that is web-based by applying the Fuzzy Analytical Hierarchy Process (Fuzzy AHP) method. Criteria used for the employee recruitment process namely interviews, psychological tests, Islamic knowledge, work experience, education and certificates. Results The final result of the research shows that the Decision Support System for employee recruitment can be developed with the Extreme Programming (XP) method. On the results of calculations that applying the Fuzzy AHP method obtained the results that the highest value is 1.660 with the name Akbar, while the lowest value is -1.810 with the name of Imam. With the Decision Support System that applies Fuzzy AHP will facilitate HRD work in the decision-making process related to the final results of employee recruitment.

**Keyword:** Decision Support System, Recruitment Employee, Website, Extreme Programming, Fuzzy Analytical Hierarchy Process.

#### **Article Info:**

*Article history:*

*Received November 12, 2024*

*Revised March 18, 2025*

*Accepted April 4, 2025*

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## **1. INTRODUCTION**

In this modern era of globalization technology is developing quite rapidly. One of the technologies that suitable for data processing and information dissemination is information and communication technology. Thanks to the advancement of information and communication technology, data processing data processing becomes well computerized so as to improve performance and the results obtained are better and more accurate [1]. Decision Support System is one form of information system that applies certain methods to provide solutions for decision makers in determine his choice [2]. Through a decision support system. This decision support system certainly provides solutions to various one of them is employee recruitment. The quality of employees is one of the most important aspects that is quite valuable for the company [3]. Employees with good quality will have a positive impact on the company for

work prospects in the future. Therefore, when the process of employee recruitment process must be done optimally so that the results obtained are objective [4].

PT Agrofarm Nusa Raya is a producer of micro-fertilizer (Micro Nutrients Fertilizer) in Ponorogo Regency. To increase its productivity, it requires employees who are suitable and responsible for their their work. When recruiting employees, PT. Agrofarm Nusa Raya still finds it difficult in the process of decision-making process related to the results of employee acceptance. This problem occurs because in the employee recruitment process employees still use the old way and have not implemented a decision-making method. To solve these problems, a decision support system is needed decision support system during the employee recruitment process. During this time, prospective employees complete the administrative stage by filling out biodata through google form. Some of the prospective employees are constrained when accessing google form so they have to submit physical files directly.

Files with a large number of files will accumulate and room so that it makes it difficult for HRD when looking for prospective employee data to be processed. Based on observations and information obtained by researchers at PT. Agrofarm Nusa raya, the results show that the employee recruitment process is easier to do by filling out the process is easier to do by filling out biodata through the web rather than submitting physical files directly to the company. directly to the company. One method that can be applied to provide a solution to the problem of employee recruitment problem is the Fuzzy Analytical Hierarchy Process. This is because Fuzzy AHP has a precise calculation process with an accurate level of data maturity accurate, so that it can provide recommendations for candidates or prospective employees to match the qualifications that are being required. Through this decision support system is expected to be able to improve the quality and accuracy of in making decisions by considering other relevant factors and to minimize the level of subjectivity in the calculation process. subjectivity in the calculation process.

## **2. METHODS**

### **2.1 Decision Support System**

Decision Support System (DSS) is an information system to assist management in the decision-making process with semi-structured problems. problems that are semi-structured. Through a decision support system decision support system can provide alternative decisions that will be taken by the user related to a problem that is being solved [5]. Application of decision support system decision support system, which aims to simplify the process decision making process related to a problem, get accurate final results and convert raw data into information that is easy to understand.

### **2.2 Analytical Hierarchy Process**

Analytical Hierarchy Process (AHP) is a method in Decision Support Systems that developed by Thomas Lorie Saaty (1970). This method can be used with multi-factor or multi-criteria data or multi-criteria data, where the analysis process is obtained by giving a priority value to each variable of each alternative [2]. The following is a scale table comparison scale table to create a pairwise comparison matrix pairwise comparison matrix. According to Saaty, in solving diverse problems can use a scale of 1-9 because it is considered the best scale in describing 9 scale because it is considered the best scale in describing an idea [6].

Table 1. Comparison Scale According To Saaty

Value	Description
1	Both elements are of equal importance
3	One element is slightly more important than the other element
5	One element is more important than the other element
7	One element is more important than the other element
9	One element is absolutely more important than the other elements
2, 4, 6, 8	Values between two judgment values that are adjacent

Table 2. Random Index Value

Matrix Size	Value RI	Matrix Size	Value RI
1, 2	0	9	1,45
3	0,58	10	1,49
4	0,90	11	1,51
5	1,12	12	1,48
6	1,24	13	1,56
7	1,32	14	1,57
8	1,41	15	1,59

The calculation flow in the AHP method is as follows :

1. Decompose the problem by structuring the hierarchy. Starting with setting a goal at the highest level. Then proceed with level below that is criteria, followed by sub criteria (optional) and the last is the alternative [7].

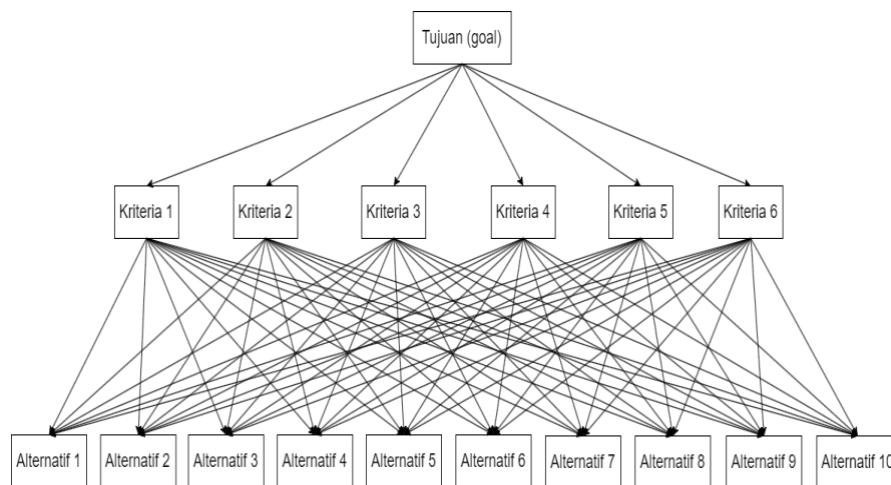


Figure 1. AHP Hierarchy Structure

2. Create a pairwise comparison matrix criteria. In its construction, the law of reciprocal axioms applies, namely if X is compared with Y will result in a Z value. Conversely, if Y is compared to X, it will produce a value of  $1/z$  [8].
3. Perform normalization, which is to divide the value of the pairwise comparison matrix with the total value of the column concerned.
4. Summing the matrix per row, i.e. by multiplying the value of the pairwise comparison matrix with the priority value of the criteria then calculate the sum of each row.
5. Calculate the maximum lambda value ( $\lambda_{max}$ ), by summing the matrix value of each row.
6. Calculate the value for Consistency Index (CI), using the formula:

$$CI = \frac{(\lambda \max - n)}{(n-1)}$$

n = Count of element

7. Calculate the value for Consistency Ratio (CR), using the formula:

$$CR = \frac{CI}{RI}$$

CI = Consistency Index

RI = Random Index.

### 2.3 Fuzzy AHP

Fuzzy Analytical Hierarchy Process (Fuzzy AHP) is an analytical method for the development of the AHP method with a fuzzy concept approach. The existence of Fuzzy AHP, of course, can improve the shortcomings of the AHP method, which is related to the uncertainty factor in decision making so that the criteria found are still subjective [9]. In Fuzzy AHP applies triangular membership Triangular Fuzzy Number (TFN) in determining the degree of membership.

Table 3. Triangular Fuzzy Number Scale According To Chang

AHP Intensity of Importance	Linguistic Set	Triangular Fuzzy Number	Reciprocal
1	Comparison of the same elements ( <i>Just Equal</i> )	(1, 1, 1)	(1, 1, 1)
2	Mid ( <i>Intermediate</i> )	( $1/2$ , 1, $3/2$ )	( $2/3$ , 1, 2)
3	One element is more important than the other ( <i>Moderately Important</i> )	(1, $3/2$ , 2)	( $1/2$ , $2/3$ , 1)
4	Mid ( <i>Intermediate</i> )	( $3/2$ , 2, $5/2$ )	( $2/5$ , $1/2$ , $2/3$ )
5	One element is more important than the other ( <i>Strongly Important</i> )	(2, $5/2$ , 3)	( $1/3$ , $2/5$ , $1/2$ )
6	Mid ( <i>Intermediate</i> )	( $5/2$ , 3, $7/2$ )	( $2/7$ , $1/3$ , $2/5$ )
7	One element is more important than the other ( <i>Very Strong</i> )	(3, $7/2$ , 4)	( $1/4$ , $2/7$ , $1/3$ )
8	Mid ( <i>Intermediate</i> )	( $7/2$ , 4, $9/2$ )	( $2/9$ , $1/4$ , $2/7$ )
9	One element is absolutely more important than the other ( <i>Extremely Strong</i> )	(4, $9/2$ , $9/2$ )	( $2/9$ , $2/9$ , $1/4$ )

The calculation flow in the Fuzzy AHP method is as follows as follows:

1. Create a hierarchical structure of the problem to be solution and create a pairwise comparison matrix each criterion with TFN scale.
2. Calculating the Fuzzy Synthesis (Si) value, with the formula:

$$S_i = \sum_{j=1}^m M_i^j \times \left[ \sum_{i=1}^n \sum_{j=1}^m M_i^j \right]^{-1}$$

3. Calculating the Vector value (V) and determining the value of the Defuzzification Ordinate (d'), with the formula :

$$V(M_2 \geq M_1) = \begin{cases} 1, & \text{if } m_2 \geq m_1, \\ 0, & \text{if } l_1 \geq \mu_2, \\ \frac{l_1 - u_2}{(m_2 - u_2) - (m_1 - l_1)} & \end{cases}$$

$$d'(A_i) = \min V(S_i \geq S_k)$$

4. Normalize the fuzzy vector value (W), with the formula :

$$W = (d(A_1), d(A_2), \dots, d(A_n))^T$$

5. Determine the weight of the assessment category for each criterion

6. Calculation of the value of each alternative
7. Determining the final result

## 2.4 Extreme Programming

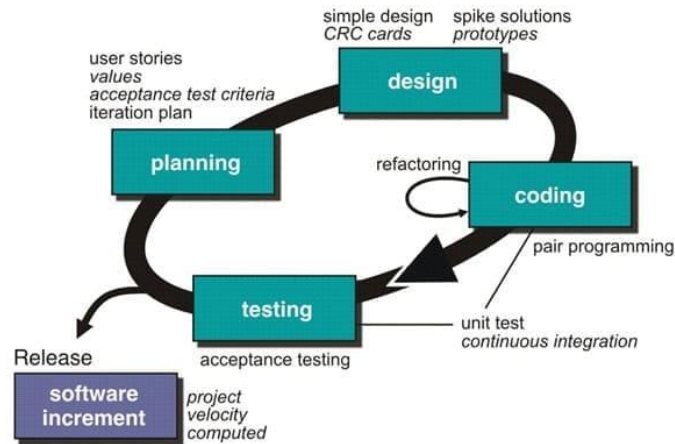


Figure 2. Extreme Programming Method

Extreme Programming (XP) is known as “technical how to” which is how a team develop software efficiently and apply various approaches and techniques that are practical [10]. Extreme Programming applies the technique of refactoring technique. According to Martin Fowler, refactoring is a technique used to change the existing program code without changing the business processes that are running. Stages in Extreme Programming can be done repeatedly and emphasize periodic development and testing process. development and testing process that is carried out continuously. Steps in the Extreme Programming method there are four, namely planning, design, coding, and testing.

## 3. RESULTS AND DISCUSSION

### 3.1 Results

#### a) Landing Page

The landing page is the initial page when the user first accesses the Decision Support System for employee recruitment at PT. Agrofarm Nusa Raya. This landing page There are two main buttons, namely “Login” for users who already have an account and the “Register” button for users who do not have an account.



Figure 3. Landing Page

## b) Register Page

The register page is a page that used by Employee Candidate users to create account or register themselves to the system. To can register, the user is asked to enter fullname, email, password and confirm password through the available input form.

Figure 4. Register Page

## c) Login Page

The login page acts as the main door for user when accessing the system. To be able to do login, users must input their email and registered password through the input form available.

Figure 5. Login Page

## d) Password Change Page

The password change page is used by users who want to change the password with a new one. To be able to change the password, the user must enter the current password, the and confirm the password.

Figure 6. Password Change Page

## e) Administration Data Page

The administrative data page is used by the user Prospective Employees to complete their personal biodata including choosing the type of vacancy that will be applied for. In addition, they can also upload supporting files through the available input form.

The screenshot shows the 'Biodata' form in the 'SPK FUZZY AHP' system. The form is divided into two main sections: 'Biodata' and 'File Pendukung'. The 'Biodata' section includes fields for User ID, Email, Name, Address, Birth Date, Phone Number, and Education. The 'File Pendukung' section includes fields for CV, Passport Photo, and KTP. There are also buttons for 'Download' and 'Upload' for each file type.

Figure 7. Administration Data Page

## f) Vacancy Data Page

The vacancy data page contains a list of all vacancies both active and inactive.

The screenshot shows the 'Data Lowongan' page in the 'SPK FUZZY AHP' system. It displays a table of vacancies with the following data:

No	Nama Lowongan	Periode	Status	Aksi
1	Analisis Laboratorium Mikrobiologi	2024	Aktif	<a href="#">Seri</a> <a href="#">Hapus</a>
2	Staff Internal Audit	2024	Tidak Aktif	<a href="#">Seri</a> <a href="#">Hapus</a>

Figure 8. Vacancy Data Page

## g) Criteria Data Page

The criteria data page contains a list of all criteria used for the employee recruitment process.

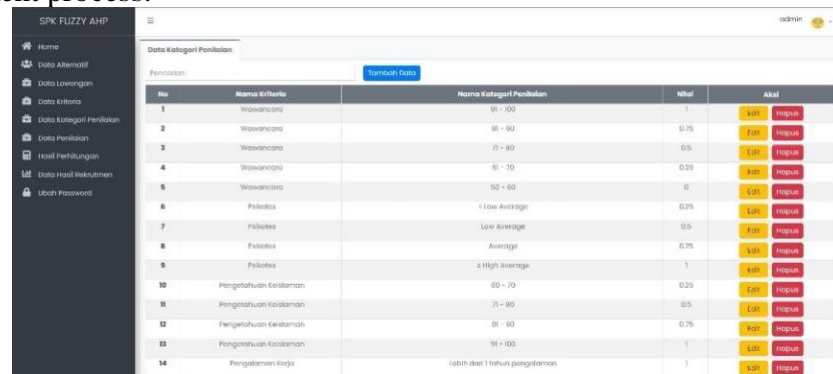
The screenshot shows the 'Data Kriteria' page in the 'SPK FUZZY AHP' system. It displays a table of criteria with the following data:

No	Kode Kriteria	Nama Kriteria	Aksi
1	C1	Pendidikan	<a href="#">Seri</a> <a href="#">Hapus</a>
2	C2	Pelatihan	<a href="#">Seri</a> <a href="#">Hapus</a>
3	C3	Pengalaman Kerja	<a href="#">Seri</a> <a href="#">Hapus</a>
4	C4	Pengalaman Kerja	<a href="#">Seri</a> <a href="#">Hapus</a>
5	C5	Pendidikan	<a href="#">Seri</a> <a href="#">Hapus</a>
6	C6	Sertifikat	<a href="#">Seri</a> <a href="#">Hapus</a>

Figure 9. Criteria Data Page

## h) Criteria Assessment Category Data Page

The criteria data page contains a list of all criteria used for the employee recruitment process.

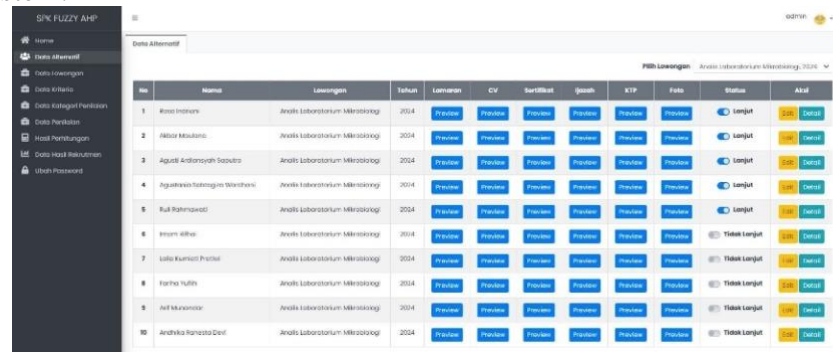


No	Nama Kriteria	Nama Kategori Penilaian	Nilai	Aksi
1	Wawancara	81 - 100	1	Lihat Input
2	Wawancara	81 - 90	0.75	Lihat Input
3	Wawancara	71 - 80	0.5	Lihat Input
4	Wawancara	61 - 70	0.25	Lihat Input
5	Wawancara	52 - 60	0	Lihat Input
6	Praktikum	1 Low Average	0.75	Lihat Input
7	Praktikum	Low Average	0.5	Lihat Input
8	Praktikum	Average	0.75	Lihat Input
9	Praktikum	High Average	1	Lihat Input
10	Pengalaman Keislaman	60 - 70	0.25	Lihat Input
11	Pengalaman Keislaman	71 - 80	0.5	Lihat Input
12	Pengalaman Keislaman	81 - 90	0.75	Lihat Input
13	Pengalaman Keislaman	91 - 100	1	Lihat Input
14	Pengalaman Kerja	Jumlah dari 1 tahun pengalaman	1	Lihat Input

Figure 10. Criteria Assessment Category Data Page

## i) Alternative Data Page

The alternative data page contains a list of all prospective employees registered in the system.

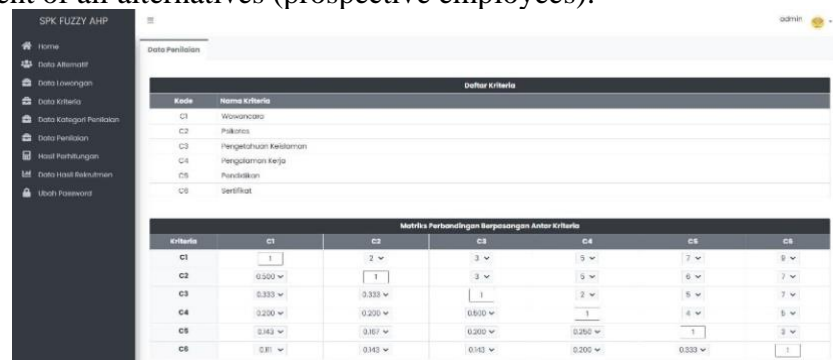


No	Nama	Lewat	Tahun	Lamaran	CV	Sertifikat	Spesial	KIP	Foto	Status	Aksi
1	Rizki Nurani	Anda Laboratorium Mikrobiologi	2014	Pada	Pada	Pada	Pada	Pada	Pada	Lanjut	Lihat Detail
2	Albiat Mubandri	Anda Laboratorium Mikrobiologi	2014	Pada	Pada	Pada	Pada	Pada	Pada	Lanjut	Lihat Detail
3	Agus Ariandayana Saputra	Anda Laboratorium Mikrobiologi	2014	Pada	Pada	Pada	Pada	Pada	Pada	Lanjut	Lihat Detail
4	Agustina Fatmahaning Wicaheni	Anda Laboratorium Mikrobiologi	2014	Pada	Pada	Pada	Pada	Pada	Pada	Lanjut	Lihat Detail
5	Ruli Rahmawati	Anda Laboratorium Mikrobiologi	2014	Pada	Pada	Pada	Pada	Pada	Pada	Lanjut	Lihat Detail
6	Imam Albiat	Anda Laboratorium Mikrobiologi	2014	Pada	Pada	Pada	Pada	Pada	Pada	Tidak Lanjut	Lihat Detail
7	Lulu Kurnia Pratiwi	Anda Laboratorium Mikrobiologi	2014	Pada	Pada	Pada	Pada	Pada	Pada	Tidak Lanjut	Lihat Detail
8	Farha Nufus	Anda Laboratorium Mikrobiologi	2014	Pada	Pada	Pada	Pada	Pada	Pada	Tidak Lanjut	Lihat Detail
9	Ardi Munandar	Anda Laboratorium Mikrobiologi	2014	Pada	Pada	Pada	Pada	Pada	Pada	Tidak Lanjut	Lihat Detail
10	Andhika Pratomo Dwi	Anda Laboratorium Mikrobiologi	2014	Pada	Pada	Pada	Pada	Pada	Pada	Tidak Lanjut	Lihat Detail

Figure 11. Alternative Data Page

## j) Assessment Data Page

The assessment data page is used by the user HRD user when giving an assessment of all alternatives (prospective employees).



Kode	Nama Kriteria
C1	Wawancara
C2	Praktikum
C3	Pengalaman Keislaman
C4	Pengalaman Kerja
C5	Pendidikan
C6	Sertifikat

Kriteria	C1	C2	C3	C4	C5	C6
C1	1	2	3	4	5	6
C2	0.500	1	3	5	6	7
C3	0.333	0.333	1	2	5	7
C4	0.200	0.200	0.500	1	4	5
C5	0.143	0.167	0.200	0.250	1	2
C6	0.071	0.143	0.143	0.200	0.333	1

Figure 12. Assessment Data Page

## k) Calculation Result Page

The calculation results page is used by the user HRD to display all the calculation flow of the Fuzzy AHP method.



**SPK FUZZY AHP**

Home  
Data Alternatif  
Data Kriteria  
Data Kategori Penilaian  
Data Penilaian  
Hasil Perhitungan  
Data Hasil Rekrutmen  
Ubah Password

Hasil Perhitungan

**DAFTAR KRITERIA**

Kode Kriteria	Nama Kriteria
C1	Wawasan
C2	Keakatan
C3	Pengalaman Kerja
C4	Pendidikan
C5	Sertifikasi

**NILAI PERBANDINGAN ANTAR KRITERIA**

Kriteria	C1	C2	C3	C4	C5	C6
C1	1	2	3	5	7	9
C2	0.500	1	3	5	7	9
C3	0.333	0.333	1	2	5	7
C4	0.200	0.200	0.333	1	4	5
C5	0.143	0.143	0.200	0.250	1	3
C6	0.091	0.143	0.143	0.200	0.333	1
Total	2.287	3.843	7.843	13.45	23.333	32

Figure 13. Calculation Result Page

### 1) Recruitment Result Data Page

The recruitment results data page is used to display the recommendation results of the employee recruitment process.

**SPK FUZZY AHP**

Home  
Data Alternatif  
Data Kriteria  
Data Kategori Penilaian  
Data Penilaian  
Hasil Perhitungan  
Data Hasil Rekrutmen  
Ubah Password

Data Hasil Rekrutmen

**HASIL PERBANDINGAN ALTERNATIF**

Kode	Nama Alternatif	Nilai	Status
A2	Albar Maulana	1	Disetujui
A7	Lola Kurniati Pratwi	0.75175	Disetujui
A8	Faiha Yulih	0.878	Disetujui
A5	Kuli Rahmawati	0.9545	Disetujui
A10	Andhika Rahmatu Devi	0.93025	Disetujui
A1	Rosa Indriani	0.5955	Ditolak
A3	Agusti Ardianingsih Suputra	0.59925	Ditolak
A4	Agustonia Subagyo Wardhani	0.407	Ditolak
A6	Imam Rithal	0.591	Ditolak
A9	Anil Munandar	0.27325	Ditolak

Figure 14. Recruitment Result Data Page

### m) Acceptance Status Page

**Secure Acceptance Status** The acceptance status page is used by the user Employee Candidates to find out the status of the ongoing ongoing recruitment process. There are three status when the recruitment process is “Processed”, “Accepted”, and “Rejected”.



Figure 15. Acceptance Status Page

## 3.2 Discussion

### a) Login Page

The login page is used to authenticate for users who want to access features in the system. In the recruitment decision support system there are 3 types of user roles, namely user HRD user, Manager user and Prospective Employee user.

b) Administration Data Page

The administration data page can only be accessed by Employee Candidate users only. On this page, user Employee Candidate users are asked to complete their personal data including choosing the type of vacancy that will be applied for. In addition, they can also upload supporting files.

c) Vacancy Data Page

The vacancy data page can only be accessed by HRD users, because they are responsible for recruitment and manage vacancy data is HRD. On this page HRD can view, add, change and delete available vacancies. In addition, HRD users can activate and deactivate the status for each vacancies that exist.

d) Criteria Data Page

The criteria data page can only be accessed by HRD users because they are responsible for recruitment and manage criteria data is HRD. On this page HRD users can view, add, change and delete criteria data.

e) Criteria Assessment Category Data Page

The criteria assessment category data page is only can only be accessed by HRD users, because those who obliged to carry out recruitment and managing criteria assessment category data is HRD. On this page HRD can view, add, change and delete category data criteria assessment category data.

f) Alternative Data Page

The alternative data page can only be accessed by HRD users, because they are responsible for recruitment and manage alternative data is HRD. On this page HRD can see list of all alternatives in detail, can filter by vacancies, download supporting files, download by vacancy, download supporting files, edit prospective employee data and select to can enter the assessment stage.

g) Assessment Data Page

The assessment data page can only be accessed by HRD users, because they are responsible for recruiting and managing assessment data is HRD. On this page HRD can provide assessment. The assessment process is carried out by weighting for each criterion along with categories, then provide an assessment for each alternative based on the assessment category that has been determined.

h) Calculation Result Page

The calculation result data page can only be can only be accessed by HRD users, because they are responsible for to recruit and manage the calculation data is HRD. calculation data is HRD. On this page will displays all the calculation flow from the Fuzzy AHP method. In addition, HRD users can also change the the status of each alternative which was originally "Processed" to "Accepted" or "Rejected".

i) Recruitment Result Data Page

The recruitment results page can be accessed by users HRD and Manager. On this page displays the results of recommendations from the employee recruitment process. The list of calculation results is sorted from to the minimum value. If you

want to print data can press the “Print Data” button then will download the recruitment result file in PDF format.

### 3.3 White Box Testing

White box testing is done by creating a flow graph, calculating the cyclomatic complexity value, determine the independent path, and analyze.

#### a) Login

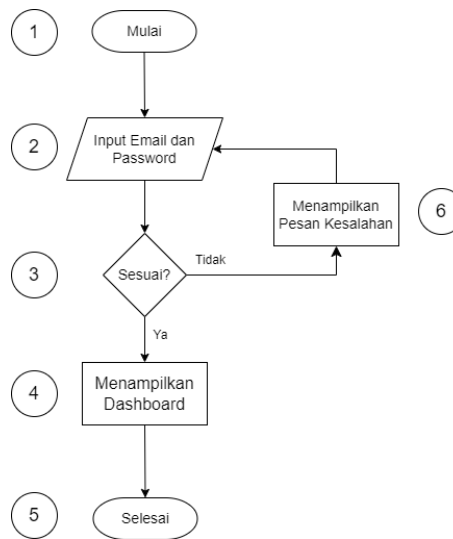


Figure 16. White Box Testing Login

Based on the flow graph above, the number of edges (E) which is the connecting line between nodes (N) is 6. While the nodes (N) that describe an activity are 6. Describe an activity as many as 6. Formula for calculating the cyclomatic value complexity  $V(G) = E - N + 2$ .

With this formula, the value of  $V(G)$  is obtained:

$$V(G) = E - N + 2$$

$$V(G) = 6 - 6 + 2$$

$$V(G) = 2$$

Then, an analysis of the (independent path) in the login process, so that the results obtained are:

Path 1 = 1 - 2 - 3 - 4 - 5

Path 2 = 1 - 2 - 3 - 6 - 2 - 3 - 4 - 5

From the calculation of the value of cyclomatic complexity and the number of independent paths there are. This shows that the system developed shows that the system developed has been in accordance with the planning that has been determined at the beginning. Thus, each function of the of the system has functioned properly, without errors and the output produced in accordance with specifications and needs.

## b) Criteria Data Page

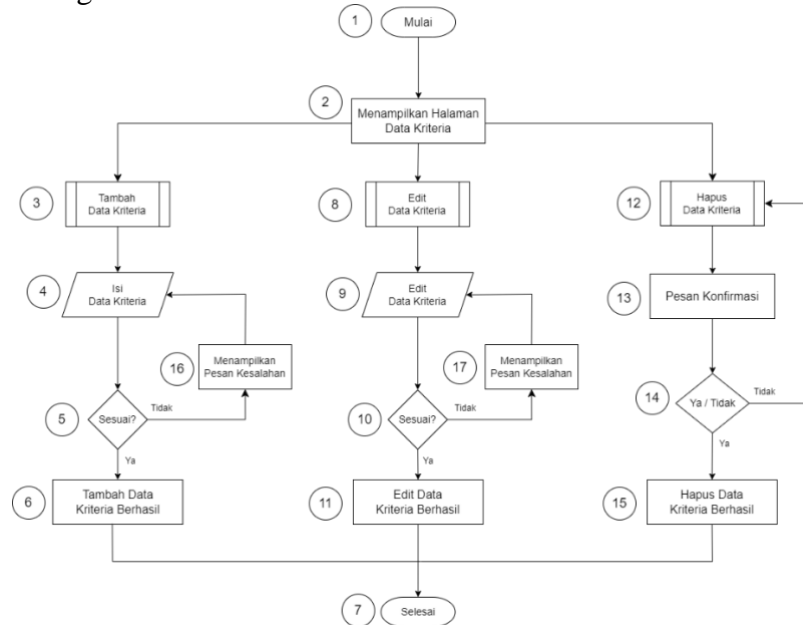


Figure 17. White Box Testing Criteria Data Page

Based on the flow graph above, the number of edges (E) which is the connecting line between nodes (N) is 21. (N) as many as 21. While the nodes (N) that describe an activity are 17. describe an activity as many as 17. The formula for calculating the cyclomatic value complexity  $V(G) = E - N + 2$ .

With this formula, the value of  $V(G)$  is obtained:

$$V(G) = E - N + 2$$

$$V(G) = 21 - 17 + 2$$

$$V(G) = 6$$

Then, an analysis of the (independent path) in the login process, so that the results obtained are:

Path 1 = 1 - 2 - 3 - 4 - 5 - 6 - 7

Path 2 = 1 - 2 - 3 - 4 - 5 - 16 - 4 - 5 - 6 - 7

Path 3 = 1 - 2 - 8 - 9 - 10 - 11 - 7

Path 4 = 1 - 2 - 8 - 9 - 10 - 17 - 9 - 10 - 11 - 7

Path 5 = 1 - 2 - 12 - 13 - 14 - 15 - 7

Path 6 = 1 - 2 - 12 - 13 - 14 - 12 - 13 - 14 - 15 - 7

From the calculation of the cyclomatic complexity and the number of independent paths there are. This shows that the system developed shows that the system developed has been in accordance with the planning that has been determined at the beginning. Thus, each function of the of the system has functioned properly, without errors and the output produced in accordance with the specifications and needs.

### 3.4 Black Box Testing

Black Box testing uses an approach that approach that focuses on validating the functionality of the employee recruitment decision support system that applying the

Fuzzy AHP method. This test is useful to ensure that all functions are in accordance in accordance with what is expected.

Table 4. Black Box Testing

No	Page	Success rate
1	Register Page	100%
2	Login Page	100%
3	Password Change Page	100%
4	Administration Data Page	100%
5	Vacancy Data Page	100%
6	Criteria Data Page	100%
7	Criteria Assessment Category Data Page	100%
8	Alternative Data Page	100%
9	Assessment Data Page	100%
10	Calculation Result Page	100%
11	Recruitment Result Data Page	100%
12	Acceptance Status Page	100%

## CONCLUSION

Based on the description of the results and discussion in is the XP (Extreme Programming) method was used for the development of a decision support system for hiring employees who apply the Fuzzy AHP method. There are four stages in the XP method, namely Planning (Planning, Design, Coding, and Testing. At the Planning stage, what is done stage, namely identifying problems and analyzing the system including functional and non-functional requirements. Then Design stage is to create system modeling, architecture modeling and database modeling through UML diagrams. architecture and database modeling through UML (Unified Modelling Language) diagrams. (Unified Modeling Language) diagram. Then enter the stage Coding stage, namely applying the modeling that has been made by compiling program code using the PHP language. by compiling program code using the PHP language with the Laravel framework and MySQL database. Finally is the Testing stage, which is testing the software to find out errors or errors that caused when the application is running. Testing testing is done using Black Box and White Box. By using this decision support system can help the HRD of PT Agrofarm Nusa Raya in recruiting new employees.

In this research, manual calculations are used as reference for matching the results of calculations with Fuzzy AHP method on the system that has been created. The calculation begins by entering the comparison each criterion until the Consistency Ratio (CR) value is obtained value of 0.886 with consistent status because the value is less than 0.1. Next, the weighting of the assessment category of each criterion used for the assessment process of all alternatives. Then HRD will make a selection of candidates in the Administrative Data menu. Prospective employee data candidates who pass the administrative stage can enter the Alternative Data for assessment. After doing calculation with the Fuzzy AHP method through the system obtained the final result that the highest value is 1.660 with the name Akbar (A2) and the lowest value of -1.810 with the name Imam (A6).

## ACKNOWLEDGEMENTS

We would like to express our sincere gratitude to all individuals and institutions who have supported and contributed to the completion of this research. We would like to acknowledge the support and encouragement from our colleagues and family members, whose

unwavering motivation has been a source of strength throughout this research journey. Thank you all for your significant contributions to the success of this study.

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