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Implementation of the SMART Method for Web-Based Determination of Bangor Burger Stock Priorities

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Abstract

Inventory of goods is an important factor in maintaining smooth operations at fast food outlets. Burger Bangor Goldfinch faces problems in determining stock priorities due to variations in consumer demand, limited storage capacity, and the absence of a system that supports structured decision-making. This research aims to design and build a web-based Decision Support System (SPK) to determine the priority of stock of goods in an objective and measurable manner. The research uses the Research and Development (R&D) method, while the system development applies the Agile method with a Kanban approach. The system uses the Simple Multi Attribute Rating Technique (SMART) method to determine priorities based on seven criteria, namely sales rate, available stock, demand frequency, procurement lead time, shelf life, stock vacancy rate, and supply availability. The study involved 55 alternative goods that were processed through the stages of criterion weighting, weight normalization, utility value calculation, and alternative ranking. The results of the study showed that the developed system could perform calculations using the SMART method and produce procurement priority ratings from 55 alternative goods based on seven predetermined criteria. Functional testing was also carried out to check the suitability of the system's function with the designed needs. The results showed that the system can be used to provide stock priority recommendations in a structured manner. The application of this system has the potential to help the procurement decision-making process and support more targeted inventory management. However, the operational impact in the form of reducing recording errors, out-of-stock events, overstock, and procurement costs has not been directly measured in this study.

Words : Agile Kanban; Inventory of Goods; Decision Support System; SMART; Stock of Goods.

1. INTRODUCTION

All Management Problems *Stock* Raw materials in the fast food industry are increasingly complex because most of the ingredients are perishable (*perishable*) and has a short shelf life. In a study in H supermarket, management *Stock* Fast-perishable products such as bread and fruit require an accurate monitoring system as planning errors can lead to significant waste [1]. The study shows that the application of the*continuous review*able to reduce annual costs by 61.4% for bread and 19.1% for fruit. In line with this, it is also emphasized that raw materials such as beef for processed products have characteristics that are sensitive to storage time, so inventory management needs to consider the shelf life and optimal ordering intervals so that there is no excess *Stock* as well as the shortage of production materials [2]. The findings of these two studies reinforce the importance of implementing a management system *Stock* which is efficient and technology-based to deal with the risk of losses due to perishable raw materials in the fast food industry.

Fast food outlets need smarter, more adaptive inventory management strategies to balance customer demand and shelf life of raw materials. One widely used approach is the implementation of Decision Support Systems (SPKs) to help managers determine priorities *Stock* based on criteria such as consumption rate, expiration period, and availability of materials in the warehouse. In conditions like this, the implementation of a web-based system that uses multi-criteria assessment methods such as *Simple Multi Attribute Rating Technique* (SMART) becomes relevant because the method allows raw materials to be assessed based on several criteria such as shelf life, average use, risk of wastage, *lead time* Procurement and Prioritization *Stock* that are measurable and transparent. For example, research proves that the SPK system with the SMART method can make more objective decisions in employee selection and this method can be adapted for inventory management scenarios [3].

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As for other studies that examine the problem of supplier selection at UD Bahtera which is still carried out relationally and manually [4]. The study aimed to develop a decision support system using the SMART method to help select the best suppliers based on multi-attribute criteria. The research identified several criteria, conducted alternative assessments, and produced the best supplier rankings for a particular product. The results showed that the implementation of SMART helped the supplier selection process to be more structured and efficient. In addition, the implementation of SPK-based *web-based application* is increasingly relevant in the digital era because it allows for seamless access to data *real-time*, can be accessed from a variety of devices, and makes it easy to integrate with other systems such as *Point of Sales* (POS). There is also in his research on management systems *stock* web-based shows that the use of web-based applications is able to speed up detection *stock* low and produce more accurate inventory reports [5]. This supports the importance of web systems in supporting management decision-making *stock* in the culinary business.

The SMART method has the main advantages of simplicity, flexibility, and its ability to convert qualitative criteria into quantitative values that are easy for decision-makers to understand. In the context of this study, SMART helps the system to assess the priority of food and beverage products based on criteria such as expiration period, frequency of sale, and quantity *stock*, until the decision *stock* can be done faster and more accurately. This is in line with research[6]which shows that SMART is effectively used to help the multi-criteria decision-making process in an objective and structured manner. However, the weakness of the SMART method lies in the subjectivity in determining the weight of criteria that can affect the final result if not studied appropriately. In this study, the potential weakness can be minimized by validating the weight of the criteria based on historical data on sales and product shelf life, so that the decision results remain correct and in accordance with real conditions in the field. As long as the weighting process is carried out systematically and based on actual data, the use of the SMART method is still relevant for decision-making systems in the food industry.

Based on research [7], the SMART method has proven to be effective in assisting the multi-criteria decision-making process because it is able to convert various assessment factors into measurable and easy-to-understand numerical values. Although this method has disadvantages such as reliance on subjective criterion weighting, its main advantages lie in its simplicity, transparency, and flexibility in application in various contexts, including raw material inventory management that has many assessment variables. The SMART method is unique in its simplicity of calculation, transparency of the decision-making process, and flexibility in determining the weighting of criteria, so it is easy to understand by non-technical users and quickly implemented in a web-based system without the need for complex matrix calculations such as in AHP methods or calculations such as TOPSIS[8]. The SMART method is used in this study because based on previous studies, it is proven to be simpler, transparent, and faster in producing alternative rankings than other methods such as TOPSIS, SAW, and *Fuzzy AHP*. [9]shows that SMART has the highest calculation efficiency compared to TOPSIS and*Fuzzy AHP*because it does not require ideal distance computation or complex pairing comparisons, but still produces *Ranking* accurate and stable. This uniqueness makes SMART very suitable for application in web-based decision support systems.

Previous research has applied various decision support system methods to assist in inventory management and prioritization of procurement of goods. Research [10] Using the *Analytical Hierarchy Process* (AHP) to determine priorities *supplier* food chemicals at PT Garuda Hidrotive International. Meanwhile, research [11] Designing a monitoring system *Stock* web-based using logic *rule-based*, research [12] Apply *Fuzzy AHP* for optimization *Stock* goods, and research [13] Using the *Naive Bayes* to determine *Stock* goods. These approaches show that decision support systems can be applied to help the inventory management process, although each method has different approaches and characteristics. Based on the research, this study focuses on the application of the method *Simple Multi Attribute Rating Technique* (SMART) to determine the priority of stock of goods at the Bangor Goldfinch Burger Outlet. The implementation of SMART uses seven criteria related to sales rate, stock availability, frequency of demand, procurement lead time, shelf life, stock vacancy rate, and supply availability. The seven criteria are implemented in a web-based decision support system to process goods data and produce stock procurement priority ranking recommendations. Thus, the contribution of this research lies in the adjustment of the criteria and implementation of the system according to the needs of inventory management in the research object, not in the development of new calculation methods or claims that SMART is superior to other methods.

This research fills *the gap* by proposing a web-based decision support system that uses the SMART method.

Based on the description, the research on "Web-Based Decision Support System for Priority Determination *Stock* Goods at Bangor Goldfinch Burger Outlet with the "SMART Method" are important. This research will focus on designing a web-based system that uses the SMART method to determine

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priorities *stock* raw materials at fast food outlets. With this system, it is hoped that it will be able to reduce the risk *stock-out* or *overstock*, improving operational efficiency, and supporting business sustainability in the midst of increasingly fierce competition in the fastfood industry in Indonesia.

2. RESEARCH METHODS

This research is a research on system development (*system development research*) with a quantitative approach in data processing using the*Simple Multi Attribute Rating Technique*(SMART). This research aims to develop a web-based decision support system that is able to provide priority recommendations *stock* raw materials at Bangor Goldfinch Burger Outlet objectively and measurably.

2.1. Research Stages

The design of this research follows a systematic flow consisting of several main stages, namely: (1) data collection through literature study, observation, and interviews; (2) analysis of system needs and identification of assessment criteria; (3) design and development of web-based systems using the *Agile* with the *Kanban*; (4) implementation of SMART methods in the system; (5) system testing using *black-box testing* and *white-box testing*; and (6) evaluation of results and drawing conclusions.

Approach *Agile* with *Kanban* It was chosen because it is flexible and adaptive to changing user needs, so that it can increase efficiency in the development of information systems. Approach *Kanban* used to visualize the system development workflow in the form of a workboard (*Kanban board*), which makes it easier to monitor the progress of work*real-time*. Each job is represented in the form of a task (*Task*) that moves through the stages *To Do*, *In Progress*, *Testing*, and *Done*[14].

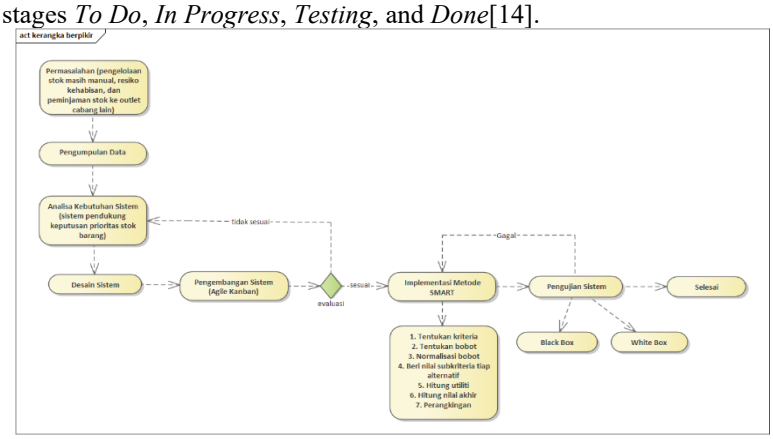

Image 1. Research Methodology Flow Chart

2.2. Stages of Data Collection

Data collection was carried out by three methods, namely literature studies, conducted by studying various sources such as books, journals, and previous research related to decision support systems, SMART methods, inventory management, and web-based system development. Observation was carried out by directly observing the inventory management process at Burger Bangor Goldfinch Outlet to find out the real conditions that occurred, including recording procedures, stock decision-making mechanisms, and obstacles faced in inventory management. Interviews were conducted with managers and employees of Burger Bangor Goldfinch Outlet to obtain more in-depth information about system needs, relevant assessment criteria, and obstacles in stock management. The interview also aims to validate the weight of the criteria to be used in the SMART method.

2.3. Stages of Implementation of the SMART Method

Describe the SMART Method implemented through the following steps [15]:

Step 1:

Determine the criteria used in the priority assessment of *stock*. In this study, seven criteria were used as set in the previous stage.

Step 2:

The criteria used consider factors that affect the availability of *stock* of goods, such as the level of sales, the number of *available stock*, the frequency of demand, procurement time, storage period, the level of stock vacancy, and stock availability.

Step 3:

Provide a criterion value for each alternative (subcriterion) with an interval of 1-5.

Table 1. Criteria

Code	Criteria	Subcriterion

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K7	Sales Rate	Very low, low, Medium, high, very high
K8	*Stock* Available	Very good, a lot, Medium, a little, very little
K9	Frequency of Requests	Very rarely, rarely, Medium, often, very often
K10	Procurement Lead Time	Very fast, a lot, Medium, a little, very little
K11	Shelf Life	Very short, short, Medium, long, very long
K12	Stock Vacancy Rate	It never runs out, it rarely runs out, sometimes it runs out, it often runs out, it runs out very often
K13	Supply Availability	Very difficult, difficult, medium, easy, very easy

Step 4:
Each criterion is given an initial weight (W') which reflects its level of importance in the range of 1-100 based on the results of interviews and observations with Burger Bngor Goldfinch outlet employees. The determination of the weight of the criteria in the *Simple Multi Attribute Rating Technique* (SMART) method was carried out based on the results of interviews with the Burger Bangor Goldfinch Outlet who understood the operational needs and inventory management. In the interview, the interviewees were asked to sort seven criteria based on their level of importance in determining the priority of purchasing stock of goods. The order is used as a basis for consideration in determining the relative weight of each criterion. The weight that has been determined is then confirmed to the outlet and has been approved.

Table 2. Criteria and Weights

Code	Criteria	Jenis	Weight
K7	Sales Rate	Benefit	25
K8	*Stock* Available	Cost	20
K9	Frequency of Requests	Benefit	15
K10	Procurement Lead Time	Cost	15
K11	Shelf Life	Benefit	10
K12	Stock Vacancy Rate	Benefit	10
K13	Supply Availability	Benefit	5
Total Weight			100

Sales Level is given a weight of 25 because it is the main consideration in looking at the procurement needs of goods based on sales movements. Available Stock is given a weight of 20 to consider the amount of inventory that can still be used. Demand Frequency and Procurement Waiting Time are given a weight of 15 each to take into account the pattern of goods needs and supply fulfillment time. Shelf Life and Stock Vacancy Rate are each given a weight of 10 while Supply Availability is given a weight of 5. The difference in weight shows the level of relative importance of each criterion in the decision-making model used in this study.

The weight set is 100 so that it can be directly used as the normalized weight in the SMART calculation. Furthermore, each alternative goods is assessed based on these seven criteria to obtain the final value and priority order of stock procurement.

Step 4:
The predetermined weight is then normalized by formula (1):

$$normalisasi = \frac{w_j}{\sum w_i} \quad (1)$$

Description:
w_j = the value of the weight of a criterion
$\sum w_i$ = total total weights of all criteria

Step 6:
Determine the utility value by converting the value of the criteria in each criterion obtained from the results of interviews with the crew at the *outlet* and analysis of the sales records owned by the *outlet*. . For the benefit criteria, the utility value cost criteria are calculated by formulas (2) and (3):

$$u_i(a_i) = \frac{(C_{max} - C_{out_i})}{(C_{max} - C_{min})} \quad (2)$$

$$u_i(a_i) = \frac{(C_{out_i} - C_{min})}{(C_{max} - C_{min})} \quad (3)$$

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Description:
$u_i(a_i)$: the value of the i-utility in criterion i-i
C_{out_i}: Criterion Value I
C_{max}: maximum criterion value
C_{min}: minimum criterion value

Step 5:
Determine the final value of each alternative by multiplying the utility value by the normalization value of the criterion weight, then adding the result of the multiplication:

$$u(a_i) = \sum_{j=1}^{n} \omega_j \cdot u_j(a_i) \quad (4)$$

Description:
$u_i(a_i)$: the value of the i-utility in criterion i-i
$\sum_{j=1}^{n} \omega_j$: The sum of the weighting values of the jth criterion

Step 6:
Perform a ranking against the total value of the alternative to determine the best alternative. Best alternative Is the alternative that has the highest total value, which indicates the most urgent re *stock* priority .

2.4. System Planning Stage

Explain The system design is done using UML diagrams which include, *Use Case Diagram*, describes the interaction of actors (managers and admins) with the system, including raw material data management features, prioritization *Stock*, and report generation [15], *Class Diagram*, describing the data structure consisting of raw material entities, criteria, weights, and calculation results, *Sequence Diagram*, describe the flow of interaction between objects in the system when performing priority calculations *Stock*, *Activity Diagram*, describes the flow of processes or activities in the system to be built.

The system is developed on a web-based basis using the PHP programming language with the Laravel framework, MySQL databases, and interfaces using HTML, CSS, and JavaScript. The system architecture uses *Model-View-Controller* (MVC) that separates business logic, display, and data management. Database design is done using *Entity Relationship Diagram* (ERD) to ensure an efficient data structure and support system needs [16].

2.5. Criteria and Alternatives

Based on the analysis carried out, there are 55 alternative raw materials that are the object of priority assessment *stock* at the Bangor Goldfinch Burger Outlet, which includes various types of foodstuffs such as 600ml (A1) Mineral Water, *Crispy Chicken* (A2), *Bangor Fried Chicken* (A3), *BBQ Sauce* (A4), *BBQ Spicy* (A5), *Beef Large* (A6), *Beef Slice* (A7), *Beef Small* (A8), Rice (A9), *Bolognese Sauce* (A10), as well as other operational support materials such as packaging and tableware. Prioritization *stock* All of these alternatives are carried out based on seven criteria that have been set, namely the level of sales (*benefit*), *stock* available (*cost*), frequency of request (*benefit*), lead time procurement (*cost*), storage time (*benefit*), vacancy rate *stock* (*benefit*), and supply availability (*benefit*). Each of these criteria is equipped with subcriteria on a scale of 1 to 5 that allow for a more objective and measurable assessment of each alternative, so that the SMART method can be effectively applied to produce priority recommendations *stock* accurate.

3. RESULTS AND DISCUSSION

3.1. System Implementation

Web-Based Decision Support System for Prioritization *Stock* Goods at the Bangor Goldfinch Burger Outlet with the SMART Method have been successfully implemented. The system was developed using the PHP programming language with *framework* Laravel and MySQL databases. The system interface is designed using Figma and developed with Visual Studio Code, running on a local server using XAMPP.

The result of the implementation results in several main interfaces, i.e. the *Login* For user authentication, the *register* for new account registration, the *dashboard* as the main view, as well as a page to manage criteria, subcriteria, alternatives, and *stock* daily. The system also comes with an automated calculation page that displays the data-driven scoring process *stock*, an analysis page that displays the value *utility* and final scores, as well as report pages that present priority recommendations *stock* based on the results of the ranking.

3.2. Application of the SMART Method

The SMART method is applied through the stages of determining criteria, weighting, normalizing weights, determining subcriteria, calculating utility values, and alternative rankings. Based on the results of interviews with *crew* Bangor Goldfinch Burger outlets, set seven criteria with initial weight and normalized weight as follows:

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Table 3. Evaluation Criteria and Weights

Code	Criteria	Jenis	Initial Weight	Normalization Weights
K7	Sales Rate	Benefit	25	0,25
K8	*Stock* Available	Cost	20	0,20
K9	Frequency of Requests	Benefit	15	0,15
K10	Procurement Lead Time	Cost	15	0,15
K11	Shelf Life	Benefit	10	0,10
K12	Stock Vacancy Rate	Benefit	10	0,10
K13	Supply Availability	Benefit	5	0,05

After the weight is determined, the next step is to calculate the utility value, the determination of the utility value of each alternative is carried out based on the type of criteria (cost or benefit) using the assessment data that has been given. An example of calculating the utility value for the A1 600ml Mineral Water alternative is as follows:

$u_i(a_i) = (5-1) / 4 = 1{,}00$ *(Benefit)*
$u_i(a_i) = (5-3) / 4 = 0{,}50$ *(Cost)*
$u_i(a_i) = (4-1) / 4 = 0{,}75$ *(Benefit)*
$u_i(a_i) = (5-2) / 4 = 0{,}75$ *(Cost)*
$u_i(a_i) = (5-1) / 4 = 1{,}00$ *(Benefit)*
$u_i(a_i) = (5-1) / 4 = 1{,}00$ *(Benefit)*
$u_i(a_i) = (5-1) / 4 = 1{,}00$ *(Benefit)*

In the same way, the utility value for all alternatives is calculated. Then, the results of such calculations are shown in Table 4.

Table 4. Utility Value Data

Alternate Codes	Criteria						
	K7	K8	K9	K10	K11	K12	K13
A1	1,00	0,50	0,75	0,75	1,00	1,00	1,00
A2	1,00	0,25	1,00	0,75	0,25	1,00	1,00
A3	1,00	0,25	0,75	0,75	0,25	1,00	1,00
A4	0,25	0,00	0,00	0,50	0,75	1,00	0,25
A5	0,25	0,00	0,00	0,50	0,75	1,00	0,25
A6	1,00	0,75	1,00	0,75	0,25	1,00	1,00
A7	1,00	0,25	0,50	0,75	0,25	1,00	0,50
A8	1,00	0,50	1,00	0,75	0,25	1,00	1,00
A9	1,00	1,00	1,00	1,00	0,00	1,00	1,00
A10	0,25	0,50	0,00	0,50	0,75	1,00	0,25

The final value of each alternative is calculated by multiplying the normalized weight by the utility value of each criterion, then summed up. The determination of the final value is carried out based on formula (4). The determination of the final value of alternative 1 is as follows.

$u(a_1) = (0.25 \times 1.00) + (0.20 \times 0.50) + (0.15 \times 0.75) + (0.15 \times 0.75) + (0.10 \times 1.00) + (0.10 \times 1.00) + (0.05 \times 1.00) = 0.825$

The final score is calculated for each alternative, then a ranking process is carried out based on the order of highest to lowest scores. The results of the final score calculation and ranking are shown in Table 5.

Table 5. Final Value Calculation

Alternative	Total Value
Rice	0,9000
Solid Oil	0,9000
Sambal Sauce Sachet	0,9000
Sealed	0,9000
Tomatoes	0,9000
Lemon Tea	0,8875
Beef Large	0,8375

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Burger Bun	0,8375
Air Mineral 600ml	0,8250
Cheese Slice	0,8000

Based on the results of the SMART method calculation, there were five alternatives that obtained the same highest final score, which was 0.9000. These results showed that the five alternatives had equivalent preference values based on the weight of the criteria and *the utility* values used in the calculation. Therefore, the alternatives were reported as the same highest-ranked group, without assigning any of them as the best alternative in a single case. The difference in priority between alternatives with the same score requires additional considerations explicitly set by the decision-maker. The names and codes of the alternatives in the results table were adjusted to the calculation data to be consistent with the discussion and conclusions.

3.3. User Interface Display

The system interface is built according to the design specifications that have been set at the design stage using Figma, with emphasis on the aspects of ease of navigation and visual comfort for users. Figure 2 shows one of the implementations, namely the *Dashboard* which displays a summary of system information.

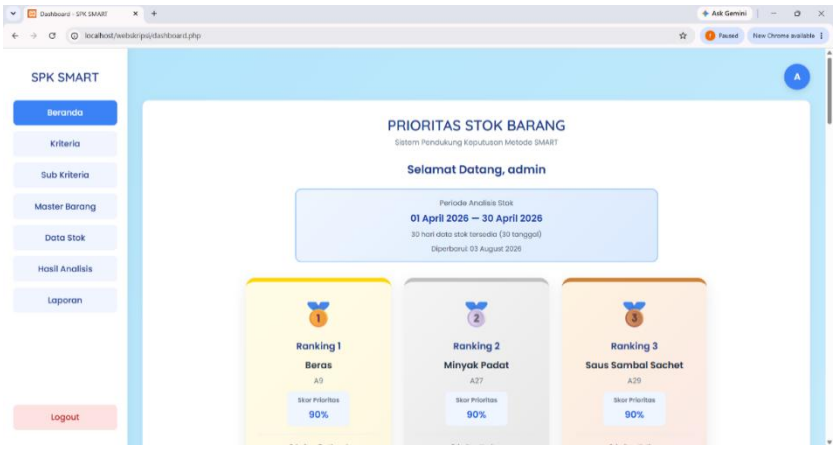

Image 2. Page *Dashboard*

Page*Dashboard*shown in Figure 2 is the main entrance of the system after the user has done *Login* success. Through this page, basic information about the status of the system and the results of the analysis is presented in the form of an informative summary.

3.4. System Testing

System testing is carried out by two methods, namely *Black Box Testing* and *White Box Testing*. Method *Black Box* with techniques *Equivalence Partitioning* aims to verify the suitability of the system's functions to the specifications that have been set. The features tested include *Login*, registration, data management (criteria, subcriteria, alternatives, calculations), and reports. All test scenarios run, both with valid and invalid data, provide outputs that are in accordance with expectations. The system is proven to be able to deny access to the conditions *Login* with *username* or *password* incorrect, and successfully save data when all fields are filled in correctly. Table 4 presents an example of the tests performed.

Table 6. BlackBox Test Results

Yes	Testing Scenarios	Username	Password	Test Results	Remarks
1	Valid Login (registered user)	Admin	admin123	Valid	Successfully login, redirect to dashboard.php
2	Valid Login (other registered users)	User1	pass123	Valid	Successfully login, redirect to dashboard.php
3	Empty username	(blank)	admin123	Invalid	Alert "Username or Password is wrong!"

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4	Blank password	Admin	(blank)	Invalid	Alert "Username or Password is wrong!"
5	Blank username & password	(blank)	(blank)	Invalid	Alert "Username or Password is wrong!"

Based on the test results, the system is proven to be able to manage user access rights according to their respective roles, so that data security is guaranteed. The *White Box Testing* is carried out to test the logic and internal structure of program code, especially on critical modules such as *Login*, registration, and SMART calculations. From measurements *Cyclomatic Complexity* (V(G)) in the login module, the value V(G) = 4 is obtained, which means that there are 4 independent paths that have been identified and tested. The four paths (successful *Login*, *username* Wrong, *password* false, and empty forms) proved to be executed correctly, so that the program logic was declared stable and relatively free from significant logic errors. The calculation of V(G) was performed using the following two approaches:

Approach 1

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

Description:

EE = the number of *edges* (control flow) on *the flowgraph*

NN = number of *nodes* on *the flowgraph*

Approach 2

$V(G) = P + 1$

Description:

PP = number of *predicate nodes (predicate* nodes/decision points)

Table 7. Flowgraph Login

Node	Process
N1	Home
N2	isset($_POST['login'])
N3	Retrieve username and password
N4	Query data user
N5	if ($data) and Password Verify
N6	Set Session
N7	Redirect dashboard
N8	Alert: Username and Password not found
N9	End

E1:N1→N2, E2:N2→N3, E3:N2→N9, E4:N3→N4, E5:N4→N5, E6:N5→N6, E7:N5→N8, E8:N6→N7, E9:N7→N9, E10:N8→N9.

Cyclomatic Complexity Login

$E = 10, N = 9$

$V(G) = 10 - 9 + 2 = 3$

$Predicate\ node\ (P): V(G) = 10 - 9 + 2 = 3$

$V(G) = 2 + 1 = 3$

Independent Path:

1. Path 1: N1→N2→N3→N11 (Failed *to log in* due to not *submitting* form)
2. Path 2: N1→N2→N3→N4→N5→N10→N11 (*Username* not found)
3. Path 3: N1→N2→N3→N4→N5→N6→N9→N11 (*Password* Salah)
4. Path 4: N1→N2→N3→N4→N5→N6→N7→N8→N11 (*Login* Success)

4. CONCLUSION

Based on the results of research, design, implementation, and testing of web-based decision support systems using the *Simple Multi-Attribute Rating Technique* (SMART) to determine priorities *Stock* goods at Burger Outlet Bangor Goldfinch, it can be concluded that this system produces a web-based decision support system to determine the priority of stock of goods at Burger Outlet Bangor Goldfinch using the SMART method. The system applies seven criteria to assess alternative goods and produces a ranking of procurement priority recommendations. The results of the functional test show the suitability of the system's function based on the test scenario carried out. With structured recommendations, the system has the potential to help outlets in considering stock procurement needs. However, this study has not measured the impact of the implementation of the system on the frequency of out-of-stock, overstock, raw material waste, recording errors, and procurement costs. Therefore, these operational benefits still need to

be evaluated through the implementation of the system in a certain operational period and the comparison of data before and after implementation.

The application of the SMART method with seven criteria, namely sales level, *Stock* available, frequency of request, *lead time* Procurement, shelf life, vacancy rate *Stock*, and the availability of supplies, proven to be able to generate priority recommendations *Stock* objective and measurable based on data and systematic calculations, with the results of calculations using the SMART method showing that five alternatives obtained the same highest score, which is 0.9000. The five alternatives are the top priority group based on the seven criteria used in the system. Because the final score is the same, this study does not assign one alternative as the highest ranking single. Further prioritization among these alternatives can consider additional operational information as needed by the outlet. The results of this ranking are recommendations to support the stock procurement decision, not an automatic determination that one of the goods must always be ordered in advance. Test results *black-box* and *white-box* also ensure that all system features work accordingly. Based on results *User Acceptance Testing* (UAT) obtained a user acceptance percentage of 90.83%. The results show that the web-based Decision Support System developed can be very well received because Specifications with a success rate of more than 85% and a *Cyclomatic Complexity* low (1-5), indicating a simple and easy-to-maintain program logic. Thus, this decision support system can be an effective solution in supporting the management of raw material inventory at the Bangor Goldfinch Burger Outlet in a faster, precise, and structured manner. Further research is recommended to integrate the system with *Point of Sales* (POS) so that data input can be carried out automatically and *real-time*, as well as applying more objective criteria weighting methods such as *Analytical Hierarchy Process* (AHP) or *Entropy Method* to improve the accuracy of the recommendations produced.

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CONFLICT OF INTEREST

The authors declare no conflict of interest in the research, authorship, or publication of this article.

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