



Android-Based ANTA (An-Nashr Tracking Final Score Application) Using the Simple Additive Weighting Method

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Abstract

The management of learning activities at Rumah Tadabbur Qur'an (RTQ) An-Nashr still faces several challenges, particularly in monitoring students' memorization progress and conducting assessments, which are currently performed manually. This condition leads to suboptimal efficiency, reduced objectivity, and delays in identifying students who experience learning difficulties. In response to the need for a more structured and integrated system, this study develops ANTA (An-Nashr Tracking Final Score Application), an Android-based application designed as a digital solution. The application is developed using the Waterfall method, which includes requirements analysis, system design through UML, HIPO, and ERD modeling, implementation using the Kotlin programming language, and functional testing using Black Box Testing. In the assessment process, the Simple Additive Weighting (SAW) method is applied to generate students' final scores objectively based on weighted evaluation criteria, including tahsin, tahfizh, daily prayer memorization, and attendance. The usability evaluation, conducted using the Usability Metric for User Experience (UMUX), indicates that most respondents provided ratings in the "agree" and "strongly agree" categories across all statements. This result suggests that the application demonstrates a high level of usability in terms of ease of use, efficiency, and user comfort. Therefore, the ANTA application is considered capable of effectively supporting the management of learning and student assessment processes at RTQ An-Nashr.

Keyword: Application, Android, Simple Additive Weighting

1. INTRODUCTION

The development of information technology, particularly mobile applications, has transformed the way people access services in various sectors, including education. Mobile applications enable learning processes to be conducted through handheld devices with flexible, real-time access that is not limited by space or time [1], [2]. In the context of digital education, Android-based technology is capable of integrating text, audio, visual, and animation elements interactively, thereby enhancing student engagement and understanding of learning materials [3]. A study published in *Puruhita* Vol. 5 No. 2 (2023) revealed that the use of mobile applications in learning evaluation resulted in a 45% increase in students' understanding of material quality, a 53% improvement in the suitability of learning materials to educational needs, and a 51% enhancement in the adaptation of materials to students' abilities [2]. These findings strengthen the argument that mobile applications significantly contribute to improving learning effectiveness.

The implementation of mobile technology is also relevant for non-formal educational institutions, including faith-based learning centers. Rumah Tadabbur Qur'an An-Nashr (RTQ) is a non-formal educational institution that performs a role similar to that of a Qur'anic Learning Center (TPA), with a primary focus on Qur'anic education. RTQ emphasizes tahfizh (Qur'an memorization) programs while also providing instruction in tahsin (Qur'an recitation improvement), daily prayer memorization, and character development. The institution serves as a complement to formal education by fostering a generation that upholds Islamic values and develops a strong attachment to the Qur'an from an early age [4], [5].

However, as the number of students continues to increase, RTQ An-Nashr faces challenges in managing the learning process. The limited number of instructors requires each teacher to supervise multiple students simultaneously, making it difficult to monitor individual progress in memorization and Qur'an recitation effectively. This issue is further exacerbated by the manual recording of student scores using paper-based report books, which is time-consuming, prone to recording errors, and hampers the early identification of students experiencing learning delays [4].

Several previous studies have demonstrated that the digitalization of memorization monitoring can serve as a solution to these challenges. A study conducted at Rumah Tahfidz Al-Hasan reported that the implementation of a mobile-based memorization monitoring application successfully improved the effectiveness of individual progress tracking, achieving 100% system functionality in black-box testing and increasing muroja'ah participation by 37% through interactive audio-visual features. Furthermore, another study reported a 36.56% increase in memorization achievement based on N-Gain analysis following the implementation of a mobile application, along with a 96% effectiveness rating based on memorization evaluation questionnaires. These findings indicate that mobile applications not only improve academic outcomes but also support continuous educational guidance and development.

Based on these challenges and empirical findings, the ANTA (An-Nashr Tracking App) Android-based application was developed as a digital solution to support learning management at RTQ An-Nashr. The application is designed to integrate student registration, class management, indicator-based assessment recording (tahsin, tahfizh, daily prayer memorization, and attendance), and automated learning outcome reporting [4]. The assessment system utilizes the Simple Additive Weighting (SAW) method, which enables final scores to be calculated based on the weighted accumulation of each assessment indicator in a structured manner [6].

The selection of the SAW method is grounded in its effectiveness and suitability for the assessment context at RTQ An-Nashr. SAW is a fundamental and widely recognized Multi-Criteria Decision Making (MCDM) method that determines the best alternative by calculating the weighted sum of each alternative's performance ratings across all criteria [6]. Its primary advantage lies in its simplicity and straightforward computational process, which requires less mathematical complexity and shorter processing time compared to other methods such as TOPSIS (Technique for Order of Preference by Similarity to Ideal Solution) and AHP (Analytic Hierarchy Process). This efficiency is crucial for a practical application intended to streamline instructors' daily administrative tasks.

Comparative studies in educational contexts have demonstrated the superiority of SAW for similar ranking and assessment purposes. For instance, research comparing AHP-TOPSIS and AHP-SAW methods for selecting the best student found that AHP-SAW achieved significantly higher accuracy (73.33%) than AHP-TOPSIS (53.33%), making it more suitable for such applications due to its weighted summation approach which is more aligned with the assessment goals [7]. Another study comparing SAW, AHP, and TOPSIS for employee performance assessment concluded that SAW provided the most accurate, objective, and transparent results, while AHP and TOPSIS produced rankings that did not accurately reflect the subjects' actual performance or workloads. In contrast to TOPSIS which relies on the concept of distance to an ideal solution and can be susceptible to ranking reversal issues SAW's method of linear normalization and weighted summation offers a more stable and interpretable outcome [8].

2. MATERIALS AND METHOD

This study employed two methodologies, namely:

a) Data Collection Method

Data collection was conducted through observation, literature review, and interviews. The researchers carried out direct observations at RTQ An-Nashr to gain a comprehensive understanding of the learning environment and educational processes. The literature review involved collecting and examining relevant sources, including journals, books, articles, and previous studies. In addition, interviews were conducted with teachers, the Academic Head of RTQ An-Nashr, and students' parents to obtain the information required for the study.

b) Application Development Method

The application development process in this study adopted the Waterfall methodology, which consists of the following stages:

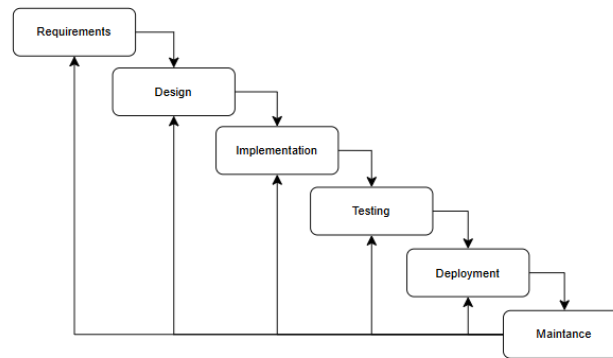


Figure 1. Research Methodology

The initial stage involved identifying and gathering system requirements through observation and interviews with relevant stakeholders. The data obtained from this process were analyzed and are presented in detail in the Results and Discussion section.

During the design phase, the system was modeled using Unified Modeling Language (UML), Hierarchy Input Process Output (HIPO), and Entity Relationship Diagram (ERD). In addition, the user interface and user experience (UI/UX) were designed. The application workflow was also developed, including the assessment calculation mechanism based on the Simple Additive Weighting (SAW) method [9].

The implementation phase involved developing the system by coding all application components according to the predefined design specifications. The application was implemented using the Kotlin programming language along with supporting tools and technologies for Android application development [10], [11], [12].

Subsequently, during the testing phase, the system functionality was evaluated using the Black Box Testing method [13]. Furthermore, the Usability Metric for User Experience (UMUX) instrument was employed to assess the application's usability in terms of ease of use, efficiency, and user comfort from the users' perspective [14].

The deployment phase involved distributing and installing the application on users' devices, as well as providing training and guidance for teachers and students' parents regarding the use of the application.

The final phase, maintenance, consisted of system monitoring, bug fixing, and system updates based on user feedback to ensure that the application continued to operate optimally and remained aligned with operational requirements.

3. RESULTS AND DISCUSSION

Based on the methodology described in the previous section, this section presents the design and development of the ANTA application. The discussion covers the system design, implementation, and testing of the ANTA application using the Black Box Testing method.

Based on the results of the interviews and observations, four main procedures were identified in the existing system at RTQ An-Nashr, namely the student registration procedure, the learning procedure, the score recapitulation procedure, and the learning outcome reporting procedure. These four procedures were used to construct the Flowmap Diagram of the current system, which involves three actors: teachers, students, and administrators. The Flowmap Diagram illustrating the activities of the existing system at RTQ An-Nashr is presented below.

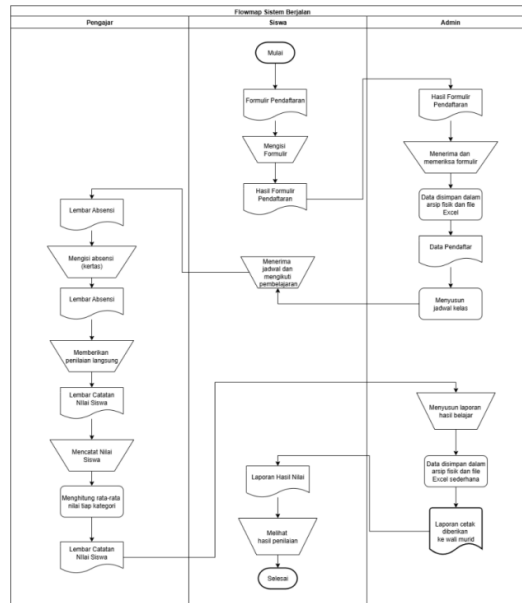


Figure 2. Flowmap Diagram ANTA Application

The analysis of the current system's Flowmap Diagram identified three main problems:

1. There is no digital platform available to record and monitor students' progress in Qur'an memorization, Qur'an recitation ability, and attendance.
2. There is no assessment system capable of evaluating Qur'an memorization, daily prayer memorization, and Qur'an recitation ability in a detailed and structured manner.
3. Monitoring students' learning progress is difficult because low academic performance is not identified promptly.

To address these issues, an Android-based application was proposed with the following system requirements.

3.1 Functional Requirements

Functional requirements define the primary processes that the system must provide to address the problems identified during the analysis phase. These requirements focus on the services and functionalities that users can access and perform according to their respective roles. In the proposed system, three primary actors are defined, namely the Administrator, Teacher, and Student. Each actor has a distinct set of system requirements designed to support their respective operational activities. The functional requirements of the developed system are presented in the following table.

Table 1. Functional Requirements

No	Actor	System Requirements
1	Administrator	Log in, validate user accounts, enter and edit student scores, record student attendance, view the list of students who have not passed, view the list of students who have passed, manage master data (classes, categories, indicators, and academic periods), and log out.
2	Teacher	Register an account, log in, record student attendance, enter and edit student scores, view the list of students who have not passed, view the list of students who have passed, and log out.
3	Student	Register an account, log in, view scores, view teacher's remarks, view graduation status, download the score report in PDF format, and log out.

3.2 Non-Functional Requirements

Non-functional requirements define the supporting characteristics that ensure the system operates optimally, reliably, and in accordance with the expected quality standards. Unlike functional requirements, these requirements do not describe the system's primary processes or features directly;

instead, they emphasize the technical and quality aspects of the system. The non-functional requirements include factors such as hardware specifications, operating system compatibility, usability, system reliability, and supportability for maintenance and future development. The non-functional requirements of the ANTA application are presented below.

Table 2. Non-Functional Requirements

No	Actor	System Requirements
1	Hardware	Quad-core processor, 2 GB RAM, and 16 GB storage.
2	Operating System	Android 8.0 or later.
3	Usability	The application should be easy to use for all actors.
4	Reliability	The application should be accessible at any time.
5	Supportability	The user interface and application workflow should be easy to understand and operate.

3.3 System Design

After the functional and non-functional requirements had been defined, the system design was developed using the following Use Case Diagram.

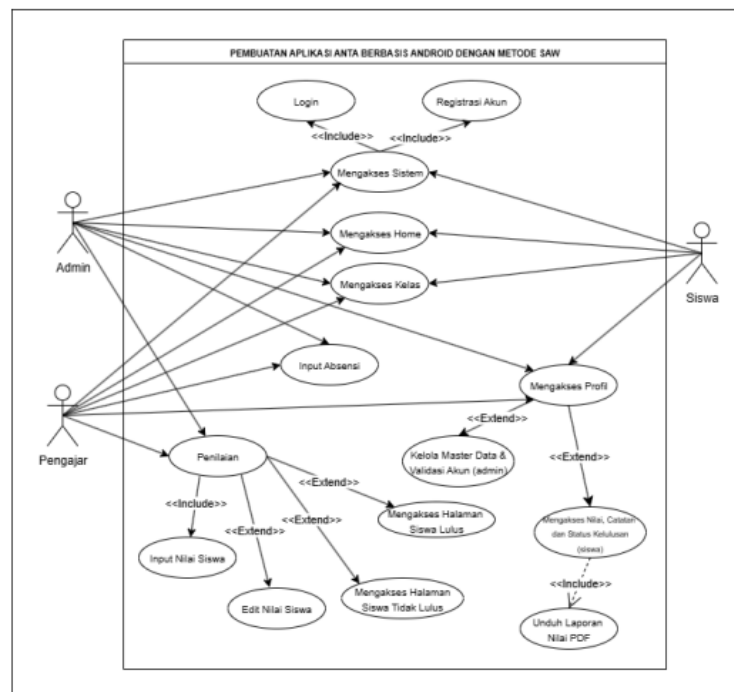


Figure 3. Use Case Diagram

The Use Case Diagram above illustrates three primary actors—Administrator, Teacher, and Student—each with distinct roles and access permissions. The Administrator is responsible for validating user accounts, managing master data such as classes, categories, indicators, and assessment periods, as well as accessing the Home page and class information. Teachers are able to register and log in, record student attendance, and enter or update student assessment data, which are then stored in the system. Meanwhile, Students can register and log in, access their profile containing assessment results, teacher remarks, and graduation status, and download their assessment reports in PDF format. All actors have access to the Home page and can view class information according to their respective access privileges.

3.4 Implementation

The implementation of the Simple Additive Weighting (SAW) method begins with the identification of evaluation alternatives and assessment criteria based on the objectives of the decision-making process. Student alternatives consist of three educational levels at RTQ An-Nashr, namely Kindergarten, Elementary School, and General Level. Although the SAW method was implemented across all educational levels, this paper presents only the Elementary School data and calculation process as a representative example. The same SAW procedure was applied to the Kindergarten and General levels, with differences only in the assessment indicators and criterion weights according to the learning objectives of each level.

Table 3. Alternative Elementary Student

Criteria	Name	Class
SD1	Adzkia Nisa Amelfan	SD
SD2	Adzkia Samha Saufa	SD
SD3	Aldi Ardiansyah	SD

Table 4. Assessment Criteria

Criteria	Name	Class
C1	Tahfizh	3
C2	Tahsin	3
C3	Daily Prayer Memorization	2
C4	Attendance	2
Total		10

Table 5. Elementary School Assessment Criteria

Code	Criteria	Sub Criteria	Weight
C1.1	Tahfizh	Memorization of Surah 88–114	0.20
C1.2	Tahfizh	Accuracy of Recitation	0.20
C1.3	Tahfizh	Fluency of Recitation	0.20
C1.4	Tahfizh	Clarity of Pronunciation (Lafaz)	0.20
C1.5	Tahfizh	Accuracy of Verse Order	0.20
C2.1	Tahsin	Accuracy of Tajweed	0.20
C2.2	Tahsin	Mastery of Makharijul Huruf	0.20
C2.3	Tahsin	Reading Fluency	0.20
C2.4	Tahsin	Tartil (Rhythmic Recitation)	0.20
C2.5	Tahsin	Etiquette of Reading the Qur'an	0.20
C3.1	Daily Prayer Memorization	Prayer Before & After Eating	0.25
C3.2	Daily Prayer Memorization	Prayer Entering & Leaving Home	0.25
C3.3	Daily Prayer Memorization	Prayer Entering & Leaving Bathroom	0.25
C3.4	Daily Prayer Memorization	Prayer Before Sleeping & Waking Up	0.25
C4.1	Attendance	Student Presence	1.00

Subsequently, the selection process was conducted using the SAW method. The data used consisted of 3 student score records from each elementary level during the period of April - June 2025 at RTQ An-Nashr. Table 3.6 below presents the alternative score data for RTQ An-Nashr.

Table 6. Alternative Indicators Elementary Student

Alternative	C1.1	C1.2	C1.3	C1.4	C1.5	C2.1	C2.2	C2.3	C2.4	C2.5	C3.1	C3.2	C3.3	C3.4	C4.1
SD1	80	81	79	80	80	100	100	100	100	100	75	74	76	75	98.33
SD2	100	100	100	100	100	80	81	79	80	80	100	99	101	100	100
SD3	60	60	59	61	60	40	39	41	40	40	75	75	75	75	93.33

The normalization process was formulated to transform each student's raw scores into comparable values across different criteria. The formula employed is the standard SAW normalization equation, where the normalized value of each criterion is calculated by dividing the student's score by the maximum score for benefit criteria. This mathematical foundation ensures objectivity and consistency in the assessment process. Since all criteria used in this study are benefit criteria, the normalization formula applied is:

$$R_{ij} = \frac{X_{ij}}{\text{Max}(X_{ij})}$$

Where:

R_{ij} = normalized value of alternative i on criterion j

X_{ij} = raw score of alternative i on criterion j

$Max(X_{ij})$ = maximum value of criterion j

The maximum score for each criterion is 100. Therefore, each score in the alternative score table is divided by 100. Table 3.7 below presents the normalization matrix for all student alternatives.

Table 7. Normalization Matrix for Elementary Student

Alter nativ e	C1.1 /100	C1.2 /100	C1.3 /100	C1.4 /100	C1.5 /100	C2.1 /100	C2.2 /100	C2.3 /100	C2.4 /100	C2.5 /100	C3.1 /100	C3.2 /100	C3.3 /100	C3.4 /100	C4.1 /100
SD1	80/ 100 = 0.8 0	81/ 100 = 0.8 1	79/ 100 = 0.7 9	80/ 100 = 0.8 0	80/ 100 = 0.8 0	100 /10 0 = 1.0	100 /10 0 = 1.0	100 /10 0 = 1.0	100 /10 0 = 1.0	100 /10 0 = 1.0	75/ 100 = 0.7 5	74/ 100 = 0.7 4	76/ 100 = 0.7 6	75/ 100 = 0.7 5	98/ 100 = 0.9 8
SD2	100 /10 0 = 1.0	100 /10 0 = 1.0	100 /10 0 = 1.0	100 /10 0 = 1.0	100 /10 0 = 1.0	80/ 100 = 0.8 0	81/ 100 = 0.8 1	79/ 100 = 0.7 9	80/ 100 = 0.8 0	80/ 100 = 0.8 0	75/ 100 = 0.7 5	74/ 100 = 0.7 4	76/ 100 = 0.7 6	75/ 100 = 0.7 5	98/ 100 = 0.9 8
SD3	60/ 100 = 0.6 0	60/ 100 = 0.6 0	59/ 100 = 0.5 9	61/ 100 = 0.6 1	60/ 100 = 0.6 0	40/ 100 = 0.4 0	39/ 100 = 0.3 9	41/ 100 = 0.4 1	40/ 100 = 0.4 0	40/ 100 = 0.4 0	75/ 100 = 0.7 5	75/ 100 = 0.7 5	75/ 100 = 0.7 5	75/ 100 = 0.7 5	93/ 100 = 0.9 3

The next step is the calculation of the indicator values multiplied by the weights, which is described as follows:

Table 8. Calculation of Indicator Scores with Weights for Elementary Student

Alter nativ e	C1.1	C1.2	C1.3	C1.4	C1.5	C2.1	C2.2	C2.3	C2.4	C2.5	C3.1	C3.2	C3.3	C3.4	C4.1
SD1	0.8 0×0 .20 = 0.1 6	0.8 0×0 .20 = 0.1 6	0.8 0×0 .20 = 0.1 6	0.8 0×0 .20 = 0.1 6	0.8 0×0 .20 = 0.1 6	1.0 0×0 .20 = 0.2 0	1.0 0×0 .20 = 0.2 0	1.0 0×0 .20 = 0.2 0	1.0 0×0 .20 = 0.2 0	1.0 0×0 .20 = 0.2 0	0.7 5×0 .25 = 0.1 9	0.7 5×0 .25 = 0.1 9	0.7 5×0 .25 = 0.1 9	0.7 5×0 .25 = 0.1 9	0.9 8×1 .00 = 0.9 8
SD2	1.0 0×0 .20 = 0.2 0	1.0 0×0 .20 = 0.2 0	1.0 0×0 .20 = 0.2 0	1.0 0×0 .20 = 0.2 0	1.0 0×0 .20 = 0.2 0	0.8 0×0 .20 = 0.1 6	0.8 0×0 .20 = 0.1 6	0.8 0×0 .20 = 0.1 6	0.8 0×0 .20 = 0.1 6	0.8 0×0 .20 = 0.1 6	1.0 0×0 .25 = 0.2 5	1.0 0×0 .25 = 0.2 5	1.0 0×0 .25 = 0.2 5	1.0 0×0 .25 = 0.2 5	1.0 0×1 .00 = 1.0 0
SD3	0.6 0×0 .20 = 0.1 2	0.6 0×0 .20 = 0.1 2	0.6 0×0 .20 = 0.1 2	0.6 0×0 .20 = 0.1 2	0.6 0×0 .20 = 0.1 2	0.4 0×0 .20 = 0.0 8	0.4 0×0 .20 = 0.0 8	0.4 0×0 .20 = 0.0 8	0.4 0×0 .20 = 0.0 8	0.4 0×0 .20 = 0.0 8	0.7 5×0 .25 = 0.1 9	0.7 5×0 .25 = 0.1 9	0.7 5×0 .25 = 0.1 9	0.7 5×0 .25 = 0.1 9	0.9 3×1 .00 = 0.9 3

From the calculation results above, the next stage is to determine the final score for each alternative using the following formula:

$$R(C_i) = C_{i.1} + C_{i.2} + C_{i.3} + \dots + C_{i.n}$$

Where:

$R(C_i)$ = final score of alternative i

$C_{i.1}, C_{i.2}, C_{i.3}, \dots, C_{i.n}$ = weighted scores of each criterion for alternative i

n = number of criteria

Table 9. Final Category Scores for Elementary Students

Alternative	R(C1)	R(C2)	R(C3)	R(C4)
SD1	0.80	1.00	0.75	0.98
SD2	1.00	0.80	1.00	1.00
SD3	0.60	0.40	0.75	0.93

The following is the formula used to calculate the final score, described as follows:

$$V = (R(C1) \times W(C1)) + (R(C2) \times W(C2)) + (R(C3) \times W(C3)) + (R(C4) \times W(C4))$$

Where:

V = final score of the alternative

$R(C1), R(C2), R(C3), R(C4)$ = final category scores for each main criterion

$W(C1), W(C2), W(C3), W(C4)$ = priority weights for each main criterion

Table 10. Weighted Score Calculation for Elementary Students

Alternative	Student Name	Detailed Preference Value (V) Calculation	Final Score (V)
SD1	Adzkia Nisa Amelfan	$(0.3 \times 0.80) + (0.3 \times 1.00) + (0.2 \times 0.75) + (0.2 \times 0.98)$	0.886
SD2	Adzkia Samha Saufa	$(0.3 \times 1.00) + (0.3 \times 0.80) + (0.2 \times 1.00) + (0.2 \times 1.00)$	0.940
SD3	Aldi Ardiansyah	$(0.3 \times 0.60) + (0.3 \times 0.40) + (0.2 \times 0.75) + (0.2 \times 0.93)$	0.636

To facilitate understanding and present the final results in a more commonly recognized format, the final preference scores (V) from the SAW method were converted to a 4.00 scale, similar to the Grade Point Average (GPA) system. The conversion was performed by multiplying the final score (V) by 4, as follows:

$$4.00 \text{ Scale Score} = V \times 4$$

This approach makes the student ranking results easier to compare with standard academic benchmarks used in various educational institutions. The passing threshold was set at 3.00, meaning students with a score below 3.00 are considered not passed, while those with a score of 3.00 or higher are considered passed.

Table 11. Ranking of Alternative Scores for Elementary Class

Rank	Code	Student Name	Final Score (V)	4.00 Scale Score	Passing Status
1	SD2	Adzkia Samha Saufa	0.940×4	3.76	Passed
2	SD1	Adzkia Nisa Amelfan	0.886×4	3.54	Passed
3	SD3	Aldi Ardiansyah	0.636×4	2.544	Not Passed

After calculating student rankings using the SAW method, the application's user interface was designed to facilitate the assessment process for instructors and parents. The following section presents the ANTA application interface, which was developed based on the Use Case and Activity Diagrams previously described.

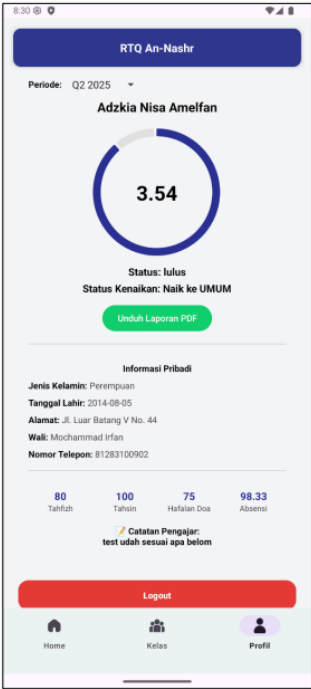


Figure 9. Student Profile

To validate the accuracy of the SAW calculation implementation, a comparison was conducted between the manual calculation results and the results generated by the system. The validation process was performed using the assessment data of a student named Adzkie Nisa Amelfan. Based on the manual calculation, the obtained preference value was 0.886, which was then multiplied by the maximum assessment scale (4), resulting in a final score of 3.54. The system generated the same final score of 3.54, as displayed on the Student Profile page. The comparison showed that the system calculation achieved a suitability level of 100%, indicating that the SAW calculation implemented in the application produced accurate results according to the manual calculation.

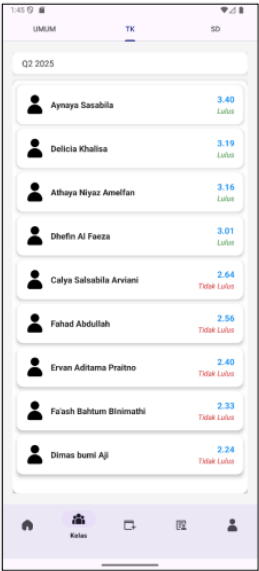


Figure 10. Main Features of ANTA Page UI

One of the main features of the ANTA application is the display of students' final assessment results calculated using the Simple Additive Weighting (SAW) method. This feature ranks students based on their automatically calculated final scores by considering the weighted values of each assessment criterion, including Tahfizh, Tahsin, Daily Prayer Memorization, and Attendance. This feature can be accessed through the Class page shown in Figure 16 by selecting a specific educational level and assessment period (e.g., Q2 2025). The system

displays all students in the selected class in descending order based on their final scores and presents the results on a 4.00 grading scale to facilitate interpretation.

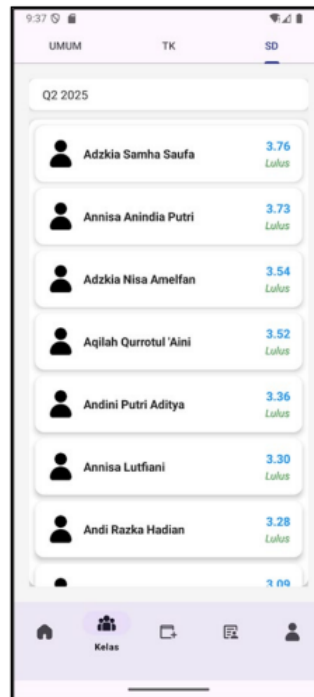


Figure 11. Assesment Information Page UI

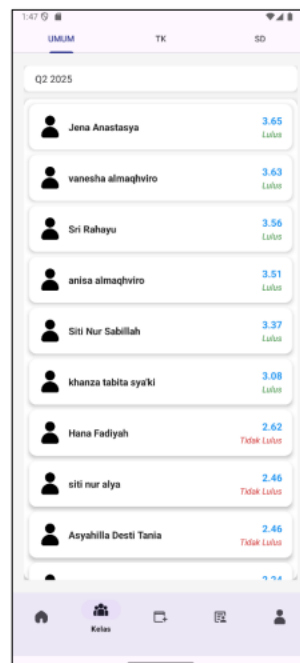


Figure 12. Assesment Information Page UI

Figures 11 and 12 above illustrate the implementation of the SAW method, which provides objective assessment information for teachers, administrators, and students. The displayed scores are calculated by considering all assessment criteria and their respective weights, ensuring that the final results accurately reflect each student's overall performance.

The displayed scores incorporate all essential learning assessment aspects. By converting the results to a 4.00 grading scale, the application enables users to compare student performance more easily, fairly, and consistently. This feature also serves as a decision-support tool for the evaluation process and graduation determination. After the application had been implemented according to the proposed design, usability testing

was conducted using the Usability Metric for User Experience (UMUX). The score for each respondent was calculated using the following formula:

$$UMUX = \frac{(S1 - 1) + (5 - S2) - (S3 - 1) + (5 - S4)}{16} \times 100$$

Figure 4. Usability Metric for User Experience (UMUX) Formula

The values of **S1**, **S2**, **S3**, and **S4** represent the scores assigned by each respondent to the corresponding questions in the UMUX questionnaire. Respondents were asked to rate each interface display by responding to a questionnaire consisting of four statement items as follows:

1. The ANTA application helps simplify the process of monitoring student grades and attendance compared to manual methods.
2. Using the ANTA application frustrates me because it is difficult to use.
3. All features and menus in the ANTA application are easy to understand and access.
4. I need to spend a lot of time understanding and using the ANTA application

The results of the UMUX evaluation are presented in the figure below.

Based on the test results, the author calculated the UMUX score for each respondent. Each respondent's answers were processed using the established formula, and the results are presented in Table 4 below.

Table 12. UMUX Testing Results

Respondent	P1	P2	P3	P4	Calculation	Score
R1	5	2	5	1	$((5-1)+(5-2)+(5-1)+(5-1) \div 16) \times 100$	93.75
R2	5	1	5	1	$((5-1)+(5-1)+(5-1)+(5-1) \div 16) \times 100$	100
R3	4	1	4	1	$((4-1)+(5-1)+(4-1)+(5-1) \div 16) \times 100$	87.50
R4	5	2	5	2	$((5-1)+(5-2)+(5-1)+(5-2) \div 16) \times 100$	87.50
R5	5	1	5	1	$((5-1)+(5-1)+(5-1)+(5-1) \div 16) \times 100$	100
R6	5	1	5	1	$((5-1)+(5-1)+(5-1)+(5-1) \div 16) \times 100$	100
R7	5	1	5	1	$((5-1)+(5-1)+(5-1)+(5-1) \div 16) \times 100$	100
R8	4	2	4	2	$((4-1)+(5-2)+(4-1)+(5-2) \div 16) \times 100$	75
R9	4	1	4	1	$((4-1)+(5-1)+(4-1)+(5-1) \div 16) \times 100$	87.50
R10	4	3	4	1	$((4-1)+(5-3)+(4-1)+(5-1) \div 16) \times 100$	75
R11	5	2	5	1	$((5-1)+(5-2)+(5-1)+(5-1) \div 16) \times 100$	93.75
R12	4	2	4	2	$((4-1)+(5-2)+(4-1)+(5-2) \div 16) \times 100$	75
R13	5	1	5	1	$((5-1)+(5-1)+(5-1)+(5-1) \div 16) \times 100$	100
R14	5	1	5	1	$((5-1)+(5-1)+(5-1)+(5-1) \div 16) \times 100$	100
R15	5	1	5	1	$((5-1)+(5-1)+(5-1)+(5-1) \div 16) \times 100$	100
Average						91.67

Based on the UMUX evaluation results, the average score obtained from 15 respondents was 91.67. This score indicates that the ANTA application has excellent usability, reflecting high levels of effectiveness, efficiency, and user satisfaction. Therefore, it can be concluded that the developed prototype is well-suited to meet user needs. To provide a clearer overview of the distribution of respondent scores, the UMUX results are visualized in Figure 20 below.

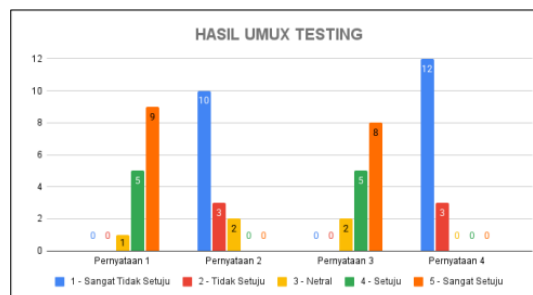


Figure 13. UMUX Result

Figure 13 presents the UMUX testing results obtained from 15 respondents based on four questionnaire items. Most respondents strongly agreed with the positive statements, indicating that the system is effective and easy

to use. Conversely, for the negative statements, the majority of respondents strongly disagreed, suggesting that users did not experience frustration and encountered no significant difficulty in learning to use the system.

4. CONCLUSION

Based on the results of this study, the following conclusions can be drawn:

- a. Student assessment at RTQ An-Nashr can now be conducted in a more objective and fair manner through the implementation of the Simple Additive Weighting (SAW) method, as each assessment indicator is assigned an appropriate weight.
- b. The new assessment system assists teachers in identifying students who experience learning difficulties more quickly.
- c. The assessment process has become more efficient, transparent, and easier to understand for all stakeholders, including teachers, students, and parents.
- d. The final scores generated using the SAW method provide a comprehensive representation of students' overall development, encompassing both academic performance and discipline.

Based on these conclusions, it is recommended that future development focus on creating a web-based version of the application to improve accessibility across devices other than Android. In addition, the system should be integrated with payment and administrative management features to support the overall operational needs of RTQ An-Nashr.

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