

## Decision Support System For Selection of Prospective Members of BLM Polytechnic Caltex Riau Using The Weighted Product Method

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### ABSTRACT

The Caltex Riau Polytechnic pupil Legislative frame (BLM) is a pupil organization that includes out the capabilities of budgeting, regulation and supervision. the selection of prospective PCR BLM contributors is still conventional, such as selecting scholar documents one after the other which results in problems in organizing scholar documents. To help the manner of choosing BLM PCR members in figuring out the selected BLM PCR individuals, a choice-making gadget is wanted that may be used as an opportunity consideration between the selection outcomes acquired manually and the outcomes received from the gadget. in addition to being a device to help the pinnacle of BLM in making selections the usage of the Weighted Product approach. based totally at the effects of blackbox testing, it could be concluded that the BLM member selection system works in step with user needs. as well as the consequences of the usability testing, the test consequences obtained with a total percent of ninety two.35% (Strongly Agree). And the outcomes of checking out the accuracy of manual calculations with the system display that the accuracy stage is a hundred%. From the effects of this take a look at it became concluded that the gadget is acceptable to users in order that.

**Keywords:** Selection; Weighted Product (WP); DSS

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## 1. INTRODUCTION

The Caltex Riau Polytechnic Student Legislative Body (BLM) is a student organization that carries out the functions of budgeting, legislation and supervision. The Student Legislative Body at the Caltex Riau Polytechnic also oversees the performance of the Student Executive Board (BEM). In addition, the Student Legislative Body is also a legislature body that designs and passes the student law (UUKM), which applies to students at the Caltex Riau Polytechnic. Every year this student organization accepts members for the regeneration of its management. BLM PCR has 4 commissions namely Budget Commission, Advocacy and Legislation Commission, Oversight Commission, Diplomacy Commission. The budget commission is a commission in charge of the budget and functions to create BLM internal funds. The Advocacy and Legislation Commission has a work program that designed and ratified the Caltex Riau Polytechnic Student Family Basic Law (UUDKM). The supervisory commission supervises work programs carried out by the Student Executive Body (BEM) and also evaluates student activities carried out by student organizations at the Caltex Riau

Polytechnic. The diplomacy commission is a commission engaged in the field of diplomacy. The duties and authorities of the diplomatic commission include establishing legislative relations between internal and external campuses, conveying information related to campus organizations.

Based on the results of an interview with the Head of the Student Legislative Body for the 2021-2022 period, Nabila Azura said that making a decision on the selection of prospective BLM members takes a long time. Selection of Prospective PCR BLM Members is still conventional, such as selecting student files one by one which results in difficulties in organizing student documents, and the results of the files that have been collected can be seen during the interview process carried out by the head of BLM at the Caltex Riau Polytechnic. there were several problems in the selection process, namely the long selection process and the inaccurate acceptance of prospective BLM PCR members. The calculation of the results of the selection of prospective BLM PCR members is carried out by the chairman and deputy (BLM). In addition, the process of calculating the assessment is still done manually, so it takes a long time in the selection process for prospective BLM PCR members. Therefore, based on the problems described above, a Decision Support System was created that could assist the Head and Deputy BLM PCR in supporting the decision to select prospective new BLM members using the Weighted Product (WP) method. As well as the system can be a tool for consideration between the results obtained by the BLM PCR and the results obtained on the system. The WP method was chosen because the time required for calculations is faster and it can determine the weight value for each criterion followed by the process of ranking each alternative that produces the best alternative, therefore the Weighted Product method was chosen (Rahma, Nasir, & Putra, 2019). The result of the selection is in the form of participant ranking as a consideration in supporting the user's decision. Therefore, a system was designed by implementing the stages in the Weighted Product method as a system process to get the expected prospective BLM PCR members.

## 2. RESEARCH METHOD

The research method which consists of 5 parts are: 1) Literature Study This data collection method is carried out by collecting and studying literature, journals and articles that are related to the making of this final project. 2) Data Collection In collecting data, interviews were conducted with the Caltex Riau Polytechnic Student Legislative Body (Chairman of BLM), in order to find out what are the problems and obstacles to the Caltex Riau Polytechnic Student Legislative Body, in connection with the system to be built. 3) System Design System design includes: design of Use Case Diagrams, Block Diagrams, Architectural Diagrams, Business Processes and System Design. 4) System Implementation At the implementation stage this system will explain the implementation of each interface used in the software system, using PHP and the MySQL database server. 5) Testing Testing is carried out using Usability Testing, Blackbox Testing and calculation accuracy.

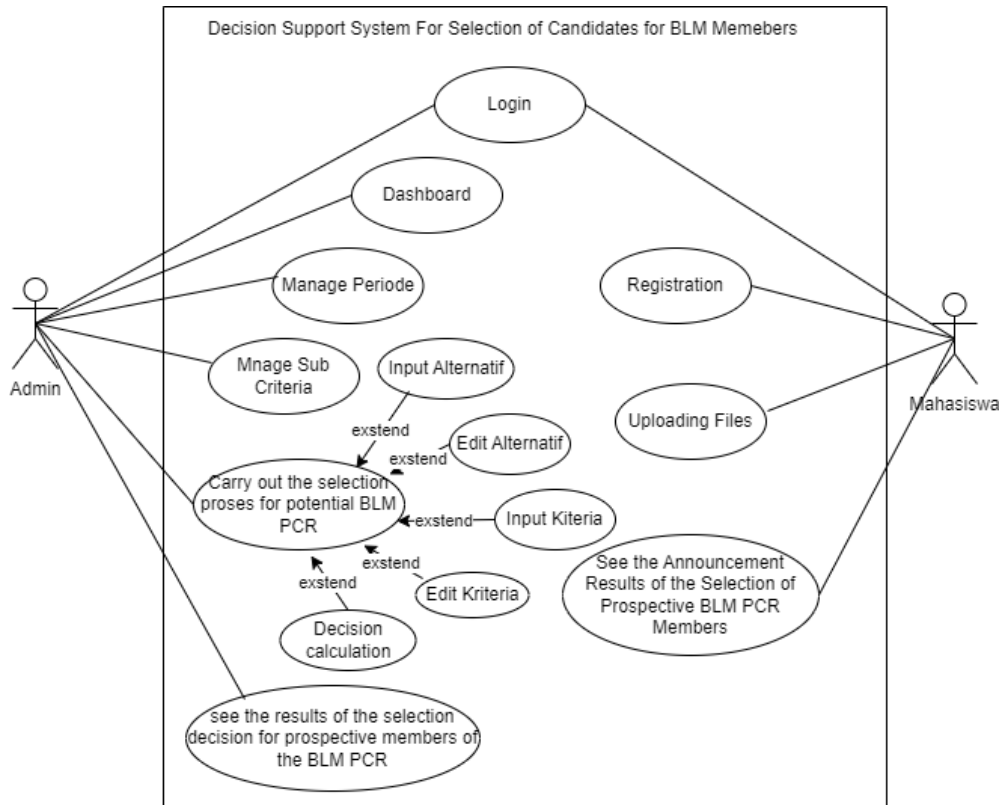


Figure 1. Usecase Diagram

### 3. RESULTS AND TESTING

#### Results System

##### Dashboard Page

The dashboard page is the main page of the website

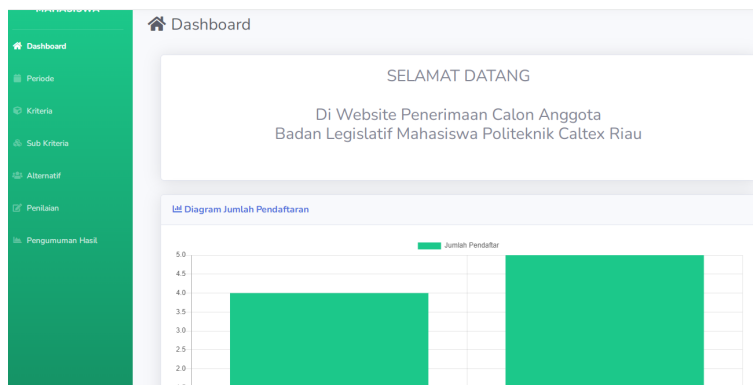


Figure 2. Dashboard

Registration Page

Your registration page is the page where the Admin first registers an account on the website to be able to access it. The dashboard page is the main page of the website

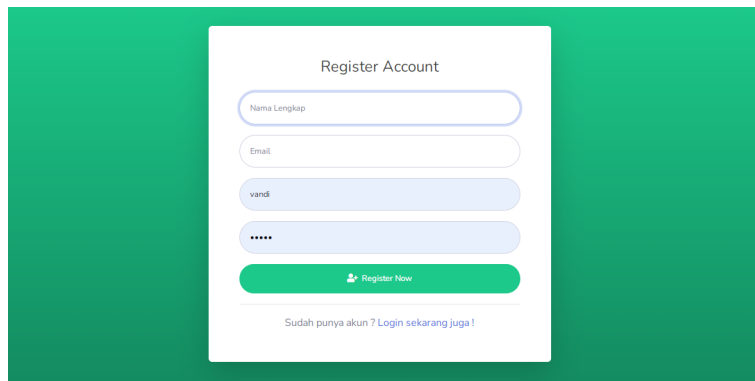


Figure 3. Usecase Diagram

Login Page

The login/login page is a page where the admin is required to login/enter first.



Figure 4. Login Page

Periode Page

Period page to fill in the BLM registration period for the Altex Riau Polytechnic

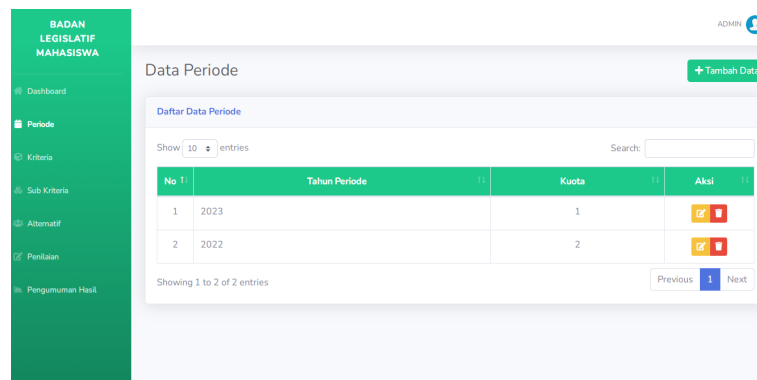


Figure 5. Periode Page

### Kriteria Page

The criteria page is a page that displays the criteria data that has been entered by the admin.

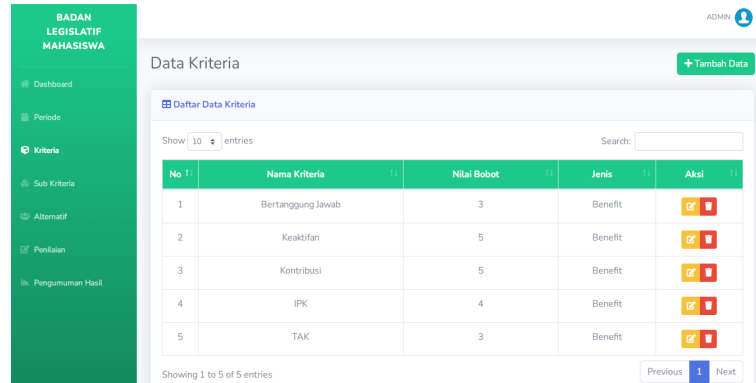


Figure 6. Kriteria Page

### Sub Kriteria Page

The Sub Criteria page is a page that displays sub-criteria for each criterion from the PCR Student Legislative Body.

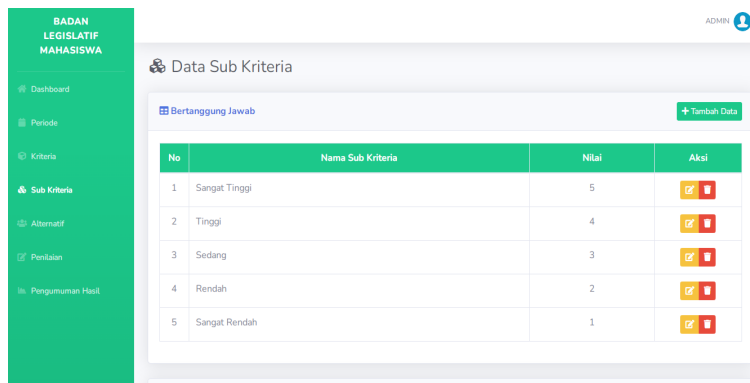


Figure 7. Sub Kriteria Page

### Alternatif Page

The alternative page is a page that displays the names of candidates for student legislative body members along with the data that has been filled in by students.

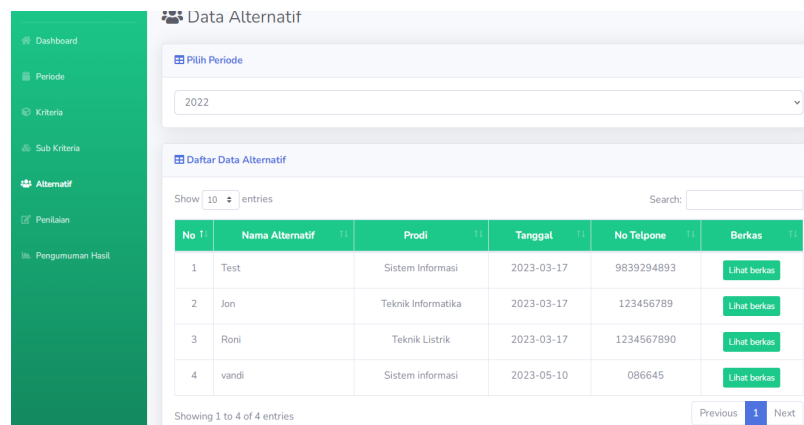


Figure 8. Alternatif Page

**Rating Page**

The Assessment page is a page that displays student assessments that have been inputted by the admin of the student legislature.

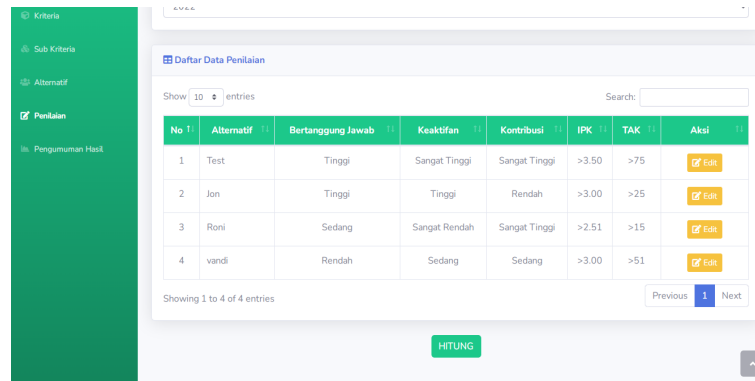


Figure 9. Rating Page

**Calculation**

The Calculations page is a page that displays calculations using the weighted product method from the assessment of each student that has been inputted by the admin of the student legislature.

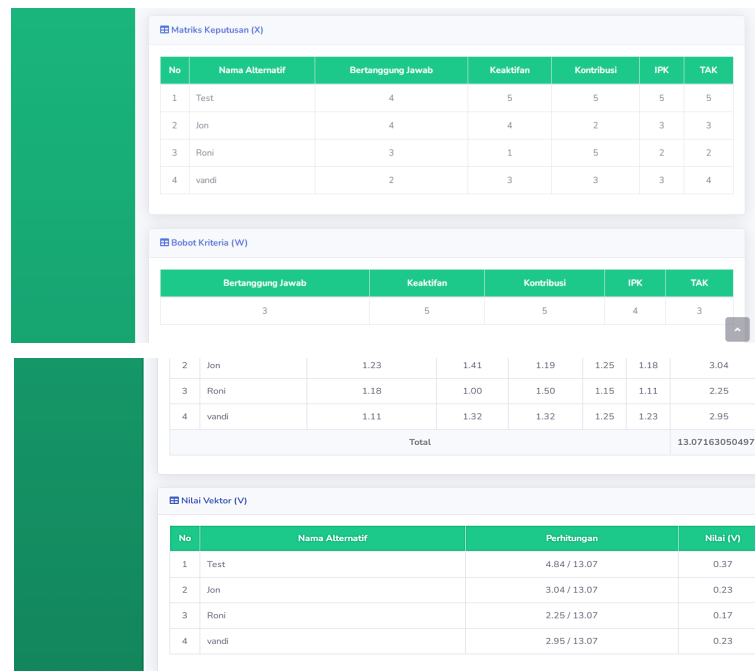


Figure 10. Calculation

**Testing**

**Black Box Testing**

Based on the results of black box testing of the decision support system for the selection of candidate members for the Caltex Riau Polytechnic student legislature that has been carried out, the results show that each feature has been implemented and is in accordance with user needs.

**Usability Testing**

In this test is done to see the satisfaction of users who use the system. When the system is tested by the user it can be used easily and quickly. The author uses the USE questionnaire to see the user's response to the system that has been built. The test was carried out by distributing questionnaires totaling 22 questions to the head of the PCR BLM and 22 Caltex Riau Polytechnic students.

Table 3..2.1 Bobot Nilai USE *Questionnaire Skala Likert*

No	Queston	Bobot
1	Strongly agree (SS)	5
2	Agree (S)	4
3	Neutral (N)	3
4	Disagree (TS)	2
5	Strongly disagree (STS)	1

Table 3.2.2 Interval Skor

Interval	Skor interpretasi
0% - 19,99%	Strongly disagree (STS)
20% - 39,99%	Disagree (TS)
40% - 59,99%	Neutral (N)
60% - 79,99%	Agree (S)
80%-100%	Strongly agree (SS)

With the results of the data that has been obtained, the next step is to do calculations with a Likert scale. Here's how to calculate the total score from the answers that have been given by respondents:Keterangan:

$Y = \text{Likert highest score} \times \text{number of respondents}$

After recapitulating the questionnaires for the respondents, the next step is to calculate the questionnaire recapitulation. In table 3.2.3 it can be seen the results of the recapitulation calculations for 23 respondents.

Table 3.2.3 USE *Questionnaire*

No	Total value					TotalNilai	SkorMin	SkorMax	Persentase (total/max) *100%	Kategori
	SS	S	N	TS	STS					
1	16	6	1	0	0	107	23	115	93,03	Strongly agree
2	17	4	2	0	0	107	23	115	93,03	Strongly agree
3	17	5	1	0	0	108	23	115	93,91	Strongly agree
4	18	4	1	0	0	109	23	115	94,78	Strongly agree

5	14	6	3	0	0	103	23	115	89,56	Strongly agree
6	16	5	2	0	0	106	23	115	92,17	Strongly agree
7	17	5	1	0	0	108	23	115	93,91	Strongly agree
8	16	7	0	0	0	108	23	115	93,91	Strongly agree
9	18	4	1	0	0	109	23	115	94,78	Strongly agree
10	15	3	4	1	0	98	23	115	85,21	Strongly agree
11	15	4	3	1	0	102	23	115	88,69	Strongly agree
12	16	5	2	0	0	106	23	115	92,17	Strongly agree
13	18	4	2	0	0	112	23	115	97,39	Strongly agree
14	18	3	2	0	0	108	23	115	93,91	Strongly agree
15	18	3	2	0	0	108	23	115	93,91	Strongly agree
16	17	4	2	0	0	107	23	115	93,03	Strongly agree
17	17	4	2	0	0	107	23	115	93,03	Strongly agree
18	13	8	1	1	0	101	23	115	87,82	Strongly agree
19	16	4	3	0	0	105	23	115	91,30	Strongly agree
20	18	2	3	0	0	107	23	115	93,03	Strongly agree
21	16	3	4	0	0	104	23	115	90,43	Strongly agree
22	16	5	2	0	0	106	23	115	92,17	Strongly agree

*Usefulness*

$$= (93,03 + 93,03 + 93,91 + 94,78 + 89,56 + 92,17) / 6$$

$$= 92,74\%$$

*Easy of Use*

$$= (93,91 + 93,91 + 94,78 + 85,21 + 88,69) / 5$$

$$= 91,3\%$$



*Easy of Learning*

$$= (92,17 + 97,39 + 93,91 + 93,91 + 93,03) / 5$$

$$= 94,08\%$$

*Satisfaction*

$$= (93,03 + 87,82 + 91,30 + 93,03 + 90,43 + 92,17) / 6$$

$$= 91,29\%$$

*Total*

$$= (92,74\% + 91,3\% + 94,08\% + 91,29\%) / 4$$

$$= 92,35\%$$

Testing Calculation Accuracy

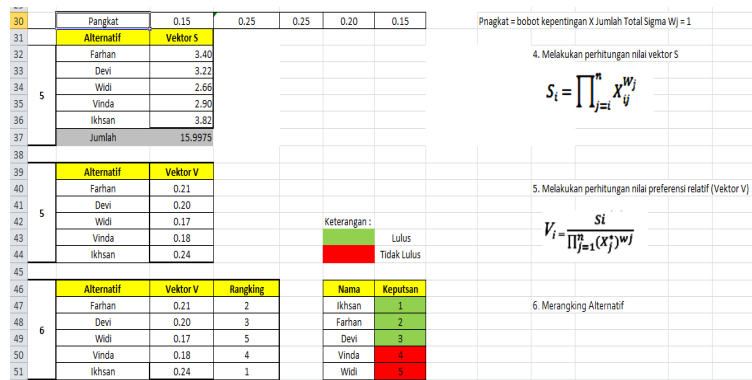


Figure 11. Calculation accuracy

Based on testing the accuracy of the calculation of the weighted method manually and the system, it can be concluded that the accuracy level is 100% according to the method used.

4. CONCLUSION

After implementing based on the design, it can be concluded as follows: 1) The decision support system for the selection of candidates for the legislative body of Caltex Riau Polytechnic students has been built according to user needs and can help provide information about BLM PCR, 2) Based on the results of the black box testing, the functionality of the decision support system for the selection of candidates for the legislature for Caltex Riau Polytechnic students runs according to user requirements, 3) Based on the usability testing system testing, the 23 respondents obtained the highest results, namely in the Ease Of Use Learning category. With a percentage of 94.08% stating that the Head of PCR BLM and PCR Students as users strongly agree that the system is easy to learn in determining prospective PCR BLM members, 4) The accuracy testing is also in accordance with manual calculations and system calculations with an accuracy rate of 100%.

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