



A Decision Support System Using a Simple Additive Weighting Method to Make the Production Division of PT. Indofood Fortuna Makmur's Employee Selection Process More Simple

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Abstract

At PT Indofood Fortuna Makmur, the information system still runs manually, especially when it comes to the program for choosing exceptional staff. Results of the examination are less precise and effective. The system must be developed by switching to a computer-based information system in order to prevent errors. With a calculation utilizing the SAW technique, an application that uses the PHP programming language and a MySQL database are used to design and build a decision-support system for choosing exceptional personnel. This application is in accordance with the issues at PT. Indofood Fortuna Makmur; the results are accurate because they are based on field assessments rather than biased assessments, and as a result of this assessment, employees at PT. Indofood Fortuna Makmur will be motivated to compete to become model workers.

Keywords: Decision Support System, PT Indofood Fortuna Makmur.

Introduction

An technique to managing and developing people by identifying where the improvement will be realized in a short or long time is called performance appraisal. Performance appraisal is a procedure for finding a shared understanding of what will be accomplished. PT Indofood Fortuna Makmur, a snack food company, chooses deserving employees each year to receive awards for their contributions to the firm's operations. By keeping promises, offering certainty, and ensuring the happiness of clients and business partners, this is meant to promote the excitement of employees for working and always running a firm. It is typically done manually to identify model employees by adding the results of each criterion one at a time. Once this is done, it is clear who qualifies as a model employee. As a result, this study will present a scenario where exceptional employees are chosen based on preset criteria and calculations are made utilizing the Simple Additive Weighting (SAW) method. This approach was chosen because it can pick the best option from a list of options based on predetermined criteria. Although the weight value can be altered at the user's request, the criteria remain fixed. Then the ranking procedure is used to choose the most deserving candidate for the position. The decision made is not the final one because the decision-maker still has the last say.

The author decided to call this system "Decision Support System with SAW (Simple Additive Weighting) Method to Facilitate the Selection of Exemplary Employees of the Production Division at PT Indofood Fortuna Makmur" because it will be developed from these issues and implemented as computerized software. (1) How to implement the Simple Additive Weighting approach so that it can offer the best choice for producing excellent employee selection decisions is one of the study's challenges. (2). How may the Simple Additive Weighting approach be used to create and construct a decision support system to assist in the hiring of exceptional employees? The first goal of this study is to use the Simple Additive Weighting approach to choose outstanding personnel. 2. To assist PT. Indofood Fortuna Makmur in choosing outstanding employees.

Methodology

The waterfall research model is employed in this study. The waterfall model is a traditional life cycle that offers a sequential or sequential approach to developing software, commencing with analysis, design, coding, and testing (Shalahudin & Rosa, 2018). There are four steps to the research in this study, as follows:



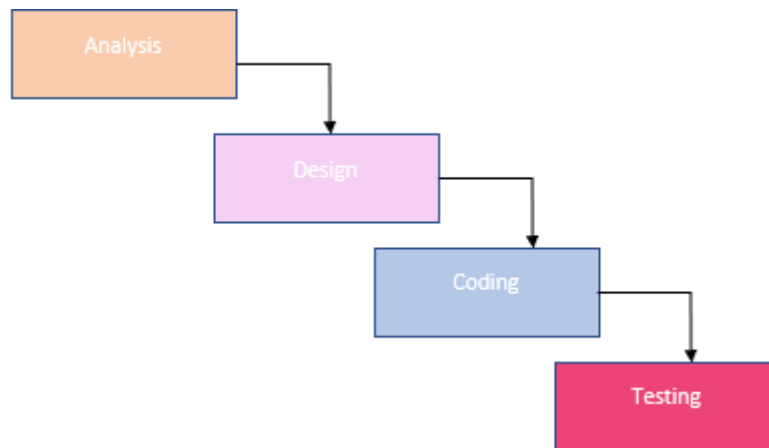


Fig 1. Research Methodology

Result

Analysis and Design of the Proposed System

First. System Procedure

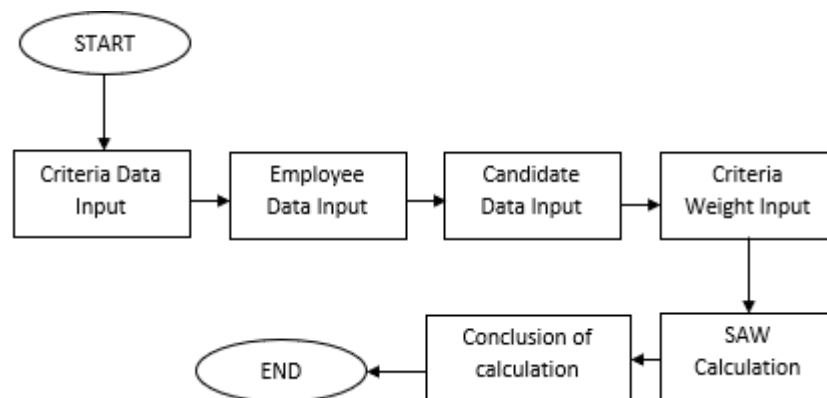


Fig 2. System Procedures

Second. System Requirements Analysis

Analysis of user needs

Table 1. User needs

Needs analysis	
No	I want the system:
1.	Display the login menu
2.	Display the dashboard
3.	Display the employee data menu
4.	Display the add employee data menu
5.	Display the candidate data menu
6.	Displaying the add candidate data menu

-
7. Displays the calculation result menu with SAW method
 8. Has add, edit, save and delete facilities
 9. Using MySQL database

Non Fuctional:

1. The system can run well
 2. The system is easy to use by users
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System Design
First. Use Case Diagram

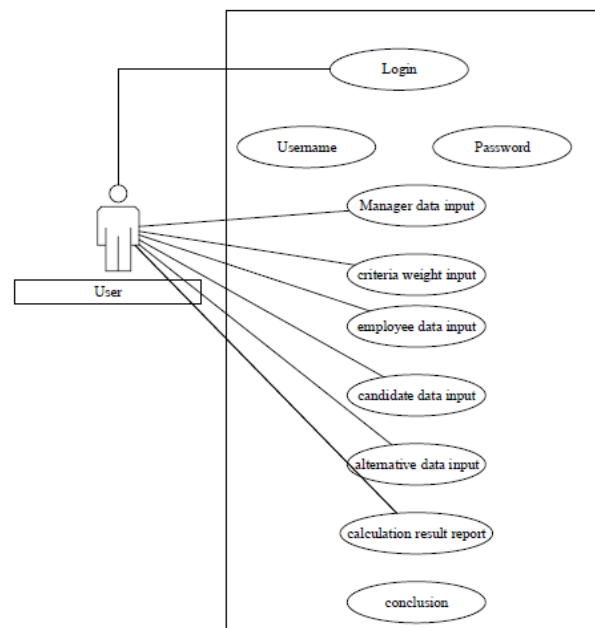


Fig 3. Use Case Diagram

Based on the use case diagram that has been made, the following is the scenario (process flow) of the use cases contained in the use case diagram.

Table 2. use case diagram

No	Nama Use Case	Actor	Description
1.	Login	User	The user logs in first by entering the username and password then clicking login.
2.	Input Weight Criteria	User	User input data on the weight of the criteria that have been determined.
3.	Employee data input	User	User adds production employee data.
4.	Candidate Data Input	User	User inputs employee candidate data.
5.	Alternative Data Input	User	User inputs alternative data for determining exemplary employees.

Second. Activity Diagram

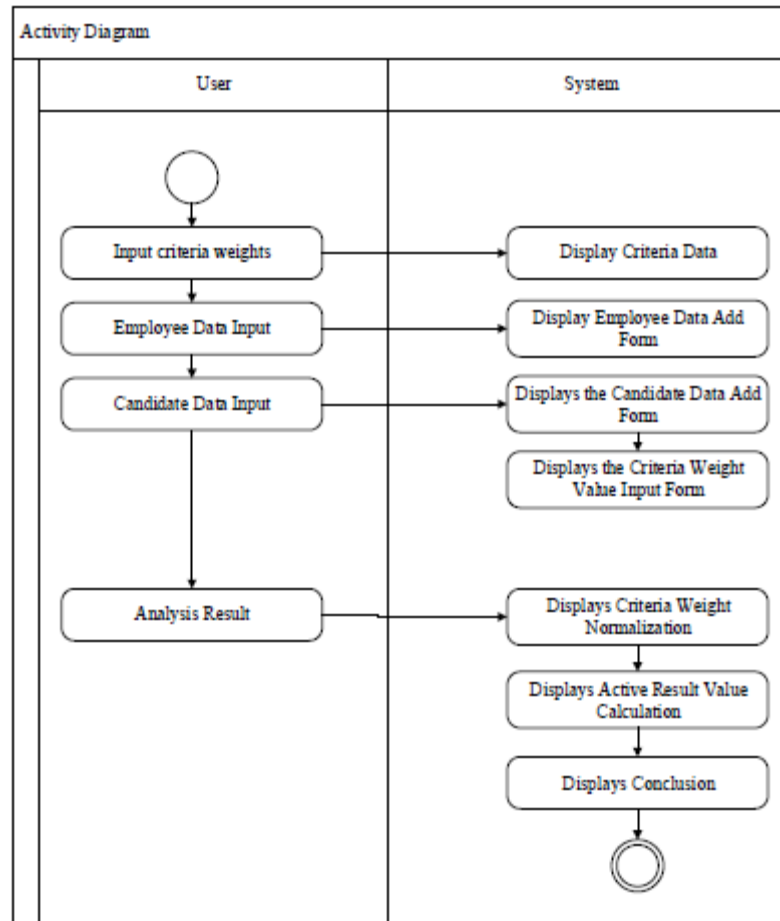


Fig 4. Activity Diagram

Description:

This Activity Diagram explains the flow of the system for inputting data for selecting exemplary employees to rankings, for the first step, namely inputting criteria weights, the second step is inputting employee names, the third step is inputting candidate data then entering the values of the criteria weights to determine exemplary employees by calculating using the SAW method.

Hiraki Input Process Output (HIPO) Design

After analyzing the system for the next, namely making a hierarchical input process output (HIPO) diagram first to facilitate the process flow of the system will be more organized and clear. The HIPO of the system is as follows.

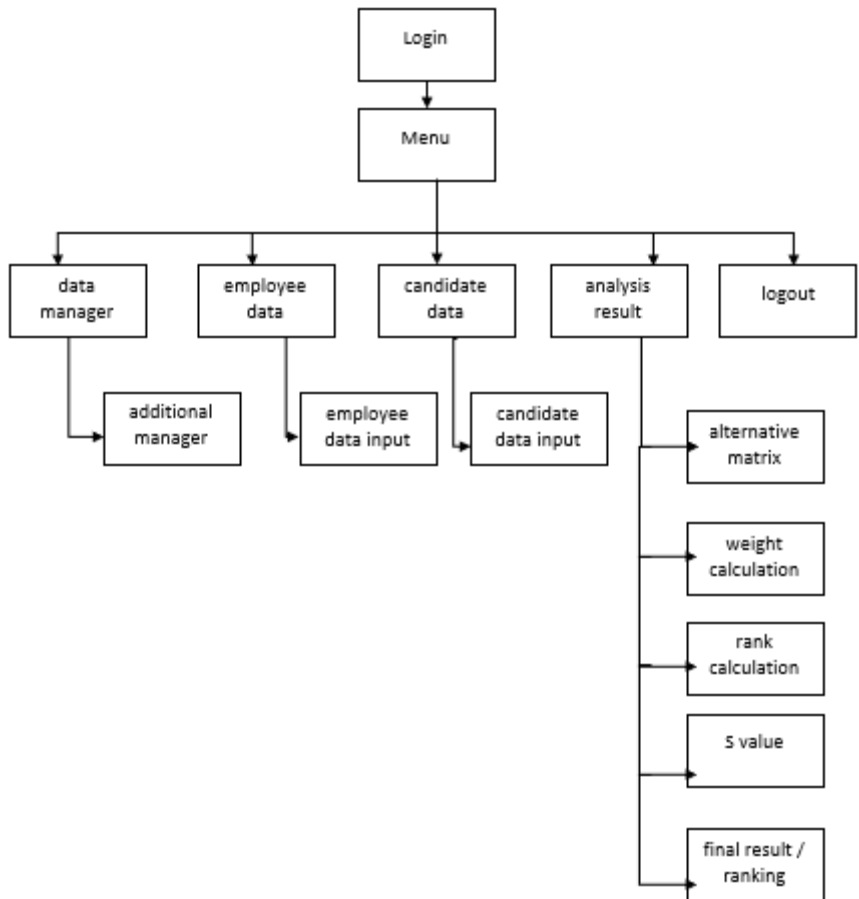


Fig 5. HIPO Design

Testing

Black Box is a system testing process to ensure that the system developed is in accordance with the design, both input and output. The following is blackbox testing that the author does on each module contained in the system.

Table 3. Black Box

RESULTS AND TESTING				
Test Scenario	Test Case	Expected Result	Result	Conclusion
Login	Enter username and password then select login	Successful login system	as per	works
Add	Enter all data into the weight data form.	display dashboard	as per	works



criteria weight data	Enter all data into the data form	The appropriate criteria weight data was successfully added	as per	works
Add employee data	form then	Employee data successfully added	as per	works
Add candidate data	select the save button	Candidate data successfully added	as per	works

Third. Validation

UAT (User Acceptance Test)

User Acceptance Test (UAT) is the process of verifying that the solution created in the system is suitable for users. This process is different from system testing (ensuring that the software does not crash and is in accordance with the user request document, but rather ensuring that the solution in the system will work for the user, namely the test that the user accepts the solution in the system. The following is a UAT validation test in implementing the SPK simple additive weighting system application to facilitate the selection of exemplary employees in the production division at PT. Indofood fortuna makmur.

Table 4. UAT Table

No	Use Case / Process	Success/fail	tested by	Test Date
1.	Test Name = Login Test Case - User name: Username - Password: letter - - Display the menu	Works	Lifia	04 August
2.	Test Name = Name input employee Test Case - Add employee name data Expected result: - If the employee name data has been added, the system will display the names of the employees.	Works	Lifia	04 August
3.	Test Name = Adding candidate data Test Case = - Add candidate data - Input employee criteria value Expected result: - - If candidate data and criteria values have been input, the system will save the data.	Works	Lifia	04 August

4.	Test Name = Simple Additive Method Calculation Result Weighting Expected result: - Displays the alternative name, vector value v, vector value s and Ranking	Works	Lifia	04 August
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Conclusion

Following the analysis, design, and testing of a decision support system to aid in the selection of exceptional workers for the manufacturing division at PT. Indofood Fortuna Makmur, the author is able to reach the following conclusions: 1) The manager's decision to choose excellent employees in accordance with established criteria is made easier thanks to the web-based exemplary employee selection decision support system at PT. Indofood Fortuna Makmur. 2). The performance of the production crew in carrying out their responsibilities can be improved with the use of this decision-support system for selecting excellent individuals. 3. Decision support systems use the SAW Simple Additive Weighting method to calculate and present findings.

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