Application of the Profile Matching Method in the Selection of Field Implementers (CV. Agrapana Widjaya)

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Abstract

The activity of selecting the right person to carry out a job within a company organization is not only to get superior quality resources, but it is also important for managers to get fluency in the work being done. The problem of selecting candidates for field implementation at CV. Agrapana Widjaya, that is, it is difficult to get candidates who match the candidate criteria desired by the company, the number of candidates to be selected with a limited deadline is often the manager's subjective assessment of each candidate. The solution to this problem is to create a web-based decision support system by applying the profile matching method approach which can later do gap weighting, grouping the main factors, supporting factors, and the final calculation of each candidate. So that this can be done by giving recommendations in the form of ranking results where every candidate who has the greatest value is the candidate who has the greatest chance of getting the job. The results of this study are the project manager at CV. Agrapana Widjaya is expected to make it easier to carry out the assessment process and provide an overview of each candidate for decision-making.

Keywords: Profile matching method, field executor, decision support system

1. Introduction

In a company organization, the activity of selecting the right person to do a job is one of the important conditions for the company's success in running its business. If these activities are carried out smoothly, the company will get a quality human resource output (Saputra, et al., 2021; Nugraha, et al., 2021; Rahardja, et al., 2020). But unfortunately the incompatibility of one's abilities with the job responsibilities given by the company can cause problems for the company itself in the future.

Like the company CV. Agrapana Widjaya which is a trusted company from PT. xyz engaged in services in construction, maintenance and interior design projects. When the company needs someone to fill the job as a field implementer in a project, the project manager often experiences difficulties in the process of selecting that person. This is due to the large list of candidates proposed by PT. XYZ as the company that provided work to CV. Agrapana Widjaya, as well as the election activities carried out for each candidate, have not used aspect references in their assessment properly. As a project manager who has the obligation to choose one of the many candidates with a limited deadlines, these conditions often make the assessment of candidates carried out in a subjective manner, so that the final decision obtained is sometimes not the candidate the company wants.

Therefore, this needs to be optimized in the candidate evaluation process, because the results of an appropriate and appropriate assessment will greatly influence the project manager in making the final decision on selection of activities. The assessment process to be optimized can be carried out by applying several approaches such as simple additive weighting, analytical hierarchy process, profile matching and other method approaches.

Each of the above methods has advantages and disadvantages according to the needs of solutions to the problems encountered, such as the analytical hierarchy process method which can arrange an assessment process from various options using various criteria with the disadvantage of being very dependent on the main input (Riki & Giap, 2018; Iswari, et al., 2019).

Then simple additive weighting can produce a rating weight for each highest performance value for each alternative, but this method is constrained by the local weighting section (Rahardja, et al., 2020). As well as the profile matching method which can compare the assessment of aspects of an individual with aspects of a predetermined position or job (Umar, et al., 2022), however this method has a weakness which does not take into account the robustness of the output from the sensitivity analysis of decision making (Rangga & Marlim, 2017).

Therefore, based on the results of interviews that have been conducted with the project manager and seeing previous research that has successfully used the profile matching method, the authors of this study intend to create a system for decision support by applying this method which has two aspects of assessment consisting of, aspects of work skills and aspects of character, this method is considered as one of the solutions to solving problems faced by the company CV. Agrapana Widjaya in assisting the manager when determining the implementing candidate that fits the criteria the company wants.

Judging from the explanation of the background of the problems above, what the author can formulate in this research is as follows:

1) How to create a decision support system to assist in the selection of candidates for field implementation at CV. Agrapana Widjaya?
2) How to determine the weighting of the gap, grouping the main factors, supporting factors and the final calculation of each candidate?
3) How to determine the ranking based on the results of the final calculation of each candidate for field implementation?

The author's purpose in conducting this research is as follows:

1) Create a decision support system for selecting candidates for field implementation using the profile matching method.
2) Implement the profile matching method on the system to be made by determining the weighting of the gaps, grouping the main factors and supporting factors as well as the final calculation of each candidate.
3) Ranking based on the final calculation results of each candidate on the method to be applied.

2. Literature Review

A decision support system can be said to be a system that has several computer-based components such as knowledge systems, language systems, and problem processing systems that interact and are connected to each other. So that this system is not only a decision-making tool, but a system that can help a decision maker by presenting information needs that can be processed accurately, quickly, and relevantly. So that a decision support system can help the role of various important parties in every decision in solving problems that are more towards unstructured or semi-structured with a focus on providing the results of information processing that are used as material for making the best alternative decisions (Shyshatskyi, et al., 2020).

Decision support systems can be termed as a single unit in a computer-based system in generating many alternative decision choices in helping companies or individuals to solve various problems that are unstructured or structured by utilizing the models and data obtained (Fernandes, et al., 2020).

Another opinion, as stated by his book, was that initially this decision support system was based on a model that had several procedures at the stages of data processing and other considerations to assist a manager in making decisions. This aims to form a system model that is simpler, easier, and can be controlled properly in every condition so that it always adapts (Baryannis, et al., 2018).

Is one of the methods in a decision support system that emphasizes the minimum level that must be met (Michalewicz, et al., 2005). The appropriate steps in performing calculations on the profile matching method are as follows:

1) Stages of Candidate Assessment
   The first stage is to determine the aspects of the candidate's assessment of the main factors and supporting factors.
2) Mapping Candidate GAP Values
   This stage formulates that the competency gap is the difference between the assessment criteria of an individual and the desired criteria. The formula is, Gap = Criteria Value - Minimum Value
3) Stages of Weighting
   If the gap stage has been completed, then the mapping results are weighted according to the table weight reference if the value gap as shown in Table 1 below:

Table 1: Weighting Value

No	Difference	Weight	Information
1	0	5	No Difference (Competence as Required)
2	1	4.5	Individual Competency Excess 1 Level
3	-1	4	Individual Competency Lacks 1 Level
4	2	3.5	Individual Competency Excess 2 Levels
5	-2	3	Individual Competency Lacks 2 Levels
6	3	2.5	Individual Competency Excess 3 Levels
7	-3	2	Individual Competency Lacks 3 Levels
8	4	1.5	Individual Competency Excess 4 Levels
9	-4	1	Individual Competency Deficiency 4 Levels

The Table 1 above contains provisions in weighting the difference from the value gap that has been deducted by the minimum value. If the results of the difference obtained are greater then the individual competency weight values indicate more than 1 level or several levels, and conversely the results of the differences obtained are less then the individual competency weight values indicate less 1 level or several levels.

1) Stages of Calculation of Main Factors and Supporting Factors. The formula for calculating the main factor,

$$NFC = \frac{\sum NS\ (aspect)}{\sum IC}$$

Explanation:

NCF = average value of the main factors.

NC(Aspect) = Value of each principal factor.

IC = total list of main factors.

As for the formula of the supporting factors, namely,

$$NFC = \frac{\sum NS\ (aspect)}{\sum IC}$$

Explanation:

NSF = average value of the supporting factors.

NS(Aspect) = value of each supporting factor.

IS = total list of supporting factors.

2) Calculation Stages from the Final Value The formula used that is,

$$(x)\%NCF(Aspect)\ +\ (x)\%NSF(Aspect)\ =\ N\ End\ (Aspect).$$

Explanation:

NCF(Aspect) = the average value of the main factors.

NSF(Aspect) = the average value of the supporting factors.

N(Aspect) = final aspect value.

$(x)\%$ = target percent value entered.

3) Calculation of the value for the ranking formula,

$$(x)\%Ns$$

Explanation:

Ns = the value of the aspect being calculated.

$(x)\%$ = target percent value entered.

3. Methods
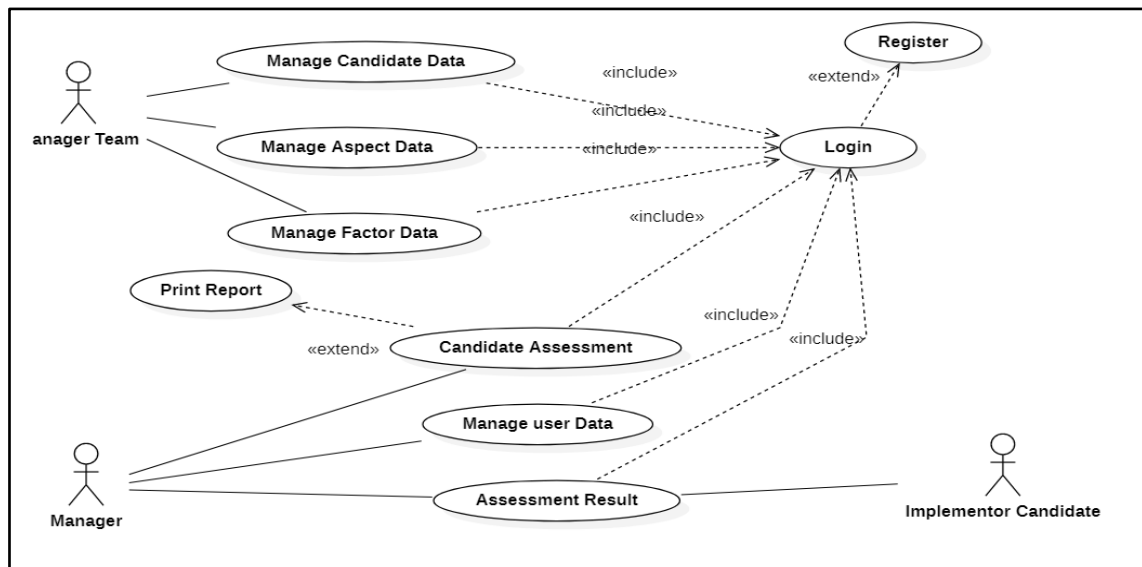
3.1. Use Case Diagrams

Figure 1: Use Cases

3.2. Activity Diagrams

Workflows that are created based on activities or operations that occur between each actor involved with the system, which is in its description, can be modeled with an activity diagram. The following is a proposed Figure 2.
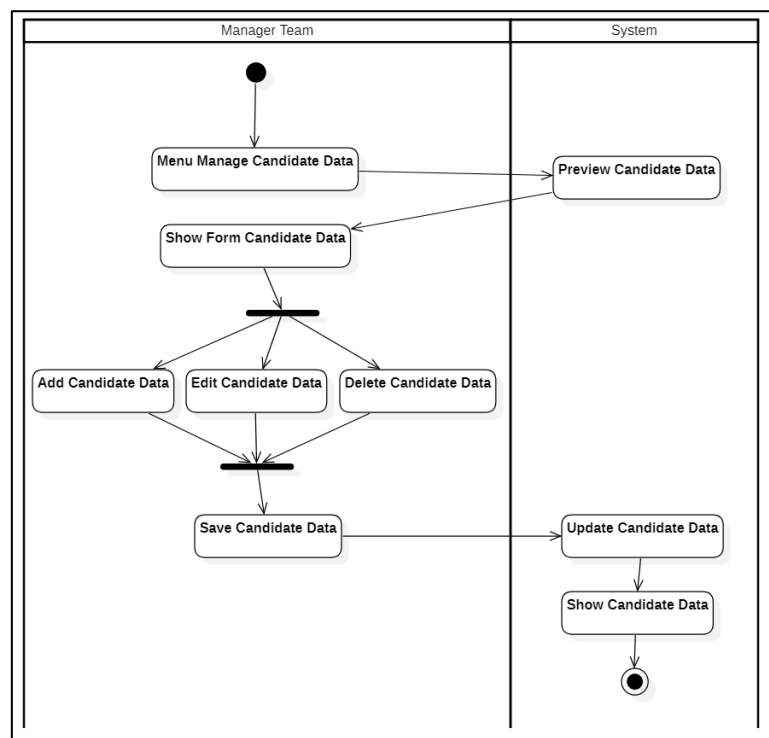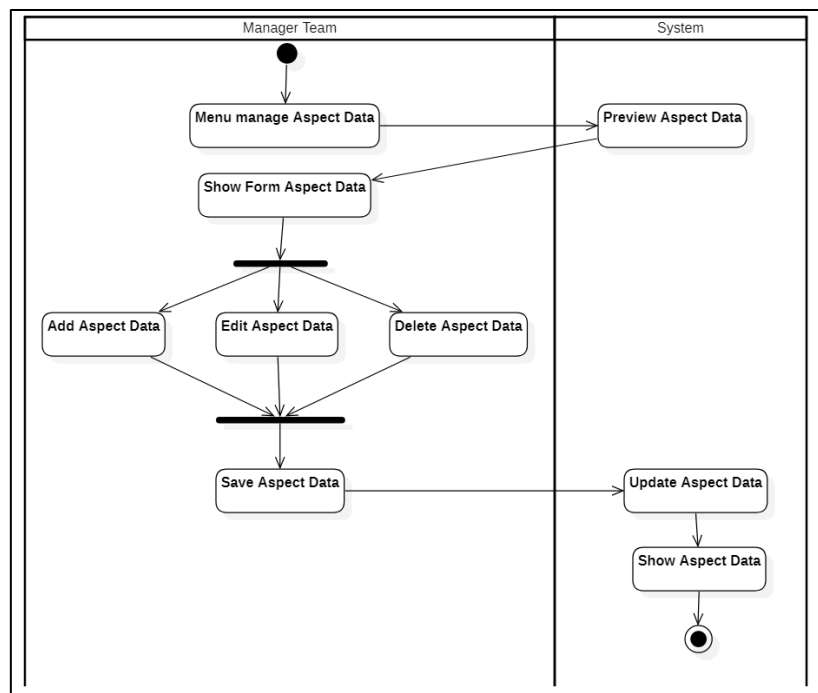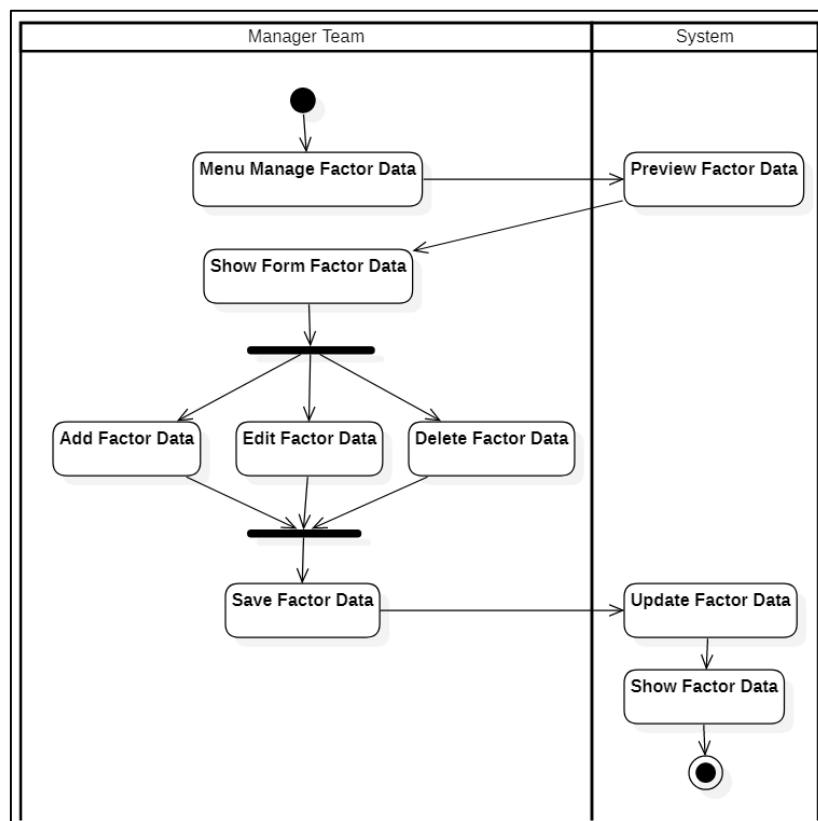

Figure 2: Manage Candidates

Figure 3: Manage Aspects
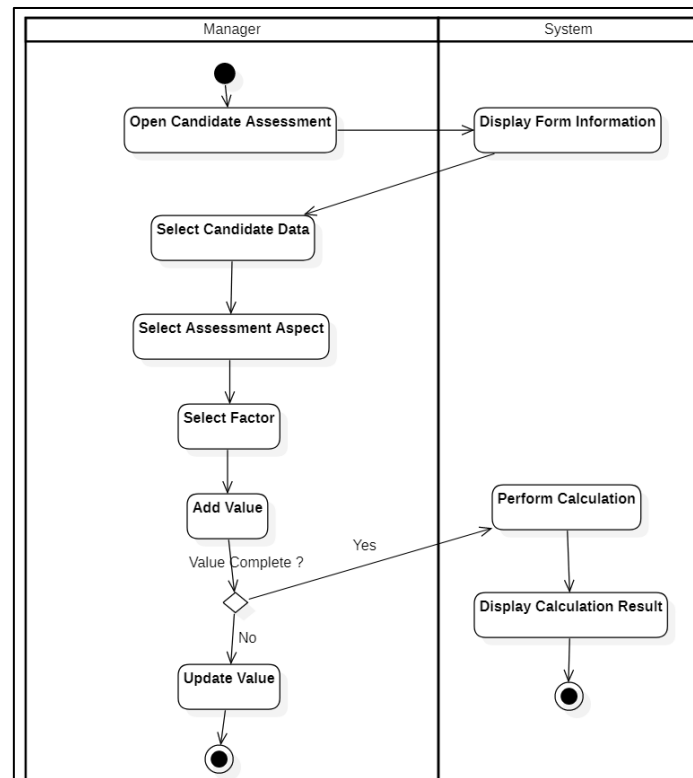

Figure 4: Manage Factor
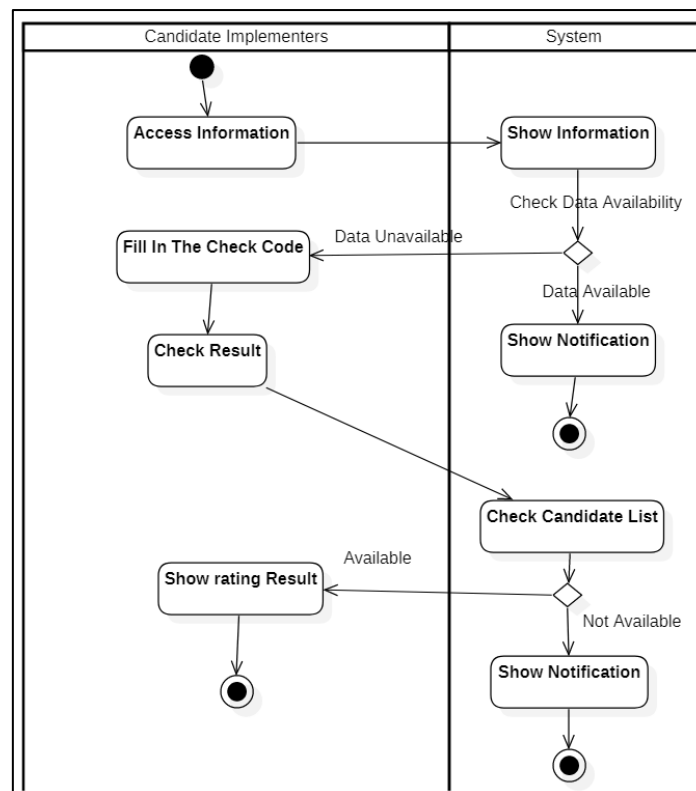
Figure 5: Candidate Assessments

Figure 6: Rating results

3.3. Class Diagrams

Parts of the system structure and data above can be modeled using a class diagram where it will be seen between classes, attributes, and their operations. Like Figure 7 below:
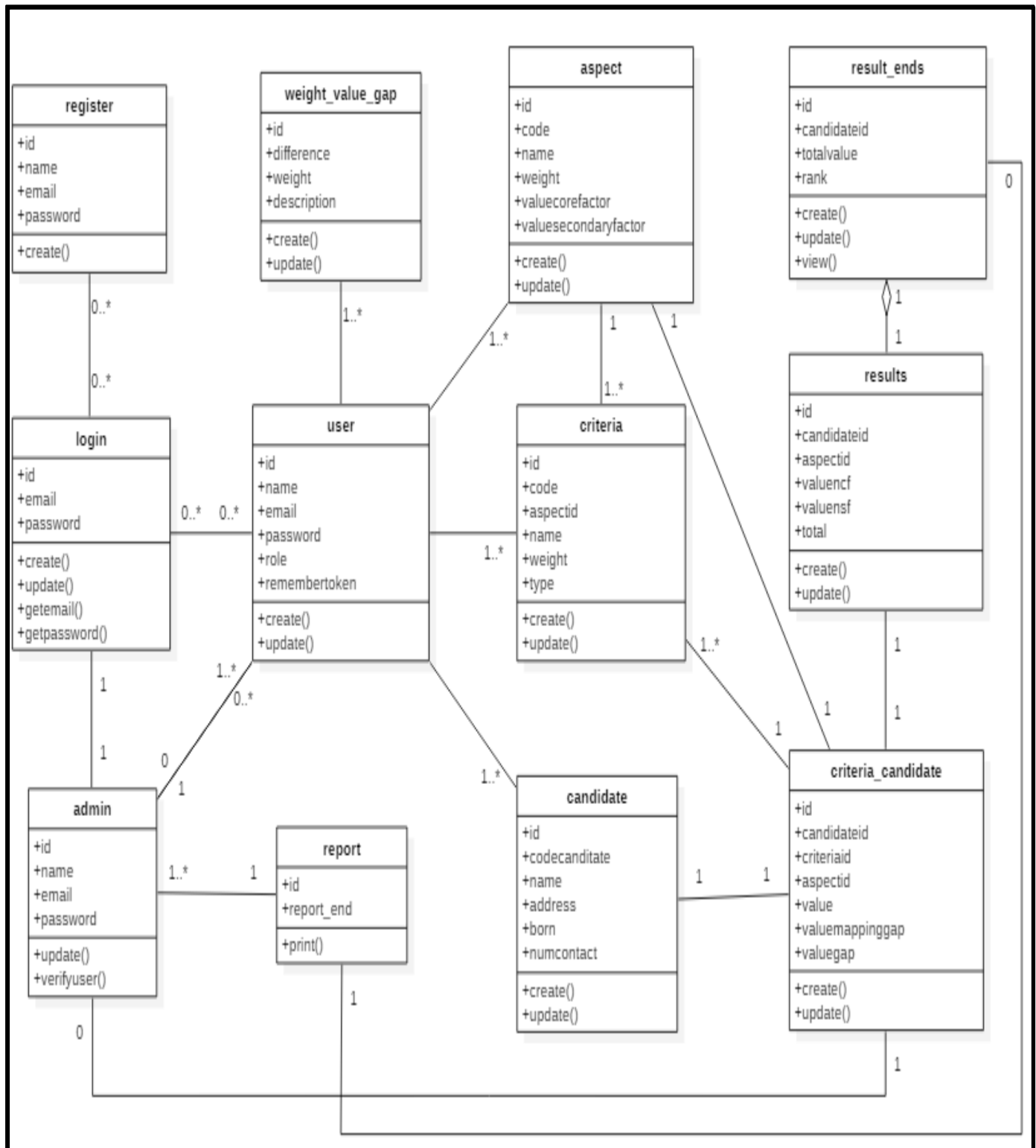
Figure 7: Classes

3.4. Interface Design

After all the modelling designs have been carried out, for the elaboration of internal communication between the software and external systems as well as with users, an overview is needed such as menu structure, input formats and screen dialogs which will be Figure 9 as below:

Figure 8: Interface Design Manage Candidates

Figure 9: Interface Design Manage Aspect

Figure 10: Design Interface Manage Factor

Figure 11: Design Interface Candidate Assessment

4. Result and Discussion

After all system designs, designs and requirements have been made, the next step is the implementation stage of making the system (coding) itself, which requires a scheduling scheme in its manufacture so that manufacturing activities can be carried out properly. Therefore, below is an explanation of the implementation schedule scheme and the activities that will be carried out during the making of the system:
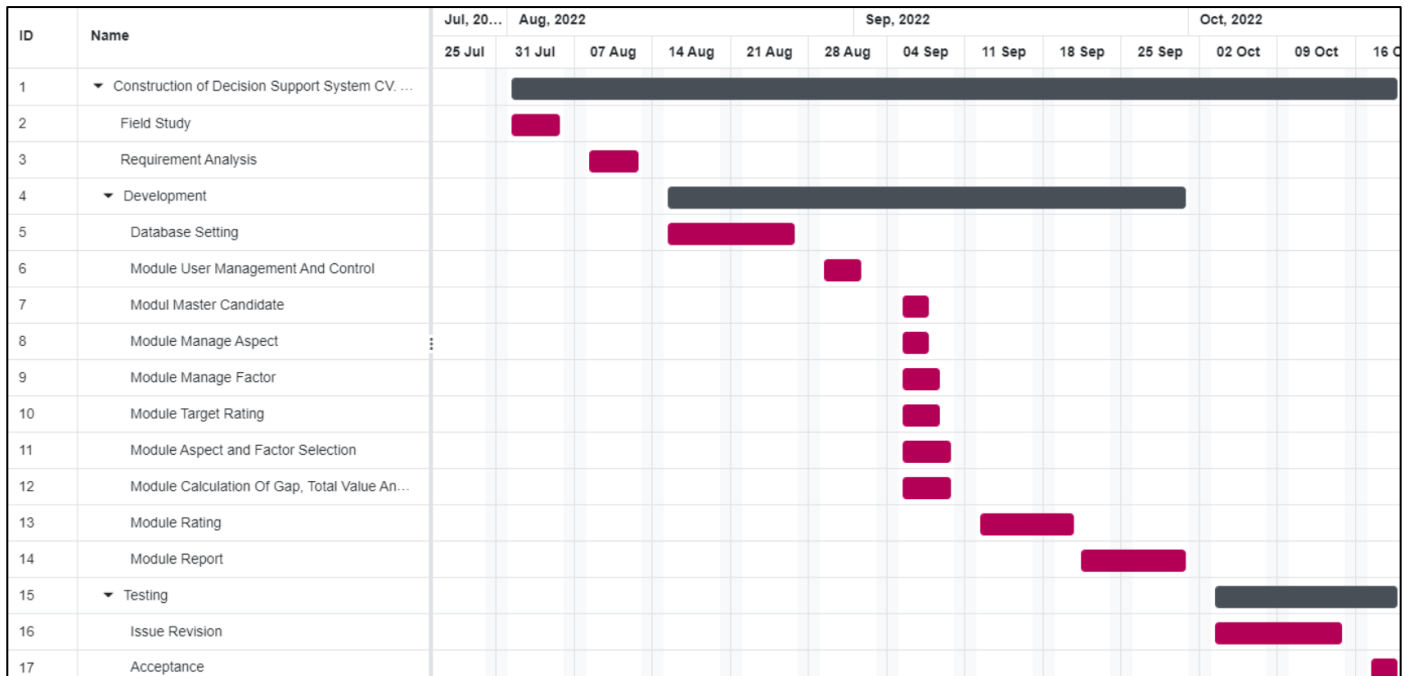
Figure 12: Gantt Chart

4.1. Calculated Implementation

The implementation of the profile matching method in this study used 10 candidate data samples to be assessed and calculated based on 2 different assessment aspects. Following are the implementation results:

4.1.1   Candidate Factor Value

Table 2: Work Skills Aspect Candidate Factor Value

Candidate Factor Value									
Work Skills Aspect (WA)									
No	**Candidate Field Implementator**	**WA1**	**WA2**	**WA3**	**WA4**	**WA5**	**WA6**	**WA7s**	**WA8s**
1	Ahmad Sofian	1	5	4	2	3	1	4	5
2	Maman	2	4	2	5	1	3	2	3
3	Dadan Nurhamdan	4	1	5	4	2	4	1	1
4	Fikri Rizaldi	3	1	5	4	1	5	2	3
5	Wawan Setiawan	4	2	1	4	5	3	2	3
6	Dendi Febryana	5	1	3	5	1	4	3	5
7	Apandi	5	2	4	2	3	5	1	3
8	Solihin	4	3	1	2	5	3	4	1
9	Kosasih	3	4	2	1	3	5	2	4
10	Entis Sutisna	5	1	2	5	3	1	4	5

Table 3: Character Aspect Candidate Factor Value

	Candidate Factor Value						
Character Aspect (CA)							
No	**Candidate Field Implementator**	**CA1**	**CA2**	**CA3**	**CA4**	**CA5s**	**CA6s**
1	Ahmad Sofian	3	2	4	1	5	3
2	Maman	2	1	3	5	1	2
3	Dadan Nurhamdan	4	5	1	3	2	1
4	Fikri Rizaldi	1	5	2	3	4	5
5	Wawan Setiawan	5	1	2	4	3	1
6	Dendi Febryana	4	3	1	5	2	4
7	Apandi	5	2	4	3	1	5
8	Solihin	2	5	4	1	3	2
9	Kosasih	1	4	3	5	2	3
10	Entis Sutisna	2	5	3	4	1	2

4.1.2 GAP Mapping

Table 4: GAP Mapping Work Skills Aspect

	Gap Value Weighting							
Work Skills Aspect (WA)								
No	**Candidate Field Implementator**	**WA1**	**WA2**	**WA3**	**WA4**	**WA5**	**WA6**	**WA7s**	**WA8s**
1	Ahmad Sofian	-4	1	0	-2	0	-2	0	2
2	Maman	-3	0	-2	1	-2	0	-2	0
3	Dadan Nurhamdan	-1	-3	1	0	-1	1	-3	-2
4	Fikri Rizaldi	-2	-3	1	0	-2	2	-2	0
5	Wawan Setiawan	-1	-2	-3	0	2	0	-2	0
6	Dendi Febryana	0	-3	-1	1	-2	1	-1	2
7	Apandi	0	-2	0	-2	0	2	-3	0
8	Solihin	-1	-1	-3	-2	2	0	0	-2
9	Kosasih	-2	0	-2	-3	2	2	-2	1
10	Entis Sutisna	0	-3	-2	1	0	-2	0	2

Table 5: GAP Mapping Character Aspect

Character Aspect (CA)							
No	**Candidate Field Implementator**	**CA1**	**CA2**	**CA3**	**CA4**	**CA5s**	**CA6s**
1	Ahmad Sofian	-2	-2	-1	-3	2	0
2	Maman	-3	-3	-2	1	-2	-1
3	Dadan Nurhamdan	-1	1	-4	-1	-1	-2
4	Fikri Rizaldi	-4	1	-3	-1	1	2
5	Wawan Setiawan	0	-3	-3	0	0	-2
6	Dendi Febryana	-1	-1	-4	1	-1	1
7	Apandi	0	-2	-1	-1	-2	2
8	Solihin	-3	1	-1	-3	0	-1
9	Kosasih	-4	0	-2	1	-1	0
10	Entis Sutisna	-3	1	-2	0	-2	-2

4.1.3 Weighting and Calculation of Job Skills Aspect

Table 6: Weighting and Calculation of Work Skills Aspects

Gap Value Weighting										Factor Calculation		
Work Skills Aspect (WA)												
No	Candidate Field Implementator	WA1	WA2	WA3	WA4	WA5	WA6	WA7s	WA8s	NCF 70%	NSF 30%	Rating
1	Ahmad Sofian	1	4.5	5	3	5	3	5	3.5	3.58	4.25	3.78
2	Maman	2	5	3	4.5	3	5	3	5	3.75	4	3.83
3	Dadan Nurhamdan	4	2	4.5	5	4	4.5	2	3	4.00	2.5	3.55
4	Fikri Rizaldi	3	2	4.5	5	3	3.5	3	5	3.50	4	3.65
5	Wawan Setiawan	4	3	2	5	3.5	5	3	5	3.75	4	3.83
6	Dendi Febryana	5	2	4	4.5	3	4.5	4	3.5	3.83	3.75	3.81
7	Apandi	5	3	5	3	5	3.5	2	5	4.08	3.5	3.91
8	Solihin	4	4	2	3	3.5	5	5	3	3.58	4	3.71
9	Kosasih	3	5	3	2	3.5	3.5	3	4.5	3.33	3.75	3.46
10	Entis Sutisna	5	2	3	4.5	5	3	5	3.5	3.75	4.25	3.90

Table 7: Weighting and Calculation of Character Aspect

Gap Value Weighting								Factor Calculation		
Character Aspect (CA)										
No	Candidate Field Implementator	CA1	CA2	CA3	CA4	CA5s	CA6s	NCF 70%	NSF 30%	Rating
1	Ahmad Sofian	3	3	4	2	3.5	5	3.00	4.25	3.38
2	Maman	2	2	3	4.5	3	4	2.88	3.5	3.06
3	Dadan Nurhamdan	4	4.5	1	4	4	3	3.38	3.5	3.41
4	Fikri Rizaldi	1	4.5	2	4	4.5	3.5	2.88	4	3.21
5	Wawan Setiawan	5	2	2	5	5	3	3.50	4	3.65
6	Dendi Febryana	4	4	1	4.5	4	4.5	3.38	4.25	3.64
7	Apandi	5	3	4	4	3	3.5	4.00	3.25	3.78
8	Solihin	2	4.5	4	2	5	4	3.13	4.5	3.54
9	Kosasih	1	5	3	4.5	4	5	3.38	4.5	3.71
10	Entis Sutisna	2	4.5	3	5	3	4	3.63	3.5	3.59

4.1.4 Candidate Results

Table 8: Candidate Results

Calculating Total Value					
No	Candidate Field Implementator	Work Skills Aspect	Character Aspect	Total Rating	Rank
1	Ahmad Sofian	3.78	3.38	3.58	3.85
2	Maman	3.83	3.06	3.45	3.75
3	Dadan Nurhamdan	3.55	3.41	3.48	3.74
4	Fikri Rizaldi	3.65	3.21	3.43	3.73
5	Wawan Setiawan	3.83	3.65	3.74	3.63
6	Dendi Febryana	3.81	3.64	3.73	3.59
7	Apandi	3.91	3.78	3.85	3.58
8	Solihin	3.71	3.54	3.63	3.58
9	Kosasih	3.46	3.71	3.59	3.45
10	Entis Sutisna	3.9	3.59	3.75	3.43

The results obtained show that the candidate on behalf of Ahmad Sofian has the highest score from the results of the calculations performed.

5   Conclusions

After the results of this research have been carried out, there are several things that the writer can conclude: (1) In this study the authors were able to produce a decision support system for the selection of candidates for field implementation by applying the profile matching method. (2) The decision support system has been able to facilitate information regarding gap weighting, grouping of main factors, supporting factors and the final calculation of each candidate. (3) hWith the results of the implementation of the profile matching method in the field of implementation of candidate selection activities, the manager is facilitated in the selection process based on the recommendations obtained from the ranking results of each candidate.

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