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Startup Success Factors: Classifying 3H (Hustler, Hipster, Hacker) Framework using Simple Additive Weighting

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ABSTRACT

Nowadays, start-ups are heavily influenced by the character of their founders. The framework in this case is known as 3H which is an explanation of Hustler, Hipster and Hacker. In this study, a decision support system based on the Simple Additie Weighting (SAW) method was built that can determine the tendency of user characteristics to a category. This system is built in a web-based application with 25 closed questions recommended by experts. Each question has its own weight for each choice. Then this process continues to the answer normalisation stage and the total of this normalisation will be converted to a scale of 75 to determine the final category. Then the results will be validated by comparing the results done by the expert and the system. Based on testing conducted with 3 samples, the system managed to get 100% accuracy. However, there are research findings that show the Hustler character if implemented with a method like this research will only be taken if all answers are answers with minimum weight. But basically, this research shows that SAW is a fairly effective method in supporting classification decisions, it's just that improvements are needed on the expert side so that the weights can be done dynamically so that the results are more optimal.

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1. INTRODUCTION

The development of technology has led to many new innovations including digital start-up companies. In start-ups, the success of the team is highly dependent on the ability of its members to collaborate with each other. In the context of start-up companies, the minimum viable team concept is used as the minimum team with certain skills needed to start business operations[1]. A good team consists of members who have complementary skills, are adaptive and innovative, especially in facing challenges when running a business. This context is not only applicable in the startup context and business but is also very relevant in the formation and management of social project teams.

The terms hustler, hacker, and hipster are often used to describe three types of roles that can be valuable in a startup [2]. The 3 framework known as 3H (Hustler, Hipster, Hacker) is currently a popular model in classifying the roles of startup team members, each of whom has unique skills that contribute to the progress of the company. This threefold framework classifies team members into three main categories based on their roles and expertise, namely Hustler as a business driver, Hipster as a creative innovator and hacker as a technology developer [3].

The identification of these roles is crucial as not all individuals have a clear inclination towards one of the 3H categories. Some startups face the challenge of assigning team members to roles that match their expertise. This formation will certainly be key in creating the right and sustainable products and innovations in the future [4]. These three roles have different functions such as the Hustler acts as a business driver who focuses on strategy development and marketing, the Hipster will be responsible for creating attractive designs

and user experiences while the Hacker plays a role in building and developing product technology or innovations made [5]. If explained in more detail, the Hustler is a person who has an important role in managing the commercial side of the business where this personality is very skilled in marketing, besides that the hustler is also a strategic character who plays a key role especially in business development. The Hipster is a person who is competent in design and user experience. This relates to all the visual things that a project or startup will process. While the Hacker is the technical part that understands the product best from start to finish[6].

The combination of the three roles is considered essential in ensuring that a project has a strong foundation on the business side as well as on the aesthetic and technological side. [7]. Therefore, this research aims to apply the SAW method in identifying and classifying individuals into one of the three types such as the Simple Additive Weighting (SAW) algorithm, where this technique can assist multi-criteria decision-making which is proven effective in many contexts. This research will also provide a measurable and objective approach in evaluating the suitability of individuals to the most appropriate roles within the team.

The SAW algorithm itself is a simple decision-making technique where this method will find a weighted sum of the ranking process that can facilitate graduation [8]. In the context of 3H classification, SAW will be used to evaluate a number of attributes and characteristics possessed by each individual based on their answers to a series of weighted questions. Each answer will be assigned a value based on a pre-determined weight and then the value will provide a final score. This final score will be used to determine an individual's tendency towards one of the categories: Hustler, Hipster or Hacker.

The implementation of the SAW method in classification aims to provide a measurable and objective approach to assessing the most suitable roles for team members. By doing so, startups will find it easier to form balanced and effective teams that can ultimately increase success in a more competitive project environment [9]. This research will describe the process of developing a SAW-based classification system within the 3H framework, including data collection methods, criteria weighting and results analysis. It is hoped that the results of this research can contribute to a deeper understanding of startup team dynamics and the role individuals play in achieving project success.

2. METHOD ALGORITMA

Decision Support System (DSS) is a system that is used in supporting decisions both managerial and decisions in semi-structured and structured situations [10]. DSS helps manage the necessary power as in this case is the result of answers from respondents and gives weight to each answer from the predetermined criteria. Thus DSS can enable accurate calculation of the final score in this case determining the role of individuals such as Hacker, Hispter and Hacer based on a series of weighted questions.

2.1. Simple Additive Weighthing

The research method used uses the SAW method which is often known as the weighted sum method. The SAW concept requires the process of normalising the decision matrix (X) to a scale that can be compared with all alternative ratings available[11]. This algorithm is used because it has a simple, efficient and easy-to-understand calculation process. SAW works by adding up the multiplication results between the normalised value and the weights of each predetermined criterion [12].

The SAW method recognises two attribute criteria, namely benefit and cost criteria. This method has the advantage of being able to make more precise judgements based on predetermined criteria values and preference weights and can choose the best alternative from the existing options [13]. Figure 1 shows the implementation of the SAW method in various key fields based on the search term "Simple Additive Weight" found in the "ScienceDirect" database in 2022 [14].

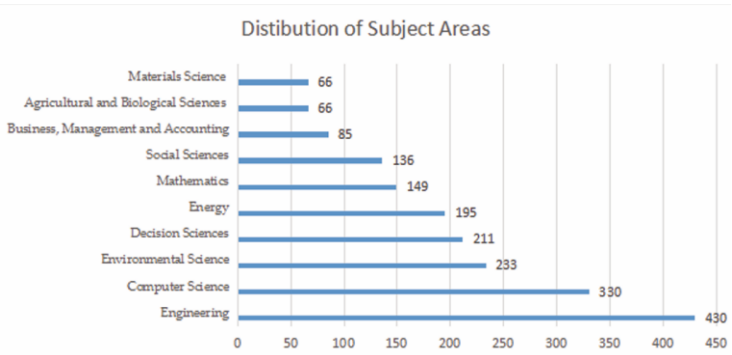

Figure 1. subjek Distribution of SAW method usage in the subject area

Previous research has also stated that SAW is the most widely implemented Multi-attribute decision-making (MADM) method because the advantages offered are more than its negligible disadvantages. Table 1 summarises the advantages and disadvantages of the SAW method.

Table 1. Table of Advantages and Disadvantages of SAW Method [15], [16], [17]

Advantages	**Disadvantages**
The capacity to make up for differences between criteria	The fundamental notion involves transferring the criteria for minimizing to those for maximizing.
The ability to make decisions based on intuition	In the process of transferring negative values of r_{ij} to optimistic values
Uncomplicated computation	There are times when the results acquired do not make sense.
No need for complicated computer programming	A decision matrix and the weights of the qualities must be provided.
Through the utilization of the normalized values, assisting in the determination of the differences between items that are visually compared	

In solving a case the SAW method has the following steps:

1. Determine alternatives and criteria: At this stage the object to be evaluated in this research is the conference participants, then the criteria for the assessment factors used include creativity, leadership and technical ability.
2. Determination of criteria weights: at this stage a weight is given to each criterion based on its level of importance. The total weight is normalised so that the sum of all weights is equal to 1 [18].
3. Form a decision matrix as follows

$$x = \begin{matrix} x_{11} & \dots & x_{1n} \\ \vdots & \ddots & \vdots \\ x_{m1} & \dots & x_{mn} \end{matrix}$$

Where:

a. x_{ij} s the value of the *i-th* against the *j*-th criterion
b. M is the number of creative
c. N is the number of criteria to 3

4. Normalisation of the decision matrix for benefit criteria (the bigger the better)

$$R_{ij} = \frac{X_{ij}}{\max(X_J)} \quad (1)$$

For cost criteria (the smaller the better):

$$R_{ij} = \frac{\min(X_J)}{X_{ij}} \quad (2)$$

This formula is used so that the values are on the same scale from 0-1 so that there is an equal comparison between criteria [19]

5. The calculation of the Final Score after normalisation is calculated using the formula

$$V_i = \sum_{j=1}^{n} w_j . R_{ij} \quad (3)$$

6. The Final Classification was derived from V_i to classify the participant's tendency towards one of the three categories (Huslter, Hipster and Hacker). The category with the highest score indicates the participant's dominance.

3. IMPLEMENTATION AND RESEARCH RESULTS

3.1. System Analysis

For a more systematic understanding of the working process of this research system, Figure 2 depicts a flowchart that represents the main stages of data processing.

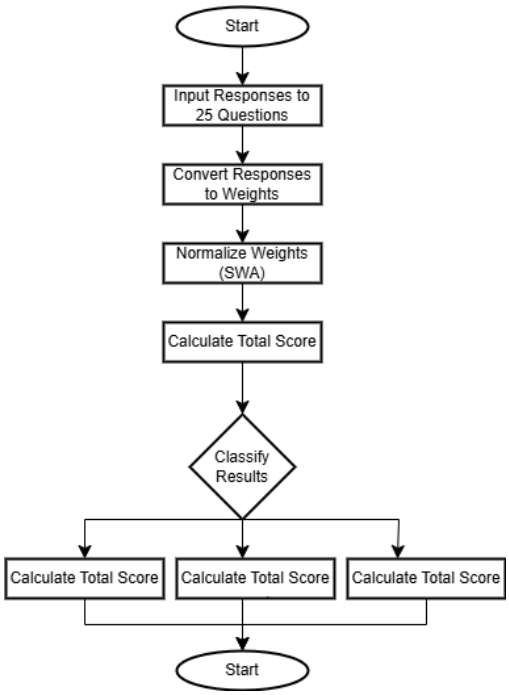

Figure 2. Flowchart for Research using SAW

Figure 2 explains in a structured way the process of filling out questionnaires by users, then converting the answers into bobo values and normalising the values based on the Simple Additive Weighting (SAW) method, until the final stage is the classification of users into one of the 3H categories based on the preference values obtained. Next is the weighting of each criterion that has been obtained from observations and interviews with psychology expert staff by referring to the characteristics of each type. Table 2 is the weight of determining criteria.

Table 2. Table of Advantages and Disadvantages of SAW Method

No	Criterias Code	Questions	Answer A (Weight)	Answer B (Weight)	Answer C (Weight)
1	C1	Which one describes you best?	Enjoy socializing, thrive in crowds, appreciate when others value me (3)	Enjoy standing out, being different from others, and being the center of attention (2)	Enjoy solitude, prefer to focus on the task at hand, and not easily concerned about others (3)
2	C2	Which one best describes yourself?	Innovative (3)	Creatıve (2)	Meticulous/thorough(1)
3	C3	What would you do if given a complex assignment at school/work?	You create a plan before starting it (3)	You need to gather all the relevant information before beginning. (1)	You find inspiration while having fun or going for a walk. (2)
4	C4	Your friends would describe you as..	Someone who is always current and up-to-date with new trends (2)	Someone who is knowledgeable about technical technology (3)	Someone who is good at speaking in front of many people. (1)
5	C5	My interest in using design tools	Very interested and enjoys exploring the uses of each tool (2)	Not interested, only interested in the results..(1)	Very interested and enjoys exploring the functionality of each tool. (3)

		(Photoshop, Figma, etc.).			
6	C6	When I receive a large sum of money, I will...	Create a detailed and accurate budget and financial plan. (3)	Create a plan to invest the money and make it grow (1)	Spend the money on trendy or new things. (2)
7	C7	Have you ever negotiated to get a better deal?	Yes, only once, and there's no motivation to do it again. (2)	Never at all (3)	Several times a day. (1)
8	C8	How often do you think of new business ideas?	Several times a day (1)	Rarely(3)	Maybe once a week (2)
9	C9	When creating a design, I prioritize	Ease of implementation into programming languages. (3)	Solving existing problems (2)	Looking good and attractive(1)
10	C10	When opening an application, I pay most attention to	Ease of use and understanding (1)	Quick profitability (2)	No bugs and easy development (3)
11	C11	When creating an application, I pay the most attention to	Quick profitability (1)	Ease of use and understanding (2)	No bugs and easy development (3)
12	C12	Which trait best represents your strength	Systematic and knowledgeable about technology-related matters(3)	Excellent communication with people (1)	Creativity and endless new ideas (2)
13	C13	What would you prefer to do during the product development process	Design and create detailed product prototypes for functionality (2)	Talk to potential users to understand their needs (1)	Build a product using easily applicable programming languages for all platforms (3)
14	C14	If you present a business idea, you will focus on	Achieving profitability (1)	The technology to be used(3)	Reviewing and considering user experiences (2)
15	C15	Directly interacting with potential users is	The best way to increase revenue (2)	A fun way to get user feedback (1)	I prefer not to meet users in person (3)
16	C16	What is your experience with programming or coding?	I have never coded in my life(1)	Good enough, but not my focus for skill improvement (2)	Very good (3)
17	C17	The most important thing to consider when building a new digital product like an app or game is	User-friendliness and outstanding graphics when used or played (2)	No bugs and ease of updates (3)	The profit to be gained (1)
18	C18	What kind of work do you usually do on a daily basis	Find new formulas and strategies to increase income or funding (1)	Brainstorm new ideas to create a user-friendly design (2)	Conduct research or try different programming languages alone or with coworkers (3)
19	C19	Which role do you prefer	Customer success, market research, business & development, marketing strategy, social media specialist (1)	Backend engineer, front-end engineer, QA analyst, Mobile engineer, infrastructure engineer (3)	UI Designer, UX Researcher, UX Designer, Product researcher (2)
20	C20	Which education aligns more with you	Social, Business, Management (1)	Art, Design, Content (2)	Science, Technology (3)
21	C21	According to people around you, which character trait describes you best?	Ambitious (1)	Focused (3)	Empathetic (2)
22	C22	Which job best describes you	Prefer making work easy and enjoyable, not interested in making decisions (2)	Focus on task completion, not interested in generating new ideas (3)	Enjoy taking the lead, creating strategies to achieve goals (1)
23	C23	Which best describes you	Enjoys long journeys (1)	Enjoys reading books in a quiet place (3)	Enjoys visiting beautiful places (2)
24	C24	When working, I prefer	Creating a work roadmap to make it more enjoyable (2)	Discussing and generating new ideas (1)	Focusing on work and results (3)
25	C25	What will you do when facing failure	Quickly bounce back to find another way to succeed (1)	Take time to fix what went wrong (2)	Feel disappointed and stay silent for a while (3)

Table 2 explains that there are 25 questions used to identify a person's tendency mapping into the Hustler, Hipster or Hacker types. In each answer choice there is a weight value of 1-3 which is used for the preference rating of each alternative answer. Furthermore, this value will be used for normalisation and weighting in the SAW method. In this case, the greater the weight value, the higher the preference for the answer in the context of classification into the 3H framework.

3.2. Implementation

3.2.1. Input Data

The first step in implementing the system is collecting data from respondents in the form of answers to 25 questions. At this stage, simulations were carried out using 5 respondents from the entire system. Each question has three answer options (A, B, C) with a weight of 1-3 according to the level of tendency towards certain characteristics in the 3H framework. Table 4 shows 3 results from the initial correspondents for this system.

Table 3. Answer Table 3 First response to the system

Kriteria C	U001	U002	U003
C1	3	2	1
C2	3	2	1
C3	2	2	1
C4	3	1	1
C5	3	2	1
C6	1	1	1
C7	3	1	1
C8	3	1	1
C9	3	2	1
C10	1	1	1
C11	3	1	1
C12	3	2	1
C13	1	1	1
C14	3	2	1
C15	1	2	1
C16	2	2	1
C17	2	3	1
C18	3	2	1
C19	3	1	1
C20	3	1	1
C21	3	3	1
C22	3	1	1
C23	2	3	1
C24	3	3	1
C25	1	2	1

3.2.2. Normalisasi (Metode SAW)

The normalisation process in SAW is done so that each question, in this case the criteria, is on the same scale (0-1). Based on Table 3, the decision matrix can be determined as follows

$$x \begin{pmatrix} 33233133313313122333332 3 1 \\ 22212111211212223211313 3 2 \\ 11111111111111111111111 1 \end{pmatrix}$$

The matrix above will be normalised using equation 1 because the rules in this study are that the bigger the better. Table 4 illustrates the normalisation results on the matrix above

Table 4. Normalisation calculation results with SAW method

C Criteria	U001	U002	U003
C1	1.0	0.666	0.333
C2	1.0	0.666	0.333
C3	0.666	0.666	0.666
C4	1.0	0.333	0.333
C5	1.0	0.333	1.0
C6	0.333	0.333	0.333
C7	1.0	0.333	0.333
C8	1.0	0.333	0.333
C9	1.0	0.666	0.333
C10	0.333	0.333	0.333
C11	1.0	0.333	0.333
C12	1.0	0.666	0.333
C13	0.333	0.333	0.333
C14	1.0	0.666	0.333
C15	0.333	0.666	0.333
C16	0.666	0.666	0.666
C17	0.666	1.0	0.666
C18	1.0	0.666	0.333
C19	1.0	0.333	0.333
C20	1.0	0.333	0.333
C21	1.0	1.0	0.333
C22	1.0	0.333	0.333
C23	0.666	1.0	0.666
C24	1.0	1.0	0.333
C25	0.333	0.666	0.666
Total	**20.33**	**15.33**	**8.325**

The table above is the result of data normalisation that has been carried out based on answers from correspondents. The next step is to determine the weight of the criteria. In this study, especially all weights are considered important so that the weight formula can be calculated as follows,

$$w_j = \frac{1}{25} = 0.04$$

The final score is calculated based on the formula in equation number 3 which if described is as follows

$$V_1 = \sum_{j=1}^{n} w_j . R_{ij} = 0.04 \,.\, 20.33 = 0.8133$$
$$V_2 = \sum_{j=1}^{n} w_j . R_{ij} = 0.04 \,.\, 15.33 = 0.613$$
$$V_3 = \sum_{j=1}^{n} w_j . R_{ij} = 0.04 \,.\, 8.325 = 0.333$$

It will then be converted to a scale score of 75 to represent the logical maximum score for all answers if all options are weighted 3. So the score will be

$$Score = V_1 \,.75 = 0.8133 \,.75 = 61.0$$
$$Score = V_2 \,.75 = 0.613 \,.75 = 46.0$$
$$Score = V_2 \,.75 = 0.480.75 = 24.975$$

Then the final score will be used for the classification of grades based on the following value ranges:

Table 5. Normalisation calculation results with SAW method

Skor Skala 75	Kategori
≤ 25	The Hustler
26 - 50	The Hipster
>50	The Hacker

From table 5 above, the classification obtained for U001 is The Hacker because it has a high score and shows technical ability and perseverance. U002 is categorised as The Hipster and U003 is categorised as The Hustler. Furthermore, the results of this method are validated if using expert manual calculations, the results of which are described in table 6 as follows.

Table 6. Comparison Between System Classification and Exert Judgment Results

User	Kategori System	Kategori Expert	Kesesuaian
U001	The Hacker	The Hacker	Suitable
U002	The Hipster	The Hipster	Suitable
U003	The Hustler	The Hustler	Suitable

The table above indicates the suitability of accuracy with the SAW method where the accuracy calculation. The comparison was made accross three data points (users) and the number of matching results was recorded. The accuracy is calcuated using the following formula [20]:

$$Accuracy = \frac{Number\ of\ Macthing\ Results}{Total\ Number\ of\ Test\ Cases}\ x\ 100\% = \frac{3}{3} = 100\% \quad (4)$$

The sample above shows the suitability found using this SAW method. However, there is an important finding in The Hulster category which can only be achieved if the respondent gives all answers consistently with a weight of 1. This is also because the category must be below or equal to 25 on a scale of 75.

3.3. Implementation

The SAW-based classification system was developed in a simple python-based web form using the Flask framework. This system only consists of the main page and the Result page, this is because later this system will be embedded into a conference system that is used for classifying project members.

3.3.1 Tampilan Kuisioner

Figure 3 is the initial display that contains a list of questions consisting of 25 questions. Each question has 3 answers namely A,B,C which are randomly arranged according to the category indicators. The user cannot proceed to display the results before all the data is filled in and submitting the data.

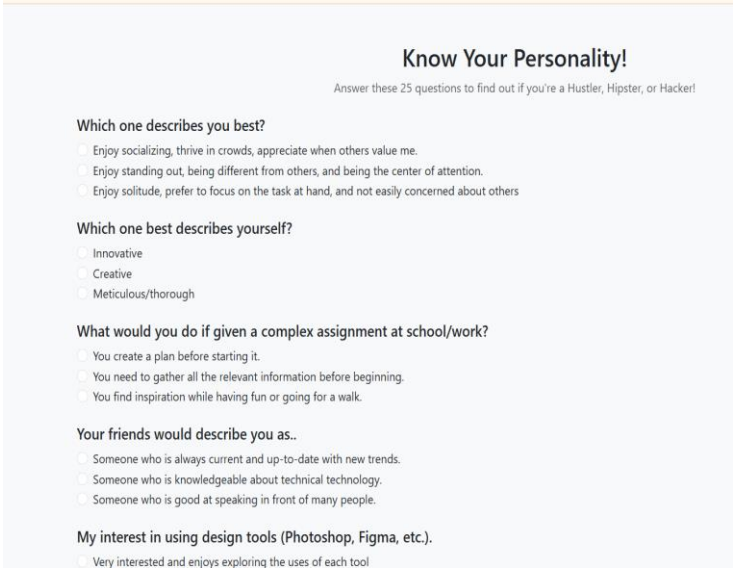

Figure 3. Questionnaire Page Display

3.3.2 Tampilan Hasil

Figure 4 shows the classification based on SAW calculation. This display includes the total score obtained and the classification category. Users can also send their results to email by filling in the email field on the form on the results page.

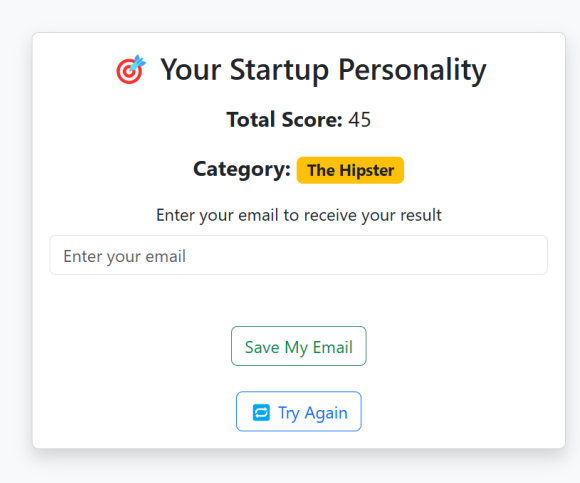

Figure 4. Classification result display

4. CONCLUSION

This research aims to design and implement the personality of a startup founder or a project based on the 3H framework (Hustler, Hipster, Hacker) using the SAW method. This system is built based on a questionnaire that has been adjusted by a team of psychologists consisting of 25 questions, where each question is given 1-3 different weights according to its characteristics. The classification process is carried out through the stages of converting answers to weight values and then the values will be normalised to have the same scale. Furthermore, in the final stage the value will be converted to a scale of 75 to match the vulnerable 3H category classification.

The implementation results show that the system is indeed able to classify respondents into the right category based on the pattern of answers filled in by the respondent, this is reflected in the accuracy of the sample data in manual calculations showing a value of 100%. It's just that in this study an interesting finding was found where The Hustler category can only be achieved if the respondent gives all answers with a minimum weight, this is also because the maximum score threshold of this type is 25 on a scale of 75. It shows that the system has good sensitivity, it's just that the differences in experts need to be developed again so that the system can capture subjective aspects that are not fully reflected in numerical data.

This research proves that SAW is effective enough to implement a personality classification decision support system. However, there needs to be further improvement and development so that more dynamic weights can be applied per criterion and also the integration of fuzzy methods in handling answer uncertainty where this method allows more flexible criteria values instead of exact numbers. this is what allows the system to handle ambiguous or uncertain answers in producing more realistic and accurate decisions.

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