OPEN RECRUITMENT INFORMATION SYSTEM STUDENT EXECUTIVE BOARD USING SIMPLE ADDITIVE WEIGHTING (SAW) METHOD

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Abstract

Information systems make human work more accessible and more efficient. The Widayatama, University Student Executive Board (BEM) recruitment information system currently has a process the selection of members is still made manually so that the selection of members BEM takes a long time and is sometimes subjective, therefore, A decision support system is needed that can simplify the process decision making using the SAW method. The results of the literature study show that the SAW method has essential uses in assessing recruitment. This information system makes it easier for students to process BEM recruitment and register BEM management online. This information system is based on a website, using the PHP Laravel programming language, and the CSS Framework used is Bootstrap, the database used is XAMPP. With this web-based recruitment information system, it is easier for the Committee to have assessment criteria to determine whether or not members deserve to be accepted as members of the BEM.

Keywords: Information Technology, Simple Additive Weighting (SAW), Student Executive Board (BEM)

Preliminary

Organizations are formed to become a forum for the activities of people who work together in an effort to achieve goals. This is in accordance with what was stated [1, 2]"*An Organization is an identifiable group of people contributing their*

efforts toward the attainment of goals". Student organizations are a forum for students to develop student abilities in the form of aspirations, initiations, or positive and creative ideas through various relevant activities, as well as the vision and mission of higher education institutions that work organizationally..

Student Executive Board (BEM) as a student institution that will accommodate all student interests on campus. The general purpose of BEM is to be able to create a conducive situation on campus, to be able to realize the welfare of students in higher education, to be able to uphold national values. At this time information systems have become the main choice for providing and seeking information on a particular data. Information for students is usually pasted on bulletin boards using paper, and usually doesn't last long. Many students are less sensitive to the information posted on the bulletin board. The problem occurs when students want to participate in BEM organizations so that new problems arise, namely the difficulty of participants in registering for BEM organizations, as well as information about BEM. Prospective members must come to the BEM secretariat to register and interview so it takes a long time. The solution to this problem is the creation of an "Open Recruitment Information System for Student Organizations Using the SAW Method". In this information system, students can find out information about BEM, and can register for BEM management online through the website. On this website, an online registration flow will be provided. The committee has assessment criteria to determine whether the members deserve to be accepted or not. Registration for BEM is held every November-December. Students can find registration information through BEM's Instagram.

The method used is the SAW method, the SAW method was chosen because it is easy to learn for writers and readers. The basic concept in the SAW method is to find the weighted sum of the ratings on all attributes. This information system is website-based, using the PHP programming language. Laravel is a PHP framework that is used to build website applications, one of the advantages of Laravel is that it makes the website development process easier. The CSS framework used is Bootstrap, this framework is very time-saving for developers because there is no need to manage templates many times. The database used is XAMPP, XAMPP is used to create a local web server on the computer.

The result of this open recruitment program is that students can find out about the existing information system on the campus, besides that students can find out whether they are accepted or not to take part in the open recruitment selection of student organizations.

Study Literatur.

This research is a literature study that examines the Open Recruitment of Student Organizations Using the SAW Method[3]. A decision support system is needed that can facilitate the decision-making process [4, 5]. In this literature study, there is a value calculation using the SAW method. The results of the literature study show that the SAW method has an important use in assessing open recruitment.

Simple Additive Weighting (SAW)

Simple Additive Weighting (SAW) is a class method or criteria as a weighting reference[6]. [7-9]The concept of the SAW method is to find the largest value and make it a final decision. For a calculation we use : Where x is the decision of the above calculation where j is *(Cost)* and i is *(Benefit).* The first step that must be done in completing this SAW method is to determine the Ai option. Then determine a criterion that will be a reference in making decisions, namely Cj. Next by giving the option rating value to all criteria Determine the weight (W) on all criteria " $= [W_1 \quad W_2 \quad W_3 \quad ... \quad W_j]$ ". In this section we create a rating table to see the match of each option on all criteria. Here we start to create a decision matrix that is formed

from the suitability rating of all options on each criterion, the value of all options (A_i) and (C_j) which has been determined, $i = 1...m$ and $j = 1,2...n$ $x = \begin{bmatrix} x_{11} & x_{12} & ... & x_{1j} \\ x_{i1} & x_{i2} & ... & x_{1j} \end{bmatrix}$. At this stage we will normalize by calculating the normalized rating value (r_{ij}) from option A_i on criteria C_j, $r_{ij} = \begin{cases} \dfrac{x_{ij}}{Max_i(xij)} \\ \dfrac{Min_j(xij)}{x_{ij}} \end{cases}$. Then for the results of the normalized rating value (r_{ij}) form a normalized matrix (R). $R = \begin{bmatrix} r_{11} & r_{12} & ... & r_{1j} \\ r_{i1} & r_{i2} & ... & r_{1j} \end{bmatrix}$ The final result of preference (V_i) obtained from a normalized matrix multiplication sum (R) with preference (W). $V_i = \sum_{j=1}^{n} W_1 r_{ij}$. And of course the result of (V_i) the largest value indicates that option (A_i) is the best option.

Student Executive Board (BEM)

Student Executive Board **(**BEM) is a student organization that is an executive institution at the University or Institute level. In carrying out its programs, BEM generally has several departments. With the spirit of students as agents of change, BEM strives to become an institution that can accommodate the aspirations of students who have the passion for making changes, both in paradigm, emotional, intellectual, and religious values. BEM has 4 functions, namely dedication, movement, interests and talents, and welfare[10].

Research Methodology

The methodology used in application development is by stages, study literature, collect data, Requirement analysis, system design, testing, implementation [4, 11] explained in the figure below:
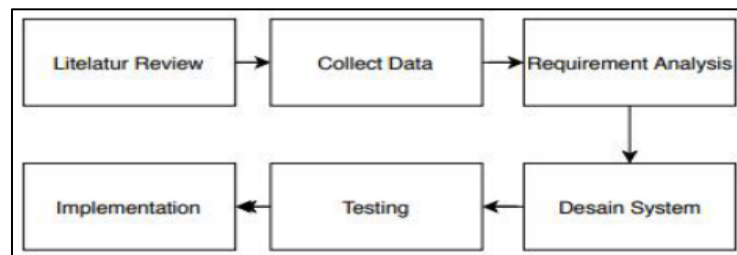
Figure 1. Research Methodology

System Analysis
User :
The first step is to open the registration website. If the registrant does not have a Sign Up account first, then login by entering the username and password. Registrants enter the registration form correctly, here the registrant can choose the division of interest. After completing the form input, registration is complete, after that wait for further information to be notified via Line. Registrants can find out whether information is received or not by logging in first to the registration website.
Admin :
Login first, admin can do CRUD. View registrant data, and divisional enthusiasts. The admin can change the receiving status, after that the admin will notify the information via Line.
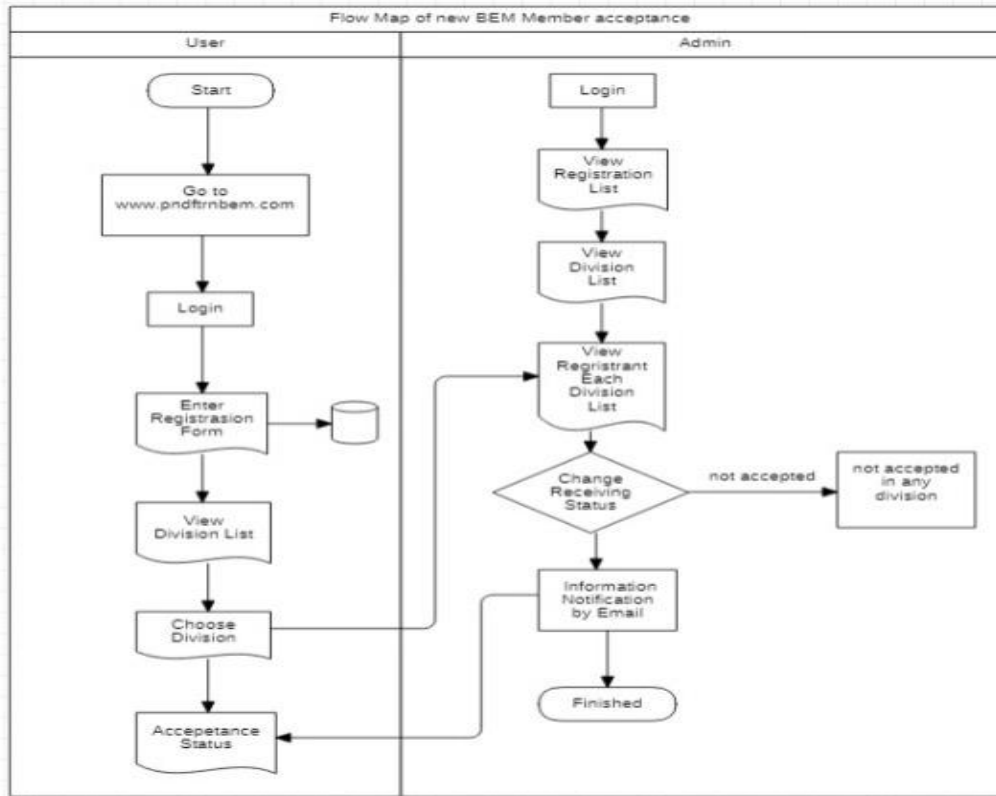
Figure 2. Flowchart

System Desain and Implementation
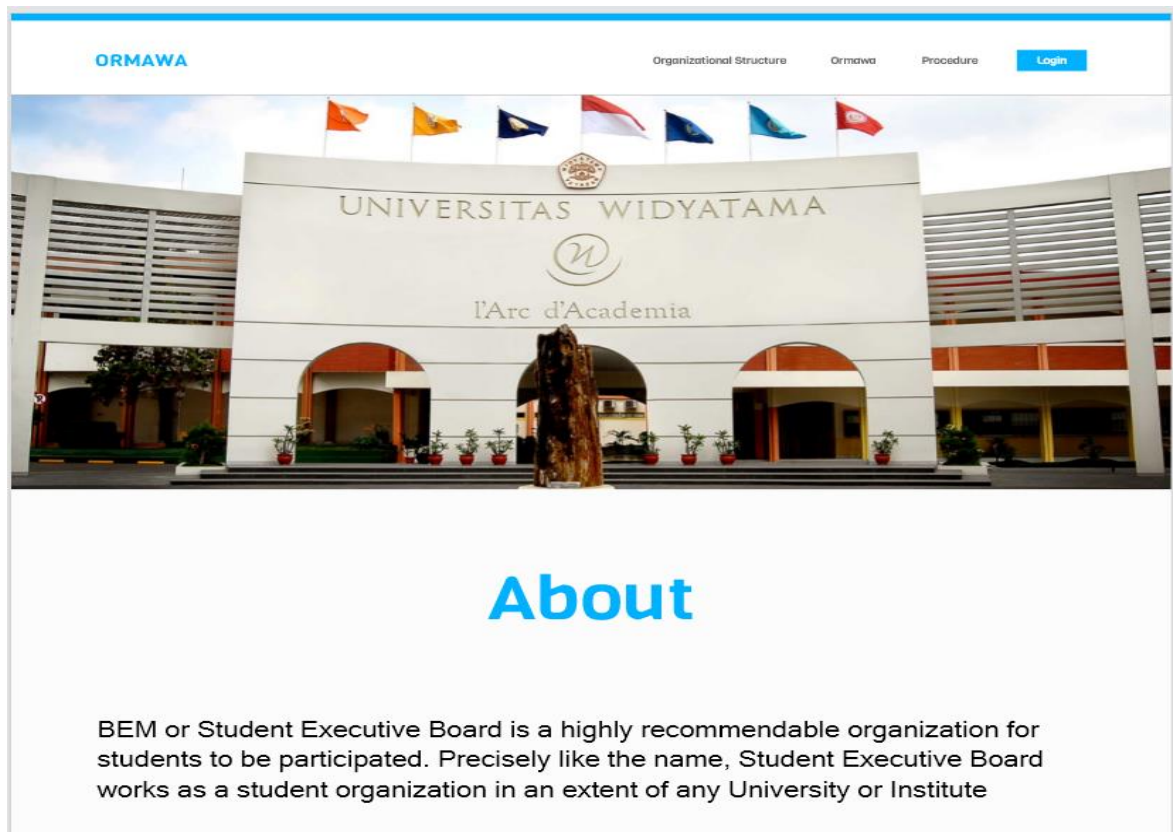
Figure 3. System Desain and Implementation

Student Executive Board Functions:

1. As a student institution that will accommodate all students interests of students on campus.
2. As an agent of change in the life of the nation and state.
3. As social control in viewing every policy both within the institution campus and within the government of the Republic of Indonesia (regional and national)
4. Build synergy with all ormawa on campus.
5. As a facilitator in capturing student aspirations.

The objectives of BEM in general can be divided into three, namely:

1. Can create a conducive situation on campus
2. Can realize the welfare of students in universities
3. Can uphold national values

Figure 4. Student Executive Board Functions

This home page explains the meaning, function and purpose of BEM
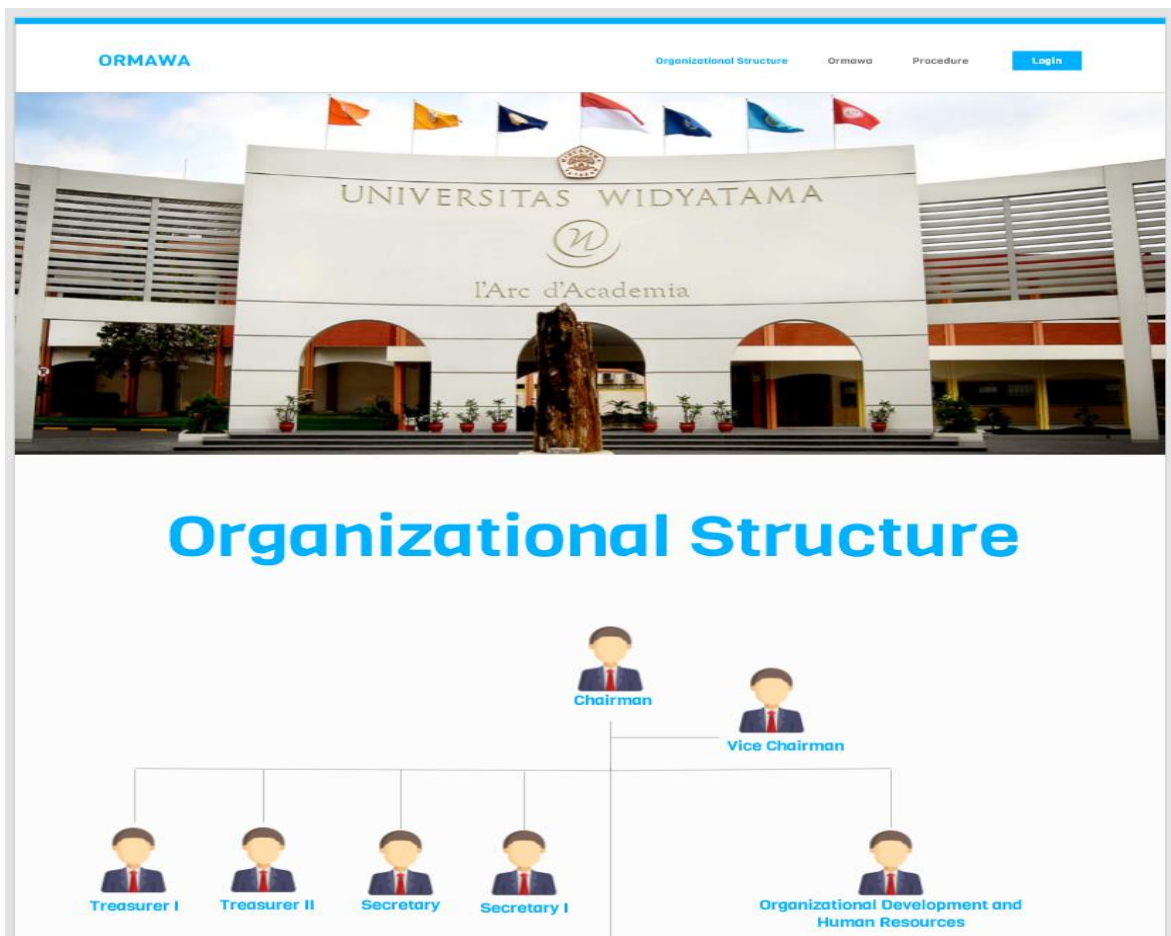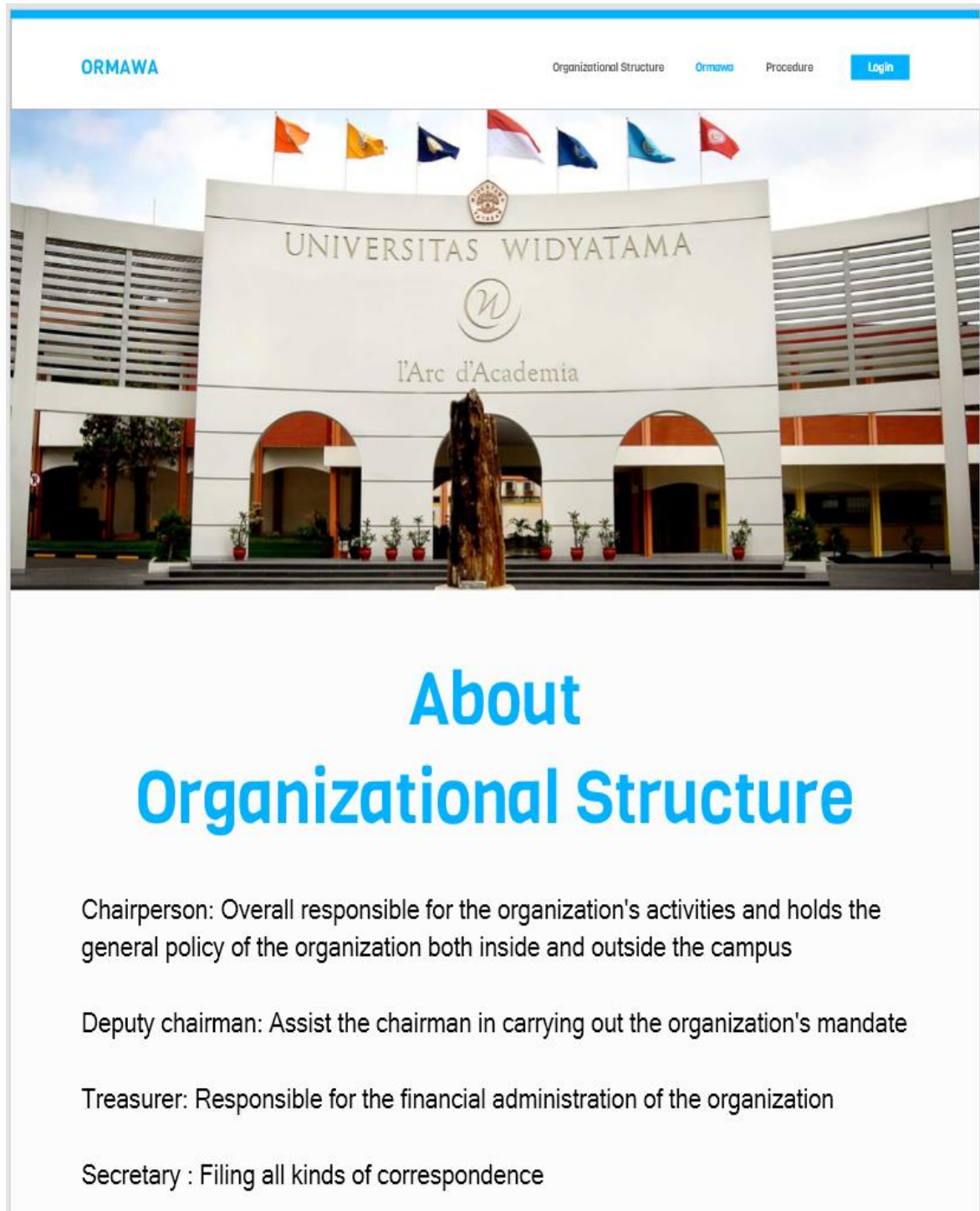
Figure 5. Organizational Structure

This organizational structure view displays a BEM organizational structure chart

Figure 6. About Organization Structure

This display explains the duties of each position

Figure 6. About Organization Structure

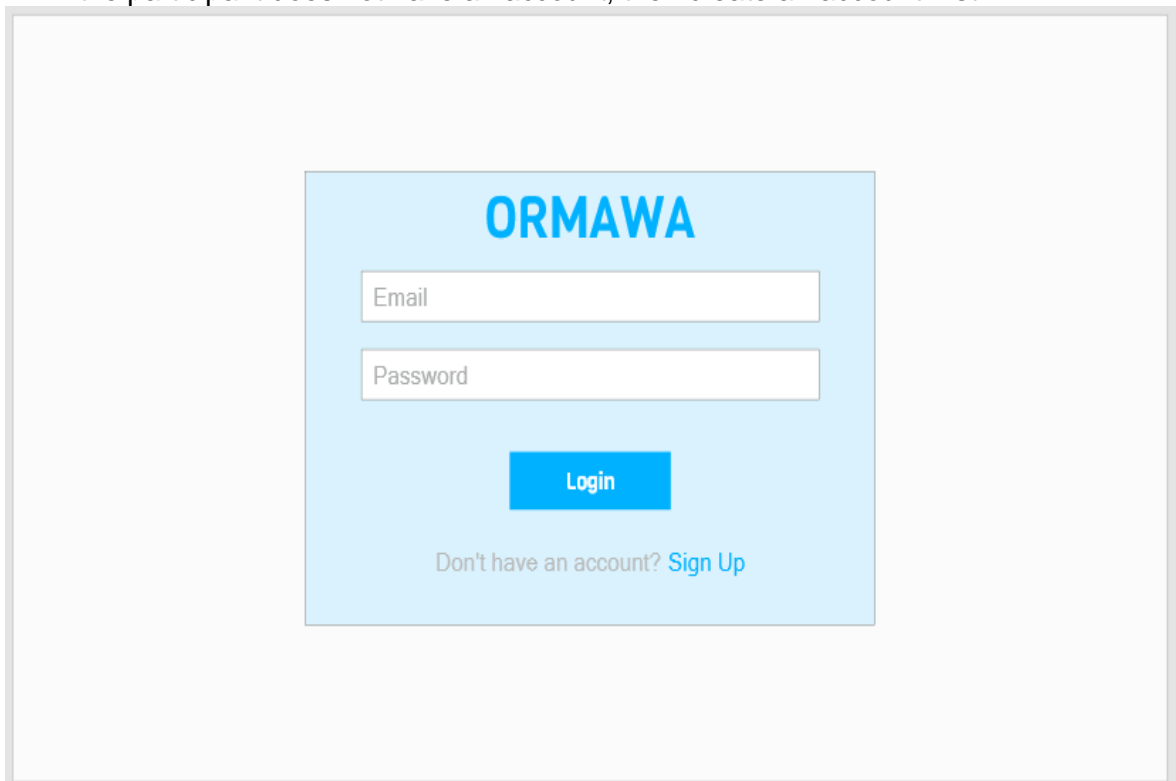This display explains the duties of each position

Figure 7. Procedure

The display procedure explains the procedures for registering participants who will take part in the open recruitment BEM

Figure 8. ORMAWA

If the participant does not have an account, then create an account first

Figure 9. ORMAWA

If the account has been created, the next step is to login by entering your username and password

Figure 10. Online Registration Form

Participants enter the following data correctly

Figure 11. Registration

   After completing the online registration form, the next step is to wait for information
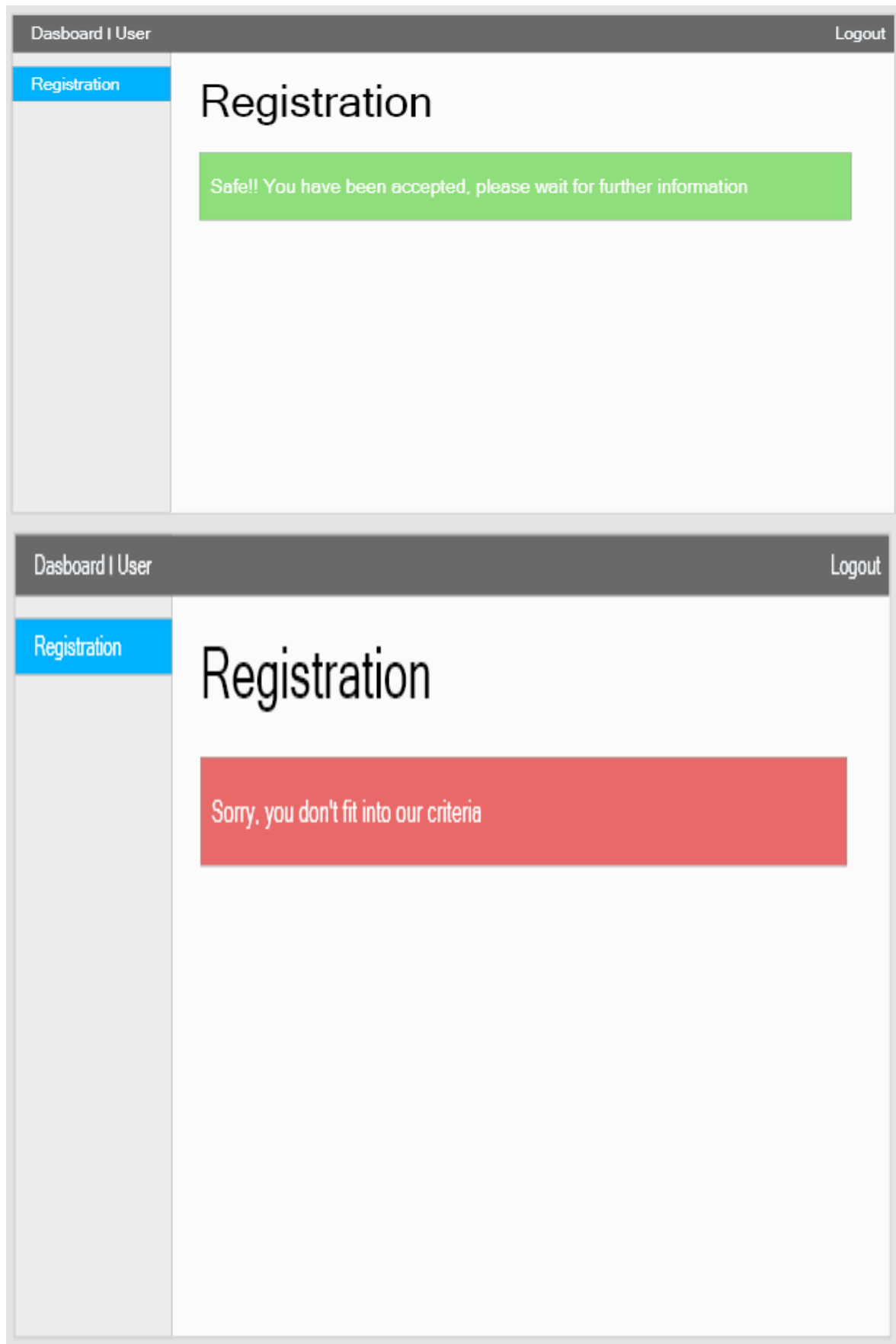
Figure 12. Information on Online Registration Results

Login first by entering username and password, Participants will find out whether the results are accepted or not by accessing this page. The picture above is a view of whether the peerta is accepted or not.

Figure 13. Enrollment From Display

Admin can change registrant status

Conclusion

Many students are less sensitive to the information posted on the bulletin board and get misinformation [4]. The problem occurs when students want to participate in BEM organizations so that new problems arise, namely the difficulty of participants registering for BEM organizations and information about BEM. Prospective members must come to the BEM secretariat to register and interview, which takes a long time. So by making the "Open Recruitment Information System for Student Organizations Using the SAW Method," it will be easier for every student who wants to register himself as a Student Executive Board (BEM). And not only for Open Recruitment, on the website, there is also an explanation about BEM and Structure.

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