

# Decision Support System for Identifying Priorities of Social Assistance for Poor Families Using the Simple Additive Weighting (SAW) Method in RW 05 Kramat Jati, East Jakarta

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## Abstract

*This research aims to design a decision support system for poor families, which can determine the priority of social assistance in Rw 05, Kramat Jati, East Jakarta. Using the simple additive weighting (SAW) method to produce accurate and fast decisions. Using the java programming language and MySQL database, and developing a decision support system in accordance with predetermined criteria. The data collection methods used are interviews and observations. From this research, it can be concluded that the application of the Decision Support System for Identifying Priorities for Social Assistance for the Poor in Residents of Rw 05 Kramat Jati, East Jakarta with the Simple Additive Weighting (SAW) Method is expected to increase the efficiency and effectiveness of determining recipients of social assistance carried out by the head of Rw 05 in Kramat Jati, East Jakarta. In addition, this system also increases the accuracy of data calculations so that the decision to determine social assistance recipients in Rw 05 Kramat Jati, East Jakarta can be determined more precisely.*

**Keywords:** Decision Support System, Determination, Poor Family, Java, Netbeans, Mysql, UML, SAW.

## 1. INTRODUCTION

RW 05 Kramat Jati, East Jakarta, faces a significant challenge in identifying poor families eligible for social assistance due to the complexity of criteria that must be met. Determining which families should receive aid has often been time-consuming and prone to errors. A Decision Support System (DSS) is needed to assist this process. The Simple Additive Weighting (SAW) method is chosen because it can systematically rank and evaluate alternatives by assigning weights to various criteria. The decision support system being developed is a desktop-based application that utilizes the Java

programming language for the interface and the MySQL database for data storage. The main goal is to provide a system that can quickly and accurately identify families most needing social assistance. This system will help the management of RW 05 to target social aid in a better way, ensuring that it reaches the families who need it the most. By using this DSS, it is expected that the process of determining social assistance recipients will become more transparent, systematic, and efficient, thus reducing the possibility of errors or unfair distribution of aid.

## **2. RELEVANT RESEARCH**

Research from Sigit Ergiyanto (2019) entitled Design and Construction of a Decision Support System for the Selection of Rice Recipients for Poor Families Using the Analytical Hierarchy Process (AHP) Method with the Results of the Design and Construction of a Decision Support System for the Selection of rice recipients for poor families can help related parties in making decisions and providing good and correct information.

Research from Setiyowati (2023) entitled Simple Additive Weighting Method for the Selection of Raskin Program Assistance Recipients with the results of the SPK application for determining poor families can help in the ranking process to determine Raskin Program recipients.

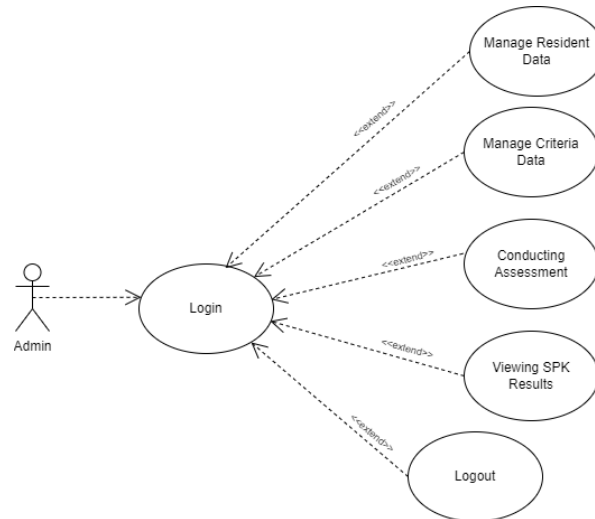
## **3. RESEARCH METHODS**

The author used the Simple Additive Weighting (SAW) method. According to Utomo (2019) a Decision Support System (DSS) is an information system that employs decision models, databases, and the manager's insights. It involved an interactive modeling process with a computer to aid a specific manager in decision-making.

## **4. RESULTS AND DISCUSSION**

### **Use Case Diagram**

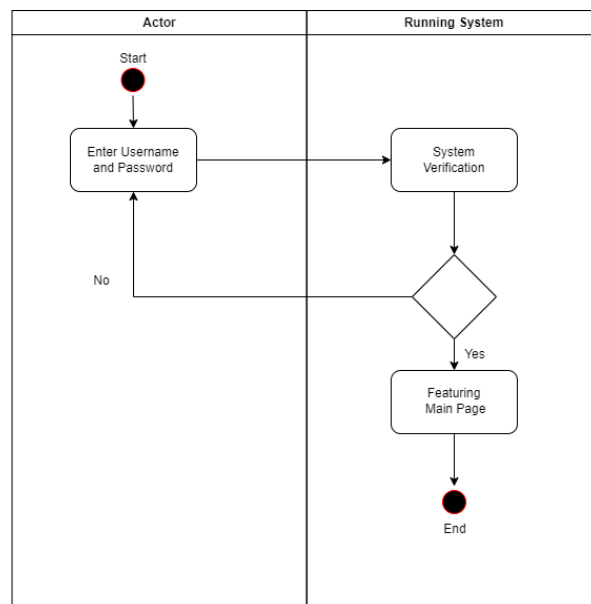
Use Case is a modeling for the behavior of the software application to be created (Fauzi, 2019). It describes an interaction between one or more actors and the application to be created.



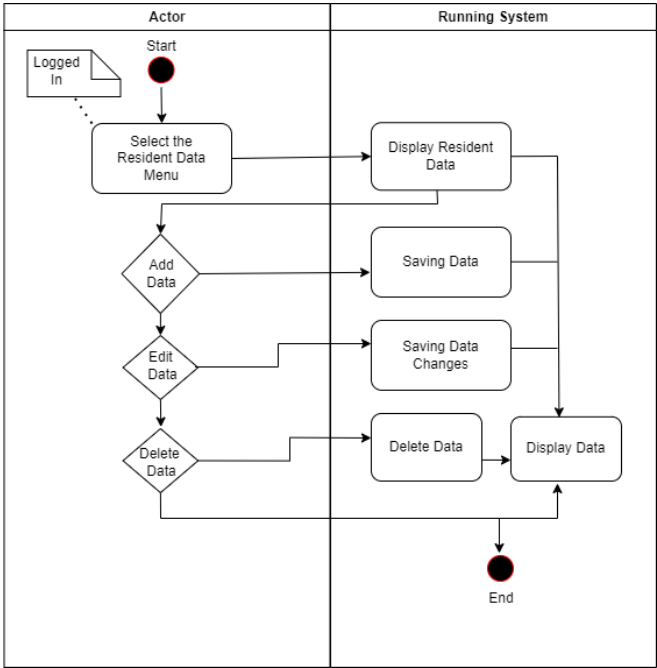
**Figure 1. Use Case Diagram**  
 (Source: Mohamad Rizky Rezaldi, 2024)

## Activity Diagram

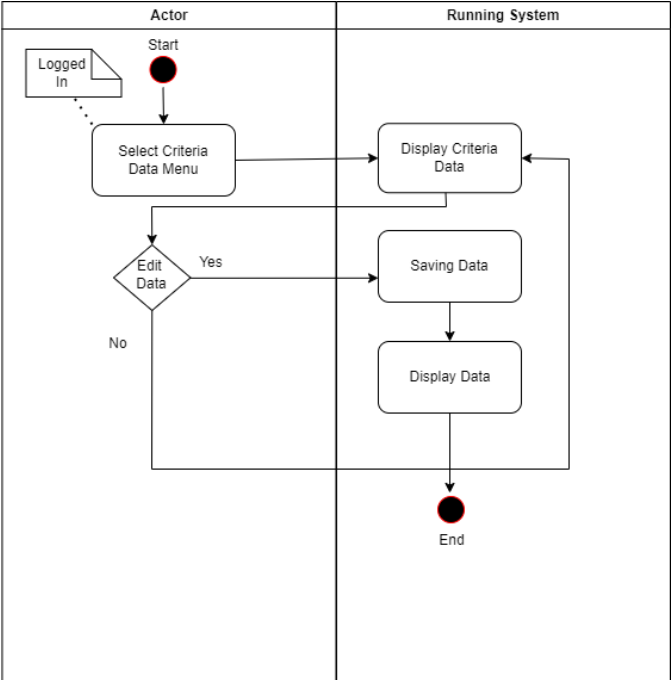
According to (Sidik, 2020) an activity diagram describes the workflow or activity of a system business process or menu in the software.



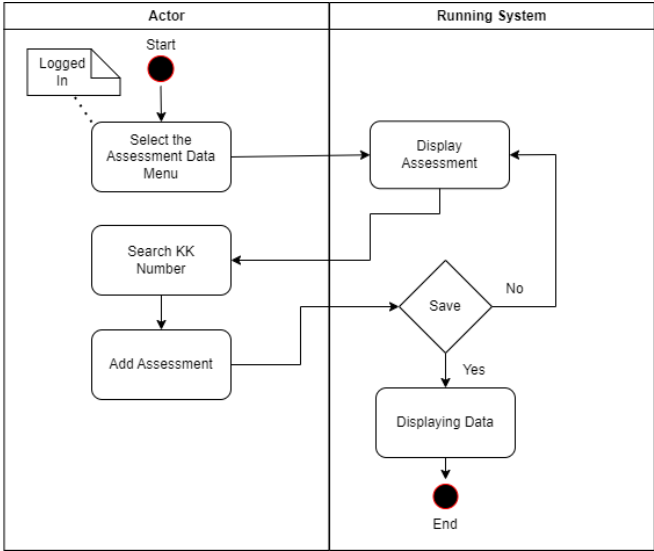
**Figure 2. Activity Diagram Login**  
 (Source: Mohamad Rizky Rezaldi, 2024)



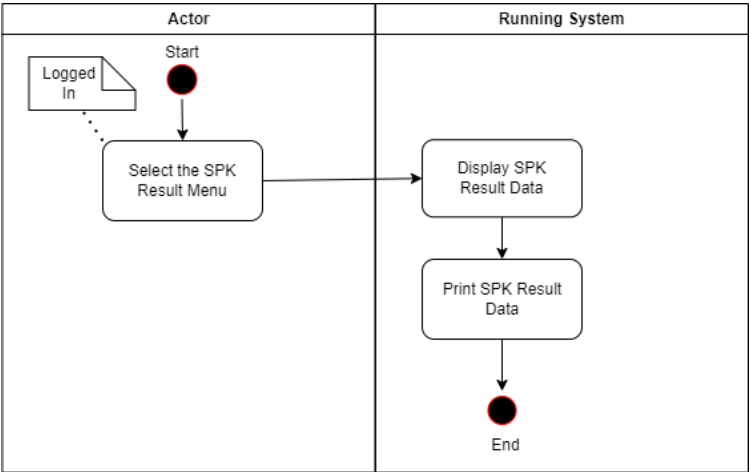
**Figure 3.** *Activity Diagram Managing Residents Data*  
(Source: Mohamad Rizky Rezaldi, 2024)



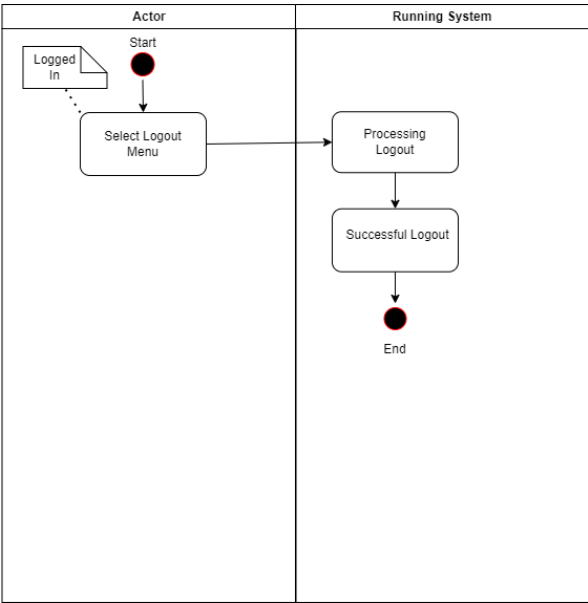
**Figure 4.** *Activity Diagram Managing Criteria Data*  
(Source: Mohamad Rizky Rezaldi, 2024)



**Figure 5.** Evaluation Activity Diagram  
(Source: Mohamad Rizky Rezaldi, 2024)



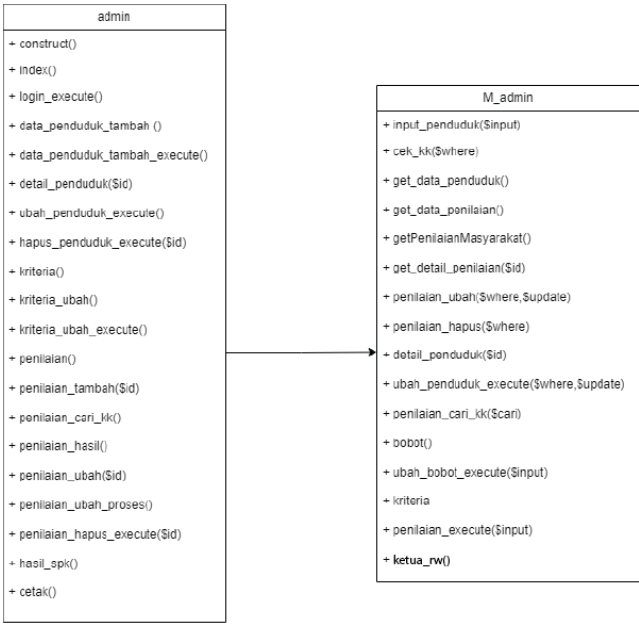
**Figure 6.** SPK Result Activity Diagram  
(Source: Mohamad Rizky Rezaldi, 2024)



**Figure 7.** ActivityDiagram Logout  
(Source: Mohamad Rizky Rezaldi, 2024)

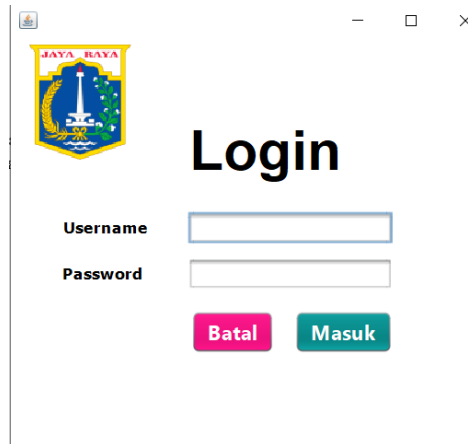
**Class Diagram**

According to Fabiana (2019), the system structure in terms of defining the classes that will be created to build the system. Classes have what are called attributes and methods or operations.



**Figure 8.** Class Diagram  
(Source: Mohamad Rizky Rezaldi, 2024)

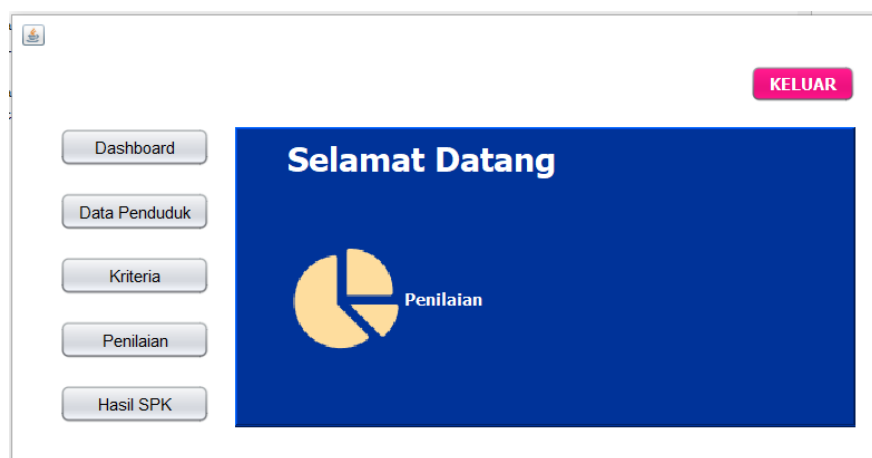
## Menu Page View



**Figure 9.** Form Login

(Source: Mohamad Rizky Rezaldi, 2024)

On this login page, there are two text columns that must be filled in by the admin in order to enter the application.



**Figure 10.** Dashboard Menu

(Source: Mohamad Rizky Rezaldi, 2024)

The dashboard menu shows population data, criteria, assessments, and SPK results. The admin can select the menu according to needs.

The screenshot shows a web application window titled "Admin". On the left is a sidebar menu with buttons: "Dashboard", "Data Penduduk", "Kriteria", "Penilaian", and "Hasil SPK". The main area has a top bar with "Cetak", "Tambah", "Ubah", and "Hapus" buttons. Below this is a table titled "Tabel Data Penduduk".

| No | NO KK            | Nama               | Alamat         | RT |
|----|------------------|--------------------|----------------|----|
| 1  | 3175041309010004 | Mohamad Rizky R... | Kampung Kramat | 10 |

**Figure 11.** Resident Table Form  
(Source: Mohamad Rizky Rezaldi, 2024)

In the resident's data menu section, the admin can click add if he wants to add the resident's data that he wants to add. After that, if the admin wants to change the resident's data, the admin can click change. If the admin wants to delete one of the available resident's data, the admin can click delete. If the admin wants to print the resident's data results, the admin can click the print button.

The screenshot shows a form titled "Data Penduduk" with a blue background. It contains the following fields:

- NO KK:** A text input field containing "3175042407970001". Below it, a green message says "No KK sudah 16 Digit".
- Nama Kepala Keluarga:** A text input field containing "Faqih".
- RT:** A dropdown menu with "8" selected.
- Alamat:** A large text area containing "Cilitan".

At the bottom right, there are three buttons: "Reset" (blue), "Simpan" (green), and "Kembali" (pink).

**Figure 12.** Resident Data Input Form  
(Source: Mohamad Rizky Rezaldi, 2024)

In the "Residents Data" menu form section, users can fill in the available columns and click "Save." This will save the Resident's data in the population data menu. If users

want to cancel the filling data in the available columns, they can click the "Reset" button. Additionally, if the user wants to go back without saving the data, they can click the "Back" button.

| No | Kriteria            | Nama                        | Nilai |
|----|---------------------|-----------------------------|-------|
| 1  | Penghasilan         | Kurang dari Rp.500.000      | 5     |
| 2  | Penghasilan         | Rp.500.000 - Rp.1.000.000   | 4     |
| 3  | Penghasilan         | Rp.1.000.000 - Rp.2.000.000 | 3     |
| 4  | Penghasilan         | Rp.2.000.000 - Rp.3.000.000 | 2     |
| 5  | Penghasilan         | Rp.3.000.000 - Rp.5.000.000 | 1     |
| 6  | Pendidikan          | Tidak Sekolah               | 5     |
| 7  | Pendidikan          | SD                          | 4     |
| 8  | Pendidikan          | SMP                         | 3     |
| 9  | Pendidikan          | SMA                         | 2     |
| 10 | Pendidikan          | Pendidikan Tinggi           | 1     |
| 11 | Pakaian             | Membeli pakaian 1 tahu...   | 5     |
| 12 | Pakaian             | Membeli pakaian setiap ...  | 3     |
| 13 | Pakaian             | Sering membeli pakaian      | 1     |
| 14 | Kesehatan           | Tidak pernah berobat ke...  | 5     |
| 15 | Kesehatan           | Kadang-kadang berobat...    | 3     |
| 16 | Kesehatan           | Sering berobat ke puske...  | 1     |
| 17 | Jenis Atap Rumah    | Seng                        | 5     |
| 18 | Jenis Atap Rumah    | Asbes                       | 3     |
| 19 | Jenis Atap Rumah    | Genteng                     | 1     |
| 20 | Jenis Dinding Rumah | Kayu / Bambu                | 5     |

**Figure 13.** Criteria Table Form  
(Source: Mohamad Rizky Rezaldi, 2024)

In the criteria data menu section, users can click add if they want to add required data. If users want to print the results of the criteria data, they can click the print button.

**Kriteria Nilai**

**Kriteria**

Pendidikan

**Nama**

SMA

**Nilai**

4

Simpan

Kembali

**Figure 14.** Value Criteria Input Form  
(Source: Mohamad Rizky Rezaldi, 2024)

In the form menu's value criteria section, users can fill in the available columns. After entering the data, they can click "save" to store the population data in the criteria data menu. If the user does not fill in the available columns, they can click the back button.

| No | NO KK      | Penghasilan | Pendidikan  | Pakaian     | Kesehatan    | Atap | Dinding     | Lantai | Tanah       | Listrik     | Air Minum |
|----|------------|-------------|-------------|-------------|--------------|------|-------------|--------|-------------|-------------|-----------|
| 1  | 3175041... | Kurang d... | Tidak Se... | Membeli ... | Tidak per... | Seng | Kayu / B... | Tanah  | Kurang d... | Tidak me... | Air hujan |

**Figure 15.** Rating Table *Form*  
(Source: Mohamad Rizky Rezaldi, 2024)

In the rating data menu section, users can click add if they want to add the assessment data they wish to add. If the user wants to delete one of the available assessment data, click delete. If the user wants to print the assessment data results, then the user can click the print button.

**Penilaian**

Penghasilan: Kurang dari Rp.500.000  
Pendidikan: Tidak Sekolah  
Pakaian: Membeli pakaian 1 tahun sekali  
Kesehatan: Tidak pernah berobat ke puskesmas  
Jenis atap rumah: Seng  
Jenis dinding rumah: Kayu / Bambu  
Jenis lantai rumah: Tanah  
Luas tanah m2: Kurang dari 10 m  
Sumber listrik: Tidak menggunakan listrik  
Sumber air minum: Air hujan

NO KK: 3175042407970001  
Nama kepala keluarga: Faqih  
RT: 8  
Alamat: Cilitan

**Simpan** **Kembali**

**Gambar 16.** Assessment Calculation *Form*  
(Source: Mohamad Rizky Rezaldi, 2024)

In the assessment data input menu form section, users can fill in the available columns and then click save and the assessment data is saved in the assessment data menu. If the user does not fill in the available columns, they can click the back button.

**Figure 16.** SPK Result Form  
 (Source: Mohamad Rizky Rezaldi, 2024)

In the SPK results menu section, the SPK results are visible from the criteria data menu and also the assessment data menu. If the user wants to print the SPK results, the user can click the print button.

## 5. CONCLUSION

1. Implementation of Justice and Equality: The determination of underprivileged residents must be based on the principles of justice and equality. Select residents based on qualifications and performance, not because of discriminatory factors such as gender, race, religion, or other backgrounds. The qualifications required here are values based on appropriate criteria.
2. The Importance of Proper Selection: A strict and precise selection process is crucial in determining data. This aims to ensure that prospective residents have appropriate criteria as poor.
3. This application also makes it easier to print reports of each data to be submitted to the RW administrators.

4. Increasing Efficiency and Accuracy: This application is expected to increase efficiency and accuracy in determining poor families in RW 05 East Jakarta. By utilizing information technology, data can be managed more quickly and accurately, reducing the possibility of manual errors in data processing, and facilitating decision-making by RW administrators.

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